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VALVES

C01 - 1
SOLID AND GASEOUS CEREBRAL MICROEMBOLIZATION AFTER BIOLOGICAL
AND MECHANICAL AORTIC VALVE REPLACEMENT: INVESTIGATION WITH A
MULTIRANGE AND MULTI-FREQUENCY TRANSCRANIAL DOPPLER
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Objective: Cerebral microembolization is a well recognized phenomenon following cardiac valve replacement but the relative proportion of solid and gaseous emboli is uncertain. Particulate microemboli are thought to be the most damaging. Using a multi-range multi-frequency transcranial Doppler ultrasound, we compared number and nature of microemboli in biological and mechanical aortic valve prosthesis recipients.

Methods: The middle cerebral arteries of 60 patients were monitored bilaterally with a new generation transcranial Doppler (Embo-Dop, DVL) which rejects artefacts online and automatically discriminates between solid and gaseous microemboli. All recordings were performed over a 30 min period one day before and at a mean of 5 days and 3 months following isolated aortic valve replacement with biological (30, group B) or mechanical (30, group M) prosthesis.

Results: Patients in group B were older with a mean age of 70.6±9.7 vs. 55.4±9.4 (P<0.005). Biological prosthesis recipients were all on warfarin (no warfarin); patients with mechanical valves were well anticoagulated with warfarin both 5 days and 3 months after surgery. None of the patients had solid microemboli preoperatively. Five days postoperatively, the median number (interquartile range) of cerebral microemboli, was 2 (0-8) and 10 (3-21) for total microemboli (P = 0.001) and 0 (0-2) and 3 (1-7) for solid microemboli (P = 0.002) in group B and M respectively. At 3 months, the median number (interquartile range) was 1 (0-2) and 10 (5-20) for total microemboli (P<0.001) and 0 (0-0) and 3 (2-6) for solid microemboli (P<0.001) in group B and M respectively. Solid microemboli accounted for 16% of the total microembolic load in group B compared to 31% in group M (P = 0.05) at 3 months.

Conclusion: Solid cerebral microemboli represent almost one third of the total cerebral microembolic load following mechanical aortic valve replacement and are detectable in the vast majority of such patients both 5 days and 3 months after surgery. Neurofunctional consequences of this phenomenon should be carefully assessed with novel reliable and reproducible methods.

C01 - 2
EXPERIENCE IN OVER 300 CONSECUTIVE PATIENTS USING A SHELHIGH
AORTIC BIOPROSTHESIS: IS ENDOTHELIALIZATION RESPONSIBLE FOR
RESISTANCE TO INFECTION ?
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Objective: The present study was performed to investigate the resistance to infection and degeneration of the Shelhigh SuperStentless aortic valve.

Methods: Since February 2001, 304 patients received a Shelhigh Super Stentless bioprosthesis. The mean age at implant was 73.7±8.4 years. Concomitant procedures were performed in 184 pts (65.9%), CABG in 113 pts (39.9%) and MVR 59 pts (20.8%). Patients were followed for complications and hemodynamics. Echocardiography was performed at discharge, 1 year and thereafter yearly.

Results: Operative mortality was 6.4%. The mean valve size was 24.2±2.2 mm. The effectiveness of the device was demonstrated by mean gradients (16.6±6.0 mmHg for size 23, 14.0±6.0 mmHg for size 25, 11.7±6.8 mmHg for size 27, 10.9±4.0 mmHg for size 29) at discharge. The mean pressure gradient at discharge was 13.6±6.0 mmHg, at 1 year 14.3±4.9 mmHg and at 4 years 11.1±3.8 mmHg. Freedom from structural deterioration was 100% at 4 years. Three valves were explanted for suspected endocarditis. None of the three exhibited evidence of degeneration or infection, but all were positive for Factor VIII immunopossay for the presence of endothelial cells. Conclusion: The results suggest that resistance to infection and degeneration of the Shelhigh SuperStentless heart valve may be related to the formation of endothelial cells on the valve following implantation. Additional studies are needed to confirm these findings.

C01 - 3
EXTERNAL AORTIC PROSTHETIC RING FOR TREATMENT OF DYSTROPHIC
AORTIC INSUFFICIENCY
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Objective: Dilation of aortic annular base and sinotubular junction diameters participate in the mechanism of dystrophic aortic insufficiency (DAI). We suggest treating these lesions by the implantation of an external aortic ring (EAR).

Methods: Sixty patients were operated for DAI (degree of AI 2.5±1.3, sex ratio:3.6 men/1 woman, mean age: 57±14.7 years). Bicuspid valves were found in 4 cases (6.7%). Marfan syndrome was present in 15 cases (25%). All patients had a dilated aortic annulus (mean aortic annulus diameter 27.5±2 mm). In case of DAI with an aneurysm of the aortic root (53 patients), an external subvalvular aortic prosthetic ring annuloplasty was combined to the Remodeling technique. In case of isolated DAI (7 patients), a double sub and supra valvular prosthetic ring annuloplasty was performed.

Results: Dilation of the aortic annular base was present in all cases (mean aortic annulus diameter: 27.5±2 mm). Operative mortality was 3.3% (n = 2). Valve sparing was feasible in all cases but 2 (operative reproducibility: 96.5%). Conversion to mechanical valve replacement was related to inadequate indication in one case (atheromatous aneurysm), and to distortion of the valve geometry during reconstruction of the root in the other case. Mean diameter of the EAR was 26.9±2.7 mm, producing a significant reduction of the native aortic annulus diameter (20.2±1.8 mm), without a significant gradient (7.3±4 mmHg). Mean follow up was 14.5±4 months for aortic root aneurysm and 15.7±7.2 months for isolated DAI. No thromboembolic or hemorrhagic events were observed. In the aortic root aneurysm group, two patients were reoperated, respectively at 3 and 5 months postoperatively for progressive aortic regurgitation secondary to residual cusp prolapse (4%). No patients underwent reoperation after performance of a double sub and supra valvular aortic annuloplasty. Echographic data, obtained at the last clinical follow-up, evaluated residual aortic regurgitation inferior or equal to grade I in 96% of the patients (52) and equal to grade II in 4% (2).

Conclusion: The implantation of an external aortic prosthetic ring is a simple and reproducible technique with short term efficiency to treat DAI. In order
Objective: In some HOCM patients the level of obstruction may be in the mid-ventricular cavity rather than subaortic. In addition, mid-ventricular obstruction may be associated with the subaortic obstruction. The classic Morrow technique does not allow to perform the complete resection of the muscular bar at the midventricular part of the septum.

Methods: The presented excision of the asymmetrical hypertrophied area of the interventricular septum (IVS) causing midventricular obstruction is made from canal part of right ventricle in middle part of IVS transversely and anteriorly of the moderator band but not through the whole thickness of IVS, that is without penetration into the left ventricular cavity. This excision of IVS implies avoiding the damage of His bundle. 39 patients with midventricular obstruction (mean NYHA class-3.3) were operated on using this technique. Ages ranged from 12 to 56 years (mean 33.2). The follow-up period was 38±5 months.

Results: Significant symptomatic improvement (mean NYHA class-1.3) was noted postoperatively. The mean echocardiographic intraventricular gradient in left ventricle (LV) decreased from 93.9±14.7 to 10.5±7.2 mmHg (P<0.001). Echocardiographically determined septal thickness in the middle part of IVS was reduced 28.7±7.5 vs. 15.2±4.1 mm (P<0.001). Follow-up echocardiography showed reduction of left atrial size from 47.8±7.2 to 38.5±6.3 mm. Sinus rhythm without block of His bundle right branch was noted in all patients after surgery. With this technique, perioperative and postoperative mortality was 0%.

Conclusion: This method is effective and safe technique for surgical correction of severe hypertrophic cardiomyopathy and advisable use in cases of LV midventricular obstruction.

C01 - 5
CORRECTION OF LEAFLET PROLAPSE IN VALVE-PRESERVING AORTIC REPLACEMENT FOR AORTIC ROOT ANEURYSMA IN PATIENTS WITH BICUSPID AORTIC VALVE

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Objective: Aortic root aneurysms are not rare in patients with bicuspid aortic valve, but valve-sparing operations to treat them remain challenging.

Methods: From March 2001 and October 2005, 50 patients were treated by a valve-sparing aortic replacement with valve reimplantation. Between these 15 cases of bicuspid aortic valve were noted. The mean age was 51±10 years (from 37 to 64 years) and the mean diameter of the ascending aorta was 6.4±15 mm (from 50 to100 mm). An aortic regurgitation grade III or IV was present in 55% of the cases due to a prolapsed bicuspid aortic valve and concomitant aortic dilatation. In all these cases a reconstruction of aortic valve was necessary by: triangular resection, shaving of free edge, placket of free edge and reinforcement of the free edge by a T/0 Gore Tex running suture.

Results: All patients underwent valve repair, remodelling of the aortic root (reimplantation technique) and replacement of the ascending aorta. A peroperative transoesophageal echocardiography showed a satisfactory surgical result (a trivial AI in all cases). All patients survived the operation and were discharged after a hospital stay of 10±3 days. All patients were alive at follow up (mean 2.5 years). The echocardiography showed an aortic regurgitation less than grade II in 13 patients. Two patients have a mild grade II aortic regurgitation which stayed stable during follow up. Any valve related complication or reintervention was not necessary during the follow up.

Conclusion: Surgical correction of leaflet prolapse in combination with proximal aortic replacement (valve-sparing with valve reimplantation) is feasible with good results. Repair of prolapse appears a beneficial addition to valve-preserving surgery.

C01 - 6
RECONSTRUCTION AFTER COMPLETE POSTERIOR MITRAL VALVE ANNULUS DECALCIFICATION

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Objective: Mitral valve (MV) annulus calcification is frequently observed in many etiologies of MV diseases. It has a propensity to localize on posterior annulus and may invade deep trough myocardium. In some patients, decalcification and annulus reconstruction is mandatory to achieve continent repair or to implant MV prosthesis or prosthetic ring.

Methods: We have retrospectively analyzed 18 patients who underwent complete posterior MV annulus decalcification associated to MV repair (12) or replacement (5). Etiologies of MV disease were degenerative (9), posttherapeutic fever (3), acute endocarditis and Barlow disease (3). Decalcification was performed from commissure to commissure in all patients and their annulus was reconstructed with pledged “U” stitches, bovine pericardial atrio-ventricular patches or “sliding atrioplasty”.

Results: Operative mortality was 16.7%, one patient died in operative room from atriointerventricular groove rupture and 2 died from congestive heart failure. One of those had needed reoperation for early failure of MV repair. During follow-up (mean: 30±24 months; range: 3 to 76), 6 patients died, 4 from cardiovascular causes. Three patients were reoperated on because of late failure of MV repair (1), acute endocarditis (1) or haemolysis (1). All survivors (9) were in NYHA I (7) or II (2), no trivial mitral regurgitation was present in all MV repair (7), one patient have a paravalvular leak grade II, at 3 year, overall survival was 48±27%, freedom from MV reg operation was 69±27%.

Conclusion: After deep and complete decalcification of posterior MV annulus both MV repair and annuloplasty are feasible. Procedure-related mortality is acceptable. However, decalcification always make surgery more complex and should be therefore balanced, in old patients and patients with heavy comorbidities, with other less aggressive techniques of repair that leave calcification behind.

C01 - 7
MITRAL VALVE REPAIR WITH THE NEW MITROFAST™ REPAIR SYSTEM

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Objective: Although results in mitral valve repair are superior to those in valve replacement, repair is still an underutilized procedure. Mitral valve repair is technically challenging, requires a longer learning curve, and the outcome is operator and institution dependent. We present initial clinical experience with the novel device designed for easier, faster and more reproducible mitral valve repair.

Methods: The MitroFast™ repair system (Shehligh Inc., Union, NJ, USA) is comprised of a functional sizer and a tissue mitral repair ring with a rigid extension in the shape and position of posterior leaflet. The ring design presents a coaptation surface for the closure of anterior leaflet, producing a “hemievalve”, which is in effect similar to conventional posterior leaflet immobilization concept. Between October 2004 and October 2005 15 patients underwent mitral valve repair utilizing the MitroFast system. Mean patient age was 61.5 years and mean EuroScore was 3.7. Thirteen patients had a degenerative isolated posterior leaflet prolapse, 1 patient had ischemic posterior leaflet tethering and 1 patient had rheumatic valve disease causing massive mitral regurgitation (MR). Three patients underwent concomitant coronary artery bypass grafting.

Results: Mean aortic cross-clamp time was 77±25 min. There were no perioperative deaths. After repair the average peak transmural gradient was 6.5 mmHg. There was no postoperative MR in 8 patients, trivial MR in 5 patients and mild MR in 2 patients at 1, 3 and 6 months, respectively. All patients were in NYHA functional class I. Size of the left ventricle (LV) and left atrium (LA) was determined by echography. Mean preoperative LA size was 5.0±0.7 cm vs. 4.4±0.9 cm at 1 month postoperatively, and mean LVEDd was preoperatively 5.7±0.5 cm vs. 5.2±0.5 cm postoperatively during the same period.
Conclusion: Initial clinical experience demonstrated the MitroFast® system to be an effective tool for reproducible mitral valve repair with a short learning curve. The MitroFast® system simplifies mitral repair in complex pathology of the posterior leaflet, thus enabling more patients to benefit from this procedure. Further clinical investigation is necessary to determine the proper indications for the use of this new repair system.

C01 - 8
INFLUENCE OF 19-MM AND 21-MM SIZE PROTHESIS ON PATIENTS OUTCOME AFTER AORTIC VALVE REPLACEMENT

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Objective: The aim of this study was to assess the influence of the prosthesis-size on the patient outcome following aortic valve replacement (AVR).

Methods: 1639 AVR Patients, 263 patients received a size 19 mm prosthesis (Group 1; 49 biological and 214 mechanical prosthesis) with a mean age of 69.73 years and 709 patients received a size 21 mm prosthesis (Group 2; 228 biological and 446 mechanical prosthesis) with a mean age of 67.56 years. A total of 380 concomitant procedures were performed (Gr.1 n = 125; Gr.2 n = 255). 667 patients received a prosthesis size > 21 mm.

Results: The 30 day mortality in group 1 and 2 was 10.3% (27 patients) and 5.5% (39 patients) respectively. Where as the late mortality for group 1 and 2 was 8.7% (23 patients) and 8.6% (61 patients) respectively. The 5 year survival in group 1 and 2 was 79% and 82.9% respectively (P = 0.2).

In Multivariat analyze the strongest independent predictors for mortality were urgent/emergency operations (P = 0.0053); concomitant procedures (P = 0.001); lower ejection fraction <40% (P = 0.03) and age >70 years (P = 0.03). Relative risk of mortality was increased 2.1 fold (95% confidence interval, 1.3–3.1) in patients with concomitant procedures; 2.6 fold (1.33–5.17) in patients with urgent/emergency operations. Only 4 patients in group 1 and 11 in group 2 had a severe prosthesis-patient mismatch (<0.65 cm²/m²).

Conclusion: Aortic valve replacement with prosthesis sizes 19 and 21 mm is per se not a risk-factor and show similar long-term results.

C01 - 9
TORONTO SPV VALVES CALCIFY LESS THAN PORCINE AND KANGAROO AORTIC VALVE SCAFFOLDS IN SHEEP

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Objective: An engineered aortic valve would theoretically be capable of growth and like a normal native aortic valves it would maintain its durability by regenerating its extracellular matrix and require no anticoagulation therapy in recipient. A major limitation of currently available bioprosthetic valves is their propensity to calcify. The limited durability of glutaraldehyde fixed bioprosthetic valves has been attributed to altered mechanical properties, antigenic properties of the cells and calcification potential of cell membrane. Whether or not a tissue engineered valve will be sufficiently endowed to prevent calcification of its components is unknown. At present, in tissue engineering, decellularized xenogenic scaffolds are implanted, either after in vitro seeding of cells or unseeded. This study examines the calcification potential of xenogenic biological scaffolds from two species, namely pigs and kangaroos in the sheep model and compared them to similarly sized Toronto SPV valves.

Methods: Porcine (n = 3) and kangaroo (n = 3) aortic valve matrices prepared by an enzymatic/detergent decellularization procedure were implanted in the right pulmonary position of six juvenile sheep. For comparative purposes Toronto SPV (n = 3) valves of similar sizes were similarly implanted in three sheep. Valves and matrices were explanted after 120 days and examine macroscopically and histologically (H&E and Von Kossa stain) and electron microscopically. Calcium was quantitatively determined by spectrometry.

Results: Mean calcium content of Toronto SPV valves was (3.0 mg/gm) compared to porcine (104.7 mg/gm) and kangaroo (32.4 g/gm) matrices and confirmed histologically. Electron microscopic sections showed direct association of calcification with the collagen matrix. The pattern of calcification in matrices was consistent.

Conclusion: Toronto SPV valves calcify significantly less (P=0.005) than the tested biological matrices irrespective of species origin. Xenogenic scaffold calcification is influenced by species. Biological scaffolds are adversely antigenic.
Results: Flows in ITA (15.4-22.4-30.1 vs. 19.6-21.5-22.6; baseline (T0), 5 (T1) and 10 min (T2) after test drug administration.

Objective: In younger CABG patients total arterial revascularisation should be aspired. Surgical harvesting of arterial conduits causes arterial spasm and a reduced blood flow resulting in poor perioperative results. We evaluated the effect of a novel Ca2+ sensitizer Levosimendan on in vivo radial artery (RA) and internal thoracic artery (ITA) flow and set this data in relation to observed hemodynamic changes.

Methods: Prospective, randomized, double-blind, clinical trial, statistical power stratification for 15 patients per group.45 patients (32 males and 13 females) undergoing primary CABG, mean age of 58±3 years were enrolled in this study and randomized to 3 groups receiving a loading dose of Levosimendan (12 mg/kg/min), Dobutamine (5 mg/kg/min) and physiologic saline as control group (ml) over 10 min. RA and ITA flows (in ml/min-1), aortic (AP), pulmonary artery (PAP), pulmonary capillary wedge (PCWP) pressures (in mmHg) and heart rates (HR in beat/min-1) were measured at baseline (T0), 5 (T1) and 10 min (T2) after test drug administration.

Results: Flows in ITA (15.4-22.4-30.1 vs. 19.6-21.5-22.6; P<0.000001*) and in RA (13.14-21.21-29.9 vs. 13.9-15.1-16.1; P<0.000001*) significantly increased in Levosimendan vs. Dobutamin patients. Hemodynamics remained absolutely stable in Levosimendan and control groups, a statistically significant deterioration was found in Dobutamin patients.

Conclusion: Our in vivo study shows that during surgical harvesting, Levosimendan causes higher flows comparing to Dobutamin in arterial grafts used for CABG. Ca2+ sensitizer evolves a strong antispasmatic effect without causing negative haemodynamic changes in CABG patients.

**C20 - 2**

CORONARY ARTERY BYPASS GRAFT SURGERY FOLLOWING ACUTE MYOCARDIAL INFARCTION: EFFECT OF TIMING ON SURVIVAL

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Objective: Timing of coronary artery surgery (CABG) following myocardial infarction (MI) remains controversial. Varying lengths of time after MI to allow myocardium to recover, before CABG, have been advocated. We examined the timing of CABG following an MI, on survival.

Methods: We analysed 7561 consecutive patients undergoing CABG between April 1997 and March 2004. Patients were stratified into four groups: no MI (n = 4142), MI<1 month (n = 196), MI 1-3 months (n = 177), and MI>3 months (n = 3046). Logistic regression and Cox proportional hazards analysis were used to adjust in-hospital and long-term mortality for differences in case-mix. Mortality adjusted for age, sex, body mass index, prior CABG, ejection fraction, extent of coronary disease, left main stem stenosis, priority, and co-morbid conditions (diabetes, respiratory disease, peripheral vascular disease, renal failure).

Results: Patients with recent MI have poorer left ventricular function, and more extensive coronary disease and co-morbidity. Nine patients had CABG within 24 h of MI; 3 of whom died in-hospital (33.3%). Crude in-hospital mortality was as follows: no MI 1.9% (reference), MI<1 month 8.2% (OR 4.6; CI 2.6-8.1; P<0.001), MI 1-3 months 5.1 (OR 2.8; CI 1.4-5.7; P = 0.003) and MI>3 months 2.4 (OR 1.4; CI 1.0-1.9; P = 0.042). Adjusted in-hospital mortality was as follows: no MI 2.1% (reference), MI<1 month 3.7% (OR 2.3; CI 1.2-4.6; P = 0.018), MI 1-3 months 4.3 (OR 2.6; CI 1.2-5.6; P = 0.017), MI>3 months 2.4 (OR 1.2; CI 0.8-1.7; P = 0.31). Adjusted long-term survival for patients alive at hospital discharge was not significantly different between the groups.

Conclusion: After adjusting for patient characteristics, patients with an MI within 3 months prior to CABG are at a substantially increased risk of inhospital death. These data support delaying CABG surgery during the first 3 months after MI if it is clinically feasible. Timing of an MI prior to CABG has no affect on survival after hospital discharge.
impairment, vascular compromise or haematoma to the hand. No wound complication was reported. Conclusion: The development of minimally invasive harvesting techniques requires new technology for vascular control of side branches. Despite the use of adapted instruments (i.e. the Endovein Retractor), ERAH was safe and feasible with different vessel sealing systems and a resterilizable retractor. Such cost-effective technique may be further improved once more dedicated instruments will be developed.

**CO2 - 5**

**EARLY EXTUBATION AND FAST TRACK MANAGEMENT IN ELDERLY CORONARY ARTERY BYPASS SURGERY PATIENTS**

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Objective: In cardiac surgery shorter hospital stays and decreased costs can be reached by early extubation and fast-track management protocols. The feasibility of such protocols in elderly patients is still discussed controversially.

Methods: We analyzed 600 consecutive patients undergoing CABG. 372 patients (62%) underwent early extubation, defined as extubation within 6 h postoperatively (group e). In the early extubated group elderly patients of at least 70 years (n = 150, mean age 75.1 years) were compared with younger patients (n = 222, 61.4 years).

Results: The mean length of stay (LOS) in hospital in group e was 9.1 vs. 13.3 days for patients who underwent later extubation (P<0.01). The hospital mortality rate was comparable between the older and the younger group of patients (2.34% vs. 2.19%). Reintubation rate was negligible in both groups of patients. Older patients had a significantly higher incidence of postoperative atrial fibrillation (30.5% vs. 22.5%). We found a shorter LOS in hospital among the younger patients (8.5±1.1 vs. 10.1±1.4 days, P<0.05), although the LOS on ICU was similar (old: 31±6 vs. 27±4 h, P=0.05). In group e we could differ between immediate extubation (before ICU) and extubation in the following 6 h. The immediate extubation could be correlated to the most uncomplicated postoperative courses among all early extubated patients.

Conclusion: The results confirm the possibility of early extubation among elderly patients undergoing CABG procedures, in selected cases even in the operation theatre. Although they have more comorbid conditions, an early extubation may result in a shortened LOS in hospital.

**CO2 - 6**

**CABG FOR LEFT MAIN CORONARY DISEASE: LONG TERM FOLLOW UP**

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Objective: Appreciation of the long term follow up of the CABG for Left Main Coronary Disease operated on from 1995 to 1998 in the same Institution. Methods: Retrospective study of 250 consecutive patients operated on CAbG, with an average age of 67±9.6 years. INDICATIONS : 80.4% (201) had unstable angina,14.8% (37) had a NYHA dyspnea. Previous myocardial infarction was present in 145 patients (58%) and the infarction was recent (<30 days) in 26% of the cases (65);10.8% (27) had critical preoperative cardiac failure. The E.F. was <50% in 17.2%,19.4%(26) were operated on emergency basis, and 41.1%(113) during the week following the diagnosis. In 44% the Personnet score was over 10(110). Revascularisation was made with 2.56±0.77 Anastomosis per patient. A cohort of 233 living patients was completely follow up during 6 years and 93 of them during 8 years studying mainly the Major Cardiac Event (MaCE): cardiac death, infarction and new revascularisation. Results: The actuarial survival rate without cardiac death was 91.1, 83.3% and 73.3% respectively at 1, 5, 8 years. According to the univariate analysis, predicting factors of long term MaCE were age over 75 years (P = 0.023) and pre operative heart failure (P = 0.013). The multivariate analysis shows that the heart failure and the age were independent predictors of MaCE with a respective risk of 1.66 and 1.92.

Conclusion: According to the International guidelines, the Left Main Coronary Disease should be treated by CABG. Nowadays, the Interventional cardiologists attempt to treat this lesion by stenting. This study confirms the efficiency and stability of the surgical treatment during the time with a low rate of late post-operative MaCE (1.3 to 2.5% per year), identifying to independent risk factors: the age over 75 and pre operative heart failure.

**CO2 - 7**

**COMPLETE MYOCARDIAL REVASCULARIZATION THROUGH A NON STERNOTOMY APPROACH**

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Objective: Myocardial revascularization through a non sternotomy approach (left anterior small thoracotomy) is mostly used to revascularize left anterior descending coronary artery (LAD) and its branches. We report our experience of complete off-pump arterial myocardial revascularization for three vessels disease through this approach.

Methods: The technique consist of left internal mammary artery (LITA) and radial artery harvesting using a minimally invasive video assisted procedure. Thoracotomy is a small anterior thoracotomy (6.5±1 cm) a composite Y graft between LITA and radial artery is performed. Using Medtronic Octopus and Starfish NS (non sternotomy) respectively through the seventh intercostals space on the anterior axillary line and a subxiphoid approach, anterior, lateral and posterior target coronary artery are exposed and stabilized.

Results: From September 2005 6 pts underwent complete off-pump arterial myocardial revascularization through a non sternotomy approach. Mean number of graft per pt was 2.3±0.5. The LITA was always used as a single graft on the LAD, while the radial artery was used in sequential fashion three times on marginal branches and four times on the posterior descending coronary artery. Mean operation time was 310±20 min and the hospital length stay was 6.1±0.9. There were no perioperative mortality and myocardial infarction.

Conclusion: Complete arterial myocardial revascularization through a non sternotomy approach is feasible using specific designed instruments for myocardial stabilization and exposure. The procedure requires confidence with OPCAB surgery and composite arterial Y graft.

**CO2 - 8**

**DOES PREEMPTIVE STELLATE GANGLION BLOCKAGE INCREASE THE PATENCY OF RADIAL ARTERY GRAFTS IN CORONARY ARTERY BYPASS SURGERY**

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Objective: We aimed to evaluate the role of preemptive stellate ganglion block on preventing radial artery spasm and increasing radial artery graft patency in patients undergoing off pump coronary artery bypass surgery. Methods: In this prospective study, 100 patients were randomly divided in two equal groups (n = 50). In group A, stellate ganglion block(SGB) was achieved by 10 ml of Ropivacaine and in group B, SGB was not performed. Radial artery blood flow was measured preoperatively and intraoperatively. Postoperative clinical determinants (S-T elevation, use of inotropic agents, incidence of atrial fibrillation) were recorded. Early coronary angiography was performed. All the data was compared between the groups.

Results: According to blood flowmeter measurements, the radial artery blood flow was significantly found to be increased in patients with SGB. The incidence of atrial fibrillation, need of inotropic agents, S-T elevation was found to be decreased in SGB group. Angiographic intervention revealed that the incidence of graft spasm was also found to be lower in SGB group. Conclusion: We conclude that preemptive stellate ganglion block is an effective method in increasing radial artery blood flow and preventing radial artery spasm. Complications related with radial artery spasm may decrease and patients may have a more comfortable postoperative period with this method.

**CO2 - 9**

**RESISTANCE TO FLOW OF PEDICLED INTERNAL THORACIC ARTERY AND SAPHENOUS VEIN GRAFTS 6 MONTHS AFTER BYPASS SURGERY**

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Objective: Although the Internal thoracic artery (ITA) has been proven superior to the saphenous vein (SV) graft in long-term patency, ITA is generally thought to be a more resistive conduit than SV, raising the question of flow capacity during periods of maximal blood flow demand. Methods: To compare the conductance of ITA and SV, 43 bypass grafts were studied in 23 asymptomatic patients six months after bypass surgery.
Intra-graft pressures were measured during cardiac catheterization using a 0.014-inch pressure wire advanced distally close to the first distal anastomosis of 12 left ITA (mean: 1.3 anastomoses on the left anterior descending territory), 10 right ITA (mean: 1.2 anastomoses on the left circumflex territory) and of 21 SV (mean: 1.3 anastomoses). Pressure gradients between the aorta and the graft were measured in basal conditions and during a transient maximal hyperemia induced by an intra-graft bolus injection of 40 µg of adenosine. Fractional flow reserve (FFR), a validated index of vessel conductance, was calculated as the ratio of distal to proximal pressure during hyperemia.

Results: In basal conditions, a minimal pressure gradient was recorded between the aorta and the left ITA (2.9±2.2 mmHg), the right ITA (1.2±1.2 mmHg) and the SV (0.4±0.7 mmHg). During maximal hyperemia, the pressure gradient increased consistently in all grafts to 9.6±3.2 mmHg in left ITA, to 4.5±2.0 mmHg (P<0.001 vs. left ITA) in the right ITA and to 3.3±2.7 mmHg (P<0.001 vs. left ITA) in SV. The FFR was 0.90±0.04 in left ITA, 0.95±0.03 in right ITA (P<0.01 vs. left ITA) and 0.96±0.03 in SV (P<0.001 vs. left ITA), every individual value being superior to 0.75, the cutoff for inducible ischemia.

Conclusion: ITA and SV allow myocardial revascularization with only minimal resistance to maximal blood flow and a modest drop in distal perfusion pressure during maximal hyperemia. The resistance appears significantly higher in left ITA than in right ITA and SV.

Objective: Minimally invasive direct coronary artery bypass (MIDCAB) is a reliable method to revascularize the left anterior descending coronary artery (LAD). However, a more consistent body of knowledge is needed to assess factors influencing long-term outcome. In this paper, we retrospectively investigated the long-term determinants of survival and freedom from cardiac morbidity and revascularization in patients undergoing MIDCAB.

Methods: From 1995 to 2005, 109 patients underwent MIDCAB. Isolated LAD disease was present in 75 patients (68.8%), whereas 34 (31.2%) had multivessel disease. The first 57 patients (53.2%) underwent early postoperative angiographic reinvestigation. All 109 patients were subsequently followed-up in our outpatient clinic. Follow-up (range 3-112 months; mean 65.7 months) was completed in 100% of cases.

Results: We had no in-hospital mortality, and two patients (1.8%) experienced a perioperative myocardial infarction. At early postoperative angiographic reinvestigation, the anastomotic perfect patency rate was 54/57 (94.7%). Survival was 100% and 95.8% at 1 and 5 years, respectively. Overall freedom from repeated revascularization was 95.3% and 88.3% at 1 and 5 years, whereas freedom from LAD revascularization was 95.3% and 91.6% at 1 and 5 years, respectively. Cardiac event-free survival was 95.3% and 80.8% at 1 and 5 years postoperatively. At multivariable analysis (Cox regression), women presented a higher risk of repeated LAD revascularization, with a hazard ratio of 30.24 (P<0.001), whereas female sex and left ventricular dysfunction were the only predictors affecting long-term cardiac outcome, with a hazard ratio of 5.1 (P<0.001) and 29.35 (P<0.001), respectively.

Conclusion: Key factor for long-term success of MIDCAB seems to be an appropriate patient selection. Special attention should be deserved to women, which appear to experience both a worst cardiac outcome and a higher probability of repeated revascularization on LAD. In the presence of a multivessel disease, MIDCAB may represent a viable option when a complete revascularization is not feasible or an hybrid procedure is envisaged.
CV01 - 1
BLOOD CIRCULATION IN THE UPPER LIMBS: REASONS OF CONGENITAL DISORDERS
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Objective: The purpose of the study was to detect reasons of blood circulation disorders in subclavian arteries, related with congenital disorders of development of aortic arch and its branches.

Methods: We analysed the results of surgical treatment of 1261 patients with coarctation syndrome. The reasons of coarctation syndrome in the research group were: 1. Coarctation of the aorta - 1196 patients (94.85%); 2. Aortic arch kinking - 63 patients (5%); 3. Aortic arch atresia - 2 patients (0.15%). In this group we detected 87 patients (6.8%) with blood circulation disorder in one or both subclavian arteries. The pressure gradient between upper limbs varied from 30 to 120 mmHg (average gradient - 52.5 ± 5 mmHg) in patients with an average age of 17.0 ± 8.3 (3-56) years. The main reasons of blood circulation disorders in subclavian arteries: Left subclavian artery 72 cases (71.3%), right subclavian artery (A. LUSORIA) - 15 cases (17.2%), into special group we put 10 patients (11.5%) with blood circulation disorders in both subclavian arteries. Frequency of A. LUSORIA in the research group contained 25 cases (2% of all coarctation syndrome patients).

Results: In all cases with detected anomaly of subclavian arteries we restore direct blood circulation during operation in 100% of cases. Analysis of palsy reasons in 3 patients from 1238, operated on with congenital pathology of ishums of the aorta (kinking, coarctation, aeurysm), detected that all of them had ischemic nature and in all 3 cases abberant disposition of aortic branches took place. In spite of the average aortic clamping time (14±6 min) and absence of hemorrhagic complications, even short-time clamping of the left subclavian (vertebral) artery (the main source of direct blood supply of the spinal cord) without preventive neuroprotective methods, led to the mentioned dramatic complications. We came to conclusion that clamping of aorta and its branches is one of the most important mechanism in pathogenesis of ischemia development and reconstructive operations of the aberrant disposition of aortic branches have to be performed with preventive neuroprotective methods, such as regional hypothermia and medicine protection.

Conclusion: This pathology essentially decreases ability of collateral circulation in the lower part of the body and produces changes of circulation in vertebrobasilar territory. That requires using of protective methods of vital organs’ functioning during operations and in early postoperative period.

CV01 - 2
SURGICAL TREATMENT OF PATIENTS WITH A COMBINED CORONARY AND CAROTID ARTERIES LESION
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Objective: Patients with coronary heart diseases including accompanying pathology of brachyphegal arteries form a group of high risk of acute stroke and myocardial infarction. The problem of neurological complications after the coronary bypass has risen since making the first bypass grafting operations. Nowadays strategy of treatment of this category of patients is still unresolved. The purpose of this work - is the definition of the strategy of a treatment of patients with the pathology of main arteries of a heart and coronary arteries.

Methods: From 2001 to 2005 112 patients with arterial involvement of coronary and carotid arteries was operated. Criteria of definition of dominant defeat were the functional class of stenocardia, the fraction of emission of heart, presence of defeat of a trunk of the left coronary artery, unilateral or bilateral defeat of carotid arteries, presence of a heterogeneous atherosclerotic plaque in carotid arteries and neurologic deficiency. The one-stage surgical operations were made to the patients with hard coronary arterial involvement, but they were with stable angina and clinic of cerebrovascular insufficiency. Those patients were 9 (8%) (1-st group). 46 (41,%) patients with the hemodynamic significant stenosis of carotid arteries without neurological deficiency and the evidence stenocardia (2-nd group) reconstructions of the carotid arteries were performed later 2 months after coronary artery bypass grafting. Reconstructions of the carotid arteries were performed by 1 stage to 67 (59.8%) patients with stable angina and clinic of cerebrovascular insufficiency (3-d group).

Results: The early postoperative period in 1 (0.9%) patient from 1-st group and in 2 (1.7%) patients from 3-d groups is complicated by the myocardial infarction. Two (1.7%) patients from 2 groups in the postoperative period had the acute stroke. The main causes of lethality (2.8%) in 1-st and 2-nd groups were acute coronary syndrom and the acute stroke.

Conclusion: One - stage the coronary bypass and reconstructions of the carotid arteries are need a caution approach. It is justified in patients with hard coronary arterial involvement and clinic of cerebrovascular insufficiency. We consider, the surgical recovery of failure blood flow in dominant vascular area in patients with a combined coronary and carotid arteries lesion is an optimal method.

CV01 - 3
COMBINED CORONARY AND LOWER EXTREMITY REVASCULARIZATION IN HIGH RISK PATIENTS
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Objective: The coexistence of CAD with aorto-iliac disease is not rare. Management of these patients is controversial. Staged procedures are usually recommended. In rare instances simultaneous coronary and peripheral arterial revascularization may be required.

Methods: Between April 1994 and November 2005, fourteen patients underwent combined procedure. All patients were male and mean age was 59.07±6.75. In thirteen patients median sternotomy and in two patients minithoracotomy were administered. CABG was established on CPB in six patients and OPCAB is used in the rest. Femoral arteries were bypassed with PTFE grafts descended from the ascending aorta and passed through the preperitoneal abdominal wall tunnel in twelve patients. We used descending aorta as inflow vessel in two patients.

Results: Both patients recovered well and experienced no angina or claudication at the early postoperative period. Mean hospital stay was 10.5 days. Patients were followed up using different methods. Long term angiographic controls were obtained with multislice-CT angiography in half of patients. All grafts were patent. The remaining patients were examined by physical examination, doppler sonography and echocardiography.

Conclusion: This technique is simple, safe and good alternative in patients with previous abdominal surgery or massive adhesions, obesity, extensive calcifications of the abdominal aorta and respiratory insufficiency. Long term radiologic and clinical results are acceptable.

CV01 - 4
CORONARY ARTERY SURGERY IN PATIENTS WITH CAROTID DISEASE
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Objective: The purpose of this study was to assess the influence of carotid disease on early postoperative outcomes in patients undergoing coronary artery bypass grafting(CABG).

Methods: In 100 (15.7%) out of 637 consecutive patients undergoing CABG who underwent a duplex ultrasound scanning of the carotid arteries, an internal or common carotid artery diameter reduction greater than 50% was detected. The remaining 537 patients composed the control group. Patients undergoing synchronous carotid endarterectomy and CABG were excluded from this study. The patients with carotid disease were significantly older (mean age 66±8.2 vs. 62±8.7 years, P<0.001), presented higher perioperative risk estimated by EUROSCORE (6.1±2.7 vs. 3.6±2.5) and more frequently underwent prior cerebrovascular accidents (n = 32; 22% vs. n = 43; 85; P<0.001) than patients in the control group. The prevalence of hypertension, diabetes mellitus, prior myocardial infarction, unstable angina, impaired LVEF (<50%), renal failure, chronic obstructive pulmonary disease and aorta calcification showed in the preoperative chest X-ray picture was equal in both groups (p=0.05). Operative data: OPCAB rate, mean aorta cross - clamp and extracorporeal circulation time and decrease of mean arterial pressure below 60mmHg did not revealed any differences in both groups (p=0.05).

Results: The rate of postoperative cardiac arrhythmias was comparable in both groups (p>0.05). The neuropsychologic deficits occurred more...
frequently in the patients with carotid disease (n = 40; 40% vs. n = 74; 13.8%; P<0.001). The patient group with carotid stenosis needed more frequently inotropic support (n = 18; 18% vs. n = 48; 8.9%; P = 0.01) or IABP application (n = 7; 7% vs. n = 10; 1.9%; P = 0.009) than the control group. The combined rate of adverse postoperative events (myocardial infarction, cerebrovascular accidents, death) seemed to be greater in the patients with carotid disease (n = 8; 8% vs. n = 27; 5%) but the difference was not statistically significant (P<0.05).

Conclusion: The patients with carotid disease may be deemed at high risk. The carotid arteries stenosis expresses generalized atherosclerosis which is partly responsible for less good results of coronary surgery.

CV01 - 5 THE OPTIMAL SURGICAL MANAGEMENT CHOICE FOR PATIENTS HAVING CONCOMITANT CAROTID AND CORONARY ARTERY DISEASE

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Novosibirsk research institute circulation pathology by him the academician Meshalkin E.N., Novosibirsk, Russian Federation

Objective: Controversy remains regarding the optimal surgical management of patients with coexisting significant carotid and coronary artery disease. There is a risk of development ischemical of damage not revascularization vascular of pool at performance staged of operations. Simultaneous of operations on both vascular pools carries in itself difficult price risk of development as stroke and myocardial infarct (MI). The purpose of research to estimate the early results of surgical treatment concomitant carotid and coronary artery disease simultaneous or staged an operations.

Methods: During an 7-year period beginning October 1998, 164 (5.1%) of 3215 consecutive patients who were referred for isolated coronary surgery were found to have significant carotid disease and underwent CEA and CABG. The mean age was 51.4±6.2 years and 158 (98.3%) were males. All patients divided into two groups depending on a way of surgical treatment. In the first group (50) were carried out concomitant of operation CABG and CEA. In the second group (114) staged of operations. Stenosis three and more coronary artery took place all the patients, with hemodynamic important (>60%) stenosis one or both carotid artery. The patients in first and in the second group are comparable approximately on weight of a defeat coronary and carotid artery. The sequences of performance of operation depend on a degree of a defeat vascular of pool at staged surgical treatment. The second operation was made in the same hospitalization or on the average during 6 months after the first operation.

Results: The perioperative mortality has made four patients (8.0%) in the first group, stroke at four patients (8.0%), MI at 3 patients (6.0%). The perioperative mortality has made one patient (0.7%) in the second group, stroke at five cases (3.5%), MI at two patients (1.4%). The cases mortality was cause development perioperative MI and myocardial weakness in early period after operation.

Conclusion: The results of one investigations allows making a conclusion about decrease of risk global perioperative mortality at performance stag of carotid and coronary operations at the patients with concomitant atherosclerotic carotid and coronary artery disease.

CV01 - 6 CEREBRAL AND CARDIAC COMPLICATIONS ANALYSIS AT DIFFERENTIAL APPROACH TACTICS OF SURGICAL TREATMENT OF PATIENTS WITH COMBINED LESIONS OF CORONARY AND CAROTID POOL

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Objective: To estimate results of single- and stage-by-stage treatment of patients with CHD and carotid artery(ACA) atherosclerosis.

Methods: Evaluation of myocardium perfusion condition and its reserves was performed by scintigraphy using Tl201 in stress testing conditions with adenosine. Reserve of cerebral blood circulation was examined using electro-impedence tomography with doped isocapnical hyposia in the background. Relying on analysis of compensatory blood flow possibilities in coronary and carotid pools, indications for stage-by-stage or combined heart and cerebral revascularization were determined. We performed surgical treatments of 57 patients. An average age of patients was 52.6±6.7. In 51 (89.4%) patients exertional angina of III-IV FC( CCS) was noticed. In 6(10.6%) cases progres-sive stenocardia was registered. 47(82.4%) patients had myocardial infarction(MI) in the past. Multivascular involvement of a coronary channel was revealed in 53(93%) cases, stenosis of left coronary arterial trunk was detected in 4(7%) cases. An average quantity of bypassed arteries was 3.5±0.9. Anamnesis of 27(47.5%) patients was burdened with transient ischemic at-tacks(TIA) of brain, 10(17.5%) patients sustained ischemic stroke( I S). The other 20(35%) pa-tients had clinically asymptomatic hemodynamically significant stenosis of CA. In 39(68.5%) cases stenotic (>75%) involvement of CA was unilateral, in 18(31.5%) cases-bilateral. Carotid en-darterectomy(CEA) with autovenous graft of the orifice of ICA was performed under pharma-co-hypothermic brain protection conditions.

Results: 22(38.5%) patients, with significantly reduced indices of cerebral blood flow reserve at satisfactory myocardial perfusion reserve, were subjected to stage-by-stage surgical treatment. At the first stage CEA was performed, at the second-CS in 14-20 days. In this group during early post-operative period (14.5%) acute MI(after CEA) was performed, and (4.18%) TIA cases were registered. 35(61.5%) patients with low both coronary and cerebral circulations reserve were subjected to single-stage surgical myocardial revascularization and CEA. Among 31(43.3%) patients TIA were detected. In the pool of the operated artery IS was detected in 12(2.5%) case as well as perioperative IM.

Conclusion: Functional evaluation of cardiac and cerebral perfusion reserve allows to differentiate high-risk patients with combined atherosclerotic coronary and carotid pool lesions with the purpose of choice of optimal surgical treatment tactics. Single-stage operations are expedient for patients with low reserve of coronary and cerebral circulation. At that, risk of cerebral and cardiac postoperative complications is not higher than at the stage-by-stage operations.

CV01 - 7 IS SCREENING FOR CAROTID ARTERY STENOSIS IN PATIENTS AWAITING CARDIAC SURGERY GOING TO INCREASE THE WORKLOAD?

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Objective: The aim of this prospective study was to identify the prevalence of carotid artery disease in patients undergoing major cardiac surgery in the light of the Asymptomatic Carotid Study Trial [ACST].

Methods: A carotid duplex scan was performed in 523 consecutive patients (median age 71 years, age range 34-89, m:f=4:1) as part of the preoperative assessment for coronary artery bypass grafting [CABG] or aortic valve replacement [AVR] or AVR alone. Asymptomatic patients with severe bilateral Internal Carotid Artery [ICA] stenosis (>or=70% stenosis bilaterally) and symptomatic patients with ipsilateral ICA stenosis of >or=70% were offered carotid endarterectomy [CEA] prior to cardiac surgery (staged procedure). Results: 24 asymptomatic patients with severe bilateral ICA stenosis (4.5%) and 8 (1.5%) symptomatic patients with severe ipsilateral ICA stenosis underwent CEA prior to cardiac surgery. None of the CEA patients suffered postoperatively a stroke or death. 4 asymptomatic patients with severe bilateral ICA stenosis were not referred for CEA. Furthermore, 31 patients with asymptomatic unilateral 60-99% stenosis were identified. Of which 16/523 (3%) patients (>75 years) should have an elective CEA as recommend-ed by the ACST. Similarly, an additional 10/523 (2%) asymptomatic patients with severe bilateral ICA stenosis who already underwent CEA prior to their cardiac operations would also benefit from a contra-lateral CEA.

Conclusion: Routine screening for ICA stenosis using carotid duplex scan generates 5.9% staged CEAs and an additional 5% which might benefit from reversed staged CEAs based on the ACST.

CV01 - 8 COMBINED TREATMENT OF ACUTE TYPE A AORTIC DISSECTIONS BY ASCENDING AORTA REPLACEMENT AND INTRA-OPERATIVE STENTING

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Objective: After surgical treatment of type A aortic dissections a long seg-
ment of these aortas often remain dissected. The aim of our retrospective study was to analyse feasibility and first clinical and pathophysiological results of a new combined surgical procedure.

Methods: From November 9, 2000 to September 1, 2004, 16 patients from two centres were treated. They underwent conventional ascending aorta...
replacement and stenting of the arch or descending aorta with uncovered stents (Djumbodis dissection system) during circulatory arrest. Results: All the stents have been implanted with short time of circulatory arrest. Median follow-up was 329 days [15-1118]. We had 2 peroperative deaths (12.5%). Thirty-days mortality was 25% (4/16). Cumulate survival rate was 77.9%. Postoperative complications were respiratory, renal and neurological. We have observed significant reductions in number of perfused false lumen ($P = 0.0384$) and diameter ($P = 0.0070$) of stented aortic arches compared to unstented descending aortas.

Conclusion: Our study demonstrates feasibility of this combined procedure and its positive effect on pathophysiologic evolution of aortic dissection. It thus appears logical to us to extend this treatment to the whole dissected aorta.
14.30-16.00
MAY 12, 2006 2ND CONGRESS DAY

1ST VASCULAR SCIENTIFIC SESSION
ABDOMINAL AORTA ANEURYSMS

V01 - 1
ABDOMINAL AORTIC ANEURYSM SURGERY IN A DISTRICT GENERAL HOSPITAL—A 15 YEARS EXPERIENCE
Russells Hall Hospital, Dudley, England

Objective: The incidence of patients presenting with both ruptured abdomi-
nal aortic aneurysm (RAAA) and elective abdominal aortic aneurysm (EAAA)
increases with ageing population. The aim of our study was to find out the peri-
operative mortality from RAAA and EAAA in a busy district general hospi-
tal over 15 years. It was anticipated that the results would support the case for screening for AAA.

Methods: All patients operated for abdominal aortic aneurysm (AAA) from 1989-2003, elective and non-elective, were included. Patients who died in the community from RAAA and diagnosed only on postmortem were also included. The data was collected from hospital information system, theatre logbooks, I.T.U records, post mortem register and patients’ medical notes.

Results: There were 816 cases of AAA recorded during the study period. This included 468 cases of RAAA (57%) and 348 EAAA (43%). Out of 468 RAAAs, 267 were presented as an emergency. Of these, 243 patients (52%) underwent emergency repair of RAAA including 213 males (87.6%) (Median age: 72 years, age range: 54-92 years), with male: female ratio of 7:1. 20 patients died during the opera-
tion. 24 patients (5%) did not undergo any surgical repair because of multiple co-morbidities. 201 patients were found to have RAAA on post mortem (43% of all RAAAs) (Figure 1). Most of the patients were over the age of 65 years, with peak incidence being between 70-74 years (2). The average incidence per year for males was 17.3/100,000 and 5/100,000 for females (Figure 3). 30-day postoperative mortality for RAAA repair was 43% (Figure 4). Overall mortality for all cases of ruptured AAA, both operated and non-operated, was 70% (Figure 5).

Erectile AAA repair was performed in 348 patients over the same period of time (Figure 6), including 282 males (81%) (Median age: 74 years, age range: 45-94 years) with male: female ratio of 4.3:1. Most of these patients were over 60 years of age, with peak incidence being between 70-74 years. 30-day post-
operative mortality in the elective group was 7.75% (27/348) (Figure 7).

Conclusion: Although RAAA repair is associated with survival in a number of patients, its mortality is much higher than elective repair. Incidence of RAAA has remained the same over the past 15 years. A high proportion of patients with undiagnosed AAA die even before reaching hospital, which makes a case for aortic screening. This suggests that a large number of lives may be saved if the AAA is detected before rupture.

V01 - 2
SEXUAL DYSFUNCTION FOLLOWING SURGICAL AAA REPAIR
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Vascular Surgery Unit University of Palermo, Palermo, Italy, Vascular Surgery Unit University of Palermo, Palermo, Italy, Vascular Surgery Unit University of Palermo, Palermo, Italy

Objective: To analyze sexual dysfunctions following AAA surgical repair. These complications were first described in 1969 in a case series of 81 patients operated for ruptured AAA by a multifactorial pathogenesis. After standard open repair an incidence between 30-80% is reported. Two dysfunctions have been identified: retrograde ejaculation and erectile dysfunction. Erectile dysfunction follows injuries to hypogas-
tric nervous plexus, spinal cord ischemia or hypogastric arteries exclusion. Retrograde ejaculation follows direct surgical injuries to periaortic plexus during aortic bifurcation dissection.

Methods: One hundred male patients who survived at least one year after open AAA standard repair have been considered. 64 had a straight graft while 36 a bifurcated graft (18 to common iliac arteries, 10 to femoral arteries, 8 a different limb peripheral anastomosis). One IMA and one hypogastric arteries were reimplemented.

Results: Post-operative evaluation was carried by direct interview or in some cases by specialist (urologic) evaluation. About 50% of the patients showed a post-operative modification of their sexual function. 60% of these cases showed retrograde ejaculation, while 40% an erectile disorder. While retrograde ejaculation remained immodified during the follow-up period, erectile disorders showed different degrees of improvement (20% resolved completely), in some cases with pharmacological support.

Conclusion: Sexual dysfunction remains an ubiquitous complication of AAA surgery. Although EVAR eliminated necessity of periaortic dissection and so the potential injuries to periaortic plexus, on the other hand has increased the recourse to bifurcated grafts and the incidence of hypogas-
tric arteries exclusion. This is mostly true when AAA morphology requires a distal graft landing below iliac artery bifurcation. Multifactorial patho-
genesis of post-operative sexual disorders, makes a difficult task to assess the real role of surgery in the determination of the complication. A com-
plete and accurate pre and post-operative evaluation is felt necessary to identify patients where surgery is the only cause of this disturb.

V01 - 3
EFFECTS OF THORACIC AND HIATAL CLAMPING IN REPAIR OF RUPTURED
ABDOMINAL AORTIC ANEURYSMS
İslamoglu F., Apaydın Ziya A.,绛nç G., Posacoglu H., Calıkavur T., Yasgıl T., Atya Y., Durmaz I.
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Objective: Aim of our study was to evaluate comparatively the effects of hiatal and thoracic clamping on postoperative outcome and morbidity, and to determine the factors affecting mortality and morbidity in patients for whom infrarenal clamping of aorta could not be possible.

Methods: The records of 102 patients with mean age of 69±8.7 years who had undergone ruptured abdominal aortic aneurysm repair between 1993-
2005 were evaluated retrospectively. Hiatal clamping and thoracic clamping were performed in 72 patients and 30 patients, respectively. By univariate and multivariate statistical analyses of respiratory, renal, gastrointestinal, cardiac complications, relaparotomy, infection, mortality, cell saver usage, blood and blood product requirements, and hospitalization time were evalu-
at ed comparatively between two groups. Survival, mortality and morbidity were evaluated by Kaplan-Meier analysis.

Results: Overall mortality, 1-year mortality (including hospital mortality), and hospital mortality rates were 63 (61.8%), 39 (38.2%) and 24 (23.5%) patients, respectively, and there was no difference between two groups. Univariate analyses revealed that postoperative respiratory complications, gastrointestinal complications, relaparotomy, and blood requirement were significantly higher in the thoracic clamping group. Chronic obstructive lung disease (COPD), preoperative shock, and renal ischemia time (>30 min) were found to be statistically significant predictors of 1-year mortality. All these factors but COPD were also found statistically significant predictors of in-hospital mortality. Postoperative renal failure was only independent postoperative predictor of mortality. In follow-up period, cardiac event was an independent predictor of late mortality occurred beyond postoperative 1month. Predictor of postoperative renal failure was prolonged renal isch-
emia time. Preoperative COPD, thoracic clamping of aorta, and cell saver usage were also independent predictors of overall morbidity. If early and in-
hospital mortalit y were excluded 5-year and 10-year cumulative survivals were 58.6±4.5%, 88% and 38.7±0.5%, respectively. Cross-clamp level had not a significant effect on long-term survival. Cardiac events in follow-up was only independent predictor of late deaths and long term survival. Although patients had a 81.5±6.50% of peripheral vascular event-free survival at 10 years, cardiac event-free survival at 10 years was 40.14±8.24%.

Conclusion: Although both thoracic and hiatal clamping have not an effect on mortality provided clamping time is under 30 min, preoperative respira-
tory complications and intestinal ischemia, probably due to higher level of clamping, are more pronounced in patients operated with thoracic clamp-
ing. Hiatal clamping is more preferable for a safe postoperative period in all patients with ruptured abdominal aortic aneurysm and for whom infrarenal clamping is not possible.

V01 - 4
PREOPERATIVE PREDICTORS OF IN-HOSPITAL MORTALITY IN PATIENTS
WITH RUPTURED AORTIC ANEURYSM
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Objective: The purpose of this study was to identify preoperative factors associated with in-hospital mortality in patients with ruptured AAA.
Methods: Two hundred forty six patients admitted to a vascular surgery center with ruptured in the years 1987-2005 were retrospectively analyzed. There were 219 (89%) men and 27 (11%) women and the average age of patients was 69.6 (±8.6) years. Thirty one (12.6%) patients were not operated on. The end-points were in-hospital mortality of all patients and in-hospital mortality of operated patients was 54.1%. Shorter distance from the vascular surgery center (P = 0.029), lower systolic and diastolic blood pressure at admission, preoperative hemoglobin, hematocrit, erythrocytes, leucocytes, platelets, serum urea and serum creatinine on the study endpoints was investigated. The results were statistically analyzed. Results: The mean in-hospital mortality of all patients was 60.6% and mean in-hospital mortality of operated patients was 54.1%. Shorter distance from the vascular surgery center (P = 0.029), lower systolic and diastolic blood pressure at admission (P = 0.006 and P = 0.007, respectively), lower preoperative level of hemoglobin (P = 0.01), hematocrit (P = 0.006), erythrocyte (P = 0.028) and platelets (P = 0.043) and higher serum urea (P = 0.0025) and creatinine (P = 0.0024) levels were significantly associated with in-hospital mortality of all patients. Similarly lower systolic and diastolic blood pressure at admission (P = 0.001 and P = 0.009, respectively), lower preoperative level of hemoglobin (P = 0.01), hematocrit (P = 0.006), erythrocyte (P = 0.028) and platelets (P = 0.043) and higher serum urea (P = 0.036) and creatinine (P = 0.018) levels were significantly associated with in-hospital mortality of operated patients. The distance from the vascular surgery center did not influence the in-hospital mortality of operated patients. There was not any statistically significant association between age, diameter of the aneurysm and preoperative leucocytes level and in-hospital mortality of both all and operated patients.

Conclusion: Severity of preoperative haemorrhagic shock significantly influences the in-hospital mortality of patients with ruptured AAA. It seems that proper management of these patients at prehospital stage could improve the results of treatment.

V01 - 5
DOES SPECIALIZATION IMPROVE OUTCOME IN ABDOMINAL AORTIC ANEURYSM SURGERY?
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Objective: Specialization and high volume are reported to be related to a better outcome after abdominal aortic aneurysm repair. The aim of this study was to compare, in patients undergoing abdominal aortic aneurysm repair, the outcomes of those whose surgery was done by general surgeons with the outcomes of those whose surgery was done by specialist vascular surgeons.

Methods: All patients undergoing abdominal aortic aneurysm repair at the Basel University Hospital (referral center) from January 1990 to December 2000 were included. Patients with endovascular treatment were excluded. Operations in group A (n = 189), between January 1990 and May 1995, were done by general surgeons. Operations in group B (n = 291), between June 1995 and December 2000, were done by vascular surgeons.

Results: In-hospital mortality and local and systemic complications were assessed. In-hospital mortality rates were significantly lower for group B (with specialist surgeons) than for group A, both overall (group B, 11.7%; group A, 21.7%; P = 0.003) and for emergency interventions (group B, 28.1%; group A, 41.9%; P = 0.042). The reduction in mortality for elective surgery in group B was not statistically significant (group B, 1.1%; group A, 4.9%; P = 0.054). There were significantly fewer pulmonary complications in group B compared with group A (P = 0.000).

Conclusion: We conclude that in patients undergoing abdominal aortic aneurysm repair, those whose surgery is done by a specialized team have a significantly better outcome than those whose surgery is done by general surgeons.

V01 - 6
LOWER LIMB PARALYSIS FOLLOWING ISAEMICA NEUROPATHY OF THE LUMBOSACRAL PLEXUS FOLLOWING AORTO-ILIAC PROCEDURES
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Objective: Neurological injuries following aorto-iliac procedures are rare, unpredictable and cause significant morbidity. We report 4 cases of lower limb paralysis following aorto-iliac procedures, 2 of whom suffered internal iliac occlusion.

Methods: Four male Patients age ranging between 56 and 77 years underwent aorto-iliac procedures. Three patients had repair of infra-renal abdominal aortic aneurysm (2 open and 1 endovascular repair) and one patient had percutaneous angioplasty of the internal iliac artery. Results: All patients developed paralysis of a lower limb early, following surgery. Neurophysiological studies were performed in 3 patients and confirmed the injury to the lumbosacral plexus in 2 cases. MRI scan was performed in 2 patients and did not show any abnormality. In two of our cases, occlusion of one internal iliac artery is implicated as the cause of lumbo-sacral plexopathy: one with the coverage of the internal artery origin with the stent, the other due to thrombotic occlusion of common and internal iliac in arteries after aorto-iliac repair of aortic abdominal aneurysm with a bifurcated graft. Follow up ranged between 2 and 4 months. Only one patient recovered completely the other three were left with permanent disability.

Conclusion: Ischaemic neuropathy following aortoiliac interventions, whether open or endovascular, remains a rare, unpredictable and devastating complication. When it occurs it is likely to result in permanent neurological disability. It is important to note that it may be related to internal iliac artery thrombosis.

V01 - 7
EXPERIENCE OF TREATMENT OF PATIENTS WITH ABDOMINAL AORTA RUPTURE OVER 16-YEAR PERIOD FROM 1989 TO 2004
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Objective: Treatment of patients with rupture aneurism of abdominal aorta is the most complex and interesting problem of current angiosurgery. This is due to the continuous increase of patients having this pathology, and unsatisfactory treatment results.

Methods: -

Results: During the last 40 years, 1014 patients with abdominal aorta aneurism both complicated by rupture, and not complicated, were under our supervision. In this work, the results of treatment in the group of patients with abdominal aorta aneurism rupture, admitted to our hospital from 1989 to 2004, are subject to detailed analysis. We have analysed only the observations with “true” ruptures, the cases where the rupture of all three aneurism walls with bleeding outside its bounds was observed. Over the specified period of time, 454 patients with abdominal aorta aneurism rupture were admitted. Among them, there were 390 males (86%), 64females (14%), and 417(92%) of admitted patients belonged to the groups of senior and old age (by WHO classification). The majority of patients with rupture had <<large>> and <<giant>> aorta aneurisms, and only 36 patients (7.9% of the total number) <<small>> aneurisms under 5cm in diameter. In the majority of patients, the rupture flowed into retroperitoneal space and abdominal cavity, a rare forms of ruptures (anastomosis formation) were observed in 12 patients (2.4%). Surgical activity was 45.8% (208 patients). 246 patients (54.2%) were not operated for the following reasons: agonic condition of patient, flat refusal of a patient from surgery, and a patient’s death on operating table during anaesthetic induction. During 16 years, we have operated the overall number of 208 patients. Noticeable is the tendency of increase in the number of operated patients with abdominal aorta aneurism rupture; particularly, during the last 6 years (from 1997-2002), 141 patients (68%) were operated. Mortality in the group of operated patients was 52.2% (110 patients). The main reason of death in operated patients with abdominal aorta aneurism rupture was acute post-hemorrhagic anaemia due to massive preoperative and intraoperative blood loss. In case of operative therapy, laparotomic access with intrasci linear or aortoiliac prosthesis of aorta was preferred (43%). Litigature of abdominal aorta based on extraperitoneal mini-access with subclavian/femoral bifurcational graft was made in 21 patients(10%). Gore-Tex synthetic grafts (linear, bifurcational, a xilo-bifemoral) were preferred. Such reconstructions were carried out in patients being in the extremely bad condition, generally over 80 years old, since the increase of surgery volume would inevitably lead to a patient’s death on operating table. Based on the analysis of the treatment results in a group of operated patients, substantial improvement of the results from 1997 was noted. Thus, from 1989 to 1996, mortality was 71.6% (67 patients were operated, 48 patients died), and from 1997 to 2004, it was 50.4% (141 patients were operated, 71 died).

Conclusion: We attribute the improvement of results of operative therapy to the accumulation of surgical experience in our hospital, individual approach...
CLINICAL DIAGNOSES OF ABDOMINAL AORTIC ANEURYSM AND AUTOPSY FINDINGS: A RETROSPECTIVE ANALYSIS OF 518 CASES IN SAINT-PETERSBURG

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Objective: To compare the clinical diagnoses with postmortem findings of abdominal aortic aneurysm and evaluate the frequency of diagnostic errors assessed by autopsies.

Methods: Retrospective analysis of the protocols of 50715 consecutive cases of adult patients autopsied performed in the 5 year period from 1995 to 1999 in Saint-Petersburg (Russia). The outcome measures included concordance between diagnosis before death and at autopsy, sex, age, and the cause of death of the patients with abdominal aortic aneurysm.

Results: Abdominal aortic aneurysms were found in 518 (1.02%) cases. The ratio of male to female was 1.4 to 1, and 95% of these patients were older than 60 years. The average mortality rate due to complications of the abdominal aortic aneurysm in this age group was found to be 0.22 per 1000 per year. In the cases when the patients died of the complications caused by the aneurysm the autopsy findings confirmed the clinical diagnosis and the cause of death suggested by the clinicians only in 41.7% (145 of 348 patients). In another 170 cases when the cause of the patient’s death was not related with aneurysm, unsuspected before death abdominal aortic aneurysms were diagnosed during autopsy in 134 (78.8%) patients.

Conclusion: It is concluded from this study that autopsies may reveal unexpected findings that are of critical importance. Continued emphasis on more careful clinical evaluation and ultrasound examination of patients with risk factors of aneurysm is necessary to improve the quality of patient care.
Objective: Objective: Simultaneous bilateral carotid artery endarterectomy is very rarely performed because of the potential increased danger arising from double anesthetic and surgical procedures, with a more pronounced incidence of injury to the cerebral nerves and strokes. This study compares the results of simultaneous bilateral carotid endarterectomy with staged endarterectomy.

Methods: Over an 8-year period (December 1996-December 2004), 1170 patients underwent 1330 carotid endarterectomy procedures (CEA) to treat symptomatic and asymptomatic high-grade carotid artery stenosis. Ten of these patients underwent 20 simultaneous bilateral carotid endarterectomy (SBC). They were compared with 30 patients who underwent 60 bilateral staged endarterectomy. The patients in the two groups were comparable in age, smoking status and gender. The indications for surgery and the surgical management were similar. Routine carotid artery shunting was used in all interventions. All patients underwent duplex scan follow-up and clinical evaluation every three months during the first year after CEA.

Results: The results are comparable in both groups. No mortality, myocardial infarct, respiratory problems or major neurological complications were observed in either group.

Conclusion: Despite the small number of our patients undergone simultaneous bilateral procedures, our results suggest, together with that of the international literature, that SBCE can be safely performed in selected patients by high volume experienced vascular surgeons.

Objective: Objective: This paper presents the perioperative results of endovascular management for a critical carotid artery stenosis. The authors demonstrate the beneficial effect of the method, particularly in high-risk surgical candidates. Aim of study was an evaluation of the early outcome of angioplasty and stent placement in a critical internal carotid artery stenosis.

Methods: From January 2001 through December 2005; 225 endovascular procedures involving internal carotid artery angioplasty and stent placement were performed. Only one carotid artery dilatation was attempted; in a case of bilateral lesions, angioplasty was performed on the side of the symptomatic, or more severe, stenosis. In 95 procedures (42%) neuroprotection was used. The study group involved 152 male and 73 female patients, aged 59 to 84 years (the mean age was 72 years). All patients who elected to undergo endovascular management were considered to be at high surgical risk and had > 70% carotid artery stenosis as determined by an ultrasound study.

Results: There was one perioperative death due to massive intracerebral hemorrhage. One patient died of intracerebral hemorrhage. During the procedure, transient ischaemic attack (TIA) occurred in 14 patients (6.2%), bradycardia in 26 (11.5%) and hypotonia in 28 (12.4%). Bradycardia was sporadic following routine atropin administration prior to stenosis predilatation. One patient developed hyperperfusion syndrome with convulsive attacks, headache, and consciousness level deterioration; no cerebral ischaemia was found on the CT. Conversion to open repair proved necessary in one patient.

Conclusion: Angioplasty with stent placement is an effective and safe treatment for a critical carotid artery stenosis.

Objective: Objective: Endovascular management of internal carotid artery stenosis is performed with a low cumulative incidence of recurrent stenosis.

Methods: From May 1990 to May 2004, 32 patients underwent 35 carotid revascularisation procedures. All of them had received previous radiation therapy with a mean radiation dose of 63 Gy. Twenty two patients presented moderate to severe scarring of the skin or fibrosis. Fourteen patients had undergone radical neck dissection and 2 patients had a permanent tracheostomy. Indications for surgery included symptomatic high grade stenosis (>70%) in 20 patients and asymptomatic high grade stenosis in 15 patients. General anesthesia with systematic shunting was used in 66% of cases and regional anesthesia with selective shunting in the remaining 34%. Operative technique included standard carotid endarterectomy in 24 patients, with patch angioplasty in 16 or direct closure in 8; carotid interposition bypass grafting in 8 patients and subclavian to carotid bypass grafting in 3 patients. Direct closure of the wound was possible in all cases. Mean follow-up was of 41 months (3125).

Results: There was one perioperative death due to massive intracerebral haemorrhage. One patient had a transient ischaemic attack. Postoperative hospital course was complicated by two cervical hematomas, one of which was evacuated surgically. There was no cranial nerve injury, delayed wound healing or infection. During the follow-up 17 patients died of unrelated causes. All patients remained free of new symptoms or new stroke. Duplex scan examination revealed asymptomatic recurrent stenosis (>40%) in three patients. Two of them had a stenosis > 80% and underwent redo carotid surgery. Follow-up at 36 months revealed a cumulative survival rate of 58%, a cumulative primary patency rate of 92%, and a cumulative patency rate without recurrent stenosis of 88.5%.

Conclusion: Carotid revascularisation through a radiated field seems to be a safe and durable procedure in patients at high surgical risk, despite a marked incidence of recurrent stenosis.

Objective: Objective: Surgical management of carotid artery stenosis in patients with previous neck irradiation remains controversial. The safety and durability of the procedure have been questioned. The aim of the study was to show immediate and long term results in a series of 35 carotid revascularisations through a radiated field.

Methods: From May 1990 to May 2004, 32 patients underwent 35 carotid revascularisation procedures. All of them had received previous radiation therapy with a mean radiation dose of 63 Gy. Twenty two patients presented moderate to severe scarring of the skin or fibrosis. Fourteen patients had undergone radical neck dissection and 2 patients had a permanent tracheostomy. Indications for surgery included symptomatic high grade stenosis (>70%) in 20 patients and asymptomatic high grade stenosis in 15 patients. General anesthesia with systematic shunting was used in 66% of cases and regional anesthesia with selective shunting in the remaining 34%. Operative technique included standard carotid endarterectomy in 24 patients, with patch angioplasty in 16 or direct closure in 8; carotid interposition bypass grafting in 8 patients and subclavian to carotid bypass grafting in 3 patients. Direct closure of the wound was possible in all cases. Mean follow-up was of 41 months (3125).

Results: There was one perioperative death due to massive intracerebral haemorrhage. One patient had a transient ischaemic attack. Postoperative hospital course was complicated by two cervical hematomas, one of which was evacuated surgically. There was no cranial nerve injury, delayed wound healing or infection. During the follow-up 17 patients died of unrelated causes. All patients remained free of new symptoms or new stroke. Duplex scan examination revealed asymptomatic recurrent stenosis (>40%) in three patients. Two of them had a stenosis > 80% and underwent redo carotid surgery. Follow-up at 36 months revealed a cumulative survival rate of 58%, a cumulative primary patency rate of 92%, and a cumulative patency rate without recurrent stenosis of 88.5%.

Conclusion: Carotid revascularisation through a radiated field seems to be a safe and durable procedure in patients at high surgical risk, despite a marked incidence of recurrent stenosis.

Objective: Objective: Simultaneous bilateral carotid artery endarterectomy proved to be one of the safest methods for cerebral monitoring during CEA. This study compares the results of simultaneous bilateral carotid endarterectomy with staged endarterectomy.

Methods: Over an 8-year period (December 1996-December 2004), 1170 patients underwent 1330 carotid endarterectomy procedures (CEA) to treat symptomatic and asymptomatic high-grade carotid artery stenosis. Ten of these patients underwent 20 simultaneous bilateral carotid endarterectomy (SBC). They were compared with 30 patients who underwent 60 bilateral staged endarterectomy. The patients in the two groups were comparable in age, smoking status and gender. The indications for surgery and the surgical management were similar. Routine carotid artery shunting was used in all interventions. All patients underwent duplex scan follow-up and clinical evaluation every three months during the first year after CEA.

Results: The results are comparable in both groups. No mortality, myocardial infarct, respiratory problems or major neurological complications were observed in either group.

Conclusion: Despite the small number of our patients undergone simultaneous bilateral procedures, our results suggest, together with that of the international literature, that SBCE can be safely performed in selected patients by high volume experienced vascular surgeons.

Objective: Objective: Locoregional anaesthesia proved to be one of the safest methods for cerebral monitoring during CEA. This study compares the results of simultaneous bilateral carotid endarterectomy with staged endarterectomy.

Methods: Over an 8-year period (December 1996-December 2004), 1170 patients underwent 1330 carotid endarterectomy procedures (CEA) to treat symptomatic and asymptomatic high-grade carotid artery stenosis. Ten of these patients underwent 20 simultaneous bilateral carotid endarterectomy (SBC). They were compared with 30 patients who underwent 60 bilateral staged endarterectomy. The patients in the two groups were comparable in age, smoking status and gender. The indications for surgery and the surgical management were similar. Routine carotid artery shunting was used in all interventions. All patients underwent duplex scan follow-up and clinical evaluation every three months during the first year after CEA.

Results: The results are comparable in both groups. No mortality, myocardial infarct, respiratory problems or major neurological complications were observed in either group.

Conclusion: Despite the small number of our patients undergone simultaneous bilateral procedures, our results suggest, together with that of the international literature, that SBCE can be safely performed in selected patients by high volume experienced vascular surgeons.
PATIENTS V02 - 7

patients with different clinical forms of ischemic damage. The stenosis of ICA till 50-70% with embolic danger of atherosclerotic plaques. It shows an increase of blood flow and decrease of the resistance index in arteries of eye. Doppler spectrum analysis of blood flow of ocular vessels showed increasing of the amplitude of the peak systolic wave and appearing diastolic flow in the posterior ciliary arteries, which is pathognomonic significance of the vertebral artery extracranial segments and in 19 (41%) patients, the index even became negative. In 16 of 18 patients examined in 6 months following the surgery on the vertebral artery, a positive dynamics of the amplitude of the peak systolic wave and appearing diastolic flow in the posterior ciliary arteries. Of the 46 patients in 18, surgery was performed on the vertebral artery.

V02 - 6

RECONSTRUCTIVE SURGERY ON CAROTID ARTERIES BY DIFFERENT CLINICAL FORMS OF ISCHEMIC DAMAGE OF EYE

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Objective: To determine indications to carotid reconstructive surgery by different clinical forms of ischemic damage of eye.

Methods: One hundred and sixty five patients with ocular ischemic syndrome (OIS) have been examined; 95 of them suffered from acute form of the disease, 70 patients had chronic type. 73(44.2%) patients have been done medication and 92 (55.8%) patients were operated. In all cases we measured blood flow of the following vessels: the internal carotid artery (ICA), the ophthalmic artery (OA), the central retinal artery (CRA), the posterior ciliary artery (PCA). Indications to surgery were based on existing of hemodynamic significant stenosis of ICA (more than 70%) in patients with unilateral neurological, ophthalmological signs and determination of any types of atherosclerotic plaques; existing of impairment of blood flow in arteries of eye and stenosis 50-70%; appearing in ICA atherosclerotic plaques I, II and III types, having uneven and ulcerated almost without neurological symptoms. Carotid endarterectomy was performed in 76.1% patients; caro-

dartery, an increase of the photoreactivity index occurred.

Conclusion: In our experience total complication rate in elderly patients (including major stroke, minor stroke and MI in both groups) was 6.7% that was nearly similar to complication rate of younger patients (4.4%). We observed a higher complication rate in elderly patients who underwent CAS than those treated with CEA, but in the CEA group the complications occurred were more serious (one fatal stroke). Besides in our patients most of CAS morbidities occurred especially when we used a transfemoral approach, probably due to cerebral embolization during arch catheterism. We hypothesize that cerebral approach could reduce embolism and the complication rate. In conclusion we consider CAS a valid alternative to CEA and elderly patients should not be denied this form of treatment of course we need more data from the ongoing trials.

V02 - 7

CAROTID STENOSIS: SURGICAL TREATMENT IN SO-CALLED HIGH RISK PATIENTS

Pedrini L., Pisano E., Pilato A., Cirelli Rosaria M., Magnoni F., Sensi L.

Objective: Carotid surgery is validated by international trials and by long term results after more than 50 years experience. Ethical doubts induced by the endovascular treatment (CAS) forced to find subgroups at high risk for surgery. Many papers tried to confirm the definition of high risk patients, on the basis of their series. The purpose of this study is to search the role of the reported risk factors in a single centre experience.

Methods: History, operative and follow-up data of 1418 patients submitted to CEA between 1996 and 2003, prospectively recorded have been analysed. They are 985 males and 433 females, mean age 69.8 (41-87 years); 96 were over 80; 6 had neck-cancer treated by surgery and radiotherapy. Arteriometry closure with running suture in 749, with a polyester patch in 583, eversion EA in 61. Of the patients were operated under general anaesthesia. Since 1997 they had a Near Infrared Spectroscopy monitoring and a completion ultrasound evaluation.

Results: Operative mortality + stroke (M+S) was 1.19% (9 death and 1 stroke, 1 fatal and 2 major). Patients were divided into 4 age subgroups (<70, 71-75, 76-80 e >80); risk factors, complications and death were analysed in the subgroups and compared. The older p. had a greater incidence of hypertension, diabetes, PVD, CAD, CRF. M+S were not statistically different (1.6, 0.99, 1.11, 1.04 for age <70, 71-75, 76-80 and >80, respectively). The incidence of AMI was greater in the oldest group (3.12 vs. mean 1.12; P = 0.2). Contralateral occlusions was not associated with a higher stroke incidence; patients with important ischemic lesions at brain CT-scan were shunted even with a negative monitoring. The incidence of M+S was 1.35% in 74 p. operated on for restenosis; 1 out of 6 cases with previous neck surgery and radiotherapy suffered a TIA; these 2 groups experienced a greater incidence of cranial nerve lesions and hematomas.

Conclusion: Our results suggest that many of the risk factors reported in protocols for carotid stenting cannot be considered “true” one. In particular contralateral occlusion, age and common risk factors are not related with increased M+S. Patients >80 have a greater risk of AMI and patients with restenosis or neck surgery have a greater incidence of local complications, to consider these patients (like those with unstable angina or recent AMI) the ideal candidate for CAS, even if some recent experiences show worse results of CAS in elderly people.

V02 - 8

ABLES OF THE BRAIN AUDITORY EVOKED POTENTIALS AND PHOTO-REACTIVITY TEST FOR DETERMINING THE INDICATIONS FOR SURGERY ON VERTEBRAL ARTERIES

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Urgency of the problem. Considering the instability of hemodynamics in the vertebral-basilar basin vessels and complexity of determining the pathognomonic significance of the vertebral artery extracranial segments for cerebral ischemia, we have proposed a new method of assessment of the brainstem functional condition, the method proved to be important for determining the indications for surgical intervention in the extracra-
nial arteries.

Material and methods of the study. 46 patients aged 31 to 68 were examined, the patients suffering from vertebral-basilar failure. The main clinical manifestations involved: the vestibular-cerebellar syndrome - in 42 (91%); fainting fits - in 17 (36%); transitory ischemic attacks - in 28 (61%); ischemic stroke - in 9 (19%) patients. Functional tests consisted of two successively carried out techniques: the first one - the brainstem auditory evoked potentials of the brain recorded with the Nicolet Viking select machine using additional high-frequency stimulation; the second one: ultrasonic Dopplerography using the EMG Nicolet Companion device with additional photo-stimulation and calculation of the photo-reactivity index for posterior cerebral arteries. Of the 46 patients in 18, surgery was performed on the vertebral artery.

Results of the study. In 43 (93.4%) patients, various dysfunctions were revealed in conduction at the level of either auditory nerves and/or brainstem. In 39 (84.7%) patients, the dysfunction of impulse conduction along the auditory pathways in the brainstem coincided with the side of the vertebral artery lesion. In 14 of the 18 patients examined in 6 months following the surgery on the vertebral artery, a positive dynamics of the evoked potential parameters was observed. In all 46 (100%) patients under study, a decrease in the photo-reactivity index below 20% was observed, and in 19 (41%) patients, the index even became negative. In 16 of 18 patients examined after 6 months following the surgery on the vertebral artery, an increase of the photo-reactivity index occurred.
Conclusions. A high sensitivity of the method of cerebral vessel photoreactivity study as well as of the modified method of investigation into the brainstem auditory evoked potentials has been shown in estimation of functional condition of the brainstem and the brain occipital lobes in patients with pathological conditions of extracranial segments of the vertebral arteries. This can be used for determining the indications for surgery on the vertebral artery as well as for assessment of efficacy of the conservative/surgical prophylactics of ischemic vertebral-basilar stroke.
3RD CARDIAC SCIENTIFIC SESSION
RABAGO PRIZE

RP - 1
ULTRASTRUCTURAL SUBSTRATES OF HEART REMODELING IN PATIENTS WITH EXTENSIVE POSTFARCT/cardiovaskular DISEASES
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Objective: Ischemic heart disease, complications of which are ischemic cardiomyopathy and chronic heart failure, until now remains to be one of the most widely-spread progressing and predictably unfavorable diseases of cardiovascular system. Different kinds of reconstructive operations combined with CABG take leading place in complex treatment of such pathology. Nevertheless follow-up results show that in a part of the operated patients repeated remodeling of left ventricle (LV) and heart failure progressing take place. In the analyzed literature we have not found data of possible ultrastructural predictors of heart remodeling in the post-operative period. That is why the aim of our work is to study ultrastructural peculiarities of myocardium cardiomyocytes of right atrium (RA) auricle and LV in patients with ischemic cardiomyopathy.

Methods: The object of the study is myocardium of LV and that of RA in 10 patients with surgically repaired LV combined with performed CAGB. Clinical criteria of patients inclusion into the given study were the following: age from 42 to 56, LVEDV > 180 ml, LVEDP > 30 mmHg, NYHA II-III, duration of ischemic heart disease from 1 to 5 years, hemodynamically significant atherosclerotic lesions of 2-4 coronary arteries. Electron-microscopic methods of study were used in work.

Results: Electron-microscopics study showed signs of regenerative - plastic insufficiency of cardiomyocytes of both LV myocardium and RA auricle, such as: myofibrillles “melting” at no restoration in proper size, exposure of perinuclear space, impairment of newly formed myo-philibrilles normal orientation, their redundant length growth. Found dispersed nucleoli, segregation of fibrillar and granular components, annular nucleoli were evidences of biosynthesis depression of RNA. Noticed multiple contractures of myo-philibrilles, their primary clump disintegration de-noted permanent alternative processes taking place. Cistern and vacuole of sarcoplasmic reticulum are reduced, sometimes widened. There were noticed massive endocellular and peri-cappilarr edemas, capillars sclerosing with basic membrane thickening and reduction of their carrying capacity, reduction of lumen and rugosity of endothelial cells luminal surface.

Conclusion: Morphological picture of RA auricle myocardium is in some respect “the mirror” of morphological condition of LV myocardium in patients with ischemic cardiomyopathy. Ultrastructural study revealed mixed, alternative and regenerative-plastic insufficiency of LV and RA auricle myocardium cardiomyocytes in patients with ischemic cardiomyopathy, which is a substrate of progressing heart dilatation and insufficiency.

RP - 2
ONE HOUR DEEP HYPOTHERMIC CIRCULATORY ARREST DOES NOT GENERATE DETECTABLE HISTOLOGICAL INJURY IN THE NEONATAL BRAIN IF POSTOPERATIVE CARE IS OPTIMAL
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Objective: Because historical reports frequently employed animal models involving full intensive care therapy, we sought to examine the cerebral impact of modern DHCA in a carefully controlled survival piglet model involving full intensive care therapy.

Methods: A model of open-chested aorto-atrial CPB with myocardial protection was used in a laboratory with full intensive care facilities for animals. 30 neonatal piglets (2.5-2 kg) were randomized to protocols of progressively worsening DHCA and longer reperfusion periods. Non-CPB controls were instrumented and supported for 0, 8 or 24 h. Non-ischemic CPB controls were subjected to 2 h of warm full-flow, deep hypothermic full-flow or deep hypothermic low-flow CPB and 24 h recovery. Experimental (ischemic) animals were exposed to either 60 or 120 mins DHCA at 18°C and recovered for 2, 8 and 24 h. Following separation from CPB, the animals were managed anesthetized and ventilated with full invasive monitoring, inotropes and fluid support for the entire experimental duration. Following perfusion-fixation, the brains were scored for histological evidence of infarction by two examiners blinded to the experimental protocol, using light and histochemical fluorescence microscopy for neurodegenerative marker Fluoro-Jade™.

Results: Peri-operative parameters were not different between groups. All animals (control and experimental) reperfused for 8 h or less exhibited no evidence of ischemic injury, and were completely indistinguishable, regardless of duration of DHCA (regional histological scores 0 in every animal in all regions (neocortex, basal ganglia, hippocampus and cerebellum), 60 min of DHCA followed by 24 h reperfusion yielded brains indistinguishable from controls. 120 min of DHCA and 24 h reperfusion generated mild ischemic injury (overall score 7.2±4.5). Positive Fluoro-Jade™ or immunohistochemistry for apoptosis markers (cleaved caspase-3) was noted only in this latter group.

Conclusion: This study utilizing meticulous peri-operative care failed to generate ischemic brain injury following 60mins DHCA, contrary to numerous previous reports. These earlier studies have frequently lacked histological controls, and typically do not involve intensive post-CPB management. 120 mins DHCA only yielded ischemic changes when the reperfusion period was extended to 24 h, highlighting the importance of adequate reperfusion periods. The experimental evidence denouncing DHCA appears flawed. We suggest meticulous peri-operative support may be more important than the role of DHCA in the propagation of neonatal brain injury.

RP - 3
HEART VALVE SURGERY IN VERY HIGH RISK POPULATION. A PRELIMINARY EXPERIENCE IN AWAKE PATIENTS
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Objective: Heart valve surgery in high risk patients is associated with a considerable morbidity and mortality. Epidural anesthesia without mechanical ventilation has been proposed as a new technique to reduce invasiveness. Aim of the study was to determine whether this technique is [1] useful and [2] may guarantee better results than general anesthesia.

Methods: We conducted a prospective follow-up study in 50 consecutive pts (24 females and 26 males; female mean age 77±8 years; male mean age 71±10 years) who underwent heart valve surgery with epidural anesthesia without endotracheal-intubation. Pre-operatively the entire population was in New York Heart Association functional class III or IV and 8 pts (16%) had previous cardiac procedure. The median Additive and Logistic EuroScore (%) mortality were 14.5 and 52%, respectively. Twenty-seven patients underwent aortic-valve replacement, 10 mitral-valve replacement, 10 mitral-valve repair, 2 double valve replacement, and 1 ascending aorta replacement. Associated surgical procedures included CABG in 12 pts (24%), left ventricle reshaping in 2 case (4%). The patients were prospectively followed-up and a 6-month quality of life assessment was performed in all survivors. Propensity-matching for the available patient intrinsic and operative-risk factor was finally used to investigate whether epidural- or general-anesthesia impacts outcomes after valve surgery.

Results: The procedures were performed without using mechanical ventilation in completely awake and conscious patient. By propensity score 13.4% of our cardiac valve procedures in general anesthesia (48/356) was perfectly matched for the available risk factors with an equal distribution of the risk covariates. Operative mortality was 4% (awake) vs. 8.3% (general) (P<0.05). Peri-operative complications were as follows: myocardial infarction 0% vs. 10% (P<0.05), IABP insertion 0% vs. 10% (P<0.05), acute-renal-failure 33% vs. 46% (P = NS), prolonged mechanical-ventilation 4% vs. 23% (P<0.05), neurological 0% vs. 8.3% (P<0.05), bleeding 16.6% vs. 10% (P = NS).

Conclusion: Heart valve surgery on cardiopulmonary-bypass is feasible and safe using epidural anesthesia. Maintaining an autonomic ventilation, we significantly reduced the peri-operative complications of patients with an unacceptable operative risk in comparison with patients with the same propensity score operated-on in general anesthesia.

RP - 4
GADOLINIUM CHLORIDE ATTENUATES AORTIC OCCLUSION-REPERFUSIONINDUCED MYOCARDIAL INJURY IN RATS
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Objective: Aortic ischemia and reperfusion periods, which are often associated with infrarenal abdominal aortic cross-clamping and declamping, cause injury in distant organs including the heart. We recently reported that Kupffer cell blockage with gadolinium chloride attenuates lung injury induced by aortic ischemia-reperfusion. Therefore, we hypothesized that Kupffer cell blockage with gadolinium chloride may attenuate myocardial injury induced by aortic ischemia-reperfusion. To test this hypothesis, we studied the effect of gadolinium chloride on myocardial injury induced by abdominal aortic occlusion-reperfusion in rats by measuring the tissue levels of superoxide dismutase, catalase, malondialdehyde and activity of myeloperoxidase in rat heart specimens.

Methods: Wistar-Albino rats (eight per group) were randomized into three groups. The control group underwent midline laparotomy and dissection of the infrarenal abdominal aorta without occlusion; the aortic ischemia-reperfusion group underwent laparotomy and clamping of the infrarenal abdominal aorta for 30 min followed by 60 min of reperfusion; and the gadolinium chloride + aortic ischemia-reperfusion group was pretreated with intravenous gadolinium chloride 10 mg/kg 2 h before the aortic ischemia-reperfusion.

Results: We found that aortic ischemia-reperfusion significantly increased oxygen free radical production, lipid peroxidation and neutrophil activation in the heart tissues of the rats as measured by the tissue levels of superoxide dismutase, catalase, malondialdehyde and activity of myeloperoxidase. Pretreatment with gadolinium chloride significantly reduced the tissue levels of superoxide dismutase, catalase, malondialdehyde and activity of myeloperoxidase.

Conclusion: In conclusion, our results indicate that Kupffer cell blockage with gadolinium chloride attenuates the myocardial injury induced by aortic ischemia-reperfusion. We think that the novel findings of the present study may be a basis for further studies investigating the role of gadolinium chloride pretreatment in reducing myocardial morbidity and mortality caused by aortic ischemia-reperfusion during aortic surgery.

Cardiac Function in a Model of Chronic Myocardial Ischemia

Objective: Combined transplantation of skeletal myoblasts and AC-133 angiopoietic progenitor cells leads to improvement of diastolic and systolic left ventricular function, and reduction of scar size and myocardial apoptotic in a model of chronic ischemia.

Materials and Methods: A model of chronic ischemia was created using LAD-ligation in nude rats. Culture medium, homologous skeletal myoblasts (SM), human angiopoietic progenitor cells (APC), recombinant human FVIII (rFVIII) were prepared. Transplantation was performed in vivo in a blinded manner. Echocardiographic studies were performed to evaluate cardiac function and scar size. Levels of superoxide dismutase, catalase, malondialdehyde and myeloperoxidase were measured.

Results: Echocardiographic studies revealed an amelioration of left ventricular function in the transplant recipients compared to the non-transplanted control group. Transplantation led to a reduction in scar size and myocardial oxidative stress.

Conclusion: Combined transplantation of skeletal myoblasts and AC-133 angiopoietic progenitor cells leads to improvement of diastolic and systolic left ventricular function, and reduction of scar size and myocardial apoptotic in a model of chronic ischemia.
significant differences were found in early postoperative hemodynamic performances between two groups. Postoperative EOAI (1.55±0.5 and 1.47±0.5 cm²/m² for group SSP and NSP respectively), Peak Gradient (13±3 and 11±4 mmHg for group SSP and NSP, respectively) and Mean Gradient (4±2 for both groups) were indeed similar regardless the size of bioprosthesis.

Conclusion: Preoperative predicted effective orifice area seems to overestimate the risk of patient prosthesis mismatch using small sized stented bioprostheses. Our study shows that postoperative hemodynamic performance of stented bioprostheses are not correlated to the size of the valve. MVR using small size stented bioprostheses, therefore, seems not carry a real risk of postoperative patient prosthesis mismatch.
C04 - 1
ARE THERE CONSEQUENCES FOR THE ASCENDING AORTA FOLLOWING AORTIC VALVE REPLACEMENT?
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Objective: Concomitant surgery of the mildly dilated ascending aorta in patients undergoing aortic valve replacement is controversial because progression of aortic dilation after elimination of the valvular lesion is uncertain. Study aim is to analyze the ascending aorta following aortic valve replacement and to define criteria for concomitant aortic surgery in patients with mild aortic dilation undergoing AVR.

Methods: Between 2/1994 and 5/1999, 100 patients underwent aortic valve replacement with the Mosaic bioprosthesis within a prospective multicenter FDA approval study. Patients were followed-up postoperatively, after 6 months and annually by documentation of adverse events and transthoracic echocardiography. Mean follow-up was 4.8 years (range 0.1-18.8 years), and total follow-up included 483.4 patient-years.

Results: During follow-up, diameters of aortic sinus (P = 0.001; expansion rate 0.9±3.3 mm/year) and sinotubular junction (P = 0.003; expansion rate 0.8±4.2 mm/year) increased significantly, whereas the ascending aortic diameter did not change significantly (P = 0.755; expansion rate 0.3±3.7 mm/year). In patients with baseline ascending aortic dilation >40 mm, which was present in 10.2% of the patients (mean aortic diameter 42.5±2.6 mm), ascending aortic diameter decreased significantly during follow-up (P = 0.032; expansion rate -1.9±2.0 mm/year). Larger baseline aortic diameters were associated with smaller postoperative annual aortic expansion rates (r = -0.47, P = 0.001). Baseline aortic dilatation had no influence on postoperative morbidity and mortality rates. None of all patients reached critical aortic diameters and none had to be reoperated for aortic dilation or dissection. Prosthetic regurgitation was associated with increases of the aortic sinus (P = 0.017), sinotubular junction (P = 0.001) and ascending aorta (P = 0.001). Survival was significantly lower in patients with aortic expansion rates >3.6 mm/year (0.70 vs. 68.2±9.7%; P = 0.001).

Conclusion: Unchanged morbidity and mortality rates and decreases of aortic dimensions in patients with mild aortic dilatation undergoing aortic valve replacement indicate a spontaneous remodeling of the ascending aorta after removal of the diseased valve and argue against concomitant aortic surgery. Aortic growth rate was proven to be of strong prognostic importance.

C04 - 2
AORTIC VALVE SPARING OPERATIONS: A SINGLE CENTRE EXPERIENCE
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Objective: Aortic valve-sparing operations have provided very good clinical outcomes in aortic root and ascending aorta pathology associated with aortic valve insufficiency. Aortic valve repair still represents an exciting challenge for cardiac surgeons. We reviewed our total experience with aortic valve-sparing operations to determine early and mid-term outcomes.

Methods: Between July 2001 and December 2005, 105 patients underwent aortic valve-sparing operations. There were 82 male (78%) and 23 female (22%) patients with a mean age of 55.5±15.1 years. Seven patients suffered from Marfan’s Syndrome and 19 had a congenital bicuspid aortic valve (18%). Acute type A aortic dissection was present in seven (6.6%) patients while type B dissection in ten (9.5%). Seventy-eight patients were treated with a David I reimplantation technique; the Gelweave Valsalva™ graft was implanted in 70 of them. Twenty-three patients had an ascending aorta replacement with sinotubular junction reduction. Four patients had an aortic root remodelling. Twenty-six patients (24.7%) had associated cusps repair.

Results: There were 4 in-hospital deaths (3.8%) and 2 late deaths. In elective conditions only 1 patient died whereas five deaths were observed in type A acute aortic dissection operations. Seven patients developed 3 to 4+ AI and five of these required late AVR. The 3-year survival for patients with aortic root aneurysm was 95.4±2.6%, and for patients with ascending aortic aneurysm 89.2±7.3% (P = 0.464). Three-years freedom from grade 3-4 AI was 88.9±5.2% for patients with ascending aortic aneurysm and 88.2±7.8% in those with ascending aortic aneurysm at three years.

Conclusion: Aortic valve-sparing operations showed excellent results in patients electively operated for aortic root ectasia, while the results in acute aortic dissection were disappointing. The Gelweave Valsalva™ prosthesis demonstrated ease of implantability and good reproduction of the pseudo-aneurysm. Long-term follow up is necessary to determine if this graft will enhance the function and increase the durability of the aortic valve.

C04 - 3
NINE YEARS EXPERIENCE OF ANTEGRADE SELECTIVE CEREBRAL PERFUSION
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Objective: There are more and more convincing results about the efficacy of the brain protection through Antegrade Selective Cerebral perfusion (ASCP). In our Institute, until today, we achieved a large experience with this kind of technique and we use it routinely in every kind of surgery involving the aortic arch with very satisfactory results. It has been applied both in case of selective intraluminal cannulation than combined with auxiliary cannulation.

Methods: In our Institution from November 1996 to September 2005, 296 consecutive patients underwent Antegrade Selective Cerebral Perfusion: 100 (33.7%) were urgent/emergent cases and 196 (66.3%) were elective cases. 156 (52.7%) patients received ascending aorta and aortic arch replacement; 76 (25.6%) ascending aorta and eminarch replacement; 36 (12.1%) aortic arch replacement; 15 (5.0%) complete thoracic aorta replacement; 11 (3.7%) aortic arch and descending aorta replacement and 2 (0.6%) patients other kind of correction. Arch vessels reimplantation was performed as separated graft in 139 patients (64.3%) and as en bloc reimplantation in 78 patients (35.7%). In case of single arch vessels reimplantation, this one is performed at the end of the surgery during coronary reperfusion and rewarming on beating heart.

Results: The mean Cardiopulmonary Bypass (CPB) time was 187.9±60.2 min (min 82 - max 440); mean Myocardial ischemic Time was 122.2±45.2 min (min 31 - max 283); mean ASCP time was 59.7±35.7 min (min 10 - max 254); mean Nasopharyngeal Temperature (° C) was 32.2±1.4 (min 18 - max 26) and mean Rectal Temperature (° C) was 35.8±2.7 (min 21 - max 28). Hospital mortality was 38/296 patients (12.8%): 17% (17/100 pts) in urgent surgery (P = 0.01). We observed permanent neurologic deficit in 5 patients (1.6%) and transient neurologic deficit in 20 patients (3.4%).

Conclusion: ASCP in our experience is the best way to protect the brain during aortic arch surgery: a right management of ASCP amplifies its advantages like moderate hypothermia and a better cerebral perfusion and it allows to perform safely even complex reconstructions of the thoracic aorta.

C04 - 4
MINIMIZING BIOLOGIC GLUE-RELATED COMPLICATIONS AFTER SURGICAL REPAIR OF ACUTE TYPE-A AORTIC DISSECTION
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Objective: To evaluate the effect of our modified glue-repair technique on glue-related complications after acute type-A aortic dissection repair.

Methods: From August 1994 through March 2005, biologic glue was used for acute type-A aortic dissection repair in 92 patients (Gelatin-Resorcin-Formaldehyde glue in 88, BioGlue in 4). Since January 2001, we have been using a modified Gelatin-Resorcin-Formaldehyde glue-repair technique, the key aspects of which are; 1. Creation of a neo-media using pieces of thin-walled knitted polyester placed in the false lumen, 2. Keeping the amount of Formalin to a minimum using tuberculin syringe, 3. Applying pressure on
the aortic layers with a special clamp to facilitate polymerization of the glue components. 4. Reconstructing the whole extent of the dissected aorta to 3% in the late series. Seven patients (12%) in the early series developed aortic root re-dissection 5 to 71 months after the initial operation. Suture dehiscence occurred in most of these re-dissections that resulted in severe aortic regurgitation due to prolapse of the non-coronary aortic cusp into the left ventricle leading to congestive cardiac failure. On the other hand, there has been no such complication thus far in the late series with a maximum follow-up of 51 months.

Conclusion: Gelatin-Resorcin-Formaldehyde glue-related complications after follow-up of 51 months.

Biologic valves were inserted in 28 (7.4%) xenopericardial conduits and dif-
ficulty xenopericardial conduit.

Objective: Ascending aortoplasty is an alternative technique that may have several advantages in selected cases. We report 6-year follow-up of this conservative approach to aortic root aneurysms.

Methods: During 3-year period, 108 patients with aneurysm of the aortic root underwent aortic valve-sparing reimplantation using the Gelweave Valsalva™ prosthesis (group A, n = 53) or composite graft replacement with mechani-
vacular conduits (group B, n = 55). The two groups of patients had similar demographic characteristics. Two patients in each group had the Marfan syndrome.

Results: Patients in the group A had longer intraoperative aortic cross clamp time (100 vs. 79 min, P<0.001) and longer cardiopulmonary bypass time (129 vs. 100 min, P<0.001), compared with patients in group B. In-hospital mortality was 0% in group A and 3.6% in group B (P = 0.1). The mean follow up time was 24 months (range 1-44 months). Survival at 3 years was 100% in group A and 93.2±5.1% in group B (P = 0.3). Freedom from reoperation at 3 years was 89.1±7.0 in group A and 90.5±6.8% in group B (P = 0.1). Thromboembolic complications rate was 0% in group A and 3.6% in group B (P = 0.1).

Conclusion: The results of aortic valve-sparing reimplantation using the Gelweave Valsalva™ prosthesis and composite grafting of the aortic valve and ascending aorta with mechanical valve conduit, are similar in terms of early and 3 years mortality and incidence of reoperations. The patients that underwent composite graft replacement had a higher incidence of thromboembolic events although it didn't achieve statistical significance. Our satisfactory results support the use of the valve-sparing procedure by means of the Valsalva prosthesis in this conservative approach to aortic root aneurysms, provided that the indication must be achieved after careful and, case by case evaluation.

C04 - 6
ASCENDING AORTOPLASTY: SIX YEARS FOLLOW UP
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Objective: Ascending aortoplasty is an alternative technique that may have several advantages in selected cases. We report 6-year follow-up of this technique.

Methods: From January 1998 to December 2005, 80 patients underwent aortic valve replacement and reduction aortoplasty. The mean age was 61±12.3 years, 48 patients were male (60.0%). All patients underwent preoperative echocardiography and a computed tomographic scan of the chest to evaluate the diameter of the ascending aorta at pulmonary artery bifurcation. The mean preoperative aortic diameter was 49.7±6.9 mm (range 38-70).

Results: There was no perioperative morbidity and one perioperative death (1.47%) for acute dissection of the aortic arch. Three patients died at follow-up, one for cerebral infarction, one for pulmonary cancer and one for prostate cancer. One patient had a transient cerebral ischemia at 16 months, with no actual neurological damages. Kaplan-Meier survival was 83.1% at 78 months, while freedom from cardiac-related was 94±5.0.

At follow up five patients underwent aortic reimplantation and 3 of them needed reoperation. Freedom from reoperation was 76±9.8, while freedom from reoperation at 78 months was 83±9.2. Log regression analysis performed to identify risk factors for reimplantation: only preoperative diameter ≥55mm was defined a risk factor. The evaluation of aortic diameter at follow up demonstrated a significant, as expected, decrease respect to baseline after surgery, while no further changes in aortic diameter documented at follow up.

Conclusion: This experience confirms that, at 6 years follow up, ascending aortoplasty is a low risk alternative technique that shows the best results for preoperative aortic diameters less than 55 mm.

C04 - 7
THE HYBRID APPROACH FOR ONE STAGE REPAIR IN COMPLEX TYPE A AORTIC DISSECTION
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Objectives: In standard surgical repair of acute Type A aortic dissection the descending aorta remains untreated, causing malperfusion and secondary rupture in up to 5%. Whereas 20% of the patients require a second stage procedure. For hypothesis that one stage repair we developed an integrated stentgraft dacron prosthesis, consisting of a stent graft device with a vascular prosthesis in direct continuity.

Methods: Between 01.2005 and 12.2005, eight patients (mean age 63±12 yrs) with complex Type A aortic dissection (7 acute and 1 chronic) were treated under emergency conditions with the new E-Vita A Open prosthesis (Jotec, Germany). Preoperative malperfusion was present in 5 pts. (62%). The stentgraft was inserted into the descending aorta after complete resection of the aortic arch using hypothermic circulatory arrest (DHCA) at 24°C and selective antegrade cerebral perfusion (SACP) at 18°C. Implant control was performed intraoperatively by TEE. After antegrade stentgraft deployment the integrated vascular prosthesis was extracted for direct arch replacement.

Results: The deployment of the self expanding stentfraft-dacron prosthesis was uneventful in all cases. Mean duration of selective cerebral perfusion was 58±15 min. Survival rate is 100% during a mean follow up of 88±91 days. Within the stented region the false lumen of the thoracic aorta thrombosed subsequently in all patients. Postoperative control (CT and TEE) performed 7 days and 3 weeks after surgery demonstrated a reexpansion of the true lumen and restoration of antegrade flow. No endoleaks were detectable and there was no need for a secondary intervention in any patient.

Conclusion: Based on the preliminary data and the short follow up period our results indicate that the integrated stentgraft dacron prosthesis allows for facilitated repair in complex aortic disease. With this tool one stage repair of the entire thoracic aorta seems to be feasible, but this has to be confirmed by long term results.

C04 - 8
FIFTEEN YEARS CLINICAL EXPERIENCE OF USING XENOPERICARDIAL CONDUIT IN BENTALL-DE BONO PROCEDURE
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Objective: Aim of the study was clinical investigation of 15-years experience of ascending aorta replacement by Bentall-De Bono technique with composite xenopericardial conduit.

Methods: From 1990 to December 2005, 376 patients underwent ascending aorta replacement with composite xenopericardial conduit. There were 284 male and 92 female. The original diseases were cystic media necrosis in 41% (154 patients), atherosclerosis in 35% (132 patients). Dilatation of the ascending aorta was found in 191 (50.8%); aortic dissection in 185 patients (49.2%). De Bakey type I was in 53 (14%) cases. Forty-seven patients (12.5%) were operated on during the acute phase of the dissection. Repair of the ascending aortic aneurysm was performed with Bentall-DeBono technique in all cases. Biological valves were inserted in 28 (7.4%) xenopericardial conduits and different types of the mechanical valves were used in 348 conduits.
Results: Hospital mortality was 8.1%. The mean follow-up period was 5.6±1.4 years (range 0.5 to 15 years). Conduit-related complications included 6 reoperations caused by 2 mechanical valve thrombosis and 2 structural conduit failures and 1 endocarditis. After 10 years the actuarial survival rate was 89.6% and after 15 years was 64.8%. There were 6 late deaths: 5 patients died of nonconduit causes and 1 died of biological valve structural failure. After 15 years, freedom from biodegradation and calcification is 80%, freedom from endocarditis 89%, freedom from reoperation is 93%.

Conclusions: With a low rate of biodegradation and calcification events at 15 years this conduit is a reliable choice for ascending aorta replacement.
Objective: To evaluate our results of open surgery of thoraco-abdominal aortic aneurysm in high risk patients.

Methods: We report the case of a 74-years-old patient with a 60 mm diameter asymptomatic thoracic aneurysm. This patient had a severe hepatic insufficiency. The aneurysm has been treated by an endovascular graft. On the following days he developed a disseminated intra-vascular coagulation.

Results: Despite a complete medical treatment the patient died of his complication. The two other reported cases also died of the disseminated intra-vascular coagulation.

Conclusion: After endovascular treatment of an aortic aneurysm, the activation of coagulation and fibrinolysis has been reported, usually without disseminated intra-vascular coagulation. Hepatic insufficiency and endothelial lesions caused by the catheterism seem to be responsible for the disseminated intra-vascular coagulation after endovascular treatment of an aortic aneurysm.

CV02 - 2

CONVENTIONAL SURGICAL REPAIR OF THORACOABDOMINAL AORTIC ANEURYSM WITHOUT MORTALITY IN HIGH RISK PATIENTS

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Objective: To evaluate our results of open surgery of thoraco-abdominal aorta aneurysm in high risk patients.

Methods: Between 1986-2005, 16 patients underwent replacement of the thoraco-abdominal aorta, two patients carry out twice at 2 years interval. Five patients were women. The mean age of the patients was 57 years (range 29-83 years). The adjuncts used in this patients included peripertaneous cerebrospinal fluid drainage, temporary shunt for thoracic aneurysm, normovolemic hemodilution, cell-saver, full cardiac monitoring including trans-esophageal echography, b-blocker. Intercostal arteries were implanted when possible in distal or proximal anastomosis. There was 4 operative repair for type II, 2 for type III and 12 type IV for thoraco-abdominal aneurysm. Thirty-day follow-up was complete for all the patients. Concurrent medical problems included chronic obstructive lung disease in 7, inferior right lobectomy in 1 patient, a history of coronary artery disease in 5 patients, renal insufficiency (creatinine > 30 mg/l) in 2 patients, HTA for the all the patients, neoplasm 2 patients.

Viceal arteries were reimplanted in 14 patients (82%) and renal arteries in 13 patient (76%). Fast track anesthesia was used for all patients.

Results: Early mortality was 0%. 1 patient (emergency case with myotic aneurysm) had a paraparesis. Transitory renal failure occurred in 2 patients (11%). Intubation after surgery 0 patients. Reoperation for postoperative bleeding in 3 patients.

Conclusion: Type II, Type III, Type IV thoraco-abdominal aneurysm surgery can be accomplish with low mortality and morbidity using a uniform approach of modern adjuncts and precise anesthetic and operative management.

CV02 - 3

SURGERY OR DISTAL AORTIC ARCH ENDOPROSTHESIS ? NO : HYBRID AORTIC SURGERY

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Objective: To evaluate our results of open surgery of thoraco-abdominal aortic aneurysm in high risk patients.

Methods: We report the case of a 74-years-old patient with a 60 mm diameter asymptomatic thoracic aneurysm. This patient had a severe hepatic insufficiency. The aneurysm has been treated by an endovascular graft. On the following days he developed a disseminated intra-vascular coagulation.

Results: Despite a complete medical treatment the patient died of his complication. The two other reported cases also died of the disseminated intra-vascular coagulation.

Conclusion: After endovascular treatment of an aortic aneurysm, the activation of coagulation and fibrinolysis has been reported, usually without disseminated intra-vascular coagulation. Hepatic insufficiency and endothelial lesions caused by the catheterism seem to be responsible for the disseminated intra-vascular coagulation after endovascular treatment of an aortic aneurysm.

CV02 - 4

SINGLE STAGED REPAIR OF COARCTATION AND ASCENDING AORTIC ANEURYSM WITH A NOVEL TECHNIQUE

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Objective: Aortic coarctation accompanied by ascending aortic aneurysm and bicuspid aortic valve presents a surgical challenge. The single staged and two staged operative management of the pathology have been described. We describe single staged repair of coarctation and concomitant cardiac pathology via sternotomy with a novel technique.

Methods: A 33-year-old male patient with the diagnosis of ascending aortic aneurysm (5.5 cm.), bicuspid aorta (2+ insufficiency), and aortic coarctation was operated with a novel technique. The operative technique was arcus aorta-to-descending thoracic aorta bypass with vasculocraft graft for aortic coarctation and Bentham procedure for the ascending aortic aneurysm. The single staged procedure was performed through median sternotomy. During single staged repair of coarctation accompanied by a concomitant cardiac pathology, the extra-anatomic bypass (ascending aortadescending aorta) is widely performed. Instead of this extra-anatomic bypass, with this novel technique, the graft between the arcus aorta-to-descending aorta follows the route of the native aorta.

Results: The patient was extubated at 12 h and ICU stay duration was 40 h. The patient was discharged on day 7. There was no difference between femoral artery and brachial artery blood pressure. The multislice CT scan revealed that the anastomoses performed were functional. After 5 months of follow-up the patient was in good condition with normal blood pressure.

Conclusion: During single staged repair of coarctation accompanied by a concomitant cardiac pathology, we advocate this technique since the graft between the arcus aorta-to-descending aorta follows the route of the native aorta. Thus the route of the graft bypassed in this technique is more anatomical compared to that of the other techniques.
CV02 - 5
EMERGENCY ENDOVASCULAR STENT-GRAFT TREATMENT FOR ACUTE THORACIC AORTIC SYNDROMES
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Objective: We report the results of our ongoing experience of urgent and emergency stent-graft implantation in acute thoracic aortic syndromes.

Methods: From November 2000 to March 2005, 17 patients were treated for acute thoracic aortic syndromes. Traumatic rupture was diagnosed in 7 patients, complicated acute type B dissection was present in 4 patients, penetrating ulcer in 4, and symptomatic thoracic aortic aneurysm in 2 patients. There were 16 male patients with a mean age of 51±26 years (range 18-83; median 46). Patients were treated in the theatre suite under general anesthesia.

Results: Stent-graft placement was technically successful in all patients. The early postoperative mortality was 11.7%. Neurological events or upper arm ischemia due to overstretching of the left subclavian artery were not observed. Average intensive care unit and hospital stay were 18 and 22 days, respectively. Major complications occurred in 5 patients. Follow-up ranged between 3 and 60 months (mean 25) and included clinical examinations and serial CT-angiography at 1, 4 and 12 months, and every year thereafter. Only one type II endoleak was detected and treated by coil embolization of the left subclavian artery.

Conclusion: Our experience suggests emergency stent-graft repair in patients with acute thoracic aortic syndromes is a less-invasive attractive alternative, showing encouraging early and mid-term results.

CV02 - 6
ENDOVASCULAR TREATMENT OF TYPE B AORTIC DISSECTION: A PROMISING ALTERNATIVE
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Objective: The optimal treatment for complicated type B aortic dissection is still controversial. Considering the high morbidity and mortality related to surgical repair of the descending thoracic aorta, the endovascular approach is a promising alternative, mainly for chronic stages.

Methods: In the last four years 12 patients were referred to our hospital with type B aortic dissection. Ten (83.3%) had chronic dissection and 2 (16.6%) had acute onset; 11 (91.6%) had moderate comorbidities (ASA class = 3) and one (8.3%) a poor clinical health status (ASA class 4). Indications for aortic stent-grafting were pain in 4 patients (33.3%) and the presence of a large false lumen with maximum aortic diameter exceeding 55 mm in 7 cases (58.3%). One patient (8.3%) with acute dissection had severe leg ischemia managed at first with emergency fenestration of the dissecting membrane due to the complex anatomy of the aorta. The failure of this procedure required an emergency axillo-femoral by-pass with fatal complications. The endo-grafting was performed in a cardiac operating theater (CPB available) by a team of cardiothoracic and vascular surgeons, interventional cardiologist and anaesthesiologists.

Results: The stent-graft coverage of the primary entry tear has been achieved in all patients. None underwent conversion to open surgery and one received (8.3%) hybrid procedure (thoracic descending aorta stent grafting and open surgical resection of an abdominal aortic aneurysm). We didn’t observe neither neurologic complications nor early or late deaths.

Conclusion: The endovascular approach represents an interesting alternative to traditional treatment of complicated type B dissection considering the lowest morbidity and mortality and the rapidly expanding availability of endovascular technology; however further investigations are necessary to answer all the rising questions.

CV02 - 7
A META-ANALYSIS OF ENDOVASCULAR VERSUS OPEN SURGERY FOR THE ACUTE TREATMENT OF DESCENDING AORTIC PATHOLOGY: DETERMINING BEST PRACTICE
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Objective: Despite data supporting endovascular treatment of acute abdominal aortic aneurysms there has not been a meta-analysis of endovascular vs. open surgery for acute descending thoracic aortic pathologies. This study presents the results of a meta-analysis of all available series comparing open and endovascular intervention on emergency thoracic aortic cases.

Methods: A prospective registry of our cases from 2001-present was analyzed. These data were then combined with a systematic review of the literature reporting results following intervention on acute pathologies affecting the descending thoracic aorta. Only peer-reviewed papers covering 1994-Present describing both endovascular and surgical outcomes were included. We assessed: 30-day mortality, paraplegia and major adverse outcome (a composite of mortality and paraplegia). Random and fixed-effect meta-analytical models were used to evaluate the outcomes and represent the results quantitatively and graphically.

Results: One hundred and seventy-one patients (Open = 81, Endovascular = 90) were suitable for inclusion. None were randomized. Paraplegia rates and major adverse outcome were statistically lower in the endovascular group (P = 0.05 and P = 0.07 respectively). Analysis of all data using a random-effects model suggests no significant difference in 30-day mortality between either intervention (P = 0.24), but this becomes highly significant if a fixed-effects model is used (P = 0.01). The cause of this discrepancy is statistically significant heterogeneity (P = 0.05) between the mortality data reported in the included studies. Results from Morishita et al appear to skew the results of the meta-analysis, since their data on mortality suggests open surgery is preferable to endovascular repair in contrast to the other studies and other reported series. This observation may be caused by selection bias.

Conclusion: At present there is no clear evidence-base to support endovascular treatment of acute thoracic aortic disease in general. Since a randomised trial is unlikely to be performed there is a strong need for further rigorous analysis of comparative data from centres using both techniques.

CV02 - 8
STENT-GRAFT REPAIR OF POST-COACTION ANEURYSMS
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Objective: Late aneurysm formation has been reported after every type of surgical coarctation repair, with rupture of such aneurysms being responsible for approximately 7% of all deaths. Secondary surgical repair carries a significant mortality and morbidity. According to the positive experience with endovascular therapy of atherosclerotic thoracic aortic aneurysms, it is worthwhile to evaluate the concept of minimally invasive endovascular stent grafting for secondary repair of postsurgical aneurysms.

Methods: prospective clinical data base; data were collected prospectively on consecutive patients who presented with a post-coarctation false aneurysms.

Results: Since 1999, in a cohort of 60 endovascularly treated patients with thoracic aortic pathologies, 3 patients with post-coarctation false aneurysms underwent endoluminal stent-graft placement. All of these procedures were technically successful with no 30-day or 1-year procedure-related mortality. After a mean follow-up of 27 months (range, 17-42 months), all aneurysms remain excluded without endoleak.

Conclusion: According to the current limited experience of small series and short periods of followup, the endoluminal repair seems to be a promising alternative to redo operations for post-surgical thoracic aneurysms associated with coarctation repair. Long-term follow-up is required to assess the durability of the stent-graft treatment.
fusion during the daytime and its increase at night. In 6 cases (Group B) no statistically significant circadian rhythm of skin blood flow with low perfusion before and after arterial reconstruction.

Results: Preoperative laser Doppler measurements showed in 14 cases (Group A) that there was an increase of average circadian skin blood flow following revascularisation and an increase of the amplitude of the day-night rhythm of skin blood flow (28.2%), when compared to preoperative values. In 4 patients from Group B, only revision of popliteal trifurcation was performed due to confirmed intraoperatively occlusions of crural arteries showed by angiography. Remaining 2 patients from Group B underwent implantation of distal femoropopliteal by-pass but had thrombosed within 7 days from the day of surgery. Postoperative measurements in Group B did not show any improvement of resting perfusion nor the signs of reappearance of circadian rhythm.

Conclusion: Noninvasive, circadian measurement of peripheral skin perfusion by means of laser Doppler flowmetry in patients awaiting vascular reconstruction may be valuable tool in the prediction of the success of blood flow restoration in ischemic legs. The presence of circadian rhythm in skin blood flow prior vascular reconstruction and increase of resting perfusion and amplitude of the day-night rhythm after revascularisation may indicate successful cases. The lack of significant circadian rhythm in peripheral skin perfusion before and after vascular reconstruction may distinguish patients with high risk of failure.

DPS - 3
PROGRESS IN CARDIOVASCULAR ANASTOMOSES TECHNIQUE: IS THE VASCULAR JOIN THE MOST PHYSIOLOGIC TECHNIQUE TO ANASTOMOSE VESSELS?
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Objective: Surgical environment is becoming more and more challenging for the vascular surgeon since minimally invasive approach comes up. Moreover, the vascular surgeon has to deal with vascular reconstructions that are very complex due to the aging of the population and the increasing number of patient’s comorbidity. The suture technique for vascular anastomosis construction is becoming inadequate to meet new surgeon’s demand. Therefore, surgeons need an alternative way to construct a bypass in order to reduce the technical demand and standardise the quality of the surgical procedure. The sutureless anastomotic device presented fulfills all the above described needs and represents a breakthrough product that will establish the new gold standard for vascular anastomosis.

Methods: Vascular Join allows the construction of end-to-end anastomosis. It consists of two metallic rings fixed to the extremity of the two conduits being joined together. A third polymeric element keeps the two rings together with a snap-on system and guarantees the continuity of the severed conduit. One of the key elements that makes this device totally different from all other sutureless devices, is that there is no foreign material (metal or polymers) inside the vessel. Experimental setup: in 10 adult sheep, under general anaesthesia, both carotid arteries are prepared. After injection of heparin 100 U/kg, carotid arteries are severed and an end-to-end anastomosis performed using the sutureless technique. IVUS and angigram are used to assess anastomosis quality. Animals are sacrificed after 2 h and histopathological analysis is carried out.

Results: All anastomoses were successfully completed in less than 60 sec. No bleeding, stenosis or occlusions were detected. IVUS, angigram and histology showed perfect apposition of vessel’s edges.

Conclusion: The Vascular Join is a reliable instrument to perform sutureless end-to-end anastomosis. It makes the construction of vascular anastomosis easier and than ever. Moreover, it can be used with prosthetic material and in endoscopic procedures as well. Animal studies are on going to assess the long term results.

DPS - 4
CAROTID RESTENOSIS AFTER ENDARTERECTOMY: SELECTIVE USE OF OPEN VASCULAR AND ENDOVASCULAR TREATMENT
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Objective: Consensus has not yet been established on the best treatment of tight carotid restenosis, after carotid endarterectomy (CEA). Different open primary procedures may produce different features of restenotic tissue, fibrous, soft or calcified. This study analyses these differences in the selection of endovascular vs. open vascular reintervention.
Methods: From January 1999 to January 2004, 51 patients underwent vascular or endovascular treatment for a >75% restenosis. Primary surgery was CEA with primary closure (38 pts, 75%) and CEA with patch closure (13 pts, 25%). Indication to open surgery vs. the endovascular approach was based on the type of primary intervention and the morphologic characteristics of the restenotic plaque. All patients undergoing surgical treatment had a soft plaque on duplex-scan examination, and in the majority of them (77%) the primary procedure was CEA and patch.

Results: CAS with cerebral protection device was planned on 38 patients. Angioplasty was technically successful in 34 cases (89%). Open surgical re-intervention was primarily carried out in 13 patients, and in 4 secondarily after the failed endovascular attempt. Postoperative major strokes were 2 in the open surgery group and 1 in the endovascular group. There was 1 asymptomatic stent occlusion. At surgery, 80% of the restenosis after primary CEA and patch closure showed a soft, friable material at gross examination.

Such friable material was never found in restenosis after primary CEA and direct closure. Conclusion: Since restenosis is not an homogeneous condition indications to vascular or endovascular treatment should be selected based on the different features of each patient. CAS with cerebral protection devices is an acceptable alternative to surgery in the management of internal carotid artery restenosis following endarterectomy. However restenosis after CEA and patch closure is usually associated with a soft material and CAS could present a very high risk of embolization during the procedure.

**DSP - 5**

**CRYOPRESERVED ARTERIAL ALLOGRAFT RECONSTRUCTION FOR PERIPHERAL GRAFT INFECTION**

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Objective: We have prospectively evaluated the safety and the efficacy of cryopreserved arterial allograft reconstruction in the management of major peripheral arterial graft infections.

Methods: During the 9-year study period (April 1996 to March 2005), 21 patients with major peripheral graft infection underwent graft excision and cryopreserved arterial allograft reconstruction. Nine patients (42%) had systemic sepsis, five (23%) had acute ischaemia at the time of the allograft reconstruction and ten patients (47%) had experienced anastomotic rupture.

Allograft reconstruction was performed as an emergency procedure in 7 patients (33%). Results: There were no perioperative deaths or early amputations. Two patients had allograft ruptures in the groin during the early post-operative period. The mean follow-up period was 39 months (range 6-100 months). There was no persistent or recurrent infection and none of the patients received long-term antibiotic therapy. Reoperation for allograft revision, excision, or replacement was performed in four patients. The 2 years primary allograft patency, secondary allograft patency and limb salvage rates were 66%, 74% and 86% respectively.

Conclusion: Our experience with cryopreserved arterial allograft in the management of major peripheral bypass graft infection suggests that this technique seems to be a very useful option for treating one of the most dreaded vascular complications.

**DSP - 6**

**VASCULAR AND ENDOVASCULAR COMBINED PROCEDURES IN LOWER LIMB ARTERIAL RECONSTRUCTION**


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Objective: The association of vascular and endovascular procedures, in patients with multilocular obstructive disease of the lower limbs, gives the opportunity to treat in a single step multi-segmental lesions which were previously treated in more demanding open procedures.

Methods: From January ‘99 to May ‘05, thirty-five patients, 29 males and 6 females, with chronic occlusive arterial disease of the lower limbs (3rd-4th Fontaine stage) were submitted to combined vascular and endovascular procedures. In 25 patients (71.5%) (Group 1) a femoropopliteal/pedal bypass was carried out after PTA/Stenting of the iliac arteries, while in the 10 patients (28.5%) (Group 2) the endovascular procedures were performed following the surgical approach (a femoropopliteal bypass). The prosthetic material was autologous saphenous vein in 23 patients (65.7%), PTFE EXS in 8 (22.8%) and a biological graft in the remaining 4 (11.5%). In the group 1 after iliac stenting a fem-pop-subticular bypass was carried out in 19 (76%), a fem-pop suprarenal in 4 (16%), a fem-pop + jump on the posterior tibial in 3 (4%) and a superficial femoral-pedal in the last one (4%). In the other group the fem-pop sub-articular bypass was followed by a PTA of the tibial vessel in 8/10 cases (80%) and by a tibial stenting in 2 cases (20%). The follow-up was from 3 to 65 months and the patients were submitted to routine controls by means of Duplex scan. MRangiography or a dye angiography were performed in complicated cases.

Results: One patient was lost to follow-up and none died. Two (8%) iliac stents became occluded and the sudden onset of an acute ischemia of the limb required in both cases an aorto-femoral bypass on emergency. The occlusion of the tibial stent in one patient (10%) was clinical relevant, and the failure of the PTA procedure in other two (20%) with the reocclusion of the tibial arteries was followed by thigh amputation; Occlusion of the femoro-popliteal bypass occurred in 6 of 25 patients of group 1(24%) and in 3 of 10 of group 2 (30%). The overall patency rate was 74.3%.

Conclusion: Combination of the vascular and endovascular surgery is effective and durable in terms of patency and complication rate. A revision of the international literature shows no codified protocols on combination so that this choice depends only on the subjective surgeon’s experience. In our opinion the good results obtained depends also on the patient’s selection and on the arterial disease morphology.
Objective: Aim of this study was to retrospectively evaluate our experience in urgent CEA in patients with acute neurological symptoms comparing them with results obtained in stable symptomatic patients in a case-control study.

Methods: From January 1996 to December 2003, 2564 consecutive CEsAs were performed at our Department. In 55 cases CEA was carried out in patients with acute neurological deficit; in all these patients, clinical presentation were recent (<24 h) or crescendo (defined as two or more episodes in 24 h, with complete recovery after each episode) TIsA (Group 1). Control group was randomly obtained from our historical database and consisted of 225 stable symptomatic patients operated on in the same period (Group 2). Early (30 day) results in the two groups were compared by ?2 and Fisher exact tests; follow-up data were analysed by life-table analysis (Kaplan-Meier test) and results in subgroups were compared by means of log rank test.

Results: Considering mortality and any neurological morbidity, the risk than those of group 2. Estimated cumulative 36 month survival was significantly better in group 2 than in group 1. Considering the absence of ipsilateral stroke at 36 months, there were no differences between the two groups; however, analyzing the estimated absence of any neurological events, both ipsilateral and contralateral, at 36 months, patients of group 1 had an higher risk than those of group 2.

Conclusion: Urgent CEA in patients with recent/crescendo TIA and appropriate carotid artery lesion carries good early and long term results, which however remain slightly poorer than those obtained in symptomatic patients with a stable neurological status.

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Objective: New technologies change the role both of medicine and patients. In order to cut the hospitalization days and health costs, but maintaining the highest safety standards, we have experimented a protocol aimed at an early and protected discharge for hospital on the first day after carotid endarterectomy (CEA). Complications mostly happen during the perioperative period (first 12 h). Late complications happening 48 h after the operation consist in lateral-cervical haemotoma, and hypertensive crises. In the first instance the treatment consists in an early drainage of the haematomata to prevent or treat respiratory insufficiency, in the second one in the administration of hypoten- sive drugs. Aim of study is to prove if CEA can be done at one day surgery.

Methods: From October 2005 we have selected 26 patients, with internal carotid stenosis >70%, living in a culturally and organizationally adequate background. All the patients underwent CEA; they were discharged on the first post-operative day according to a system of “Interactive Home Telehealth” (IHT); they were given a bag - to be given back after 48 h of monitoring - containing an electronic artery pressure meter, a UMTS technology videophone, a questionnaire With a personal computers that our ward is endowed linked to the Web, and a satellite video communication program, we monitored the surgical cut, arterial pressure, heart beat and the general conditions of the patient. In order to ensure safety standards for the patient’s health, a collaboration agreement has been reached with the emergency service so that an immediate action by the surgeon is possible in case of need during a video-call.

Results: The image quality of the videophone is so good as to allow a cor- rect judgement by the surgeon. From the questionnaire gaved to the patient emerged a sense of insecurity, because of the early discharge. This insecurity decreased after the first video connection, also for a general satisfaction coming from the immediate return to the family environment. There were no medical emergency interventions; 3 cases showed hypertension, which solved after advising the patient to follow an adequate hypotensive therapy.

Conclusion: CEA may be effected, in selected cases, as One Day Surgery pro- cedure. Our initial results suggested that the IHT protocol wich we used is a valuable and safety tool for decreasing the hospitalization period, without limitations in careful watch of local and general conditions.
Objective: To predict the distal bypass results in critical limb ischemia patients with use of the preoperative angiographic outflow score.

Methods: One hundred and five patients with cruro-pedal arterial lesion and critical limb ischemia were treated. Most of them were males - 95 (90.5%), 66 (62.9%) had atherosclerosis, 37 (35.2%) had thrombangiitis obliterans, 2 (1.9%) had distal embolization. Mean age of the patients with atherosclerosis was 66.0±8.3, with thrombangiitis obliterans - 37.0±7.5 years. 31 (29.5%) had only ischemic rest pain, 74 (70.5%) had ischemic ulcers or gangrene of toes or foot. Our estimation of preoperative angiographic characteristics was based on the scheme of SVS/ISVS Ad Hoc Committee (1997). We divided patients into two groups: patients with “good” distal run-off score (less than 7 points) and patients with “bad” run-off score (7 points and more). The main indication to vascular procedure was patient artery at least 12 cm long. We have performed following arterial reconstructions: femoral-tibial in 76 (72.4%), femoral-popliteal in 5 (4.8%), popliteal-tibial in 12 (11.4%), tibial-popliteal in 3 (2.8%) and popliteal-tibial in 9 (8.6%) cases. We used PTFE prosthesis in 13 (12.4%) cases, autologous vein in 76 (72.3%) and combined graft (PTFE+vein) in 16 (15.3%) cases.

Results: Main part of graft thrombosis occurred in the group with “bad” run-off score (P<0.05). Graft patency in the group with “good” run-off was 92% vs. 52% in group with “bad” run-off. Five years primary graft patency and limb salvage in group with satisfactory run-off score were 40% and 75%, accordingly, vs. 16% and 49% in group with “bad” run-off.

Conclusion: The SVS/ISVS Ad Hoc Committee preoperative angiographic outflow score is a good instrument which can help to predict both early and long-term results of vascular bypass procedures.
Objective: Graft-threatening stenosis following infra-popliteal bypass occurs in up to one-third of all cases. With improved endovascular techniques, percutaneous transluminal angioplasty (PTA) is used more frequently. We present our experience of the durability of this procedure.

Methods: Patients were identified from a database containing details of all infra-popliteal vein graft bypasses performed by one Consultant. In a 5 year period, patients requiring re-intervention for symptomatic or duplex surveillance detected stenosis were included. Patient demographics, risk factors for occlusive disease, operative details, duplex findings and subsequent re-interventions were analyzed.

Results: Eighty-five operations were performed; 3 patients died, 13 grafts occluded and 4 were lost to follow-up at 4 weeks: these were excluded from further analysis. Of the remaining 65 grafts, 21 (32.3%) required further intervention: 19 had PTA as the primary re-intervention at a mean duration from surgery of 253 days (median = 192, range = 59-746). Eight of these required secondary reintervention: 5 being to the same site as the primary PTA after a mean duration of 123 days (median = 87, range = 59-230) and 3 to new stenoses at a different anatomical site. Open patch angioplasty was performed as the primary re-intervention for 2 patients and 119 days from surgery. Both had PTA as secondary re-intervention: 1 to the same site after 257 days and 1 for an inflow stenosis.

Conclusion: Graft-threatening stenosis occurs frequently. PTA appears to be a useful tool in the treatment of these lesions, although repeat procedures may be necessary.

V04 - 7 POPLITEAL ARTERY ANEURYSMS. OUR EXPERIENCE
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Objective: Retrospective evaluation of all patients with popliteal artery aneurysms treated in our institute.

Methods: Between 1996 and 2005, 62 popliteal artery aneurysms in 55 patients were repaired. There were 51 males and 4 females with an average age of 74 years. Twenty two patients presented bilateral lesions and 15 also had an abdominal aortic aneurysm. Aneurysm diameters varied between 16 and 60 millimetres. Risk factors were smoking, hypertension, dyslipidemia and diabetes. Symptoms were present in 47 patients, while in 13 cases aneurysms were detected accidentally. Preoperative evaluation included duplex scanning and arteriography. Duplex ultrasound surveillance was performed after one, three, and six months post surgery, and yearly thereafter.

Results: All patients underwent surgical treatment, 39 in election and 22 in emergency. Repair was performed with femoropopliteal bypass (19 with vein graft, 15 with ePTFE graft, 1 composite), femoroperoneal bypass (2 with vein graft, 1 with ePTFE graft, 1 composite), femoro tibial bypass (3 with vein graft, 1 composite), vein interposition in 8 cases, interposition of eterogenous graft in 6 cases. One patient underwent aneurysmectomy and femo-popliteal tromboendarterectomy. In 2 cases exploration and amputation above the knee were performed because of the severe chronic peripheral ischemia and the patient’s critical conditions. When necessary embolectomy and/or thrombolysis were performed. Medial approach was used in 52 cases, posterior approach in 8 cases. Primary patency was achieved in 14 patients treated in emergency and in 33 patients who received elective treatment. Secondary procedures included embolectomy, thrombolysis, endovascular procedures, revision of the graft anastomoses and amputation.

Conclusion: The management of popliteal artery aneurysms is controversial. Our studies show that asymptomatic patients, and those who received elective treatment for popliteal artery aneurysms, experienced better outcomes. We recommend treatment even for aneurysms of small diameters, considering the possibility of expansion, thrombosis, distal embolization and rupture.

V04 - 8 ADJUNCTIVE ARTERO-VENOUS FISTULA IN FEMORO-DISTAL RECONSTRUCTION: 15 YEARS EXPERIENCE
Ganassin L., Turini L., Galeazzi E., Corato M., Doro S., Toffon A., Masotti D.

Objective: To improve patency of by-passes in patients with poor run-off and no vein available for a distal reconstruction, adjunctive artero-venous fistula has been performed in peripheral reconstruction, in our unit since 1990.

Methods: In a total number of 1024 peripheral by-passes and late thrombectomies over a period of 15 years, we carried out 490 distal artero-venous fistulas. In 394 patients we performed a composite by-pass in human umbilical vein femoro-infrapopliteal with distal artero-venous fistula. Patient characteristics, peri-operative and follow-up of these patients were documented in a database and retrospectively analyzed with medstat survival analysis. Mean age of the patients was 72.3 years; 41% were diabetics, all patients were Fontaine III and IV.

Results: In this group of patients the limb salvage at five years was 58% with cumulative patency of 56% and an incidence of redo of 24%. Conclusion: Distal artero-venous fistula together with composite by-pass, for critical limb ischemia or associated with thrombectomy in acute ischemia offers a further possibility for limb salvage.

V04 - 9 ANGIoplasty of the distal anastomosis and runoff arteries of occluded infrainguinal bypass
Wolfgang Hepp, Franzeska Sigala/ Haan

Background: We investigated the clinical results of transluminal angioplasty performed through infrainguinal bypass grafts for stenotic or occlusive lesions at the distal anastomosis and/or in the runoff arteries in high risk patients and the influence of different parameters on limb salvage, primary and secondary patency rates.

Patients and Methods: Between January 2001 and March 2005 we performed 49 transluminal angioplasties on stenotic or occlusive lesions at the distal
anastomosis and/or in the runoff arteries in 49 (16 female, 23 male, mean age 71.1 years) patients with occluded infrainguinal bypass. 20 angioplasties occurred in the runoff arteries, 5 at the distal anastomosis and 24 at both locations at a median of 11.3 months (range 2-85 months) after infrainguinal bypass grafting. Twenty procedures were located on popliteal artery above the knee, 21 below the knee and 8 on crural arteries.

Results: Kaplan–Meier analysis showed a cumulative limb salvage of 87.6% and 76.4% after 6 months and two years, respectively. Patients with gangrenous lesions had a 5 times higher risk of amputation (Cox-regression model). Primary and secondary patency rates were at 6 months 85.1% and 91.1% respectively and were at one year 73.3% and 78.8%, respectively. Patients with end stage renal disease were in 4 times hazard to primary occlusion and patients with gangrenous lesions 5 times to secondary occlusion (Cox-regression model).

Conclusion: Even the long-term results of angioplasty on stenotic or occluded lesions at the distal anastomosis and/or in the runoff arteries are inferior to the results of surgical revisions reported in literature, however in high risk patients with absence of a vein may be the first line alternative intervention for limb salvage.
Methods: Fourty three patients were placed on ECMO and then switched to biventricular assist device (BiVAD) vs. total artificial heart (TAH) improves oxygenation (ECMO), but only few survive biventricular failure. We tested if PLACED ON ECMO TAH IS BETTER THAN BIVAD IN PATIENTS WITH CARDIOGENIC SHOCK.

Objective: Intractable cardiogenic shock requires extracorporeal membrane oxygenation (ECMO) as well as a restrict mobilization with stable hemodynamics features. In case of recovery as well as in bridging patients with end-stage heart failure to transplantation 2 years after the operation, and another required a pacemaker on the fifth post-operative day.

Conclusion: CardioWest TAH due to cardiac thrombus formation (BiVAD median survival time 35 days). In contrast, 11 TAH pts were transplanted (TAH median survival time >150 days; TAH vs. BiVAD, P<0.05). Four CardioWest TAH patients were discharged on custom-made, portable consoles with adequate quality of life. Leading causes of death in both groups were multiorgan failure and stroke. Conclusion: Organ function recovered in TAH patients by strong, balanced flow. Thus, switching to TAH salvaged 1 of 2 patients on ECMO who would otherwise have died. The discrepancy between adequacy of support and poor outcome in BiVAD pts prompted initiation of a randomized trial comparing both systems.

C05 - 3 TRANSVENTRICULAR MITRAL VALVE REPAIR DURING LEFT VENTRICLE RECONSTRUCTION FOR ISCHEMIC CARDIOMYOPATHY

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Objective: Mitral regurgitation (MR) conveys adverse prognosis in ischemic heart disease. It can be treated with a restrictive mitral annuloplasty, with coronary revascularization. In this study, the extent of transventricular access for mitral valve anuloplasty is assessed.

Methods: From December 2001 to May 2005, 56 patients were treated in our center. There were 38 females and 18 males. Severity of MR was graded semi-quantitatively using color flow Doppler. LV dimension were calculated using two-dimensional echocardiography in standard views, LV volumes and ejection fraction (EF) were calculated using Simpson method. Forty eight patients (86%) had moderate to severe, grade 3 MR, 8 patients (14%) had severe grade 4 MR. Mean EF was 22±4.2. Indication for surgery was heart failure and only in few cases angina was indication for surgery. All patients had New York Heart Association (NYHA) functional class III or IV. 45 patients (80%) had previous anterior myocardial infarction (MI), 11(20%) had anterior and posterior MI. Following revascularization, LV ventriculotomy is performed, and mitral valve is approached transventricularly. Double armed 2.0 braided Ethibond suture is used for annular restoration encircling the posterior annulus. Additionally edge-to-edge repair using the Alfieri technique was performed. LV reconstruction was performed using modified Dor method.

Results: All patients received LITA to LAD. Average distal graft per patient was 2.8. There was significant reduction on LV end systolic from 340±55.5 to 150±38.2 and LV end diastolic volumes from 390±68.1 to 245±45.2. EF increased from 20±2.3 to 23±5.4. Mild MR was documented in 23 (41%) patients, 29 (51%) patients had no MR at discharge. Early mortality was 7% (4 patients). Mean follow up was 18±9.8 months. NYHA functional class improved from 3.7±0.4 to 1.4±0.6.

Conclusion: The excellent results from our combined surgical approach were confirmed with immediately with intraoperative TEE and early hemodynamic improvement, and confirmed on the follow up TTE and NYHA functional class improvement.

C05 - 4 MITRAL VALVE REPAIR IN PATIENTS WITH CARDIOMYOPATHY

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Objective: Mitral regurgitation (MR) is a frequent complication of end-stage heart failure. These patients were either managed medically or with mitral valve replacement, both associated with poor outcome. Mitral valve repair with an undersized annuloplasty may improve survival and reduce the need for allografts.

Methods: Forty one patients with an ejection fraction (EF) <35%, end-stage heart failure and mitral regurgitation >2 underwent mitral valve annuloplasty. Mitral valve repair with an undersized annuloplasty may improve survival and reduce the need for allografts.

Results: All patients received LITA to LAD. Average distal graft per patient was 2.8. There was significant reduction on LV end systolic from 340±55.5 to 150±38.2 and LV end diastolic volumes from 390±68.1 to 245±45.2. EF increased from 20±2.3 to 23±5.4. Mild MR was documented in 23 (41%) patients, 29 (51%) patients had no MR at discharge. Early mortality was 7% (4 patients). Mean follow up was 18±9.8 months. NYHA functional class improved from 3.7±0.4 to 1.4±0.6.

Conclusion: The excellent results from our combined surgical approach were confirmed with immediately with intraoperative TEE and early hemodynamic improvement, and confirmed on the follow up TTE and NYHA functional class improvement.

C05 - 2 TAH IS BETTER THAN BIWAD IN PATIENTS WITH CARDIOGENIC SHOCK

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Objective: Intractable cardiogenic shock requires extracorporeal membrane oxygenation (ECMO), but only few survive biventricular failure. We tested if biventricular assist device (BiVAD) vs. total artificial heart (TAH) improves survival.

Methods: Fourty three patients were placed on ECMO and then switched to Thoratec BiVAD (n = 17) or CardioWest TAH (n = 26). Left and right flow index (l/min/m²), central venous pressure (CVP; mmHg), parameters reflecting renal and hepatic function, and outcome were evaluated.

Results: Mean duration of TAH support was 240 days (1-484), longer than BiVAD (33; 0-133). Left flow index was adequate in TAH and BiVAD patients by postoperative day 21 (3.20±0.39 and 3.10±0.76). CVP did not differ between both systems (12.4±5.1 vs. 15.4±4.6). TAH left flow index and right flow index were balanced, but BiVAD right flow index was smaller due to residual right heart function. Preimplant bilateral is used for annular restoration in both groups. However, whereas bilirubin levels normalized in TAH patients by postoperative day 21, it further increased in BiVAD patients indicating liver failure (3.32.0.20 vs. 19.74±5 mg/dl, P<0.05). Pre-implant renal failure resolved in 9 of 17 TAH patients, but only in 2 of 8 BiVAD patients. Among 17 BiVAD patients, 2 survived to transplant, and 2 patients were switched to...
COS - 5
THE ROLE OF ANTI-THROMBIN III IN POST-TRANSPLANT GRAFT ARTERIOSCLEROSIS
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Objective: Heart transplantation still remains the established therapy for end-stage heart failure. The exact mechanism responsible for the pathogenesis of chronic rejection is still incompletely known. Repetitive immune-mediated endothelial injury and immune response by cytokines, lymphokines, complement activation, and growth factors produce prothrombotic changes, which is lead to platelet aggregation and intimal thickening and eventually to oblitative arterial disease. In this study, the value of Antithrombin III in the prevention of coronary artery disease after heterotopic heart transplantation was investigated.

Methods: New Zealand white rats were divided into 4 groups and cervical heterotopic heart transplantation were performed in each group. Group 1 was taken as the control group and received no medication. Group 2 received Cyclosporine-A (Cyc-A) 2 mg/kg/day and Group 3 received Antithrombin III (AT-III) 50 U/kg. Group 4 received Cyc-A 2 mg/kg and AT III 50 U/kg. In all groups, blood samples were analyzed for AT III levels. Samples were taken at 3rd, 7th, 10th, 15th and following every 5 days postoperatively. The interval was extended to 1 in 10 days after the 90th postoperative day. When a lack of contractility cardiac allografts were removed histopathologically examined. Rejection score and the degree of luminal narrowing was classified into 4 groups; grade 1: 0-25%, grade 2: 26-50%, grade 3: 51-75%, and grade 4: 76-100%. All groups were analyzed using Mann-Whitney U-Wilcoxon Rank Sum W, test to compare AT III levels and cardiac allograft survival rates.

Results: The differences of survival rates between Group 1-2, Group 1-4, Group 2-3 and Group 4-3 were statistically significant. Routine analysis of AT III levels showed an increase on the 3rd postoperative day in all groups. After the 7th postoperative day AT III levels returned to preoperative values in Groups 1 and 3. Luminal narrowing ratio was 0.72 ± 0.06 (grade 3-4) in Group 1; 0.70 ± 0.06 (grade 3-4) in Group 2; 0.45 ± 0.13 (grade 2-3) in Group 3 and 0.35 ± 0.08 (grade 1-2) in Group 4. The differences of luminal narrowing rates between Group 1-3, Group 1-4, Group 2-3 and Group 24 were statistically significant whereas the differences between Group 1-2 and 3-4 are nonsignificant.

Conclusion: We can conclude that rejection is a complex pathophysiological phenomenon that begins as immune reaction and leads to secondary endothelial injury which causes coagulation abnormality and thus thrombosis. AT III, with its inhibitory effects to mitogenic and thrombin's coagulant activities might play an important role in the treatment/prevention of graft rejection.

COS - 6
CARDIOPROTECTIVE EFFECT OF THYMoglobuline ADMINISTERED EARLY AFTER HEART TRANSPLANTATION (OHT)
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Objective: The aim of the study was to assess the effect of early Thymoglobuline administration on cardiomyocytes nuclear status in OHT recipients.

Methods: Myocardial specimens from 10 control cases and endomyocardial biopsies (EMBs) from 31 OHT recipients were under investigation. OHT pts. were divided into; ATG group - pts. receiving Thymoglobuline electrolytically (1st dose no later than 8 h after surgery), Standard group - pts. treated without Thymoglobuline, and ATG&Standard group - pts. in whom Thymoglobuline was administered upon drop in renal function (1st dose no earlier than 24 h after surgery). Only EMBs obtained electively 1 and 4 weeks after OHT were evaluated. Thymoglobuline was administered upon drop in renal function (1st dose no earlier than 24 h after surgery).

Results: All OHT groups showed significantly higher values than Control group. During the first 4 weeks after OHT, there was a dramatic decrease of cardiomyocyte nuclear geometric parameters in Standard group, whereas in both ATG groups the nuclear area diminished nonsignificantly. Mean grey level, the indicator of chromatin desrialization/activation showed stabilization only in ATG group, whereas in Standard group nonsignificant diminution was seen, and in ATG&Standard group diminution was significanly higher than in ATG group. Discriminant analysis revealed the closest Mahalanobis distance between Control and ATG groups.

Conclusion: Signs of cardiomyocyte nuclear hyperactity observed in transplantated heart 1 week after OHT are significantly less intensive in pts. receiving Thymoglobuline within 8h after surgery. Later Thymoglobuline administration produces prominent but incomplete nuclear diminution of the nuclei with the tendency to pyknosis, within 4 weeks after OHT.

COS - 7
ASSOCIATION OF BIOARTIFICIAL MYOCARDIUM AND CELLULAR CARDIOMYOPLASTY FOR MYOCARDIAL SUPPORT AND REGENERATION
Muzzi L., Corone E., Bizzarri F., Cortes-Morichetti M., Carpentier A., Chachques C.J., Frati G.
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Objective: The objective of cellular cardiomyoplasty is to regenerate the myocardium by the implantation of living cells. However, in ischemic heart disease the extracellular matrix is often disrupted or destroyed. Therefore it is an important to associate a procedure aiming at regenerating both myocardial cells and the extracellular matrix. The purpose of this study was to evaluate the potential of a biodegradable 3D matrix seeded with cells and grafted onto the infarcted ventricle.

Methods: In 24 adult mice (CB57/B6, age 8-10 weeks, weight 22±3g) a myocardial infarction was created by LAD ligation. Infarct scars were treated with human bone marrow–mesenchymal cells (BMNC), 10% were CD34. Animals were randomized in 3 groups: Group 1, injection of 5 million BMC. Group 2, injection of 5 million BMC and fixation on the epicardium of type I collagen matrix (size 4x3x1.5 mm) seeded with 5 million BMC. Group 3, injection of 15 µl cell culture medium (control). Immunosupression was performed during 10 days with FK506 (0.1 mg/kg/day, SC).ECHocardiography (Sequoia 512, 15 MHz probe, Acuson) was performed on postoperative days 7 and 45, followed by heart pathological studies.

Results: Operative mortality was 12.5% (3 mice). The association of the matrix with intramyocardial cell implants seems to be the most efficient approach to reduce postischemic ventricular dilation and remodeling. EF was improved in both cell treated groups. Histology showed fragments of the cellularized collagen matrix thickening and protecting the infarct scars. Segments of the 3D matrix consistently aligned along the LV wall, cells assembled within the collagen fibers in large population.

Conclusion: In infarcted mouse hearts intramyocardial BMC injections associated with a cell seeded matrix prevents myocardial wall thinning and limits postischemic remodeling. BMC implantation improves ejection fraction. This tissue engineered approach seems to improve the efficiency of cellular cardiomyoplasty becoming histologically like a "bioartificial myocardium".
separated mainly CD34+ cells and expanded with Vescell technology. The number of cells prior to injection was 27.2±21.4 x 10^6 cells (viability was 92.6±4.3%). In the ICM group, twelve had only cell injection and six had cell injection plus Off-pump coronary artery bypass grafting. The cells were injected into the nonviable myocardium assessed by cardiac MRI (CMR). In the DCM group, all eight had cells injection in entire area of the left ventricle. All patients had preoperative characteristics, inoperative variables and postoperative results recorded including major advance cardiac events (MACE). Six min walk test and CMR to be repeated every 2 months up to one year.

Results: There was no MACE. Four patients had elevated cardiac enzymes, postoperatively. There was one death on the third day after redo CABG and cell injection, most likely from pulmonary emboli. The ejection fraction improved 10% and 14.9% in the DCM and ICM group, respectively. The infarction size was also decreased by CMR in the ICM group. Six-minute walk test and NYHA functional class were also improved at 2 months in both groups. Conclusion: Thoracoscopic intramyocardial autologous APCs transplantation is feasible and safe in all DCM and in both first time and redo ICM patients. The early results are good and the long term results and phase two trial are in progress.
C06 - 1
INTRAOPERATIVE RADIOFREQUENCY ABLATION WITH UNIPOLAR AND BIPOLAR DEVICE DURING MitRAL VALVE SURGERY. WHICH IS THE BEST CHOICE?
Nallato M., Zanobini M., Denti P., Maccabelli G., Galli C., Polvani G., Biglioli P., Alamanni F.
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Objective: Left atrium radiofrequency ablation (RF) during mitral valve surgery (MVS) has been established as a safe and effective method for the treatment of atrial fibrillation (AF). We investigated safety and efficacy of two different RF devices: unipolar (U) or bipolar (B) device. There where no differences between groups in terms of AF duration, left atrium diameter and type of AF. The same pattern of lesions (left atrium modified maze) could be obtained with both devices. Pulmonary Vein Isolation was tested intraoperatively and in fourth postoperative day by intraoperatively placed epicardial electrodes.

Results: No major procedure related complications were observed in both groups. Two patients (one for each group) required permanent pacemaker implantation due to AV disturbance. No differences were found between and within groups concerning intraoperative and postoperative electrophysiological studies. There were no differences between groups in success rates of pulmonary vein isolation (18/20 in group U vs. 19/20 in group B) or stable sinus rhythm at follow up (18/20 in group U vs. 16/20 in group B at a mean follow-up of 12±6 months).

Conclusion: This preliminary, pilot study suggests that both unipolar and bipolar RF devices are equally safe and effective in achieving pulmonary vein isolation and in maintaining sinus rhythm at follow-up; although more technically demanding, the use of bipolar device alone was as successful as unipolar in tracing intra-atrial lines. Additional studies are warranted in order to clarify indications to either RF modality.

C06 - 2
SURGICAL TREATMENT OF CONCOMITANT ATRIAL FIBRILLATION
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Objective: Review of early and late results of surgical treatment of atrial fibrillation as a concomitant procedure during open heart surgery.

Methods: Prospective data analysis of patients undergoing combined open heart surgery and Minimaze technique for atrial fibrillation. Early postoperative standard protocol and outpatient clinic visit at 1, 3 and 6 months for early follow-up. Late follow-up through questionnaire from referring cardiologists.

Results: Between November 1999 and Oct 2004, 220 pts did undergo Minimaze procedure. Fifty-seven or male patients (126/94). Isolated Mitral valve(s) surgery was performed in 159 pts (72.3%). Valve with CABG in 44 pts (20%), CAGB in 12 pts (5.4%) and other cardiac surgery in 5 pts (2.3%). Port-Access approach was used in 107 pts (48.6%), median sternotomy in 1 pt (0.5%). Pts presented with a LA plication. In general, by the time of discharge 85% of patients had sinus rhythm at time of discharge. Two patients who had score 3 needed permanent pacemaker implantation at long-term follow-up, as their atrial function is preserved.

Conclusion: Our experience shows the reproducibility of different modifications of Maze-3 operation with overall long-term effectiveness over 80%. The cryo-modification of the “maze” operation are currently preferable in patients with moderately increased LA. It is necessary to strictly follow the protocol of procedure technique, as well as to combine the operation with the reduction of LA cavity and left atrial appendages closure.

C06 - 3
CLINICAL RESULTS OF DIFFERENT TYPES OF APPROACHES FOR SURGICAL TREATMENT OF CHRONIC ATRIAL FIBRILLATION
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Objective: At present the Maze-3 operation is considered a gold standard surgical procedure for restoration of sinus rhythm and atrial contractility in atrial fibrillation (AF). It is unknown, which type of operations is the most effective and safe in patients with chronic AF, including that associated with congenital and acquired heart disease. This study presents long-term results of different modifications of surgical treatment for chronic AF.

Methods: From September 2000 to October 2005 we performed 155 combined operations for chronic AF and mitral valve disease treatment (MV plasty or prosthesis implantation), including 67 radical operations for chronic AF: 24 patients (pts) underwent Maze-3 operation, 26 - a irrigated RF modification of Maze-3 and 17 - a cryo-modification of Maze-3 operation. Mean age of patients was 46.8±11.9 years (range 28-66 years), AF duration was 3±2.3 years (6 months - 7 years). Average pre-operative LA dimension was 6.4±1.2 cm (5 - 8.4 cm). All patients were NYHA class III - IV.

Results: From the 67 pts who underwent radical surgical therapy for reversal of chronic AF, 1 pt (1.5%) died in hospital as a result of spontaneous rupture of the LV posterior wall after RF modification of the Maze-3 operation and LA plication. In general, by the time of discharge 85% of patients had sinus rhythm. None of our patients needed pacemaker implantation for postoperative AV block or sinus node dysfunction at hospital discharge. Results of the different types of the Maze-3 operations were evaluated after 48±8.4 months by Santa Cruz scale (Melo J. et al. 1998) with scores ranging from 0 to 4. All patients with sinus rhythm (n = 50, 75%) had score 4, atrial contractile function of both atria was preserved in all of them up to 5 years after surgery. Two patients who had score 3 needed permanent pacemaker implantation.

Conclusion: Our experience suggests the reproducibility of different modifications of Maze-3 operation with overall long-term effectiveness over 80%. The cryo-modification of the “maze” operation are currently preferable in patients with moderately increased LA. It is necessary to strictly follow the protocol of procedure technique, as well as to combine the operation with the reduction of LA cavity and left atrial appendages closure.
present in the 75% of patients of the first group, 70% of the second group and 83.2% of the third group.

Conclusion: The use of radiofrequency for electrical isolation of pulmonary veins and to replace other Cox-Maze incisions is safe and effective. With the bipolar radiofrequency ablation we have obtained better results in terms of sinus rhythm restoration. Moreover, since it is even easier to perform and theoretically, ensures the transmurality, we have extended the indications, even in cases of very complex operations.

C06 - 5

EFFICACY OF SURGICAL BEATING HEART ABLATION WITH BIPOLAR RADIOFREQUENCY DEVICE FOR PARADOXYSMAL AND PERMANENT ATRIAL FIBRILLATION

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Objective: We report clinical experience, short- and mid-term results of the ablation of the non-mitral atrial fibrillation in patients with paroxysmal and permanent atrial fibrillation with use of a novel irrigated bipolar radiofrequency system.

Methods: From registry of 160 ablations a subset of 40 non-mitral patients (mean age 68.1 ±11 years) treated with irrigated bipolar radiofrequency device was chosen. Twenty eight patients with documented, symptomatic, PAF underwent pulmonary vein isolation. 12 patients with permanent AF underwent ablation of the left atrium including pulmonary vein isolation and connecting lines between left and right pulmonary veins and the line to the mitral valve performed beating heart without opening of the left atrium. Ablation was a concomitant procedure to off-pump coronary artery bypass grafting (16 patients), on-pump coronary artery bypass grafting (CABG) (5 patients), aortic valve replacement (AVR) (12 patients), AVR and CABG (6 patients), aortic conduction block was assessed in 11 patients. Prospective follow-up was collected during hospitalization, 3, 6, 12 months after discharge including 24-h Holter ECG and echocardiography.

Results: In the perioperative period either electrical and/or pharmacological cardioversion was performed in 22 patients (78.5%) with paroxysmal AF and in 10 patients (83.5%) with permanent AF (P = 0.7). There was no significant difference in SR rate at discharge between patients with paroxysmal and permanent AF - 28 (89.2%) vs. 9 (75%) patients, respectively (P = 0.2). During follow-up stable sinus rhythm in patients with paroxysmal AF was observed in 15 patients (71.4%) after 3 months, in 14 patients (93.3%) after 6 months, in 7 patients (100%) after 12 months. Significantly lower SR rate was found in patients with permanent AF after SR recorded only in 2 patients after 3 months and 4 patients after 6 months.

Conclusion: These data confirm high effectiveness of bipolar radiofrequency ablation in patients referred to surgical treatment of mitral valve disease.

C06 - 7

SURGICAL RADIOFREQUENCY ABLATION FOR ATRIAL FIBRILLATION IN MITRAL VALVE DISEASE PATIENTS - OUTCOMES FROM PROSPECTIVE REGISTRY AFTER 2 YEARS

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Objective: The authors sought to examine in-hospital and two-year outcomes of endocardial radiofrequency ablation for atrial fibrillation (AF) in patients with mitral valve disease.

Methods: From January 2003 (enrollment start) to September 2005 all patients (no selection) with AF referred to mitral valve repair/replacement with or without other concomitant procedures (47 of 160 patients in registry) underwent endocardial ablation with irrigated unipolar radiofrequency device. Patients were at mean age of 62.2 ±10 years, with mean AF duration 4.1 (±4.4) years and mean left atrial diameter 51 (±8) mm. Patients were prospectively followed after 3, 6, 12, 24 months including echocardiography and 24-h Holter ECG.

Results: During in-hospital stay in 33 patients (75%) shorter or medication and/or pharmacological cardioversion was needed and in 6 patients (12.7%) temporal external pacing was performed. 33 patients (75%) were discharged in sinus rhythm (SR). After 3, 6, 12, 24 moths there were 26 (70.2%), 24 (75%), 11 (61%), 6 (60%) patients in SR, respectively. After 24 months pacemaker was implanted in 2 patients. We found that perioperative AF significantly prolongs mechanical ventilation time and intensive and intermediate care unit stay (9.5, 95% CI 6.5 to 13.4 vs. 29.9, 95% CI 6.3 to 74 h) and (5.4, 95% CI 4.3 to 6.4 vs. 11.3, 95% CI 5.6 to 16.8 days), respectively (P<0.05). Comparing to patients sustaining SR those with AF after 3 and 6 months had significantly more often occurrence of rhythm disturbance syndromes (P<0.05).

Conclusion: Data from prospective registry show that AF in patients with mitral valve disease may be successfully treated in all “real-life” cases. Perioperative AF does not impact on long-term ablation efficacy however freedom from AF in early postoperative period supports less complicated course. Effective AF ablation may provide better long-term quality of life due to arrhythmias symptoms reduction.

C06 - 8

VERSATILITY OF A RADIOFREQUENCY BIPOLAR ABLATION SYSTEM AS A UNIPOLAR DEVICE

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Objective: Bipolar radiofrequency (RF) devices have been recently introduced in the surgical armamentarium for the treatment of atrial fibrillation. Despite their efficacy, a potential drawback is the difficulty in creating selected linear lesions (especially to the mitral annulus) during mitral surgery. We experimentally investigated whether the COBRA Bipolar (Estech; COBRA-bi) could function as a monopolar system and its efficacy when compared with the standard unipolar device (Estech; COBRA-uni).

Methods: Fourteen freshly-excised ovine hearts were used: ablations were performed in 9 with the COBRA-bi as monopolar device (Group 1;G1) and in 5 hearts with the COBRA-uni (Group 2;G2). Four segmental ablations were performed on each heart according to the following device settings: type A (150 W, 80 °C, 60 sec), type B (150 W, 80 °C, 90 sec), type C (150 W, 80 °C, 120 sec) and type D (150 W, 80 °C, 150 sec). Ablations were performed over the left ventricular free wall. Histology of ablations was performed by means of haematoxylin-eosin staining.

Results: The COBRA-bi functioned as a monopolar device and created macroscopic lesions: mean width:G1=3±0.5 mm vs. G2=8±0.7 mm, P = 0.02. Mean depths were similar between the groups except in type D settings: type A:G1=4.3±1 vs. G2=6.4±3.04, P = 0.2; type B:G1=6±1.32 vs. G2=8.4±3.04, P = 0.15; type C:G1=6.4±1.66 vs. G2=8.6±2.3, P = 0.11; type D:G1=7.7±1.09 vs. G2=10.8±1.3, P = 0.002.

Conclusion: Despite a wider experimental evaluation in chronic animal models is required, this study offers an innovative option in the use of the COBRA bipolar device. The versatility from a bipolar to a monopolar device could have considerable implications in the clinical setting, especially in terms of cost-effectiveness.

C06 - 9

ASSESSMENT OF CHRONOTROPIC COMPETENT SINUS RHYTHM AFTER SURGICAL ABLATION OF ATRIAL FIBRILLATION

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Objective: To assess chronotropic competence of restored sinus rhythm (SR) after surgical ablation for chronic atrial fibrillation and its clinical impact.

Methods: Sixteen patients (13 m/3 f) in SR (24.375±16.43 months postoperatively) following cut-and-sew (n=2) and radiofrequency (n=14) ablation due to chronic atrial fibrillation underwent treadmill exercise testing (ramp protocol). 12/16 had concomitant mitral valve resection. End points were occurrence of clinical symptoms and severe arrhythmia or accomplishment working capacity (male: 2W/kg, female: 1.5W/kg) maximum heart rate (male: 210-age, 80%; female: 220-age, 80%) and more than doubled rate pulse product. Change of NYHA Classification, need for anticoagulation and antiarrhythmic drugs were evaluated.
Results: During exercise all patients remained in SR. 2/16 (12.5%) patients showed mild ventricular extrasystolies. No blockage was seen. Termination was due to tiring legs in all patients. Mean measured exercise capacity was 132.5±36.42 Watts vs. calculated 143.83±26.44 Watts (P = 0.31). Maximum accomplished heart rate was 127.06±17.39 beats/min vs. computed 115.6±11.16 beats/min (P = 0.023). Mean rate pulse product under exercise was 20972±4510 vs. calculated 19771±5411 (P = 0.314). NYHA classes decreased from 2.56±0.72 to 1.18±0.54 (P<0.05). 6/16 ceased anticoagulation, 10/16 antiarrhythmic drugs.

Conclusion: In this study we could reveal restored chronotropic-competent SR after surgical ablation of chronic atrial fibrillation. Even under exercise testing patients remained in stable SR, thus anticoagulation was stopped in all cases. Patients showed a significant drop of NYHA classes.

C06 - 9
MID TERM OUTCOME FOLLOW SURGICAL ABLATION OF ATRIAL FIBRILLATION WITH MONOPOLAR RADIOFREQUENCY: MAINTENANCE OF SINUS RHYTHM AND RECOVERY OF ATRIAL CONTRACTION
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Objective: Radiofrequency ablation on left atrium during mitral valve surgery has been established as safe and effective method for the treatment of atrial fibrillation (AF). In studying patients (pts) undergoing mitral valve surgery and AF ablation with left atrial endocardial monopolar radiofrequency, we sought to quantify the prevalence of sinus rhythm (SR) and the recovery of atrial contraction postoperatively.

Methods: The rate of stable SR and the left atrial contractile function were investigated in 85 (47 males, 66±8 years) consecutive pts with permanent (72.7%) or paroxysmal (27.3%) AF; before mitral surgery the lines of lesions were applied around the two ipsilateral pulmonary veins (PV) and the atrial appendage; additional lines were performed between the two PV and from the right PV to the posterior mitral annulus. PV isolation was assessed by electrophysiological evaluation (EE) positioning surgical electrodes in both PV and in right atrium; the first EE was performed acutely in operating room at the end of operation, and the second on the 4th postoperative day.

Results: A permanent pace-maker was implanted on 5th and 7th postoperative day in 11 pts because sino-atrial or atrio-ventricular conduction disturbances. 27±12 monts follow-up showed that stable SR was present in 38/42 pts with complete isolation of both groups of ipsilateral PV, and in 19/34 pts in whom only one group of PV or none were completely isolated. Nine pts were in stable SR, and they were excluded from EE because inability to positioning surgical electrodes (redo operations). Overall, 66/85 pts (77.6%) are in stable SR. Recovery of left atrial contraction in SR was observed in 67% of pts at 3 months and in 92% at 6. Quantitative Doppler flow mitral analysis (E/A ratio-normal value 2±2.3) showed a trend toward progressive recovery (3.42 at 3 and 2.26 at 6 months respectively). In 2 cases the tissue Doppler analysis only was able to identify the left atrial contraction.

Conclusion: The complete isolation of all PV, demonstrated at intraoperative mapping, is related to the long term maintenance of SR. Quantitative analysis suggests a late recovery of left atrium contractility, and the term of 6 months is appropriate to evaluate the extent of recovery. We suggest to maintain the anticoagulant therapy till the echocardiographic evidence of left atrial contraction.
11.30-13.00
MAY 13, 2006 3RD CONGRESS DAY

3RD CARDIOVASCULAR SCIENTIFIC SESSION

CV03 - 1
FEASIBILITY AND EFFECTIVENESS OF ENDOVASCULAR TREATMENT FOR ACUTE TRAUMATIC RUPTURE OF THE DESCENDING THORACIC AORTA
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Objective: Acute traumatic rupture of the descending thoracic aorta is usually considered a surgical emergency; conventional surgical approach carries high morbidity and mortality rates in the perioperative period. Endovascular surgery has recently been considered as providing a new therapeutic strategy for these patients. The aim of our study was to evaluate the feasibility along with early and midterm results of this procedure in our experience.

Methods: Among 59 thoracic stent-graft procedures performed between May 2001 and May 2005 in our Department, 11 male patients (mean age 48±7.3 years) underwent endovascular repair for acute traumatic rupture of the descending thoracic aorta due to motor vehicle accidents. The feasibility of endovascular repair and the size of the endograft were assessed on the basis of urgent spiral computed tomography (CT). In all the cases the lesion was limited to the isthmus. Follow-up was performed at discharge, then at 3, 6, 12 months and yearly thereafter by clinical examination, chest X-ray and CT scan.

Results: Technical success was obtained in all patients and no conversion to open repair was necessary. No intraoperative deaths or complications occurred and no patient developed temporary or permanent neurological deficits in the postoperative period. One patient died 22 days after the procedure from acute respiratory failure; cumulative 30-day mortality rate was 9.1%. The mean follow-up duration was 18.2±4.5 months. No death, endoleak and reintervention occurred during follow-up.

Conclusion: The treatment of acute traumatic rupture of the descending thoracic aorta with stentgraft is a feasible and safe technique; it provides low morbidity and mortality rates in early postoperative period and midterm results are encouraging. However, long-term studies are worthwhile to evaluate the effectiveness and the durability of this procedure.

CV03 - 2
HYBRID SURGERY FOR ACUTE TYPE A DISSECTION
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Objective: Acute type A dissection is a life threatening emergency associated to high mortality and morbidity rates, especially when aortic arch surgery is required. Deep hypothermia, circulatory arrest, cerebral perfusion and elephant trunk technique are damming factors of this heavy surgery. Results of the hybrid surgical and endovascular treatment of the aortic arch in non acute situations have been described as acceptable, and we aimed at applying this less invasive approach for acute type A dissections involving the aortic arch in high-risk patients unfit for aortic arch replacement.

Methods: From December 2004 to December 2005, we treated 4 high-risk patients in emergency for acute type A dissection involving the aortic arch. The average age was 57.5. All patients presented with hemopericardium associated to circulatory shock. Risk factors were aortic valve insufficiency in 3, high blood pressure and chronic renal insufficiency in 2. Cardiopulmonary bypass was started under normothermia or moderate hypothermia, while retrograde blood cardioplegia was used for myocardial protection. After the ascending aorta was clamped at the level of the innominate artery, it was opened longitudinally. Associated repairs were performed: aortic valve replacement (1), aortic valve plasty (2), valsalva reconstruction (1) and right aorto-coronary bypass (2). The ascending aorta was then replaced by a 5 cm long Dacron® graft, on which a 12 mm graft tube was simultaneously inserted proximally in an end-to-side manner. This tube was anastomosed distally to the innominate artery in an end to end manner in 3 patients, while in the fourth it was replaced by a bifurcated bypass to the right subclavian and common carotid arteries. In a delayed procedure, a carotid-carotid bypass was associated to the endovascular exclusion of the aortic arch with a stent-graft. In one patient, the false lumen completely thrombosed after the surgical step, and the endovascular intervention was avoided.

Results: During a mean follow-up of 8 months (4.6-12), there was no death and no neurological complication. All patients showed a thrombosed thoracic aortic false channel while it remained patent at the abdominal level.

Conclusion: The staged closed hybrid procedure we described is feasible and safe, and allows all cardiac surgeons to avoid aortic arch replacement for type A dissections in high-risk patients. It can be also easily performed in low volume centers. The evolution of the design of industrial devices towards increased flexibility and length would certainly bring further security and efficacy.

CV03 - 3
DEVELOPMENT OF AN INTERNET-BASED DATABASE FOR PATIENTS WITH TYPE-A DISSECTIONS: FIRST STEPS ON THE WAY TO A NATIONWIDE DATABASE
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Objective: There is no existing nationwide database on patients with aortic diseases in Germany. Thus we developed an internet-based database to record preoperative, intraoperative and long-term data of patients with type-A dissections undergoing surgical treatment of the aorta to optimize future patient treatment.

Methods: The database consists different categories containing data concerning preoperative and intraoperative state, postoperative complications and cause of death. The collected data can be used with several other IT-programs, allowing continuous, flexible data analyses.

Results: The interactive data processing system records the patient’s entire clinical course and enables the user to find and assemble data easily for documentary, scientific purposes and quality control.

Conclusion: This new internet-based database for patients suffering from type-A dissection is a valuable tool for improved patient treatment.

CV03 - 4
RIGHT AXILLARY ARTERY CANNULATION FOR CARDIOPULMONARY BYPASS AND ANTEGRADE CEREBRAL PERFUSION WITH/WITHOUT MODERATE HYPOTHERMIA IN AORTIC SURGERY
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Objective: Femoral cannulation for aortic surgery isonary and/or cerebral perfusion through possible false lumen perfusion resulting fatal postoperative neurologic damage. As an alternative approach, axillary artery cannulation was introduced.

Methods: Sixty-nine patients of aortic disease were operated from March 2000 to December 2005 in our institution. There were 35 males and 34 females. The mean age was 57.7 years. Diagnoses were 54 aortic dissections, 8 aneurysms, and 2 aortic rupture, 2 intramural hematoma, 3 aortitis. Right axillary artery cannulation was used as a route for arterial inflow and selective cerebral perfusion during arch procedure in all patients. Results: The mean CPB/ACC times were 206.1±10.9/114.4±6.6 min. The mean selective cerebral perfusion time was 32.0±6.5 min. There were 2 operative deaths. Bleedings that required reoperation were 3, and there was no documented neurological complication.

Conclusion: The right axillary artery cannulation may be comparably safe and more effective method than conventional cannulations for maintaining arterial inflow and providing the cerebral perfusion during aorta surgery especially involving arch.

CV03 - 5
COMBINED EXTRA-ANATOMIC APPROACH FOR TREATMENT OF TYPE A ACUTE AORTIC DISSECTION INVOLVING THE AORTIC ARCH
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Objective: Acute type A aortic dissections that involve the origins of the supra-aortic trunks continue to represent an important surgical challenge,
The objective is to present our experience with a case where the pathology was successfully treated by a combined approach, which included the implantation of an endoprosthesis in the aortic arch.

Methods: We treated a 69-years-old woman with an acute type A aortic dissection without aortic insufficiency. Her aortic arch was greatly dilated and contained multiple intima-media fractures, some of which involved the origins of the supra-aortic trunks. The surgical approach was as follows: 1) carotid-carotid bypass with 8 mm PTFE. 2) Arterial cannulation of the right axillary artery. 3) Median sternotomy, deep hypothermia and circulatory arrest. 4) Re-suspension of the aortic valve and replacement of the ascending aorta from the supracoronary portion until just distal to the root of the brachiocephalic trunk, using an “elephant trunk” technique. The brachiocephalic artery was clamped, and the origins of the left common carotid and subclavian arteries were closed. Selective cerebral perfusion was maintained via the right axillary artery cannula at a rate of 10 cc/kg/min. A 32 mm Hemashield graft, with a 10 mm side branch, was used as the aortic implant. The side branch was sewn end to end to the brachiocephalic trunk and re-establishing complete cerebral circulation via the prior extra-anatomic bypass. At a later date, the arch dissection was treated with two Gore-tex Tag endoprostheses, implanted from the ascending aorta distal to the brachiocephalic bypass, past the left subclavian artery into the descending aorta. This was done via a femoral approach.

Results: The time taken from the establishment of cardiopulmonary bypass to replacement of the aorta was 85 min, during which cerebro-vascular perfusion was maintained in an antegrade fashion. The patient was taken back to the operating room six days later for treatment of the aortic arch dissection with endoprosthesis. Her neurological, renal, hemodynamic and metabolic recovery was total but, she still has non-ventilator dependent insufficiency, likely due to a paralyze left hemidiaphragm.

Conclusion: The success of our surgical strategy in the case should prompt us to consider alternative extra-anatomic combined approach, especially when there is a complex dissection involving the aortic arch.

CV03 - 6
REOPERATION ON THE PROXIMAL AORTA OR AORTIC ARCH THROUGH REMEDIAN STERNOTOMY FOLLOWING PREVIOUS CARDIOVASCULAR SURGERY
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Objective: To evaluate the early outcome of reoperation on aortic root, ascending aorta or aortic arch through re-median sternotomy following previous cardiovascular operations.

Methods: A total of 50 patients including 11 with Marfan’s syndrome (mean age 55±1 years) required reoperation on the aortic root, ascending aorta or aortic arch through re-median sternotomy for various aortic pathologies from 1986 through the end of 2004. Primary operative procedures in these patients included aortic valve replacement (20%), aortic root replacement (28%), total arch replacement (22%), ascending aortic replacement or hemiarch replacement (14%), and aortic valve replacement-ascending aortic repair (6%). Major indications for reoperation were aortic dissection, aortic root aneurysm, pseudoaneurysm, and prosthesis-related complications. A total of 53 reoperations were performed that included aortic root replacement using the coronary button technique (55%), ascending aortic replacement + total arch replacement (32%), and ascending aortic replacement + hemiarch replacement (13%). Mean interval between the initial operation and the reoperation was 7±6 months. Prior institution of cardiopulmonary bypass cannulating the femoral artery was carried out before re-sternotomy when necessary.

Results: Intraoperative mortality was 2% while the in-hospital mortality was 6%. Cause of intraoperative death was bleeding while those for in-hospital death were recurrence of infection and cerebral infarction.

Conclusion: 1) Reoperation for prosthetic infection or infectious pseudoaneurysm carries a high mortality. 2) Reoperative outcome in non-infectious cases is satisfactory. 3) Coronary artery reconstruction using the Carrel patch method is feasible in most cases of aortic root replacement. 4. Marfan patients with acute dissection should receive radical operation so that no aortic lesion is left out.

CV03 - 7
TRAUMATIC THORACIC AORTIC INJURY: RESULTS FOLLOWING ENDOVASCULAR MANAGEMENT
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Objective: To evaluate the safety and efficacy of endovascular repair for traumatic thoracic aortic pathology.

Methods: Between October 2001 and November, 10 patients were diagnosed with traumatic thoracic aortic injury and treated with endovascular repair (7 male, 3 female). Their ages ranged from 16 to 66 years of age (mean 40 years). All patients underwent CT angiography of the aorta. Following imaging, 4 patients were diagnosed with partial aortic transection, 4 with aortic pseudo aneurysm formation and 2 with aortic dissection. Associated injuries were documented in all patients.

Results: Patients were treated within a median of 24 h following trauma. All endovascular stentgrafts were deployed successfully. One patient required emergency graft explantation due to proximal migration of the initial endovascular stent-graft. Two patients experienced access-related complications requiring iliofemoral bypass surgery. At completion angiography, one patient demonstrated a small endoleak which resolved spontaneously. All patients were alive 30 days following endovascular repair. At follow-up, no endoleaks were identified (median duration of follow-up 14 months, range 1 to 42 months).

Conclusion: Our experience demonstrates the feasibility of endovascular repair for thoracic aortic injury following trauma with results that compare favourably to those published of emergency open repair.

CV03 - 8
THORACIC AORTIC EMERGENCIES: IS THE ENDOVASCULAR TREATMENT THE NEW GOLD STANDARD
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Objective: Open surgery of the descending thoracic aorta, such as aneurysm rupture, traumatic rupture and complicated type B aortic dissection are The Aortic traumatic rupture and aortic aneurysm can be successful treated with the deployment of thoracic endoprosthesis. This approach has been proven to be safe, effective and consistent. However, the procedure still hides few pitfalls that can potentially affect the clinical outcome. Sharing our experience will probably help other surgeons to make the endovascular repair of descending thoracic aorta diseases a straightforward procedure.

Methods: Forty-five patients underwent endovascular repair of descending thoracic aorta diseases: 18 patients suffered of traumatic aortic rupture and 27 of aortic aneurysm. Diagnosis was confirmed with CT scan. The criteria for the endovascular repair of aortic traumatic rupture were: isolated intimal lesion, aortic wall haematoma and aortic rupture involving less than 1/3 of the aortic diameter with or without type B aortic dissection. Endoprosthesis was deployed under intra vascular ultrasound (IVUS) and fluoroscopy control. The criteria for successful endovascular procedure were the occlusion of aneuryslic tears, the complete exclusion of the aneurysm and the absence of endoleaks according to the thoracic CT-scan 1week after the aortic repair. Results: Forty-five patients received 51 endoprosthesis. Mean age was 52.6 year (14 to 77). In 1 patient the graft was deployed into the brachio-cephalic trunk without causing cerebral lesions and was removed 8 weeks later with standard surgical approach to the aortic arch. 2 patients suffered of diffuse cerebral embolism related to the endovascular procedure; subclavian artery origin was occluded in 4 patients, none received immediate or delayed subclavian artery revascularization; 2 patients had laceration of the vascular access that required extensive vascular reconstruction; 1 patient had endoprosthesis disconnection causing endoleak type IV.

Conclusion: Preoperative accurate sizing of the aortic arch and evaluable access, in situ and aortic segment dilatation can avoid vascular lesions due to the introduction of the delivery system. Precise positioning of the guide wire into the left ventricle and identification of all supra aortic trunks will dramatically reduce the risk of wrong deployment of the endograft. Huge and long aortic aneurysm, whenever possible, deserves one single long prosthesis instead of 2 sequential shorter prosthesis to avoid the risk of disconnection.
GASEOUS AND SOLID CEREBRAL MICROEMBOLIZATION DURING PROXIMAL AORTIC ANASTOMOSES IN OFF-PUMP CORONARY SURGERY: THE EFFECT OF AN AORTIC SIDE-BITING CLAMP AND TWO CLAMPLESS DEVICES

Objective: Intraoperative cerebral microembolism correlates with cerebral injury following cardiac surgery. Particulate microemboli are the most damaging. Using a new generation transcranial Doppler ultrasound, we compared number and nature of microemboli in patients undergoing off-pump coronary artery bypass grafting during performance of proximal anastomoses using three techniques: an aortic side-clamp and two clampless devices (the Enclose® device (Novare™) and the Heartstring® II device (Guidant™) developed to obviate the need for an aortic side-clamp thereby reducing the number of cerebral microemboli.

Methods: Bilateral continuous monitoring of the middle cerebral arteries was performed using a multirange, multifrequency transcranial Doppler device which both automatically rejects artefacts online and discriminates between solid and gaseous microemboli. Recordings were continuously undertaken during performance of 66 proximal aortic anastomoses in 42 patients. Thirty five anastomoses were performed using an aortic side clamp, 20 the Enclose device and 11 the Heartstring device.

Results: Most microemboli occurred during application/insertion and removal of each device from the ascending aorta. The median number (interquartile range) of total microemboli was 11 (6–32) during side-clamping, 11 (6–15) with the Enclose device, 40 (31–48) with the Heartstring device (P<0.01). The proportion of solid microemboli was significantly higher in the side-clamp group (23%) compared to 6% and 1% in the Enclose and Heartstring groups respectively (P<0.01).

Conclusion: Avoidance of aortic side-clamping results in a significant reduction in the proportion of solid microemboli detected using transcranial Doppler. As solid microemboli are probably the most damaging, use of the Enclose and Heartstring devices may represent an important strategy for minimizing cerebral injury during proximal aortic anastomoses.
Objective: The Glasgow Aneurysm Score (GAS) and Hardman Index (HI) are used to predict mortality in patients with ruptured abdominal aortic aneurysm (AAA) and have recently been shown to correlate with outcome following elective open repair. This study aimed to explore the value of these scoring systems in predicting outcome after elective endovascular aortic aneurysm repair (EVAR).

Methods: All 71 patients who underwent elective EVAR in a centre over 9 years were reviewed and HI was calculated to classify patients according to the three standard GAS tertiles and to score patients according to the HI.

Results: Fifty-one patients had a GAS score over 77. Actual and predicted mortalities in this group were 3.9% and 9.3%. Seventeen patients scored between 69-77 with actual and predicted mortalities of 0% and 4.1%. Three patients scored less than 69 with actual and predicted mortalities of 0% and 2.4%. Actual mortality was far less than predicted in all tertiles of GAS. Ten patients scored < 3 on the HI with actual and predicted mortalities of 10% and 100% respectively. Twenty-four patients scored 2 with actual and predicted mortalities of 4.2% and 55%. Twenty-seven patients scored 1 with actual and predicted mortalities of 0% and 28% respectively. Ten patients scored 0 with actual and predicted mortalities of 0% and 16% respectively. Similarly there was marked difference in actual and predicted mortalities in this group.

Conclusion: Contrary to their role in ruptured and open aortic aneurysm repair, GAS and Hardman Index overestimate both mortality and morbidity following EVAR and are poor predictors of outcome. We need to formulate new risk stratification system for endovascular abdominal and thoracic aortic aneurysm repair.

Objective: Endovascular aneurysm repair (EVAR) has been demonstrated to be an effective treatment alternative to conventional surgery in selected patients. However, although the short term results demonstrated a minor mortality and morbidity incidence compared to open surgery, there is no evidence of long-term durability because of the relevant number of late specific complications, that can manifest suddenly, even many years after the procedure. Therefore a close long-term surveillance is required. Hence the need to validate new techniques as alternative to spiral CT scan, the currently accepted reference standard.

Endoleak is the most frequent adverse event: different type of leakage have been identified, requiring different therapeutic strategies. Type II endoleaks are the most common complication after EVAR: they represent a challenge: they usually disappear during the follow-up, but sometimes cause the aneurysm sac to enlarge, thus leading to rupture or to graft detachment. Despite its notable advantages, ultrasonography has not yet achieved reference standard status. Nowadays new ultrasonographic techniques are available.

Cadence Contrast Pulse Sequencing (CPS) is a real time imaging technique specific for 2nd generations contrast agents, originally used in myocardial tissue perfusion evaluation. Aim of this study was to assess the reliability of 2nd generation signal enhancer combined with CPS and to compare duplex scanning ultrasound (DUS) and angio-Computed Tomography (angio-CT) scan in follow-up of patients treated with EVAR.

Conclusion: 2nd generation signal enhancer combined with CPS overcome the limitations of earlier US techniques, substantially improving the diagnostic reliability.

Objective: Endovascular aneurysm repair (EVAR) has been demonstrated to provide good early results with high rate of technical success, low morbidity and mortality. However, the incidence of long-term complications is not negligible, the commonest being endoleak. Several methods have been proposed to perform follow-up of patients undergone EVAR; however, there is no evidence concerning the best method. The aim of this study was to compare duplex scanning ultrasound (DUS) and angio-Computed Tomography (angio-CT) scan in follow-up of patients treated with EVAR.

Methods: The study group consisted of 189 patients treated with EVAR in last 5 year. The follow-up consisted of DUS at discharging, angio-CT scan at 1-12 months and yearly thereafter, and DUS at 1-6-12 months and yearly thereafter. All DUS studies were performed by the same skilled physician on the basis of Italian Guidelines for Vascular Diagnosis. The mean follow was 12 months. Over-all had been executed 189 DUS and 258 angio-CT. We considered only the patients who had DUS and angio-CT executed within 15 days of each other (102 cases).

Size of aneurysm, presence, site and kind of endoleak were compared, and sensitivity and specificity of the two methods were analyzed.

Results: Estimated maximum diameter of aneurysmal sac was 48.8 mm at DUS and 51.6 mm at angio-CT (P<0.001). However, this difference never reached 5 mm. Eighteen endoleak were recorded with angio-CT scan and 20 with DUS. DUS provided 3 false negatives and 5 false positives. Sensitivity of DUS compared with angio-CT scan was 83.3%; specificity was 93.9%. Positive predictive value (PPV) was 75% and negative predictive value (NPV) was 96.2%. DUS had high sensitivity, specificity, PPV and NPV in detecting type I endoleak, while, in the presence of type II endoleak, DUS showed high specificity and NPV (94.2% and 95.3%, respectively). Two occlusions of endoprosthetic limb branch happened, both detected with DUS and confirmed by angio-CT scan.

Conclusion: DUS examination provides comparable results with angio-CT scan in follow-up of patients undergone EVAR. We consider only the patients who had DUS and angio-CT executed within 15 days of each other (102 cases). Size of aneurysm, presence, site and kind of endoleak were compared, and sensitivity and specificity of the two methods were analyzed.

Objective: Aortic anatomy pre-operative study is a basic step for the correct choice of an endograft. Before the endograft implantation, three major inclusion criteria should be considered: Aneurysm localization and morphology, proximal neck length and configuration, aortic and iliac tortuosity. All of them are important to define the appropriate endograft, especially in terms of infra or suprarenal fixation.

Methods: From March 2000 to 2005, 128 patients (123 males and 5 women, mean age 71.2 years) received an endograft for AAA. Three patients had anastomotic Infrarenal pseudo aneurysms, two fistulas between prosthesis and bowel. Endograft in one patient has been operated in emergency. Mean AAA diameter was 53.0 mm., range 38-120, mean neck length 26.5, range 50-114. In 51 patients a bifurcated graft was implanted, in 16 an aortounilic. Whenever the proximal neck was cylindric and longer than 20 mm, we selected an
endothelial repair: endovascular treatment for subrenal fixation: we placed 24 Excluder, 11 AneurRx, 1 Endologix, 1 LifeVascular, in cases with shorter proximal neck, or tapered neck, or angulated or thrombus lined neck, we selected an endograft featuring a suprarenal fixation, specifically 37 Zenith (4 AUI) 51 Talent (12 AUI) 3 Fortran. Associated procedures: 15 iliac PTA, 15 iliac embolizations, 2 femoral EA. Three patients received an aortic extensional prosthesis, three patients needed an iliac extensional prosthesis. One bifurcated endograft has been converted in AAA, one patient required surgical conversion. No patient died in the postoperative or the repair of AAA (AAA) and concurrent malignancy can be controversial. Therapeutic options include simultaneous surgical treatment of both pathologies, or a staged (AAA). Patients underwent surgical conversion for endotension, two without evidence of EL, one for a type 3 endoleak. In one case the endograft has been left in place, for the cause of endotension was an hygroscopic. Conclusion: In our opinion the proximal neck is the critical point for a successful EVAR. The extensive use of suprarenal fixation is not necessary when the neck is long and cylindric. Our experience demonstrates that a selective use of bare springs stents in the suprarenal position guarantees a safe proximal fixation and stability of the endograft.

V05 - 5 RADIATION DOSE RECEIVED BY PATIENTS UNDERGOING ENDOVASCULAR ABDOMINAL AORTIC ANEURYSM REPAIR

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Objective: Endovascular repair of abdominal aortic aneurysm (AAA) involves the use of diagnostic imaging and radiation exposure. Excessive radiation exposure has been associated with increased risk of malignancy. In this study we assess the dose of radiation received by patients undergoing endovascular AAA repair.

Methods: All patients having endovascular AAA repair between January 2003 and December 2004 were included. There were 121 patients, 107 male and 14 female. Median age was 74 (range 55-88). Pre-, intra- and post-operative radiological investigations were examined. All patients received a pre-operative chest X-ray, computerized tomography (CT) scan and angiogram, an intra-operative angiogram and a post-operative chest X-ray, abdominal X-ray and CT scan. Some patients required more pre- and post-operative investigations.

Results: - Pre-operatively, there were a total of 204 plain chest X-rays performed (estimated radiation dose (RD) 0.1 milliSievert/film), 135 thoracoabdominal CT scans (RD 22.8 mSv/scan) and 130 angiograms (RD 14.2 mSv/scan). Median fluoroscopy screening time for graft placement was 23.7 min (range 5.3 to 69.1 min), corresponding to a RD of 1.4 mSv/min. Post-operatively, there were a total of 373 chest X-rays performed (RD 0.1 mSv/scan), 330 abdominal X-rays (RD 10 mSv/scan) and 128 abdominal CT scans (RD 14.5 mSv/scan). 20 patients had a post-operative angiogram (RD 14.2 mSv/scan). The total average patient radiation dose was 123 (range 87-307) mSv, not including annual CT follow-up or investigation and treatment of complications. Assuming no complications after 5 years the average radiation dose would be 210 mSv.

Conclusion: The radiation dose received by each patient is significant (approximately 0.5 times the radiation dose received by atomic bomb survivors in Japan). With the increased survival time of patients undergoing endovascular AAA repair, consideration should be given to alternative follow-up investigative modalities (such as ultrasound) that may reduce total radiation exposure.

V05 - 6 ENDOVASCULAR VERSUS OPEN SURGICAL REPAIR OF ABDOMINAL AORTIC ANEURYSM WITH CONCOMITANT MALIGNANCY

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Objective: The management of patients with abdominal aortic aneurysm (AAA) and concurrent malignancy can be controversial. Therapeutic options include simultaneous surgical treatment of both pathologies, or a staged approach using either conventional open repair (OR) or the endovascular approach using either conventional open repair (OR) or the endovascular technique (EVAR). The aim of this study was to assess retrospectively the outcome of EVAR and/or for the treatment of AAA in patients with concomitant neoplastic condition.

Methods: A review of all patients admitted with a diagnosis of intact infra-renal AAA of 5 cm or greater and concomitant malignancy over a period of 7 years (1997-2004) was carried out.

Results: Of the 36 patients identified, five (13.9%; all men; mean age of 81 (74-86)) had an advanced malignancy and were managed palliatively. 31 patients underwent treatment for AAA. In 15 cases this consisted of EVAR (48.4%; 13 men) and in 16 of OR (51.6%; 15 men). The mean patient age was respectively 71.7 (59-82) and 69.5 (58-83) in the EVAR and OR groups. The 30-day morbidity rate was 6.7% in the EVAR group and 12.5% in the OR group. Moreover one patients (12.5%) in the OR group developed a prosthesis graft infection following left hemicolectomy. The perioperative mortality rate was 0% vs. 18.7% in the OR and EVAR group respectively. Mean follow-up was 25 months (range 8-48) in the EVAR group and 21 (range 9-32) in the OR group. During the follow-up five patients in the EVAR group and five in the OR group died. All the deaths in the EVAR group (100%) were cancer-related, whilst in the OR group four patients (80%) died because of the cancer and one (20%) died of sepis 23 months after developed prosthesis graft infection.

Conclusion: EVAR is a safe technique for the treatment of AAA in patients with concomitant neoplastic disease and seems to carry a lower morbidity and mortality than OR.

V05 - 7 PELVIC ISCHEMIA AFTER ABDOMINAL AORTIC ANEURYSM REPAIR: EVAR VS OAR

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Objective: Pelvic ischemia is a rare and severe consequence of abdominal aortic open aneurysm repair (OAR) and endovascular aneurysm repair (EVAR). Aim of the study is to present a two year single-center experience on pelvic ischemia incidence after OAR vs. EVAR.

Methods: We analysed 110 patients who underwent abdominal aortic aneurysm (AAA) repair (64 EVAR; 46 OAR) from September 2003 to November 2005.

Results: During EVAR (Group A) 19 times (30%) monolateral iliopogastric artery (IA) cover (?) or embolization was required; during OAR (Group B) 3 monolateral and 2 bilateral IA interruptions (?) were necessary (total 11%). 37 of 110 patients (33%) showed signs or symptoms of pelvic ischemia: 17 EVAR (27%) and 20 (43%) OAR. Particularly, in Group A, 2 severe constipations, 2 neurologic disorders, 5 cases of claudicatio and 11 (17%) of sexual dysfunction syndrome were reported. 76% of these disorders was present in patients with obliterated IA. In group B, 3 cases of severe constipation and 17 (37%) cases of sexual dysfunction syndrome were reported. All patients with mono or bilateral IA interruption presented sexual dysfunctions. In any case pelvic ischemia lead to sever morbidity or mortality. One Group B patient required intestinal resection due to a volvulus.

Conclusion: Complications due to pelvic ischemia are rare and EVAR seems to reduce their incidence. Sexual dysfunction can be considered a mild complication and occurs less frequently after EVAR than after OAR. 1/3 of all operated patients reports sexual dysfunctions. After IA ligation 2/3 of patients becomes affected by erectile dysfunctions. After EVAR retrograde ejaculation is anecdotally reported.

V05 - 8 ENDOVASCULAR TECHNIQUES FOR THE TREATMENT OF RUPTURE ABDOMINAL AORTIC ANEURYSMS. 7-YEARS INTENTION-TO-TREAT RESULTS

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Objective: The purpose of this single-Institution study is to describe our 7-years intention-to-treat results, with the use of endovascular techniques for the treatment of rupture abdominal aortic aneurysms.

Methods: From October 1998 until March 2005, a total of 28 patients were admitted or transferred to our department with a rupture abdominal aortic
aneurysm. Aneurysms were defined ruptured only if extravasation of blood surrounding the aneurysm was shown on the emergency CT scanning. They were all treated according to a management protocol of intention-to-treat by endovascular techniques. Twenty of them received an endovascular treatment and the rest 8 underwent an open surgery procedure. The intervention surgical or endovascular, started with the placement of a long introducer sheath and the placement of an aortic occlusion balloon at the level of L1. Then, in the surgical treated patients, general anaesthesia was induced and xifo-pubical median laparotomy was performed, while in the endovascular treated patients, local anaesthesia was performed also to the controlateral inguinal region and then cut-down to prepare the femoral artery. Eleven bifurcated endografts were used (8 modular and 3 non-modular) and 9 aorto-uni-iliac, combined with cross-over bypass.

Results: In all 28 patients endovascular aortic clamping was feasible. Two endovascular treated patients underwent an additional endovascular procedure for proximal type I endoleak that was treated successfully with an aortic extension. In other two patients conversion to open surgery was decided in the second and third postoperative day for type I and type II endoleak. Mortality rate of the endovascular treated patients was 40% (8 in 20), while in 8 surgical patients 3 survived (mortality = 62.5%). The overall mortality rate in the 28 patients admitted with a rupture abdominal aortic aneurysm was 46.43% (13 in 28 patients).

Conclusion: In our experience the intension-to-treat protocol for rupture abdominal aortic aneurysms offered acceptable results of mortality rates. Multi-center studies are necessary to establish the role of endovascular treatment in patients with rupture abdominal aortic aneurysms.
Objective: The urgency of the problem. Considering the instability of hemodynamics in the vertebrobasilar basin vessels and complexity of determining the pathognomonic significance of the vertebral artery extracranial segments for cerebral ischemia, we have proposed a new method of assessment of the brainstem functional condition, the method proving to be important for determining the indications for surgical intervention in the extracranial arteries.

Methods: Forty-six patients aged 31 to 68 were examined, the patients suffering from vertebrobasilar failure. The main clinical manifestations involved: the vertebrobasilar syndrome - in 42 (91%); asymptomatic finding fits - in 17 (36%); transitory ischemic attacks - in 28 (61%); Ischemic stroke - in 9 (19%) patients. Functional tests consisted of two successively carried out techniques: the first one - the brainstem auditory evoked potentials of the brain recorded with the Nicolet Viking select machine using additional high-frequency stimulation; the second one: ultrasonic Dopplerography using the EME Nicolet Companion device with additional photo-stimulation and calculation of the photoreactivity index for posterior cerebral arteries. Of the 46 patients in 18, surgery was performed on the vertebral artery.

Results: In 43 (93.4%) patients, various dysfunctions were revealed in conduction at the level of either auditory nerves and/or brainstem. In 39 (84.7%) patients, the dysfunction of impulse conduction along the auditory pathways in the brainstem coincided with the side of the vertebral artery lesion. In 14 of the 18 patients examined in 6 months following the surgery on the vertebral artery, a positive dynamics of the evoked potential parameters was observed. In all 46 (100%) patients under study, a decrease in the photoreactivity index below 20% was observed, and in 19 (41%) patients, the index even became negative. In 16 of 18 patients examined after 6 months following the surgery on the vertebral artery, an increase of the photoreactivity index occurred.

Conclusion: A high sensitivity of the method of cerebral vessel photoreactivity study as well as of the modified method of investigation into the brainstem auditory evoked potentials has been shown in estimation of functional condition of the brainstem and the brain occipital lobes in patients with pathologic conditions of extracranial segments of the vertebral arteries. This can be used for determining the indications for surgery on the vertebral artery as well as for assessment of efficacy of the conservative/surgical prophylactics of ischemic vertebrobasilar stroke.

Objective: Recent data suggest that aortic arch anatomy is one of the most important factor to limit carotid stenting (CAS) technique. Patients age >80 years may be associated with increased risk of periprocedural complications because of the more complex aortic arch anatomy, tortuosity and calcifications. Conditio sine qua non to achieve a successful procedure is the guiding catheter stability in common carotid artery (CCA). Our aim was to analyze the correlation between aortic arch type, divided into three types, and the possibility to perform a safe procedure with guiding catheter method.

Methods: During the period December 2000 - October 2005, 689 patients, 396 male (57.5%) and 293 female (42.5%), aged between 52 and 93, (median age 73.4) of which 287 (41.6%) > 80 years, underwent aortic arch angiography before performing CAS. In our experience 124 patients (17.9%) had aortic arch type I, 457 (66.3%) had type II and 108 (15.7%) had type III. Bovine arch was present in 132 patients (19.1%). We used in all procedures the direct approach by guiding catheter 8 F to CCA, reserving coaxial technique only in the difficult case of catheter stabilization.

Results: In the arch type I we employed coaxial technique only in 7 cases (1%) due to CCA tortuosity. In arch type II, 53 patients (7.7%) required telescopic technique, in the remaining 108 patients with arch type III, we used in 87 (12.6%) cases a coaxial technique, and in 21 (3%) cases a serial stiffening method. In 4 patients of the last group we performed an emeral approach. In total we used coaxial method to support direct approach in 24.3% procedures. In 8 cases (1.2%) was impossible to stabilize the catheter in the CCA and consequently to perform the endovascular (conversion to surgery) procedure; all cases were type III arch with heavy calcifications and severe tortuosity. In 3 cases (0.4%) we had 2 embolization and 1 dissection in CCA approach without cerebral sequelae.

Conclusion: The intraoperative consideration of anatomical characteristics may help provide better risk assessment in candidates for CAS. The technical analysis allows the selection of appropriate cases and equipment of wires and catheters to perform a safe procedure. Our results demonstrate that the direct approach by guiding catheter is safe and suitable in relation to different age-related anatomical complexity.

Objective: Our aim was to carry out a retrospective comparison of the long-term results of open and endovascular interventions for atherosclerotic stenoses of the brachiocephalic trunk (BCT). Methods: Fifty-two patients with BCT stenoses underwent 20 consecutive intrathoracic reconstructions and 32 balloon angioplasties. The long-term results of open interventions were followed up for up to 2 years (mean 2 years). The long-term results of balloon angioplasties were followed up for a mean of 4-5 years (range 3-7 years). In a subgroup of patients who underwent intrathoracic operations, we studied the long-term results of 14 (74%) of the 19 patients whereas in a subgroup provided dilatations, we examined the long-term results of 23 (79%) of the 29 patients. Results: Graft patency was preserved in 93% of patients, that of the dilated arteries in 96%. The incidence of strokes in the long-term period in the subgroups provided open reconstructions and endovascular interventions was 7% and 4%.

Conclusion: Endovascular intervention is the method of choice in the treatment for atherosclerotic stenoses of the BCT.

Objective: The aim of the study was to assess the role of Transcranial Doppler (TCD) in detecting the embolic events during carotid angioplasty and/or stenting and to identify which steps of this procedure are at higher risk in mobilizing debris from the atherosclerotic plaque that could develop brain damage.

Methods: From January 1999 to September 2005, eighty-four patients, mean age 69 years, were submitted to endovascular treatment of carotid stenosis: 63 (75.0%) were asymptomatic and 21 (25.0%) symptomatic. In 65 cases (77.4%) the ICA lesions was primitive while in the remaining 19 (22.6%) a restenosis was present. In 61 cases (72.6%), a primary stenting of the ICA was performed; 18 patients (21.4%) were submitted to a predilatation of the stenosis: 63 (75.0%) were asymptomatic and 21 (25.0%) symptomatic. In 65 cases (77.4%) the ICA lesions was primitive while in the remaining 19 (22.6%) a restenosis was present. In 61 cases (72.6%), a primary stenting of the ICA was performed; 18 patients (21.4%) were submitted to a predilatation of the stenosis. In 61 cases (72.6%), a primary stenting of the ICA was performed; 18 patients (21.4%) were submitted to a predilatation of the stenosis. In 61 cases (72.6%), a primary stenting of the ICA was performed; 18 patients (21.4%) were submitted to a predilatation of the stenosis.

Conclusion: The TCD monitoring was performed under basal conditions at least 20-30 min and digital compression of common carotid artery was performed to detect micromembrane signals and to evaluate the cerebral haemodynamic tolerance. In all treated patients a TCD monitoring was maintained for 30 min after the procedure. A spiral-CT scan or MR angiography was performed also in 73 cases (86.9%) to evaluate the cerebral vessels origin and calcification.
Results: Two main neurological complications: a TIA during the selective catheterization of the CCA with TCD detection of only bubbles signals and a controlateral RIND occurred at the end of the procedure related to particulate microemboli in rapid succession. The mortality was nihil. In all patients TCD recorded bubbles signals during selective catheterization and angiography. In 96% of cases corpusculare but isolated microemboli were detected during predilatation, positioning of the filter through the lesions, stent deployment and ballooning. All these MES were asymptomatic.

Conclusion: Despite the high incidence of MES during the procedure, the neurological complications are related to TCD detection of corpusculare signals in rapid succession. Even if no reduction of the overall incidence rate of MES was observed, a decrease in the number of corpusculare emboli were recorded when a cerebral protection was used.

V06 - 5
THE EVALUATION OF DYNAMICS OF ADEQUATE FUNCTIONING OF THE EXTRACRANIAL/INTRACRANIAL BYPASS SURGERY BY MEANS OF DUPLEX SCANNING AND TRANSCRANIAL DOPPLERGRAPHY

Objective: The problem of diagnostics and treatment of cerebrovascular diseases became particularly relevant in recent years due to the growth of incidence of these disorders. Surgical treatment of aortic arch branches occlusive disease is the most radical way of cerebrovascular insufficiency prophylaxis. Cerebral revascularization in patients with occlusion of the internal carotid artery became possible with the development of extracranial/intracranial bypass surgery. We would like to emphasize here aspects of hemodynamic efficacy of extracranial/intracranial bypass: the state of cerebral perfusion reserve, the change of anastomosis diameter, linear blood flow velocity and blood flow rate in the postoperative period. The aim of this study was to evaluate the increase in cerebral perfusion rate after extracranial/intracranial bypass surgery.

Methods: 28 patients with occlusion of internal carotid artery were studied after extracranial/intracranial bypass surgery in various time points from 3 months to 3 years after surgery. Only patients with hemodynamically valuable extracranial/intracranial bypass(second type) were included in the studied group. Diagnosed decrease in cerebral reactivity in ipsilateral brain hemisphere to the occluded internal carotid artery was 0.9±0.32 cm/sec/1 mmHg CO2 what was considered as an indication for extracranial/intracranial bypass surgery. All patients were male, mean age was 57.1±4.2 years. Functional state of the extracranial/intracranial bypass was evaluated by means of duplex scanning with color duplex mapping mode on Vivid-3 GE Medical Systems device. Transcranial dopplerography was performed on Angiodin BIOSS device. Evaluation of cerebral perfusion reserve was performed on Capnocheck Plus, SIMS BCI Inc.

Results: In the first 7 days after surgery the following hemodynamic characteristics of the anastomosis were obtained: linear blood flow velocity was 16.7±3.1 cm/sec, diameter of the donor artery was 1.9±0.6 mm, blood flow rate was 28.6±12.4 ml/min. Analysis of the anastomosis characteristics in the late postoperative period showed constant growth of all parameters. The change of extracranial/intracranial bypass characteristics within a month was: mean linear blood flow velocity increase was 3.2 cm/sec, mean diameter of the donor artery increase was 0.1 mm and mean blood flow rate increase was 17.6 ml/min.

Conclusion: Functioning extracranial/intracranial bypass has a strong tendency towards the increase of its role in the whole structure of cerebral collateral blood circulation.

V06 - 6
IMPROVING THE CARE OF PATIENTS UNDERGOING CAROTID ENDARTERECTOMY WITH A MODIFIED SURGICAL AND ANESTHESIOLOGICAL STRATEGY
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Objective: The aim of this study was to evaluate the safety and effectiveness of a modified surgical and anaesthesiological protocol consisting of early distal clamping of internal carotid artery and local anaesthesia in improving the results of carotid endarterectomy.

Methods: Analysis of a prospectively compiled database concerning all CEAs (3153) carried out at our Institution between 1996 and June 2005 was performed. Until April 1999, all the interventions were performed under general anaesthesia, with SEPs monitoring and selective shunt insertion, with a standard surgical approach to carotid bifurcation and selectice patch closure (Group 1; 1090 interventions). From May 1999 to December 2003, we used a modified surgical approach, consisting of preliminary isolation and clamping of distal ICA, still under general anaesthesia, with a policy of wide use of patch (Group 2; 1474 interventions). Since January 2004, we have been using routine local anaesthesia with the described modified surgical technique (Group 3; 589 interventions). Early and long-term results were collected and compared in the three groups.

Results: In group 3 there was an higher percentage of asymptomatic patients (70%) than in groups 1 and 2 (58.2% and 63.1%, respectively; P<0.001). In group 2 and 3 there was an higher percentage of patch closure (78.7% and 88.1%, respectively) than in group 1 (50%; P=0.001). Neurological deficits at awake were reduced in group 3 (0.1%); in group 1 and 2 the corresponding figures were 1.8% and 0.4% (P<0.001). Thirty-day stroke and death rate was lower in group 3 (0.6%) than in group 1 and 2 (1.5% and 1.3%). Multivariate analysis showed the use of patch closure and local anaesthesia to significantly reduce 30-day stroke and death rate, while early distal clamping of ICA affected the rate of neurological deficit at awake. Mean duration of follow-up was 23 months. Estimated 24-months survival rates was better in group 2 (98.3%) and 3 (99.7%) than in group 1 (95.65; P=0.005, log rank 15.2). There were no differences in terms of estimated 24 months absence of any ipsi- and contralateral neurological event and absence of ipsilateral stroke.

Conclusion: From our data it appears that the adoption of a multifactorial intraoperative prophylaxis of early postoperative events allowed us to significantly improve early results of CEAs, with a fall of complications rate largely below recommended standards. In this period of large diffusion and popularity of alternative methods to treat internal carotid artery stenosis, a comparison with these results is mandatory.

V06 - 7
CAROTID BODY PARAGANGLIOMAS: OUR EXPERIENCE
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Objective: The carotid body tumour is a rare neoplasm that has generated much literature over the last century, and for which continued controversy exists regarding natural history, biologic behavior, proper technique of excision, and the risk of morbidity & mortality. The present study reviewed a 12 years experience of managing carotid body paraganglioma (CBP) and analyzed clinical findings associated with peri-operative morbidity.

Methods: Clinical records, radiological findings and pathological reports of all patients who presented with CBP between 2002 and 2004 were reviewed. There were 10 consecutive patients aged between 18 and 42 yrs with tumors and median follow-up was 10 years.

Results: Preoperative information derived from spiral CT scanning, magnetic resonance imaging (MRI) and colour Doppler imaging (CDI) was comparable to that from standard four-vessel digital subtraction arteriography. In 5 patients the tumor excision was attempted before they were referred to our tertiary care hospital. 2 patients had bilateral tumors. The median duration of operation and blood loss was substantially higher in tumors, which were operated earlier in the other hospitals due excessive adherions. Four patients had preoperative embolization and blood loss was minimal and excision relatively easier in them. Neurological complications were secondary to injury to the nerve supply to the pharyngeal muscles. There was difficulty in deglutition (nasal and laryngeal regurgitation) in 3 patients with large tumors and that required nasogastric tube feeding for (1 to 3 weeks).

Conclusion: Surgical planning and prediction of peri-operative complications can be obtained by digital subtraction angiography, spiral CT angiography and colour doppler imaging. The peri-operative blood loss can be reduced by pre operative embolization.
C07 - 1
CORONARY AND INTERNAL MAMMARY ARTERY REVERSIBLE OCCLUSION USING THE NEW GEL POLOXAMER 407 DURING OPCAB PRESERVES THE ENDOTHelial FUNCTION
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Objective: To avoid bleeding during OPCAB, numerous hemostatic devices such as intracoronary shunt, vessel loop, gas insufflation are used and can cause an endothelial dysfunction as well as suboptimal hemostasis. The purpose of this study was to assess the efficacy of the novel reversible thermosensitive gel poloxamer 407 (P407, soluble in aqueous solution at low temperature and transforms gelation behaviour at body temperature) on vessel occlusions and its impact on the endothelial function in a porcine model of OPCAB.

Methods: Domestic swine (n = 7) were submitted to left anterior descending (LAD) or right coronary (RC) and internal mammary arteries (left (LIMA) and right (RIMA)) occlusion using P407. The LIMA were used as graft to perform LAD (n = 5) bypasses on beating heart and RIMA to RC (n = 2), followed by three hours of reperfusion. The vascular reactivity of epicardial coronary artery was evaluated in response to serotonin (GI-protein mediated pathway) and bradykinin (Gq-protein mediated pathway). Histological studies were performed to analyze cardiomyocyte necrosis and endothelial coverage assessed by silver nitrate staining.

Results: The first injection of P407 led to a successful coronary occlusion of a mean duration of 8.3±2.1 min and a second injection has been necessary in 4 cases. The anastomosis time was 11.3±1.8 min, and ice was necessary to dissolve the gel in the mammary artery in all cases. Concentration-response curves of rings from occluded LAD and RC segments showed no significant differences of endothelium-dependent relaxations mediated by GI and Gq protein pathways (p>0.05 for both agonists vs. controls). Histological studies demonstrated the absence of cardiomyocyte necrosis following coronary artery occlusion with P407 and preservation of the endothelial layer coverage.

Conclusion: Use of Poloxamer 407 is a safe and efficacious technique for temporary hemostasis at the site of anastomosis during construction of bypasses during beating heart coronary artery surgery, without damaging the surrounding endothelium.

C07 - 2
TOTALY ENDOSCOPIC DOUBLE CORONARY ARTERY BYPASS GRAFTING ON THE ARRESTED HEART USING THE DA VINCI TELEMANIPULATION SYSTEM
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Objective: Totally endoscopic coronary bypass grafting (TECAB) was limited to single bypass operations in the majority of cases so far. Development of multi-vessel TECAB is an important step in robotically assisted coronary surgery. Methods: Between October 2001 and October 2005 63 patients underwent AHTECAB using the da Vinci telemanipulator and femoral access CPB (ESTECH). 4/63 patients, 2 male and 2 female, aged 59 (53-67) years, received double coronary bypass grafting (LIMA to OM and RIMA to LAD). The Octopus TE endostimulator was used to expose the obtuse marginal branch on the arrested heart.

Results: In the 4 patients double vessel AHTECAB was technically feasible with a mean operation duration of 476 (406-509) minutes. LIMA preparation took 40 (29-49) min, RIMA preparation 41 (35-45) min. Suturing of all anastomoses was performed without major problems, where the LAD anastomosis time was 38 (18-53) min and the OM anastomosis time was 44 (28-70) min.

Conclusion: Double vessel AHTECAB is technically feasible. Operative times are at present long, requiring careful patient selection.

C07 - 3
PROPHYLACTIC DIALYSIS IN ELDERLY PATIENTS UNDERGOING CORONARY BYPASS SURGERY
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Objective: Renal dysfunction is associated with markedly increased risk for both mortality and morbidity in patients undergoing coronary artery bypass surgery especially in elderly patients. We aimed to determine the impact of prophylactic perioperative hemodialysis on operative outcome in patients with mild renal dysfunction.

Methods: Between March 2002 and May 2005 a total of 64 patients over 70 years of age and with preoperative creatinine levels greater than 2 mg/dL, underwent primary elective coronary artery bypass grafting (CABG) by using cardiopulmonary bypass (CPB) in our clinic. None of our patients was requiring dialysis. Forty-five patients were male and 19 were female with a mean age of 76.3±6.4 (range 70-83). The patients were prospectively allocated into two groups. Group A was the dialysis group (31 patients) and preoperative prophylactic hemodialysis was performed in all patients. Group B (33 patients) was taken as a control group without preoperative hemodialysis.

Results: There were no significant differences in preoperative and operative variables between the groups. In dialysis group (Group A) the mean levels of creatinine, BUN and potassium were found to be significantly decreased after three times of dialysis when compared with the control group in the operation day. (2.9±0.5 mg/dL vs. 1.8±0.7 mg/dL for creatinine, P = 0.0001; 58.2±18.7 mg/dL vs. 33.1±14.4 mg/dL for BUN, P = 0.0001; and 4.98±0.3 mEq/L vs. 3.91±0.3 mEq/L for potassium, P = 0.0001). In the postoperative period mean levels of creatinine, BUN and potassium were also found to be significantly decreased in dialysis group. (2.3±0.8 mg/dL vs. 3.4±0.2 mg/dL for creatinine, P = 0.037; 41.6±17.5 mg/dL vs. 62.3±14.4 mg/dL for BUN, P = 0.012; and 4.1±0.2 mEq/L vs. 4.94±0.6 mEq/L for potassium, P = 0.043). The incidence of acute renal failure was found to be significantly increased in group B (P = 0.032). Ten patients died in the hospital with an overall 30-day mortality of 15.6%. The in-hospital mortality rates for patients in the dialysis group and control group were 3 (9.6%) and 7 (21.2%), respectively (P = 0.0021). The incidence of morbidity, intensive care and hospital stay time were found to be significantly decreased in dialysis group when compared with control group.

Conclusion: Preoperative renal dysfunction increases the risk of mortality and morbidity after on-pump coronary artery bypass surgery. Advanced age is also associated with decreased physiologic reserve and increased comorbidity factors. Perioperative prophylactic hemodialysis decreases both operative mortality and morbidity in elderly patients.

C07 - 4
CORONARY ARTERY BYPASS GRAFTING IN PATIENTS WITH PREOPERATIVE RENAL INSUFFICIENCY WITH OR WITHOUT CARDIOPULMONARY BYPASS
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Objective: The use of cardiopulmonary bypass (CPB) influences the renal function and could result in renal failure following coronary artery bypass grafting with CPB (CABG) in patients with preexistent renal dysfunction. In addition the patients with renal dysfunction carry a risk of arterial atherosclerosis (coronary arteries and aorta) and present a high risk of mortality and morbidity after surgery. The aim of this study was to analyze the potential benefits of off-pump coronary bypass (OPCAB) for patients with renal insufficiency or on chronic hemodialysis.

Methods: From January 1996 through December 2001, the data of 1993 consecutive patients undergoing isolated coronary artery bypass grafting were prospectively entered into a data base (onpump1680 patients; off-pump 313 patients). Eighty nine patients (46 on-pump, 43 off-pump) who presented a chronic renal insufficiency (serum creatinine > 200µmol/l) or were on chronic hemodialysis were studied.

Results: Preoperative characteristics were similar between the groups except for the Parsonnet score, sex and frequency of unstable angina pectoris (23.6±8.35 for off-pump vs. 14.7±5 on-pump P = 0.00005, 27% (12/31) for off-pump vs. 8.6% (4F/42M) for on-pump P = 0.05 and 58% (25/43) for off-pump vs. 32% (15/46) for on-pump P = 0.05 respectively). Number of
C07 - 5
TEN YEARS OF RADIAL ARTERIAL GRAFTING: A RETROSPECTIVE VIEW
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Objective: To evaluate the results of the radial artery used as a second coronary graft to achieve arterial revascularization in a ten-year period.

Methods: From August 1996 to December 2005 radial artery was employed as a coronary graft in 424 patients. The mean Euroscore was 4.0±3.1 and the expected mortality 4.8±1.1%. Mean age was 68.9±8.4 years. There was left main disease in 35.0%, unstable angina in 66.6%, previous AMI in 47.4%. Mean ejection fraction was 61.5±12.6%. Radial arteries were harvested as skeletonized grafts in all cases; an antispasm prophylaxis with diltiazem administration was usually employed but it was later abandoned. A total of 543 distal anastomoses (48.2%) were constructed with 454 radial arterial vesseles. The mean of distal anastomoses per patient was 2.6±0.6, being 1.2±0.5 of radial artery. Of these distal anastomoses 277 (51.0%) were constructed on the lateral wall, 190 (34.9%) on the inferior wall and 76 (13.9%) on the anterior wall of the left ventricle. Therefore, the left internal mammary artery was used as a graft in 413 cases, the right internal mammary artery in 50, the right inferior epigastric artery in 16 and the saphenous vein in 101. So the total number of distal anastomoses in this serie were 1123. OPCAB revascularization was performed in 56 cases (13.2%).

Results: Exclusive arterial revascularization was achieved in 83.4% (354 patients). Hospital-in and/or 30 day-mortality was 3.7% (16 patients). There was 2.5% of perioperative AMI. No major complications were found related to radial artery harvesting. The follow-up period was 7.373 patients/month. Thirty patients underwent radionucleide exercise test with tecneconium 22.4 months after the operation. Stress-induced defects were detected only in 2 cases (5%), which were reversible at rest in areas revascularized with a radial artery graft.

Conclusion: The radial artery is an excellent conduit for myocardial revascularization that provides very good mid-term clinical results and few local complications and should be considered as a true alternative to the right internal mammary for arterial graft revascularization.

C07 - 6
REOPERATIVE OFF-PUMP CORONARY ARTERY BYPASS GRAFTING: ANALYSIS OF EARLY AND LATE OUTCOME
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Objective: The purpose of this study was to evaluate early and late results of redo (RE) off-pump coronary artery bypass grafting (OPCAB) grafting compared with those of first (FD) coronary artery bypass grafting.

Methods: From September 1996, to May 2003, 900 patients underwent isolated OPCAB surgery. Among them, 64 (7.1%) underwent a redo surgery. Peripheral vascular disease (P = 0.005) was more frequent in RE whereas Diabetes P = 0.009 and triple vessel disease (P=0.001) were in FD group. Number of grafts/territory were also less in the RE group (P=0.001). Results: Operative (30 days) mortality was similar, FD: 1.1% and RE: 1.6%. However perioperative MI (P = 0.001) and incomplete revascularization (P = 0.006) were more frequent in RE group. Creatine kinase myocardial band release were similar in both group. Length of intensive care unit stay (P = 0.03), hospital stay (P = 0.004) and intubation time (P = 0.003) were longer in RE patients. Nine years survival was survival, freedom or reintervention, and freedom of cardiac related complications were similar in both groups.

Conclusion: Off-pump redo surgery in our series performed similarly to first time OPCAB with a comparable operative mortality and comparable long-term outcome.

C07 - 7
CORONARY REVASCULARIZATION USING THE \( ^{15} \)CIRCUIT IN OPCAB
PROCEDURE: EARLY AND MIDLTERM RESULTS IN 1401 CASES
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Objective: To assess early and midterm results in patients undergoing off-pump coronary artery bypass technique (OPCAB), using the \( ^{15} \)C circuit.

Methods: Between February 2001 and November 2005, 1476 patients underwent isolated CAB in our institution, by the same surgical team. Amongst 1476 patients, 1401 patients (85.4% male, 14.6 female, meansAD age 64.7±9.86) underwent isolated OPCAB surgery, with aorta non-touch technique, IMA’s skeletonisation and a variety of composite grafts in order to achieve complete arterial revascularisation. Left ventricular performance was assessed pre-operatively by a detailed transthoracic echocardiogram. Comorbidities, as well as coronary artery risk factor were recorded preoperatively.

Results: Preoperatively IABP was inserted to 35 haemodynamically unstable pts (2.5%). In 853 patients (60.6%) we bypassed more than two diseased coronaries (3-6 distal anastomoses). Mean number of distal anastomoses was 2.75±0.93/pt. Of them, 2.59±0.98 were arterial grafts. All pts but 4 patients (0.3%), received at least one mammary artery. In 1217 cases (86.9%), bilateral mammarys were used. All mammary arteries were harvested in skeletonised fashion. Composite grafts on LIMA were performed on 839 cases (59.9%), with a mean of 1.75±0.79 grafts on LIMA. RIMA to LAD was performed in 407 cases (29.1%) whereas in 426 (30.4%) cases we performed sequential anastomoses. In 22 cases (1.6%), we didn’t revascularize the anterior wall. Mean number of grafts/wall/pt: anterior 1.32±0.56, lateral 1.0±0.62, inferior 0.50±0.50. Early postoperative complications were analyzed: acute renal failure 2.1%, pulmonary complications 6.2%, SWI 1.0%, arrhytmias 20, 2% (19.9% atrial fibrillation, 0.3% ventricular fibrillation). Postoperative use of IABP: 22 cases (1.6%). Urine retention, G.I. and psychological complications were 0.6%, 2.7%, 0.6% respectively. Overall hospital mortality (all high risk subgroups included): 21 pts (1.5%). The follow up lasts 1- 60 months. 32 pts underwent coronary angiography due to recurrence of the angi (2.3%). Of them, 15 patients (1.1%) required additional PTCA in a mean time of 24.4 months after the OPCAB. 2 patients reoperated at 18 and 21 months respectively, after the OPCAB, due to graft failure.

Conclusion: The low rate of postoperative complications, the ability to perform the method in all subgroupes of the population, even in the high risk, regardless of the clinical and the angiographic status, and the excellent midterm results indicates that OPCAB with aorta non touch technique can be the method of choice for myocardial revascularization.

C07 - 8
IS TRANSMYOCARDIAL LASER REVASCULARIZATION OF BENEFIT FOR PATIENTS WITH END-STAGE CORONARY ARTERY DISEASE?
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Objective: transmyocardial revascularization (TMR) using a high-energy CO2 laser has emerged as an alternative therapeutic option for patients with severe diffuse coronary artery disease refractory to conventional modes of therapy. However, this treatment remains controversial and long-term outcomes of this approach are largely unknown. We present the results of 360 TMR operations - a single centre experience.

Methods: from April 1997 to December 2004 420 patients underwent TMR. Isolated TMR performed in 120 patients, 300 patients underwent combined CABG with TMR. In 80 cases TMR was used in combination with CABG on a beating heart. TMR was performed in combination with application of human gene VEGF165 in 38 cases, aECGF- in 20 cases.

Results: overall hospital mortality was -1.9%, on the last 350 cases there was 2 hospital deaths (0.6%). There was no hospital mortality on the last 250 operations and 6 late deaths. Overall mortality rate was 3.1%. Actuarial survival of 7-years follow-up was 95.4%. Freedom from major cardiac events was 93.1%. That was associated with increased exercise tolerance, reduced (significantly) angina scores and improved quality of life. Postoperative tallium scan controls (SPECT) after lasing demonstrated significant improve-ment in stress-induced ischemia in majority of patients. PET study revealed restoration of segments with hibernating myocardium.

Conclusion: TMR created with CO2 laser is safe and effective procedure. In stable patients with <<no option>> CCS grade III-IV angina TMR can significantly reduce the grade of angina. At 7-year follow-up in patients with CAD that precluded conventional modes of therapy TMR showed significant functional improvement as well as improvement of quality of life.
Objective: We developed a multimedia teaching course related to aortic valve replacement to prepare students as team members in heart surgery. It integrates hundreds of surgical video and audio sequences, interactive 2D and 3D models and images. It is internationally accessible at www.lamedica.de.

Methods: One hundred and twenty six students were randomly assigned in a prospective study to either use the multimedia course (n = 69) or a print version (n = 57) with identical content. A 20 items multiple-choice (MC) test was performed at the end. Both groups participated in an operation during which they were assessed with 28 standardised tasks and questions targeting towards a detailed understanding of the different surgical steps. To control for frequent confounders individual motivation and computer literacy were also evaluated.

Results: There were no significant differences in the MC pre test (multimedia 30.6%±12.4% vs. 27.9%±11.4%) and post-test (multimedia 76.7%±13.3% vs. print 76.9%±11.1%). Mean percentage of successful tasks and correct answers during the operation was 83±4.5% in the online group and 65±4.7% in the text group (P=0.0001). The online group needed significantly less study time (105±24 min) than the text group (122±30 min), (P=0.001). On a range from 1 to 7 both groups were equally motivated (multimedia 4.1±2 vs. print 3.9±1) and had equal computer knowledge (multimedia 2.8±0.8 vs. 2.9±1 print).

Conclusion: When factual knowledge is to be imparted and tested, there is no difference between text-based teaching and multimedia. The latter proved to be a more efficient in terms of study time. During heart operations, when understanding of complex temporal and spatial events is essential, students’ performance is significantly improved by multimedia enhanced teaching.

C08 - 2
AORTIC ROOT REPLACEMENT WITH MECHANICAL VALVED CONDUIT IN 447 CONSECUTIVE PATIENTS: SPECIAL FOCUS ON MARFAN PATIENTS
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Objective: To evaluate long term results on aortic root replacement with mechanical valved conduit, with a particular focus on Marfan patients.

Methods: We retrospectively evaluated 447 consecutive patients who underwent aortic root replacement with mechanical valved conduits in our Institute. Their mean age was 54.3±13.8 years, and there were 356 male (79.6%). Two-hundred-twenty-one patients (49.4%) were in NYHA class III/IV. Type A Aortic Dissection accounted for 9.4% (42 patients), whereas a post-replacement genotype was diagnosed in 48 patients (10.7%) and bicuspid aortic valve in 73 patients (16.3%). Fifty-seven patients (12.8%) were operated on emergency/urgency criteria. Aortic arch replacement was performed in 56 patients (12.5%).

Results: Thirty-day mortality and morbidity accounted for 32 patients (7.2%) and 110 patients (24.6%) respectively. Overall survival estimates at 1, 5, 10, 15 and 20 years were 90.1%±1.4, 81.4%±2.1, 63%±3.7, 43.6%±5 and 22.8%±6.2, respectively. Overall survival estimates for Marfan patients did not differ significantly from the non-Marfan population (log-rank = 0.907). In the non-Marfan population freedom from aortic reintervention at 1, 5, 10, 15 and 20 years was 99.3%±0.5, 99.3%±0.6, 94.4%±2.4, 90.7%±3.4 and 90.7%±3.4 respectively. In the Marfan population freedom from aortic reintervention at 1, 5, 10, 15 and 20 years was 100%, 96.3%±3.6, 77.5%±11.1, 46.5%±18.2 and 0% respectively (log-rank = 0.000).

Conclusion: In our series the replacement of the aortic root with the Bentall technique and its modifications resulted to be a reliable procedure, with low hospital mortality rates despite the complexity and the extension of aortic pathology. Marfan patients survival estimates did not differ significantly from the non-Marfan population, again confirming the appropriacy of this surgical option to that disease. High aortic reoperation rate in the Marfan population should strongly encourage to perform surgical intervention as radical as possible, in order to minimize the risk of a new procedure.
Objective: The goal of this study was to assess long term results of surgically treated infective acute aortic endocarditis (IAE) and to compare the different surgical approaches to treatment.

Methods: Between January 1990 and January 2003, 126 patients with IAE underwent aortic valve surgery. We divided our cohort into 3 groups: group I had prosthetic valve replacement (61 patients: 44 mechanical; 19 biological); group II had homograft-replacement (50 patients: 38 homograft; 12 autograft); and group III had valve repair (13 patients). The mean age was 56±16 years. Twenty six patients had prostatic aortic valve endocarditis. Hospital mortality was 13%. Mean follow-up time was 61±42 months. Four patients developed endocarditis ascites.

Results: There were no differences between the 3 groups in terms of preoperative variables, indications for surgery, or hospital mortality, except for the incidence of heart failure which was more frequent in group I. The five year survival, freedom from valve related events, and occurrence of cardiac related events for groups I, II, and III respectively were as follows: five year survival 81(1±13%) vs. 94±6% vs. 100%; P = 0.54; freedom from valve related events (67±17% vs. 90±10% vs. 91±10%; P = 00027); and occurrence of cardiac related events (61±16% vs. 90±10% vs. 76±24%; P = 0.013).

Conclusion: In this patient population, homograft and Ross procedures gave better long term results in terms of valve and cardiac related events.

Objective: To assess early and midterm results in patients undergoing off-pump coronary artery bypass grafting (OPCAB), using the “?” circuit.

Methods: Between February 2001 and November 2005, 1476 patients underwent isolated CABG in our institution, by the same surgical team. Amongst 1476 patients, 1401 patients (85.4% male, 14.6% female, mean±SD age 64.79±9.86) underwent isolated OPCAB surgery, with aorta no-touch technique. IMA’s skeletonisation and a variety of composite grafts in order to achieve complete arterial revascularisation. Left ventricular performance was assessed pre-operatively by a detailed transthoracic echocardiogram. Comorbidities, as well as coronary artery risk factors were recorded pre-operatively.

Results: Preoperatively IABP was inserted to 35 haemodynamically unstable pts (2.5%). In 835 patients (60.9%) we bypassed more than two diseased coronaries (3-6 distal anastomoses). Mean number of distal anastomoses was 2.75±0.93/pt. Of them, 2.59±0.98 were arterial grafts. All pts but 4 patients (0.3%), received at least one mammary artery. In 1217 cases (86.9%), bilateral mammarys was used. All mammary arteries were harvested in skeletonized fashion. Composite grafts on LIMA were performed on 839 cases (59.9%), with a mean of 1.75±0.79 grafts on LIMA. RIMA to LAD was performed in 407 cases (29.1%) whereas in 426 (30.4%) cases we performed sequential anastomoses. In 22 cases (1.6%), we didn’t revascularize the anterior wall. Mean number of grafts/wall: pt. anterior 1.32±0.56, lateral 1.0±0.62, inferior 0.50±0.50. Early postoperative complications were analyzed: acute renal failure 2.1%, pulmonary complications 6.2%, SWI 1.0%, arrhythmias 20, 2% (19.9% atrial fibrillation, 0.3% ventricular fibrillation). Postoperative use of IABP: 22 cases (1.6%). Urine retention, G.I. and psychological complications 0.6%, 2.7%, 0.6% respectively. Overall hospital mortality (all high risk subgroups included): 21 pts (1.5%). The follow up lasts 1-60 months. 32 pts underwent coronary angiography due to recurrence of the angina (2.3%). Of them, 15 patients (1.1%) required additional PTCA in a mean time of 24±4 months after the OPCAB. 2 patients reoperated at 18 and 21 months respectively, after the OPCAB, due to graft failure.

Conclusions: The low rate of postoperative complications, the ability to perform the method in all subgroups of the population, even in the high risk, regardless of the clinical and the angiographic status, and the excellent midterm results indicate that OPCAB with aorta no touch technique can be the method of choice for myocardial revascularisation.
preoperative period. In leukodepletion group (Group A) the mean levels of creatinine, BUN and urinary α-GST were found to be decreased after leukodepletion when compared with the control group in the first, 3′rd and fifth postoperative days. There was no mortality. Three patients in the control group needed postoperative dialysis.

Conclusion: Patients with renal dysfunction and who underwent on-pump CABG surgery seems to benefit from leukodepletion to prevent tubular damage and renal impairment when compared with control group.

C08 - 9
TRANEXAMIC ACID ADMINISTRATION PRE AND POST CPB REDUCES POSTOPERATIVE BLEEDING. PROSPECTIVE RANDOMIZED, DOUBLE BLIND STUDY
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Objective: We know that fibrinolitic disbalance after cardiopulmonary bypass (CPB) can cause postoperative bleeding. To evaluate the tranexamic acid (TA) effect on cardiac postoperative bleeding, and transfusional needs.

Methods: Prospective, randomized, double blind, placebo controlled study, with 50 patients (27 male) under CPB, 64.5±1.4 years mean age, in which we compare TA administration (2 grs, iv, pre and post CPB) vs. a control group. We analyzed bleeding into 24 first hours, transfusional needs, and clinical and biochemical variations. Statistical studies were performed using Pearson’s chi² test and Fisher’s exact test were used. The Student’s t test was performed in independent groups. And the Mann- Whitney U test in non parametric variables. To compare the sequential changes along the time we applied the Manova test.

Results: In the TA patients group bleeding was shorter than control group (492±387 ml vs. 1036±147 ml; p < 0.001) as well as red cell transfusional needs (475±146 ml vs. 962±165 ml; p < 0.012) and frozen plasma needs (33±33 ml vs. 409±144 ml; p < 0.012). The use of TA was associated with lower levels of creatinine, BUN and urinary α-GST (p < 0.005) on arrival to ICU. 4 h later, CPK-MB (p < 0.042) and D- Dimer (p < 0.0005) still showed difference. In TA group a lesser incidence on vasodilator shock (p < 0.003), noradrenaline needs (p < 0.029) and mechanical ventilation time (p < 0.018) were found.

Conclusion: The use of TA in patients under CPB reduce postoperative bleeding and hospital costs due to lower transfusional requirements, morbidity a mechanical ventilation time.

C08 - 10
OFF PUMP OR MINIMAL EXTRACORPOREAL CIRCULATION? A COMPARATIVE STUDY
Hospital De Navarra, Pamplona, Spain

Objective: Our aim was to compare our clinical results with the off-pump technique and minimal extracorporeal circulation (MECC) for surgical myocardioc revascularization.

Methods: The study comprises 212 consecutive patients who were operated on for coronary revascularization. We divided the study into two groups. Group A comprised 106 patients who were operated on off-pump, and group B comprised the remaining 106, who were operated on under MECC. The groups were similar in terms of age, angina class, previous infarction, coronary lesions and ejection fraction (P = ns). Surgical results were evaluated in terms of the number of inserts done, bypass insert permeability, clinical outcomes and laboratory parameters. Permeability was measured by flow-meter intraoperatively and subsequently by color duplex ultrasound within one postoperative week. Data was analyzed with standard statistical methods.

Results: The mean number of vessels grafted was greater (on average 0.16 more grafts per patient) in group B (P < 0.03). Group B patients received more bypasses on the branches of circumflex (P < 0.02). Permeabilities were similar for both groups. Hospital mortality was two patients in group A and none in group B. There were no significant statistical differences in terms of postoperative low cardiac output, intraaortic balloon assistance, units of blood transfused, mean weaning time, mean duration of stay in the intensive care unit, atrial fibrillation or postoperative myocardial infarction (troponine levels). On admission to the ICU, oxygenation tended to be worse in group B patients (P < 0.001) but within 18 h there was no difference between the groups. On ICU admission, hematocrit was similar for both groups but group B patients had less platelets (P < 0.001) and less leukocytes (P < 0.005). We observed that group B patients required less drainage (P < 0.02).

Conclusion: Although MECC resulted in a small but real inflammatory response, this did not lead to any observable complications. We did not observe any cases of systemic inflammatory response syndrome (SIRS) and this may be due to the effectiveness of the bio-compatibility of the MECC circuit. The easier access and greater patient stability facilitated by MECC made surgery more comfortable and less stressful. Furthermore, easier access to the branches of the circumflex made it possible to do more inserts per patient. We believe MECC represents a better approach to coronary surgery than the off-pump technique.
4TH CARDIOVASCULAR SCIENTIFIC SESSION

CV04 - 1
DESCENDING THORACIC AORTIC ANEURYSM REPAIR: THE “QUICK SIMPLE CLAMPING” TECHNIQUE
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Objective: Despite additional protective measures in order to reduce spinal cord injury (cardiopulmonary bypass with moderate or deep hypothermia, left heart by-pass, Bio-pump, aortic perfusion, drugs, cerebrospinal fluid drainage, intercostal artery reimplantation) have been achieved in the last decades, graft replacement of descending thoracic aorta continues to be attended by a high rate of paraplegia. In order to prevent spinal cord injury and to reduce mortality, in 1995 we developed a new surgical approach: the Quick Simple Clamping technique after intercostal arteries exclusion.

Methods: Since 1995, 192 consecutive patients (78% male, mean age 63.2 years) underwent Quick Simple Clamping (QSC) technique to repair descending thoracic aorta aneurysm (DTA). Aortic pathology included: atherosclerosis-degeneration (6%), chronic dissection (21%), chronic trauma (4%), pseudoaneurysm (2%), post-coarctation aneurysm (0.8%) and neoplastic pathology (2%). Under cerebrospinal fluid drainage (EFD) control, after isolation and interruption of every single intercostal arteries, aortic cross-clamping and aneurysm resection were performed. The mean aortic cross-clamping time was 17 ± 3 min (range 11-24 min.). On the basis of anatomical, fluidodynamic and clinic findings, there is evidence that QSC technique: 1. avoids the back bleeding from the segmental arteries so reducing blood steal from the spinal cord and leaving a very cleaned operating field; 2. improves collateral network blood flow; 3. reduces aortic clamp time.

Results: In-hospital mortality rate was 4.6% (9/192): one patient died in the operative room for bleeding, two other patients at 20 and 30 days postoperatively by multiorgan failure. Paraplegia occurred in 1 patient (0.5%) caused by a T6-spinal cord compression due to hematicoic gauze put in the epidural space, while transient paraparesis affected 4 patients (2%). Postoperative acute renal failure requiring hemofiltration occurred in 5 patients (2.6%). Respiratory failure occurred in 5 patients (2.6%). Tree patients (1.6%) underwent re-exploration for bleeding, whereas one patient (0.5%) experienced acute leg ischemia treated by surgical embolectomy. Late follow-up data were available for 91% of patients. The mean follow-up time was 38 months (range 2-75), the 5 year survival rate (Kaplan-Meyer) was 78.9±12.8%.

Conclusion: The “Quick Simple Clamping” technique is able to avoid paraplegia due to an improved aortic cross-clamping technique, with better collateral network blood flow. We achieved a very low mortality rate and a good survival rate, with a low incidence of acute renal failure and respiratory failure. This technique remains a feasible and safe option in the treatment of descending thoracic aneurysms (with aneurysmal degeneration and chronic dissection), as a replacement of open surgery. A more comprehensive analysis will be the subject of a separate article.

CV04 - 2
ENDOVASCULAR REPAIR OF PROXIMAL ENDO-GRAFT INSTABILITY/ COLLAPSE AFTER TREATMENT FOR THORACIC AORTIC DISEASE
Steinbauer G.M., Stehr A., Pfister K., Herold M., Zorger N., Toepel I., Kasprzak M.P.
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Objective: Five cases of proximal endo-graft instability after endovascular treatment of thoracic aortic disease using the TAG Gore system are reported.

Methods: In these 5 cases (thoracic aneurysm after type B-dissection, traumatic blunt aortic rupture) an early proximal endo-graft instability occurred that has not been reported in previously used devices. In two cases this instability lead to a collapse of the proximal endograft with one side of the graft towering into the aortic lumen, causing an almost complete aortic occlusion.

Results: In the first case a combined endovascular and open emergency procedure achieved a reopening of the stent by proximal extension of the proximal endograft with another TAG prosthesis. In the following cases a proximal extension was not considered due to a precise positioning of the endo-graft distal of the left carotid artery. Therefore, a balloon expanding PALMAZ Stent was placed intervencionally in the proximal part of the TAG Stent to expand the stent and to avoid another collapse of the device.

Conclusion: This proximal stent instability has to be acknowledged as a potentially hazardous complication. Therefore, we recommend to monitor closely the proximal part of thoracic endo-grafts in the aortic arch and offer two possible endovascular solutions for resolving the problem of proximal endo-graft instability or collapse.

CV04 - 3
EARLY AND MID-TERM RESULTS AFTER ENDOVASCULAR TREATMENT OF THE Atherosclerotic DESCENDING THORACIC AORTIC AneURYSM
Spiazole F., Sbarigia E., Capocchia L., Marino M., Faneli F., Salvatori M.F.
I Cattedra di Chirurgia Vascolare - Università degli Studi di Roma “La Sapienza”, Rome, Italy; Dipartimento di Radiologia, Università degli Studi di Roma “La Sapienza”, Rome, Italy
Objective: Endovascular repair of thoracic aortic aneurysms is a promising modality with reduced morbidity and mortality. Preliminary results suggest that endovascular therapy is an effective and possibly advantageous treatment for diseases of the descending thoracic aorta. The purpose of this prospective study was to evaluate perioperative and mid-term results of endovascular stent-graft treatment of thoracic aortic aneurysms.

Methods: Between June 1999 and December 2004 53 consecutive patients underwent elective endovascular stent-grafting of the descending thoracic aorta. 31 pts, excluded from this study, were treated for type-B dissection and 22 (41.5%) were treated for atherosclerotic aneurysms. Devices used included Excluder (W.L. Gore and Associates) and Talent (Medtronic).

Follow-up investigations (CT-scan) were performed at 1-month, 3-months, 6-months, 1-year and annually thereafter.

Results: Perioperative mortality rate was 4.5% (1/22). Primary technical success, defined as successful deployment and exclusion of the lesion without evidence of type I or III endoleak, was achieved in 19 (86.3%) of 22 patients. 2 perioperative type-I and 1 perioperative type-II endoleaks were observed. No ischemic complications (paraplegia, visceral or peripheral ischemia) or open surgical conversion were recorded. We observed type-I endoleak in 1 patient at 6-months CT-scan and aortic distal growth in diameter in 1 patient at 18-months CT-scan. Mean flow-up was 34 months (range 12-71 months).

Conclusion: elective endovascular therapy of atherosclerotic TAAs seems to be a feasible and safe procedure; strict tomographic examination is mandatory to evaluate mid-term and long-term results.

CV04 - 4
THE EFFECT OF AORT COARCTATION REPAIR TO THE SYSTOLIC HYPERTENSION IN ADULTS PATIENTS
Ergunes K., Yilik L., Göktogan T., Kestelli M., Tetic Ö., Bayrak S., Özbebek C., Gürbüz A.
Izmir Atatürk Education and Research Hospital, Department of Cardiovascular Surgery, Izmir, Turkey
Objective: The purpose of this retrospective study is to determine the effect of repair to the systolic hypertension and the results of repair of aortic coarctation in adults.

Methods: Eight adults patients underwent aortic coarctation surgical repair between 1990 and 2005. Mean age of the patients was 28.5± years (range, 18 to 41 years). There were 6 men and 2 women patients. All patients had hypertension preoperatively. Mean systolic blood pressure was 160.6± mmHg (range, 145 to 180 mmHg). 3 patients were receiving at least one antihypertensive drug preoperatively. All patients were preoperatively echocardiography and echocardiography preoperatively. Mean peak systolic gradient across the coarctation was 63.3± mmHg (range, 40 to 80 mmHg). Surgical treatment were performed with bypass graft between proximal and distal descend aneur in four patients, bypass graft from the left subclavian artery to the descending aorta in three patients, patch aortoplasty in one patient. There were no deaths. In a period between one and six months after the surgical repair of aortic coarctation, three patients were operated for associated cardiopulmonary diseases. Mitral valve replacement and tricuspid De Vega annuloplasty were performed in one patient. Mitral valve replacement was performed in other patient. Ventricular septal defect repair with patch and subaortic membranous resection were performed in another patient. At the last follow-up, only two patient was normotensive without receiving any hypertensive medication. Another 7 patients were normotensive with at least one antihypertensive medication (systolic blood pressure =140 mmHg, diastolic blood pressure =90 mmHg). Reoperation hasn’t been noticed in follow-up of the patients.
Conclusion: Surgical repair of aorta coarctation in the adult has low-risk, and it is an effective method in decreasing the systolic hypertension and lessens requirement of antihypertensive medications and clinical symptoms. Hypertension disease may not be solved after aorta coarctation repair. Currently for explanation of this problem in molecular level investigations continue all over the world.

CVD04 - 5
HYBRID-PROCEDURE IN REPAIR OF THORACO-ABDOMINAL AORTIC ANEURYSM
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Division of Vascular Surgery, Medical Centre, University of Cologne, Cologne, Germany

Objective: The conventional open repair of thoraco-abdominal aortic aneurysms remains complex and demanding and is associated with significant morbidity and mortality, even though the use of adjuncts. The combined endovascular and open surgical approach with retrograde revascularisation of the visceral and renal vessels has been realized in order to minimize intraoperative and postoperative complications.

Methods: Within an experience of 205 aortic stent-grafts between 1998 and 2005, 3 of the patients with thoraco-abdominal aneurysms (Crawford type I, II, and III) were treated with a combined endovascular and open surgical approach. The procedures were electrolytically conducted. Two men, 64 and 69 years old, and 1 woman, 61 years old (maximum aneurysm’s diameter was 10, 8.8, and 6.9 cm, mortality was operated with the combined method). The surgical approach was executed in all patients without thoracotomy or re-do retroperitoneal exposure. Revascularization of the renal and the superior mesenteric arteries was accomplished via transperitoneal bypass grafting, but after verifying the collateralisation of the celiac axis through the pancreato-duodenal artery, the celiac axis was not revascularized. Aneurysmal exclusion was performed by stent-graft deployment.

Results: The entire procedure was technically successful in all patients. The patients were discharged 7, 10, and 21 days after the operation, while the postoperative studies revealed the patency of the vessels and no evidence of leak or secondary rupture of the aneurysm. During the follow up (1, 12, and 18 months) spiral-CT scanning revealed distinct shrinkage of the aneurysm, no graft migration or endoleak and patency of all revascularized vessels, exceptional one renal artery in patient 1 and 2. No patient experienced any temporary or permanent neurological deficit.

Conclusion: The combined endovascular and open surgical approach is feasible, without crossclamping of the aorta and with minimized ischemia time for renal and visceral arteries, and seems to be an appropriate strategy for patients with a thoraco-abdominal aortic aneurysm.

CVD04 - 6
THE "HYBRID PROCEDURE" FOR THORACOABDOMINAL AORTIC ANEURYSMS REPAIR
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Objective: Repair of thoracoabdominal aortic aneurysms continues to be a challenging task. These patients usually have significantly co-morbidity and redo-surgery further compound the problem. Paraplegia and renal failure are the most devastating complications. The applicability of endovascular procedures to thoracoabdominal aorta has been limited by the origin of several visceral arteries. Combined endovascular and surgical visceral revascularization is a feasible and less-invasive approach for the management of this complex lesions.

Methods: Five patients (3 men, 2 women, mean age 64 years, range 21-79) were treated from May 2002 to November 2005 with combined endovascular stent-grafting of thoracoabdominal aorta and surgical visceral revascularization. Four patients have a history of previous aortic operations. Spiral CT and transesophageal echocardiography were performed in every patients (aortography in 3 patients). Open repair was deemed too difficult due to significant comorbidity in all patients and redorsusurgery in four patients.

Results: All procedures were performed under general anaesthesia, in vascular operative suite equipped with digital subtraction angiography and transesophageal echocardiography, via median xifo-pubic laparotomy. No intraoperative mortality or graft-stent related complication were observed. One patient with end-stage renal disease deceased in second postoperative day for multi-organ failure. Only one patient developed on the 3rd postoperative day an acute colicystitis follow by a colecstectomy. No perioperative paraplegia or visceral-graft complications were detected. After a mean follow up of 31 months (range 12 - 42 months), 3 patients are alive and serial spiral CT scan confirmed satisfactory placement of the aortic stentgraft.

Conclusion: The “hybrid procedure” allows treatment of patients whose co-morbidity or redo-surgery may have previously made them unsuitable for TAAA repair, and reduces the morbidity and mortality rates of these high-risk procedures. A meticulous follow up of the patients is mandatory because the long term performance remains to be elucidated. If the durability of this approach is confirmed, it may represent an attractive alternative in patients with aneurysmal involvement of the visceral segment of the aorta.

CVD04 - 7
GLOBAL EXPERIENCE WITH EVAR FOR THORACIC AND ABDOMINAL AORTIC ANEURYSMS
Department of Cardiac Surgery and Cardiology - University “Federico II” - Naples, Italy, Naples, Italy

Objective: Despite improvements on perioperative care and surgical techniques conventional surgery still carries substantial risk of serious complications, mostly in emergency and in high risk patients. To determine the impact of the endovascular surgery (EVAR) for aortic disease, early and mid-term results were evaluated.

Methods: From March 2001 to June 2005, 157 patients with thoracic or abdominal aortic aneurysms underwent EVAR: 101 (64.3%) for abdominal, 51 (32.5%) for thoracic and 5 (3.2%) for combined pathology. In the thoracic group 7 patients (13.7%) had a traumatic rupture, 18 (35.3%) an atherosclerotic aneurysm and 26 (51.0%) a Type B dissection. In the abdominal group 92 patients (91.1%) had an infrarenal atherosclerotic aneurysms and 9 (8.9%) a pararenal aneurysms. In the combined group 3 patients (60.0%) showed a progressive involvement of abdominal aorta after an acute type B dissection and 2 (40.0%) an atherosclerotic thoracic and infrarenal aortic aneurysms. An emergency procedure was required in 51 patients (32.5%): 35/51 (68.6%) thoracic, 13/101 (12.9%) abdominal and 3/5 (60.0%) combined patients. A comorbid medical illness, ASA class III-IV, was present in 69.4% (109/157) of patients: In 60.4% (41/51) of thoracic, in 63.4% (64/101) of abdominal and in 80.0% (4/5) of combined patients. The number of implanted thoracic stent-grafts varied from 1 to 4 : in 24 patients (47.1%) was covered the entire descending aorta and in 7 (13.7%) the left subclavian artery.

Results: There were no perioperative deaths. No surgical conversions or paraplegia occurred. Vascular injuries occurred in 11 (7.0%) patients, requiring a successful rescue iliac femoral bypass in 7 and a reconstructive surgery in 4. At discharge no type I or III endoleaks was observed. At follow-up, ranging from 6 to 51 months, there were 3 late death (one procedure related) in the thoracic and 9 (none procedure related) in abdominal patients. A traumatic patient with a type I endoleak was successfully treated with a EVAR 16 months after. A dissected patient showing a late rupture distally to previous stent-graft in the descending thoracic aorta required EVAR in emergency 37 months after.

Conclusion: By the light of our experience with a mid term follow-up endovascular surgery can be considered a valid alternative to treat thoracic and abdominal aortic pathology. In patients otherwise unsuitable for conventional surgery EVAR can be a paramount option.

CVD04 - 8
FATAL AND NON-FATAL COMPLICATIONS AFTER ENDOVASCULAR SURGERY OF DESCENDING THORACIC AORTA
Iannelli G., Di Tommaso L., Monaco M., Mottola M., Pinna B.G., Pantaleo A., Sarro G., Piscone F.
Department of Cardiac Surgery and Cardiology, University “Federico II”, Naples, Italy

Objective: To determine the impact of the endovascular surgery (EVAR) for thoracic aortic disease, fatal and nonfatal complications were evaluated.

Methods: From March 2001 to June 2005, 51 patients underwent EVAR for Type B dissection in 26 (51.0%), for thoracic aortic aneurysm (TAA) in 18 (35.3%) and for traumatic rupture in 7 (13.7%): 35 patients were treated in emergency (60.7%) and 41 (80.4%) were in III-IV ASA class. Major complications, systemic and device or procedure related, were considered.

Results: The entire procedure was technically successful in all patients. The patients were discharged 7, 10, and 21 days after the operation, while the postoperative studies revealed the patency of the vessels and no evidence of leak or secondary rupture of the aneurysm. During the follow up (1, 12, and 18 months) spiral-CT scanning revealed distinct shrinkage of the aneurysm, no graft migration or endoleak and patency of all revascularized vessels, exceptional one renal artery in patient 1 and 2. No patient experienced any temporary or permanent neurological deficit.

Conclusion: The combined endovascular and open surgical approach is feasible, without crossclamping of the aorta and with minimized ischemia time for renal and visceral arteries, and seems to be an appropriate strategy for patients with a thoraco-abdominal aortic aneurysm.
Results: There were no deaths or surgical conversion perioperatively. A patient with TAA and obstruction of the aortic bifurcation required an hybrid procedure: aortobifemoral bypass and EVAR. Three (5.9%) vascular injuries occurred and were treated successfully by a rescue iliac femoral bypass. There were three late deaths (5.9%), one procedure related. A secondary EVAR were required in 4 (7.8%) patients: a type I endoleaks was documented in a RTA patient and successfully treated 16 months after; in the group of type B dissection, 2 patients were successfully treated by biforated abdominal stent-grafting surgery because of progressive involvement of infrarenal abdominal aorta (6 and 8 months after); one patient showing a late rupture distally to previous stent-graft in the descending thoracic aorta required EVAR in emergency 37 months after.

Conclusion: Our results confirm the good outcome at a mid-term follow-up after EVAR, mostly in emergency and in high-risk patients. Non-fatal complications can be treated either by endovascular either by open surgical procedures. For acute, potentially fatal device or procedure related complications, that still entail a high open surgical risk, we consider secondary EVAR as paramount option.
14.30-16.00
MAY 13, 2006 3RD CONGRESS DAY

7TH VASCULAR SCIENTIFIC SESSION
RESEARCH AND MISCELLANEOUS

V07 - 1
EXTRACRANIAL CAROTID ARTERY ELONGATION
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Objective: Possibility of detection, quantitative and qualitative analysis of extracranial carotid artery elongation, as well as 3D reconstruction of angle deviation according to MRA.

Methods: Four vessel MRA were evaluated in a period from 01.06.1999, until 01.06.2004. Total of 363 series of images were evaluated, of which 163 satisfied Metz and Herrshart criteria (17 coilings and 146 kinkings). Quantitative and qualitative analysis using computer 3D reconstruction were performed afterwards according to the same criteria.

Results: Angle deviation was recognized in 146 of 863 analysed series of images. 17 were bilateral. Most often, in 95% of cases, disease engaged common carotid artery. Left to right ratio was 1.42 in a kinking series and 2.4 in a collaring series. Elongation syndrome was predominant in women (1.25:1) in a median age group (45±5 years of age). Negative significant correlation was found comparing snetic grade and age as well as comparing angle deviation and age of patients. Distribution according to previous criteria was: Metz 1:68, Metz2:52, Metz3:40. Hershart Ic:22, Is:93, II:17, III:45 Horsh 4:12. High level of clinical applicability of 3D reconstruction was achieved.

Conclusion: wing to highly sofisticated semi invasive diagnostic (standard four vessel MRA) we can have exact visuelisation of extracranial carotid arteries as well as morfologic features of the very same arteries. Use of modern Graphic applications for 3D reconstruction makes possible to quantify elongation syndrome features and to estimate its implications on changes in peripheral vascular system.

V07 - 2
THE CHOICE OF PATCH MATERIAL AFTER CAROTID ENDARTERECTOMY IN ELDERLY AND SENILE PATIENTS
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Objective: The choice of a patch material after carotid endarterectomy (CE) remains subjective. This especially important for patients of the senior age groups in view of complicacy with use an autogenous material (the saphenous vein), which may be useful for aorto-coronary bypass or distal arterial reconstruction of the lower legs. The purpose of research - to determine an optimum plastic material for carotid closure after endarterectomy in elderly.

Methods: From 1996 to 2004, 68 carotid endarterectomies were performed in 64 patients. All patients were 60 years old and more. Duplex ultrasonography, magnetic-resonanse angiography, spiral computer tomoangiography were included in peroperative estimation. Bilateral TCD-monitoring with quantitative microemboli definition was performed during procedure. 29 patients underwent CE with superior thyroid artery (STA) patching, 11 - PTFE patching, 9 - saphenous patch closure. In 3 cases arteriometry was closed with a primary suture. Eversion technique was made in 16 patients. Carotid clamping duration, hemodynamic doppler and duplex changes and complications was estimated. Long-term evaluating period made up to 8 years. Hemodynamic features of a reconstructed zone, rate and a degree of restenosis were taken into estimation.

Results: No thrombotic events, false aneurysms, or perioperative deaths occurred in all groups. The rate of restenosis (severe than 50%) in STA, PTFE and saphenous group was 3.5%, 9%, 11.1% in accordance. One reversible neuroplogic event (ipsilateral TIA) result from restenosis and requires reoperation, occurred in saphenous group.

Conclusion: Based on this study clinical and hemodynamic results after carotid endarterectomy in elderly patients is better after STA patching. It performance is compatible to that of eversion techniques.

V07 - 3
SPONTANEOUS RECANALIZATION OF OCCLUDED INTERNAL CAROTID ARTERY AF
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Objective: Spontaneous recanalization of occluded internal carotid artery and its surgical therapy is very rarely reported in literature. The purpose of this report is to describe 3 cases of spontaneous recanalization of internal carotid artery detected in our department with duplex ultrasonography and angioraphy.

Methods: Three patients (2 males and 1 female, mean age 70) with spontaneus recanalization of internal carotid artery were observed in our department of vascular surgery in a period between march 2002 and november 2005. All these patients had come to our attention after minor stroke and with a detected occluded internal carotid artery (confirmed by angioraphy). In no one the occlusion was due to cervical trauma or dissection. All of them were followed up with serial duplex ultrasonography. Risk factors of these patients were: smoke (2/3), hyper tension (2/3) and hyperlipidemia (1/3). Drugs used were: aspirin, tyclopidin and statins. The mean interval between the occlusion and the detected recanalization was of 53 months. In all cases the recanalization previously detected by duplex ultrasonography was confirmed by angio-MRI.

Results: Two patients underwent a successful carotid endarterectomy with dacron patch, the third patient refused the proposed treatment. Six months after surgical treatment the complete patency of the internal carotid artery was confirmed by Angio-MRI. The histological studies of the plaques revealed multiple regions of recanalization and presence of great amount of acid mucopolysaccarides in the fibro-elastic tissue.

Conclusion: Spontaneous recanalization of internal carotid artery occurs quite rarely and it is not well known and overall not investigated. Up to now we don’t know the potential embolistic risk of this plaques. The surgical treatment seems to offer good results to the short and medium term.

V07 - 4
SURGICAL APPROACHES TO THE TREATMENT OF THE ELONGATED CAROTID AND VERTEBRAL ARTERIES
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Objective: From February 1993 to May 2005 258 patients with elongated carotid and vertebral arteries were operated on. All patients were symptomatic (132 patients underwent stroke, 101 had TIA and 145 had syncope). Majority of the patients had headache (92%), giddiness (86%), ataxia (79%). An examination program included a thorough neurologic examination, ultra-sound examination, cerebral CT and angiography of the aorta arch branches. Since 1998 the MRA has been introduced in common clinical practice for revealing of elongated arteries.

Methods: In 258 patients 276 surgical interventions were performed. All operations were performed under general anesthesia. Intraoperative cerebral protection was realized with barbiturates, dexamethasone, intravenous injection of 1000 mg of gliathine just before the artery cross-clamping and by inducing a moderate arterial hypertension. Temporary shunt was not used. Resections of elongated ICA and CCA was performed in 144 cases. ICA transposition was performed in 34 cases. VA transposition was performed in 38 cases and Power’s procedure in 51 cases. Combined procedures on ICA and VA were performed in 9 cases.

Results: The analysis of the surgical treatment results has shown no cases of intraoperative lethality or stroke. Intraoperative complications included two cases of internal carotid artery injury. Craniocebral nerve injury was observed in 9 patients, Horner’s syndrome in 5 cases. The symptoms have regressed totally within 3 months. 196 patients were followed up from 24 to 96 month (at an average 68 months). 15 patients died (7.7%). Only one patient had stroke as a cause of death. Stroke in the basin of the reconstructed artery occurred in 5 patients (2,5%). 149 patients (76%) had a significant regression of neurological symptoms. The patients with manifested elongation of carotid and vertebral arteries are subject to the surgical treatment, which seems to be a very effective method to decrease neurological symptoms and to prevent stroke.
V07 - 5
OPTIMALIZATION OF THE ABDOMINAL AORTIC ANEURYSM (AAA) MODEL IN EXPERIMENT, ASSESSMENT OF ADHESIVE MOLECULE DYNAMICS IN THIS MODEL.

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Objective: The etiopathogenesis of the abdominal aortic aneurysm has not yet been fully explained, and so animal models have a very essential significance in the search for the factors which participate in the origin of AAA. The aim of our experiment was to find a suitable animal AAA model in which we would be able to assess the dynamics of AAA molecules as the basic marker of the inflammatory reaction in progress. We would thus verify the key role of the inflammatory reaction in the process of AAA pathogenesis.

Methods: We worked with 22 domestic pigs with an average weight of 20 kg. The animals were divided into 4 groups according to the mechanisms used for creation of the AAA. In group A (n = 7) we infused a solution of porcine pancreatic elastase into the lumen of an abdominal aorta, and under the renal arteries we placed a cuff which only slightly stenosed the abdominal aortic lumen in that place and thus created a considerable turbulent flow. In group B (n = 5) we proceeded identically, except that the infused solution into the abdominal aorta was a physiological solution, and we used again the cuff for increasing turbulence. In group C (n = 5) we implanted a patch of a standard width into the longitudinal aortotomy and under the cuff. In group D (n = 5) we proceeded identically, except that the infused solution into the abdominal aorta was a physiological solution, and we used again the cuff for increasing turbulence. In group C (n = 5) we infected the animals with Staphylococcus aureus, and in group D (n = 5) we infected the animals with Staphylococcus epidermidis.

Results: In group A we managed to create typical AAAs in all animals. In these animals to sleep. Aortic preparations were examined histologically. In group B (n = 5) we implanted a patch of a standard width into the longitudinal aortotomy and put the experimental animals to sleep. Aortic preparations were examined histologically. In group C (n = 5) we implanted a patch of a standard width into the longitudinal aortotomy and put the experimental animals to sleep. Aortic preparations were examined histologically. In group D (n = 5) we proceeded identically, except that the infused solution into the abdominal aorta was a physiological solution, and we used again the cuff for increasing turbulence. In group C (n = 5) we infected the animals with Staphylococcus aureus, and in group D (n = 5) we infected the animals with Staphylococcus epidermidis.

Conclusion: According to our opinion, we created a suitable animal AAA model by means of a combination of intraluminal infusion of elastase and increased turbulence.

V07 - 6
AORTIC ENDOGRAPHS WITH SUPRARENAL FIXATION WITH AND WITHOUT HOOKS: DIFFERENCES IN THE MID-TERM FOLLOW-UP AFTER EVAR

Griso A., Barzaghi E., Ferrari Ruffino S., Nicolai L., Kontothanasis D., Camporese G., Scuro A.
Vascular Surgery - University of Verona, Angiology - University of Padova

Objective: To compare two different endografts with suprarenal fixation.

Methods: We analyzed the follow-up in patients who underwent endovascular aneurysm repair (EVAR) with Talent or Zenith endografts. We recruited to our study 119 patients. We treated 55 patients with Talent graft. Middle age was 72, 48 years; 3 were females and 52 the males. The median ASA degree was 3. The middle diameter of AAA was 57.6 mm, and the middle diameter of their proximal neck was 23.38 mm with a length of 21.3 mm. The patients treated with Zenith graft was 64. The females were 5 and 59 the males; with a middle age of 73.6. Their ASA degree was 3. The middle diameter of AAA was 57.1 mm, and the middle diameter of their proximal neck was 23.5 mm with a length of 26.8 mm.

Results: We didn’t find significant difference in the follow-up about the endografts that we compared (Talent and Zenith) regarding number of endoleaks, sack shrinkage, growth of proximal neck and number of reinterventions. During follow-up we found a statistically significant difference about the number of migrations between 5 and 15 mm: 16.3% for Talent vs. 0% for Zenith; no differences was found in the migration over 15 mm. This result is independent of growth of proximal neck and these migrations don’t cause an increase of major complications.

Conclusion: EVAR using endografts with supra renal stent with and without hooks has good immediate and mid-term results in the follow up. Our study shows that the presence of hooks in the proximal stent prevents the migration included between 5 and 15 mm. No differences was found in the clinical results.

V07 - 7
PROXIMAL NECK EXPANSION AND MIGRATIONS RELATED TO ENDOGRAPHS RADIAL FORCE: OUR EXPERIENCE IN EVAR FOLLOW-UP

Griso A., Barzaghi E., Ferrari Ruffino S., Baratto F., Nicolai L., Kontothanasis D., Camporese G., Scuro A.
Vascular Surgery - University of Verona, Angiology - University of Padova

Objective: To calculate the radial force developed by different endografts at proximal aortic neck and to correlate it with the expansions and migrations rate during follow-up of EVAR.

Methods: We have been realized a sperimental model in order to calculate the radial forces developed by different endografts based on the oversize applied on the arterial wall. We evaluated these data, expressed in mmHg/cm², regarding AneuRX, Talent, Excluder, Zenith and Endologix.

Results: The evidence is a higher radial force developed by AneuRX than other endografts: using a 20% oversize, we obtained a 160mmHg/cm² radial force vs. 80 mmHg developed by Talent or Zenith and 70mmHg by Excluder and 40 mmHg by Endologix. In our experience we compared clinical results of AneuRX and Talent. These patients with a 12 months follow-up are 152; complete data are from 141 patients (60 Talent and 81 AneuRX). There aren’t significant differences between the two groups about oversize applied (18.6% both groups) and middle diameter of pre-operative proximal neck (med 24.4 - min 20 - max 29 for Talent vs. med 21.9 - min 19 max 26 for AneuRX). Proximal neck length is higher in patients with AneuRX grafts (25.9 mm vs. 20 mm Talent). The evidence, based on our data, is that the radial force applied on the proximal neck, has been significantly higher with AneuRX graft than the one developed by Talent. We noted a statistically significant correlation between migration >10 mm of endografts (12.3% AneuRX vs. 1.7% Talent) and the radial force applied to aortic proximal neck.

Conclusion: We believe it is correct, during the follow-up, to correlate the evolution of proximal neck and the radial force developed from the endograft. The correlation between radial force and evolution of the proximal neck it is not so correct. Our data show that AneuRX, developing twice radial force as much as the middle of other endografts, has supported the expansion of the proximal neck and, at the same time, this expansion has supported the graft migration. Therefore we believe that the application of high radial force on proximal aortic neck could increase the incidence of complications during the follow-up.
8TH VASCULAR SCIENTIFIC SESSION
RESEARCH AND MISCELLANEOUS

V08 - 1
CIVIL AND WAR PERIPHERAL ARTERIAL TRAUMA: REVIEW OF RISK FACTORS ASSOCIATED WITH LIMB LOSS
Clinical Centre of Serbia, Institute for Cardiovascular Diseases, Belgrade, Yugoslavia

Objective: We sought to analyze the early results of civil and war peripheral arterial injury treatment and to identify risk factors associated with limb loss.

Methods: Between 1992 and 2001, data collected retrospectively and prospectively on 413 patients with 448 peripheral arterial injuries were analyzed. Out of these, there were 140 patients with war and 173 patients with civil injuries.

Results: The mechanism of injury was gunshot in 40% blunt injury in 24%, explosive trauma in 20.3%, and stabbing in 15.7% of the cases. The most frequently injured vessels were the femoral arteries (37.3%), followed by the popliteal (27.8%), axillary and brachial (23.5%) and crural arteries (6.5%). Associated injuries, which included bone, nerve and remote injuries affecting the head, chest, or abdomen, were present in 60.8% of the cases. Surgery was carried out on all patients with a limb salvage rate of 89.1% and a survival rate of 97.3%. In spite of a rising trend in peripheral arterial injuries, our total and delayed amputation rates remained stable. On statistical analysis, significant independent risk factors for amputation were found to be: failed revascularisation, associated injuries, secondary operation, explosive injury, war injury (P < 0.01), arterial contusion with consecutive thrombosis, popliteal artery injury and late surgery (P < 0.05).

Conclusion: Peripheral arterial injuries, if inadequately treated, carry a high amputation rate. Explosive injuries are the most likely to lead to amputations, whereas stab injuries are the least likely to do so. The most significant independent risk factor for limb loss was failed revascularization.

V08 - 2
ACUTE ISOLATED DISSECTION OF THE INFRARENAL AORTA: AN ENTITY WITH INCREASING FREQUENCY?
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Objective: Isolated dissection of the infrarenal abdominal aorta represents a rare clinical entity. Use of diagnostic computed tomographic scan imaging for evaluation of abdominal pain resulted in the identification of this process with increasing frequency.

Methods: A retrospective review of the records of the patients with acute isolated infrarenal aortic dissection for a period of 5 years was performed. Four patients (3 males and one female) with a mean age of 55 years (range 48-67 years) were identified. The most common presenting symptom was abdominal pain below the level of the umbilicus radiating to the back. One patient presented with aortic rupture together with clinical signs of progressive lower limb ischemia. Abdominal computed tomography scan with contrast enhancement established the diagnosis in all cases. There was no evidence of thoracic aortic dissection. In three patients (75%) the dissection originated at the infrarenal aorta, while in one the entry tear was at the level of the renal arteries.

Results: Surgical repair with replacement of the infrarenal aorta with a tube graft was performed in two patients. In one case with aortic rupture accompanied by diffuse periatic inflammation, the abdominal aorta was suture ligated and arterial continuity was restored with an extranatural aortic-bifemoral bypass. In another patient endovascular repair with the implantation of an aortomonillic stent graft (Endofit, Endomed) with concurrent femoro-femoral bypass was the preferred treatment. All patients recovered without any serious complications.

Conclusion: Isolated infrarenal aortic dissection has a poorly defined natural history with potential life threatening complications. Proper surgical or endovascular repair is associated with a favorable prognosis.

V08 - 3
SPINAL CORD BLOOD FLOWMETRY DURING DESCENDING AORTA CROSS-CLAMPING IN BABOONS
Biglioli P., Grillo F., Acocella F., Fusari M., Roberto M., Spirito R., Fokam P., Kaptue L.
Centro Cardiologico Monzino University Of Milan, Milan, Italy; Department Of Veterinary Clinical Sciences, University Of Milan, Italy, Milan, Italy; Université Des Montagnes, Bangangté, Cameroon; Bangangté, Cameroon

Objective: Spinal cord ischemia and paraplegia are dramatic complications of thoracic aorta surgery. We studied the effect of aorta and major vessels cross-clamping on the microvascular spinal-cord blood flow, measured by laser doppler, in twelve baboons.

Methods: Microvascular spinal-cord blood flow was recorded at thoracic T3-T4 and lumbar L4-L5 levels before surgery, and after aortic cross-clamping at left subclavian and diaphragmatic levels, after aortic cross-clamping at same levels with intercostals arteriography, after clamping one and both subclavian arteries, and after aortic unclamping.

Results: No flow decrease was detected comparing aortic cross-clamping with and without intercostal's ligation; on the other hand, a significant flow reduction was documented after flow interruption in both subclavian arteries.

Conclusion: In non-human primates the interruption of intercostal arteries doesn’t affect the spinal cord blood supply, while the subclavian-vertebral arteries flow plays a fundamental role in supplying the spinal cord during aorta cross-clamping.
V08 - 5  MODERN APPROACH TO THE DIAGNOSIS AND TREATMENT OF THE LOWER EXTREMITIES LYMPHOEDEMA  
Bubnova A.N., Fonik V.O., Petrov V.S., Borisova P.R., Semenov U.A.  
Saint Petersburg State University, Saint Petersburg, Russian Federation; Saint Petersburg State Medical Academy, Saint Petersburg, Russian Federation  

Objective: Elaboration of the diagnosis methods and selection of effective treatment for the patients with lower extremities lymphoedema.  

Methods: 220 patients with lower extremities lymphoedema from 17 to 65 years old and duration of illness between 5 and 15 years were investigated. For differential diagnosis and determination of treatment tactics several methods were applied: scintigraphy, lymphophlebography with direct X-ray contrasting, lymph vessel biopsy, registration of lymph vessel contractile activity, light and electron microscopic study of lymph vessel morphology, computer tomography and immune status evaluation.  

Results: Anatomical and functional changes of different degree present in lower extremities lymphatics of lymphoedema patients. Pathomorphological changes in vessel walls increase along with hypoplasia of lymph vessels, disorder of lymph transport, alteration of lymphangions reactivity, decrease of excitability and automaticity. Immune status of patients was characteristic for alteration of macrophage phagocytosis and decrease of neutrophil phagocytic activity, changes in expression of CD4, CD4/CD8, CD25, CD56, CD72 and in the levels of IgG, IgA and IgM. We suggest to delineate 3 stages of the disease according its etiology and pathogenesis. The results obtained make it possible to create a new approach in treatment of these complicated patients. Contractile function in early stage of disease is corrected by means of pharmacotherapy and electric stimulation. The selection of surgical treatment tactics is based on the task to protect the contractile apparatus of lymph nodes. Lymphovenous anastomoses are applied. If the main mechanism of lymph transport is lost, plastic operations and improvement of lymph transportation are indicated. Surgical correction of lymph drainage is performed in 76 patients. The method is creation of either lymphangi-anastomosis, or lymph-venous anastomosis depending on the character of lymph vascularule involvement. To establish the effective anastomosis function it is required to keep the structure and function at least in part of lymphangions in involved extremity. This is possible in 1st and 2nd stages of the disease. In 3rd stage a kind of resection operations is indicated.  

Conclusion: 1) Treatment of lymphoedema is to be started in 1st stage of disease when the structure and function of lymph vessels is partially present 2) The goal of lymphoedema treatment is to adjust the function of lymphangion contractile function 3) Pharmacotherapy of lymphatic vessel motor functions is to be based on appropriate physiological mechanisms 4) In immune deficiency physical and drug methods of immune correction are indicated, 5) Pathogenetically established methods of treatment lead to improvement in 60-70% patients.

V08 - 6  MID-TERM EXPERIENCE WITH THE ALN RETRIEVABLE INFERIOR VENA CAVA FILTER  
Carone R., Piffaretti G., Tozzi M., Lomazzi C., Rivoita N., Riva F., Castelli P.  
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Objective: Pulmonary embolism is the leading cause of death among hospitalised patients. It has been suggested that pulmonary embolism may be prevented by using prophylactic caval filters. We reported the mid-term results of 63 patients who received a new commercially available retrievable filter device.  

Methods: Between January 2001 and October 2005, 63 consecutive patients (mean age 65±15 years) underwent placement of ALN filters. Thirty-five patients (55%) had femoro-femoral thrombosis, whereas 28 patients (45%) had ilio-caval thrombosis. Overall, 49% had PE. Indications for filter placement were PE prophylaxis (n = 33), temporary contraindication to anticoagulant therapy with or without proven PE (n = 29), and anticoagulant therapy failure (n = 1). Filter removal was performed when anti-thrombotic prophylaxis was considered unnecessary or when the patient could safely resume full anticoagulant therapy. Follow-up protocol included clinical evaluation plus radiological examination with color-coded-ultrasonography and thoraco- abdominal computed tomography associated to abdominal X-rays 1, 3, 6, and 12-months after filter implantation, and yearly thereafter.  

Results: Technical success for filter insertion was 100%, without any complications. None of the procedures aborted or was converted due to technical difficulties. After a median follow-up of 21 months (range 1-48, median 18), there were no cases of PE or vena cava thrombosis. Two patients died of DVT-unrelated causes during the follow-up period without clinical evidence of PE or filter-associated complications. No case of device migration was observed. Twenty (31.7%) retrieval attempts were performed: in 16 cases filters were successfully retrieved, whereas 4 cases aborted. The mean implantation period was 179 days (range 53-370).  

Conclusion: Our results confirm the clinical efficacy of the ALN filter either in preventing potentially fatal PE during implantation time, or in postoperative absence of complications owing to its shape that assured low thrombogenicity and occlusivity, even if it was left in place definitively, and also without antithrombotic therapy.

V08 - 7  ABDOMINAL AORTIC PROSTHESIS INFECTION: TREATMENT STRATEGY  
Mattassi R., Callini E., Mattassi R.  
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Objective: Abdominal aortic graft infection is a severe complication with a mortality or amputation rate of about 20%. Classic treatment is based on graft removal, aortic ligation and extra-anatomic bypass. In these paper a group of 11 patients treated with “in situ” graft substitution with two different materials were analyzed.  

Methods: Eleven patients affected by abdominal aortic graft infection were treated surgically with graft emoval and “in situ” substitution. In 6 cases the new prosthesis was a silver coated dacron graft and in 5 cases a combination of superficial femoral veins of the patient and a Homograft (artery from a donor). In the second group the implant technique was aorto-monofemoral bypass with patient’s superficial femoral veins and a femoro-femoral crossover bypass with a Homograft. All patients were followed postoperatively every 3 month by duplex scan and blood tests for inflammation and infection.  

Results: In the silver coated graft group 1 patient had a groin graft infection 23 month after the operation. A local replacement with superficial femoral veins solved the case. 1 patient had a monolateral graft branch occlusion with successive amputation. No mortality was noticed. In the biological graft group, 1 patient died 10 days after operation because of Homograft rupture (thoracic aorta graft), and 1 patient died 3 month after operation by non related graft complications. The other 3 cases had no complications.  

Conclusion: “In situ” replacement of infected abdominal aortic graft seemed to be a effective procedure. In our opinion biological graft replacement (superficial femoral ven + Homograft) is more effective and offers probably a higher probability to avoid a new abdominal surgical procedure in these very fragile patients.

V08 - 8  LAPAROSCOPIC ASSISTED TRANSEXILLARY FIRST RIB RESECTION  
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Lancaster and Lake district Vascular Unit, Lancaster Royal Infirmary, Lancaster, England  

Objective: Laparoscopic assisted transaxillary first rib resection is a novel approach in the management of thoracic outlet syndrome. It allows safe identification of the different structures. The objective of our study is to assess the outcome of surgical treatment of thoracic outlet syndrome using this technique.  

Methods: Between May 1999 and October 2005, 28 laparoscopic assisted transaxillary first rib resections were performed on 20 patients with thoracic outlet syndrome in our vascular unit. This retrospective study included 14 females and 6 males with ages ranging between 16 and 53 years (median 37 years).  

Results: Follow-up ranged between 1 and 64 months (median 8 months). Nine patients (45%) had cervical ribs. 2 patients had history of trauma. Duration of symptoms ranged between 1 month and 15 years (median 36 months). All patients had c spine X-ray and 45% (9 patients) had Nerve Conduction studies prior to the operation. Eight patients had bilateral first rib excision, and the average time between the 2 operations was 17.5 months (median 12 months) 55% of patients had neurological symptoms, 30% had mixed symptoms and only 15% had venous or arterial symptoms. Nineteen excisions (68%) needed a chest drain. The postoperative stay in hospital ranged between 2 and 8 days (median 5 days) 82% of patients (23 resections) had complete resolution of symptoms. 18% (5 resections) did not show any improvement of symptoms following surgery. Three complications were recorded, including haemothorax,
bleeding and brachial plexus injury. The latter was due to traction injury during the operation as the lower trunk of the brachial plexus was tightly stretched over the first rib.

Conclusion: Laparoscopic assisted transaxillary first rib resection is a safe and effective procedure in the management of thoracic outlet syndrome. It also offers a great opportunity for teaching.

V08 - 9
LONG TERM FOLLOW-UP OF PATIENTS TREATED FOR ACUTE ISCHEMIA OF THE UPPER LIMBS: PREDICTORS FOR SURVIVAL AND RECURRENT EMBOLISM
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Objective: Aim of this study is to review our long-term results in acute ischemia of the upper extremities.

Methods: Data from all consecutive patients operated for acute upper limb ischemia from 1/1998 to 6/2005 were reviewed. Primary end-points were overall survival, freedom from recurrent embolism and recurrent embolism free-survival.

Results: Fifty-four patients were treated; mean age was 80±12 years (range 47-100). Only 15 were male (27.7%). Nineteen patients suffered a previous acute limb ischemia. Three patients had active cancer (5.5%) and 2 coagulopathy (3.7%). Cardiac aneurysm was present in 3 patients (3.7%). AF was present on the EKG in 24 (44%). Another 4 patients had a history of AF, without EKG changes. Only 7 patients were chronically assuming oral anticoagulants and none of them had a INR within the target range. All patients had a pale and hypothermic upper limb; 40 (74%) had functional impairment and only one had gangrene of the fingers. All patients received an embolectomy using a Fogarty catheter. In 51 cases (94%) radial and/or ulnar pulse reappeared: another three had immediate clinical improvement despite the absence of distal arterial pulse. Eight patients reoccluded in the next hours/days and five of them were successfully revised. Five patients had mild persistent ischemia at dismissal and two patients underwent amputation: one finger amputation and one arm amputation. Four patients (7.4%) died perioperatively. During long-term follow-up (median 25 months, range 1 day-92 months) twenty-three patients (46%) died, 1/3 of them of a stroke, 5 for cancer, 4 due to CHF, 2 of MI and one each for pulmonary embolism, CHF, mesenteric ischemia and CRF. Another patient died of a cerebral hemorrhage while taking oral anticoagulants. Survival was 81% at 1-year, 58.6% at 3-years and 42.6% at 5-years. We observed 19 recurrent embolic events in 15 patients (30%), mainly stroke. Freedom from recurrent embolism among survivors was 87% at 1-year, 69.8% at 3-years and 58.6% at 5-years.

Multivariable analysis found age (HR 1.09, 95%CI 1.04-1.15, P = 0.0004), the absence of anticoagulants or antiplatelets at follow-up (HR 1.93, 95%CI 1.25-3.02, P = 0.0033) and past MI (HR 1.6, 95%CI 1.03-2.51, P = 0.0382) to be the best predictors for death. There was a trend towards the association between AF and a higher incidence of recurrent embolism (HR 1.67, 95%CI 0.97-3.17, P = 0.064).

Conclusion: Surgical treatment of acute upper limb ischemia has good short-term results both as mortality and limb salvage. Age is by far the most important factor determining long-term survival.

V08 - 10
ARTERIALIZATION OF CALF AND FOOT SUPERFICIAL VENOUS BLOOD SYSTEM FOR PATIENTS WITH CRITICAL LOWER LIMB ISCHEMIA: LAST METHOD OF RESCUE
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National Research Center of Surgery, Rams, Moscow, Russian Federation

Objective: To evaluate the role of arterIALIZation of calf and foot superficial venous blood system in the treatment of critical lower limb ischemia.

Methods: Arterilization of the superficial venous blood system of calf and foot was performed on 67 patients with critical lower limb ischemia. The indications to operation were prolonged obliterations of the arteries of the lower limbs, excluding the chance to perform reconstructive (bypass) vascular operations. From 67 patients 48 (71.6%) were male and 19 (28.4%) female. Age of patients varied from 42 to 68 years. The median age was 57±2.3 years. Aetiology of disease was atherosclerosis in 58 (86.6%) patients (including 13 patients with associated diabeties), and arteritis was in 9 (13.4%) cases.

Results: In the near postoperative period (at hospital stage) thrombosis of the arterilised saphena magna occurred in 19 (28.4%) patients, in 5 (7.5%) cases thrombosis of the arterilised vs. saphena magna had led to the decompensation of the blood circulation in the operated limb, which was the cause of its amputation. Thus, in the near postoperative period primary patency of arterialized veins was 71.6%, and primary safety of lower limbs - 92.5%. Cumulative safety of the lower limb for the 5-years period of follow-up among patients with an initial critical lower limb ischemia was 67.2% (45 patients). The maximal period of patency of arterIALIZED vein was 3.5 years (2 patients). It is also noted, that patency of arterialized vein during 2-3 months after operation authentically guarantees safety of the operated limb.

Conclusion: ArterIALIZation of the venous blood flow in patients with critical lower limb ischemia allows to save limb from amputation in 67.2% patients until 5 years. At the same time, safety of the lower limbs of similar patients at conservative treatment (according to literary data) in terms till 5 years does not exceed 35-40%.
Abstracts/Interactive CardioVascular and Thoracic Surgery

16.30-18.30
MAY 13, 2006 3RD CONGRESS DAY

9TH CARDIAC SCIENTIFIC SESSION
CONGENITAL

C09 - 1
SURGICAL TREATMENT OF HOCM IN CHILDREN WITH SEVERE HYPERTROPHY
Bakoulev Center for Cardiovascular Surgery, Moscow, Russian Federation

Objective: Treatment of children with HOCM is complicated by several factors including noncompliance medications and an increased risk of sudden death. The classic Morrow technique is not effective for HOCM children with d RVOT obstruction and extreme left ventricular hypertrophy.

Methods: The presented excision of the asymmetrical hypertrophied area of the interventricular septum causing obstruction of LVOT and RVOT simultaneo-
ously and midventricular obstruction is made from canal port of right ventri-
cle transversely and anteriorly along the right ventricular free wall partially, but not through the whole thickness of IVS, that is, without penetration into the left ventricular cavity. 45 pediatric patients underwent this procedure. The simultaneous obstruction of LVOT and RVOT was noted in 14 patients. Aged ranges from 5 to 15 years (mean, 12.5). The isolated RV obstruction was noted in 1 child. The follow-up period was 26±7 months.

Results: The mean echocardiographic intraventricular gradient in RVOT decreased from 15.4±6.7 mmHg to 6.2±2.2 mmHg. Magnetic resonance imaging showed an increase of the diastolic volume of RVOT and stroke volume. Sinus rhythm was noted in all children.

Conclusion: This method is a safe and effective technique for surgical treat-
ment of pediatric patients with severe hypertrophic obstructive cardiomy-
opathy unresponsive to medical management.

C09 - 2
THE APPROACHES AND THE RESULTS OF SURGICAL TREATMENT OF CONGENITAL HEART DEFECTS WITH ABSENT LEFT PULMONARY ARTERY
Bakoulev Center for Cardiovascular Surgery, Moscow, Russian Federation

Objective: To present the experience of surgical treatment of congenital heart defects (CHD) with absent left pulmonary artery(ALPA).

Methods: From January 1983 to November 2005, 31 patients were operated:
- 25 with TOF, 4 with VSD and absent PV (APV), 1 with VSD, 1 with CAVC, DORV and PS. Twenty one patients underwent palliative surgery: Blalock-
Tausig shunting (n = 7), RVOTO relief without VSD closure (n = 4), balloon pulmonary valvuloplasty (n = 4). The median age during the palliative opera-
tion was 4.1 years. Second/third palliative operations were necessary in 5/ 21 cases because of an inadequate growth of right PA. Complete repair was
done in 23 patients: 18 with TOF [primary correction (n = 5), after palliative operation (n = 13)], 4 patients with VSD and APV, 1 with VSD and pulmonary hypertension.

Results: The mean age during the corrective repair was 6.7 years. The median interval between palliative and complete repair in patients with TOF was 3.3 years. Contralateral PA index (CPAI) before complete repair was 238.5±50.4 mm2/m2, median Z-score of normal Nakata index (NI):-3.2 (-3.8; -2.0). Three patients with TOF underwent complete repair without RVOT enlargement, 2 - with RVOT plasty by patch, 18 - transannular patch enlargement of RVOT (14 with TOF, 4 with VSD and APV). In 2 patients with TOF additional patch enlargement of right PA was performed after the trans-
section of the ascending aorta.

Results: Overall hospital mortality was 6.4% (2/31) [after palliative surgery - 4.8% (1/21), after complete repair - 4.3% (1/23)]. Diameter of RVOT after
palliative repair without VSD closure was 11.0±2.4 mm, median Z-
score of normal PV diameter was -1.8 (-3.2; -1.2). PA systolic pressure was
33.6±6.9 mmHg. The ratio of systolic pressure in right and left ventricles after complete repair of TOF and VSD with APV was 0.59±0.12. All patients
with Z-score NI >-4 survived complete repair of TOF. One of 4 patients with
CPAI>200mm2/m2 died after complete repair of TOF.

Conclusion: 1. 70% (21/30) of patients with CHD, ALPA and PS needed palliative surgery; the optimal RVOT diameter after its reconstruction without VSD closure matched median Z-score equal to -1.8 of mean PV diameter in normal population; palliative operations provided the possibility of com-
plete repair in 62% (13/21) of cases. 2. The hospital mortality after complete repair of CHD with ALPA was low (4.3%); at present the successful complete repair corresponds to minimal Z-score NI value equal to -5.2.

C09 - 3
ANATOMIC AND PHYSIOLOGIC CORRECTIONS FOLLOWING SYSTEMIC-
TOPULMONARY SHUNT OPERATIONS: ANALYSIS OF 183 PATIENTS
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American Hospital, Istanbul, Turkey; Department of Cardiovascular Surgery, Acibadem Hospital - Bakirkoy, Istanbul, Turkey; Department of Cardiovascular Surgery, Anadolu Health Center, Kocaeli, Turkey; Department of Anesthesiology and Reanimation, Institute of Cardiovascular, Istanbul University, Istanbul, Turkey

Objective: Timing of corrective surgery and efficacy of the shunt opera-
tion vary between institutions. Progression of pulmonary vascular disease due to excessive waiting time for corrective surgery is an important risk for the patients and can only be eliminated with close follow-up. A total of 183 patients operated in our institution for anatomic/physiologic correction were retrospectively analyzed.

Methods: One hundred and three patients operated for anatomic/physiologic correction following systemic-to-pulmonary artery shunt construction were studied. In 144 patients anatomic and in 39 patients physiologic corrections were performed. Left modified Blalock-Taussig shunt was initially realised in 70% of patients forwarded to anatomic correction while the percentage was 65 for the physiologic correction group. In 17% of patients operated for physiologic correction a pericardial patchplasty was necessitated, whereas this percentage was found to be 9% in the anatomic correction group.

Results: Mortality was 20.5% and 8.3% in physiologic and anatomic correction groups, respectively.

Conclusion: Mortality was found to be higher in physiologic correction group than the anatomic correction group. Close echocardiographic/hemody-
namic evaluation and follow-up is strongly recommended especially in patients with modified Blalock-Taussig shunts headed for physiologic corrections such as bidirectional Glenn or Fontan procedures.

C09 - 4
THE IMPORTANCE OF MITRAL VALVE REPAIR DURING CORRECTION OF PARTIAL ATRIOVENTRICULAR SEPTAL DEFECT
Onassis Cardiac Surgery Centre, Athens, Greece

Objective: Mitral valve (MV) repair is an essential component of the surgi-
cal correction of partial atrioventricular septal defect (PAVSD) in order to
preserve native valve and left ventricular function. This study evaluates the
results of this approach in our unit.

Methods: Between September 1997 and December 2005, 65 patients aged 0.6-
64 (median 6) years, presented to our unit for repair of PAVSD. Of these, 5 patients had double orifice MV and 60 anterior leaflet cleft. Echocardiography showed 1. 4±0.7 mean mitral regurgitation (MR) score and radiography increased (0.5±0.06) cardiothoracic ratio (CTR). All patients underwent closure of the primum septal defect with pericardium and the majority, MV repair. Results: There was no operative death. Median ICU and hospital stay was 2 and 8 days respectively. Mean MR score decreased to 1.1±0.7 (P = 0.01). Also a significant reduction in heart size as defined by the CTR (P = 0.01) was noted early postoperatively. At 56±28 months follow up 2 patients aged 10 and 29 months with severely dysplastic valves developed severe (4+) MR and congestive heart failure. They underwent MV replacement without significant improvement and both died 3 months later. All other patients retain satisfac-
tory MV function (MR 1.1±0.9) remaining in excellent clinical condition.

Conclusion: Correction of PAVSD with concomitant MV repair has been achieved with no mortality, low morbidity and excellent mid-term results in this series with preserved MV function in most cases. However, the function of severely dysplastic valves may deteriorate, and the long-
term risk remains to be determined, especially in infants and small children requiring valve replacement.
C09 - 5 RADIOFREQUENCY CATHETER ABLATION IN NEONATES
Revishtili Sh.A., Tumanian R.M., Trunina I.I.
Bakoulev scientific Centre for Cardiovascular surgery, Moscow, Russian Federation

Objective: The study is to show our experience of radiofrequency catheter ablation in neonates with tachyarhythmias.
Methods: During 5 year periode (2001 - 2005) 12 patients 1st year of life with Wolf-Parkinson-White (WPW) Syndrome were treated in our centre, 50% were under 3 months of age. They have no associated cardiac defects. Minimal weight - 3.7 kg. Male-female ratio - 3:1. Half of them became symptomatic during first month of life, and 2 cases were diagnosed in fetus. Medication treatment: amiodarone (83%), digoxin (42%), carbamazepine (33%). Clinical manifestation included paroxysmal atrial tachycardia, poor feeding, pallor, rare - perioral cyanosis. Phisical examination presented 1 stage of CHF in 11 infants (91.6%) and 2A stage in 1 patient (8.4%). Two-dimensional echocardiography showed decreased cardiac output (EF - 32%), LV dilatation, MV insufficiency. Only one patient had manifested WPW syndrome. Orthodromic reciprocating AV tachycardia with heart rate 180-200 bpm was dominant. Common was an antegrade conduction. Topical diagnostic of accessory pathway was managed in electrophysiology study. Indications for RFA were: inessant SVT, ineffective medical treatment, signs of CHF, echo-signs of cardiopathy.
Results: Catheter ablation has been done to all patients. Left accessory pathways dominated (n = 8), and right (n = 1) or septal (n = 2) were less common. The procedure took 120-20 mn (average time), fluoroscopy time - 17-4 mn. 96% RFA was successful. In one patient with left accessory pathway we could not achieve preferable result, that's why we have choose open heart operation. There where no complications after RFA and patients recovered quickly. Controle exam in a 3 - 6 months after RFA showed good results, absence of SVT and signs of CHF.
Conclusion: Infants with WPW syndrome become symptomatic and may cause critical condition in 1st year of life. Surgical management is aprooved in patients with CHF, cardiopathy signs and ineffective medical therapy. RFA in management of WPW syndrome is effective in this group of patients.

C09 - 6 URGENT SURGERY IN INFANTS WITH COARCTATION OF THE AORTIC ARCH
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Objective: More than 50% of infants with coarctation of the aorta (CoAo) become symptomatic during the first year of life, 2/3 of them are neonates. CoAo occurs in 8% of all congenital heart defects, in 63.8% they represent critical condition early in life. Even in medical treatment the mortality rate during 1st year of life is 41-46% in patients with coarctation of the aorta alone, and 70-90% with associated cardiac anomalies. Methods: During 5 year periode (01.01.2000 - 01.12.2005) 154 patients with coarctation of the aorta were operated in our centre, 60 (38.9%) newborn. 32 (53.3%) newborn have undergone urgent surgery the day, they entered our clinic. Average age 10±2.8 days (27days), weight 3.2±0.74 kg, 16 (50%) infants had CoAo alone, the others CoAo with associated cardiac anomalies. Hand systolic pressure were 80 mmHg higher then leg (average). Preductal angioplasty shows good results. Small LV is not contraindication for surgery basis. Medical treatment should be based on pathophysiology of hemody-

C09 - 7 DIAPHRAGMATIC PARALYSIS AFTER CARDIAC SURGERY IN CHILDREN; INCIDENCE, PROGNOSIS AND SURGICAL MANAGEMENT
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Objective: Diaphragmatic paralysis (DP) after cardiac surgery is an important complication especially in infants. We retrospectively analyzed the incidence, clinical course, surgical management and follow-up of the patients with DP.
Methods: Between 1996 and 2005, 3071 patients underwent cardiac surgery. Total number of patients with DP was 152 (4.9%). Among the 152, 42 patients were surgically treated with transthoracic diaphragm plication(1.3%).
Results: The overall incidence of diaphragm paralysis was higher in correction of tetralogy of Fallot (31.5%), B-T Shunt (11.1%) and VSD closure with pulmonary artery patch plasty (11.1%). The incidence of DP which require plication was higher in Blalock-Taussig shunt (23.8%) arterial switch (19%) and correction of tetralogy of Fallot (11.9%). Mean and median age at the time of surgery were 17.8±3.6 months and 6 months respectively. Mean and median time from cardiac surgery to surgical plication were 14.6±9.85 and 12 days respectively. Indications for plication were associated with higher incidence mortality. (P<0.05).
Conclusion: Phrenic nerve injury is a serious complication of cardiac surgery. It is more common after some special procedures. Spontaneous recovery is very rare. Being under one year of age, pulmonary and plication 10 days after mechanical ventila-

C09 - 8 EXPERIENCE WITH THE CONTEGRA® BOVINE JUGULAR VENOUS CONDUIT FOR RVOT RECONSTRUCTION - MIDTERM RESULTS
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Objective: Since introduction in 1999, pulmonary valve replacement in pediatric patients with the Contegra(r) conduit has gained widespread application with increasing enthusiasm. However, unexpected graft related adverse effects may occur.
Methods: Between 04/2001 and 08/2005, 52 patients (33 male; mean age 3.9±4.5 years, range 0.01-22.0 years; mean weight 11.6±9.0 kg) underwent Conduits® postoperatively. At follow-up (1.3±1.1(0.2–3.8) years) all patients have been observed since we anticoagulate patients with oversized Contegra-

Conclusion: Coarctation becomes symptomatic and may cause critical condition in early postnatal periode. Surgery could be performed on an urgent basis. Medical treatment should be based on pathophysiology of hemody-

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Conclusion: Contegra® conduits are an alternative to homografts for right ventricular outflow tract reconstruction. However, there is a risk of thrombus formation in small infants; prophylactic anticoagulation may be necessary. Patients with systemic RV pressure require close observation as pseudoaneurysm formation has been observed.

C09 - 9
SURGERY FOR ANOMALOUS ORIGIN OF THE LEFT CORONARY ARTERY FROM THE PULMONARY ARTERY: 35 YEARS EXPERIENCE
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Objective: To present our experience of surgical treatment of the patients (pts) with anomalous origin of the left coronary artery (LCA) from the pulmonary artery (ALCAPA).

Methods: Since 1970 till 2005 91 pts underwent surgery for ALCAPA. The age of pts varied from 3 months to 33 years old. The status of all the pts was very severe: they suffered from dyspnea, cardiomegaly and hepatomegaly. ALCAPA was diagnosed by 2-D Echo and coronarography. Radionuclide investigations (201 Tl) of the left ventricle were performed as well. Different types of surgery due to long period of time were used. Direct implantation of LCA into the aorta was performed in 49 pts (53.9%), in 10 (10.9%) creation of aortopulmonary tunnel (Takeuchi procedure) was done and in 1 patient (1.1%) Meyer operation was performed. Just bandaging of LCA was performed in 14 children (15.5%), transpulmonary sewing of the LCA origin in 5 pts (5.5%). CABG was carried out in 10 cases (10.9%). In the ninety seventies the pericardium was talced in 2 pts (2.2%). In 12 pts (13.2%) with severe mitral insufficiency valve replacement was performed and 5 pts (5.5%) - valve repair. Left ventricle reconstruction was performed in 7 pts (7.7%) with left ventricular aneurism. In 7 cases (7.7%) undifferentiated cardiomyoblastes were implanted.

Results: Mortality rate since 1971 till 1980 was 25% (2 of 8); 1981-1990 - 33.3% (5 of 15); 1991-2000 - 26.3% (5 of 19); 2001-2005 - 30.6% (15 of 49). Cardiac assist devices were used in the perioperative period in 18 pts (19.7%).

Conclusion: 1) In spite of the significant success achieved in surgical treatment of ALCAPA, the hospital mortality continues to remain high due the initial myocardium lesion; 2) nowadays cardiac surgeons have available a wide range of choice in the treatment of ALCAPA; 3) the application of cardiac assist devices (IABP, ECMO) is the important addition in the treatment of the given cohort of pts both up to, and in the postoperative period.

C09 - 10
BALLOON ATRIAL SEPTOSTOMY (BAS) IN INFANTS WITH SIMPLE TRANSPOSITION OF THE GREAT ARTERIES UNDER ECHO MONITORING IN INTENSIVE CARE UNIT
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Objective: Balloon atrial septostomy takes leading role in preparing neonates with simple Transposition of the great arteries to the surgery.

Methods: In our Centre during 6 year period (1998-2003) we managed 85 newborns with simple Transposition of the great arteries, with average age 6.3±6.9 days of life, weight 3321.1±443.2 gr. There were 61 male (71.8%) and 24 (28.2%) females. Most of them (69.4%) presented critical condition, 13 were on mechanical ventilation. Before operation following measures were carried out: heating in incubator with moisture air, infusion therapy (correction of volume, electrolytes, arterial blood gases). We have used prostaglandin E1 infusion in 27 patients (31.7%) with progressive metabolic acidosis and severe cyanosis (arterial PO2<20 mmHg), when echo examination showed closing PDA and ASD were less than 2.5 mm, without LA hypertension. Initial dose was 0.04 mkg/kg/min, but when effect was achieved we minimised it until 0.018-0.002 mkg/kg/min).

Results: So we performed balloon atrial septostomy in 51 infants with: ASD less then 2.5 mm, LA hypertension signs with open PDA, contraindications for prostaglandin E1 infusion and if we could not manage urgent open heart operation. We used Medtronic Rushkind catheter 4.5 Fr and 6 Fr.

Conclusion: More than 50% of infants with simple Transposition of the great arteries are needed to undergo balloon atrial septostomy. Balloon atrial septostomy under echo monitoring in intensive care unit is effective and safe for infants with simple Transposition of the great arteries.
C10 - 1
AORTIC VALVE REPLACEMENT IN OCTOGENARIANS: A FOUR-YEAR EXPERIENCE
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Objective: The impact of aortic valve replacement in octogenarians increased during the last decade. The aim of this study was to evaluate the outcome of octogenarian patients undergoing aortic valve replacement.

Methods: Since February 2001, 80 patients were aged more than 80 years, receiving a Sheehan/St Jude bioprosthesis during aortic valve replacement. The mean age at implant was 83.5±3.3 years. Etiology was stenosis in 62 pts (77.5%) and active endocarditis in 2 pts (2.5%). Concomitant procedures were performed in 49 pts (61.3%), CABG in 35 pts (43.8%), MVR 9 pts (11.2%) and others 11 pts (13.8%). The logistic Euroscore was 25.3±20.8%. Echocardiography was performed preoperatively, at discharge and, at follow up.

Results: Operative mortality was 8.8%. The mean valve size was 23.6±1.9 mm. The effectiveness of the device was demonstrated by mean gradients (16.1±7.5 mmHg for size 21, 12.9±4.4 mmHg for size 23, 10.2±4.5 mmHg for size 25, 9.9±4.2 mmHg for size 27) at discharge. The mean pressure gradient at discharge was 12.6±5.5 mmHg and at follow up 16.6±8.1 mmHg.

Conclusion: Aortic valve replacement in octogenarian patients showed acceptable operative mortality. Echocardiographic evaluation showed favorable hemodynamic function.

C10 - 2
AORTIC VALVE REPAIR FOR INCOMPETENCE DUE TO LEAFLET PATHOLOGY. CLINICAL AND ECHOCARDIOGRAPHIC RESULTS AFTER A TWO YEAR EXPERIENCE
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Objective: We analysed our results of repairing techniques for aortic valve incompetence due to leaflet pathology.

Methods: From September 2003 to December 2005, 62 patients(pts) were treated with an association of aortic leaflet and root repairing techniques. This was performed in all pts (100%) and quantitative assessment degree of MVI, LV function, measurement of LV diameters, volumes, sphericity indexes (SI), length and depth of coaptation were collected.

Results: Since July 1997, 18 patients presented with prosthetic valve thrombosis. There were 12 men and 6 women. Mean age was 35.9±11.3, ranging from 22 to 60 years. Thrombosis occurred in the mitral position in 44 (77.7%) patients and in the aortic position 4 (22.2%) patients. All of the mechanical valves were bileaflet (1097 of them St.Jude, 324 of them Carbomedics, and 163 of them Sorin). The mean time from valve replacement to prosthetic valve thrombosis was 48.3±15.4 months. Diagnosis was established based on transthoracic echocardiography, transesophageal echocardiography, fluoroscopy, and clinical examinations. Majority of the patients presented with poor functional status (55.6% of them in New York Heart Association functional class IV) and poor anticoagulation results (international normalized ratio < 2) in 72.2% of cases. Valve re-replacement was performed for all the patients. The 30-day mortality was 16.7%.

Conclusion: Prosthetic valve thrombosis is a potentially fatal complication of cardiac valve replacement. The incidence of thrombosis is ranges from 0.5 to 6% in aortic and mitral position. After the diagnosis is made, appropriate treatment should be started. Some authors advocate thrombolytic therapy. The reported incidence of embolic complications with this therapeutic approach ranges from 3 to 20%; success rate is 80% and mortality rate 7%. According to our results it might be advocate that early surgical intervention is safe and effective treatment of choice in patients with prosthetic valve thrombosis. Subtherapeutic anticoagulation level is the major etiologic factor involved in the pathogenesis of prosthetic valve thrombosis. Patients with mechanical valve prosthesis must be informed adequately about necessity and importance of anticoagulation regimen.
Results: Severe MI occurred in 5 pts (12.5%). In 3 of these cases additional mitral procedure was required (2 pts artificial chordes, 1 pt posterior commissural closure). In 15 pts (37.5%) we observed only mild regurgitation. According to statistical analyzes length of coaptation (P = 0.0004), NYHA class (P = 0.034), CCS class (P = 0.027), Euroscore (P = 0.021), LV4ch and LV2ch SI (P = 0.033 P = 0.018 respectively) were the predictors of postoperative MVI. We found significant negative correlation between the length of coaptation and LV4ch basal level SI (r=0.56, P=0.001), LV4ch medium level SI (r=0.35, P=0.029) and LV2ch medium level SI (r=0.47, P=0.013).

Conclusion: Repair of ischemic mitral valve is a safe and effective method of treatment. We identified risk factors that may worsen the final results: length of coaptation, NYHA and CCS class, Euroscore, some indexes of sphe-
ricity. It might be advisable to repair the valve in the high risk group.

C10 - 5
CLINICAL OUTCOMES OF AORTIC ROOT ENLARGEMENT BY MANOUGUJIAN TECHNIQUE
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Objective: Although Manouguian operation is a well known and widely used technique for enlarging small aortic annulus, there has been little data reporting its outcomes. We present short and long term results of Manouguian’s technique performed in our institution.

Methods: Manouguian’s technique was performed in 21 patients. Root enlargement was selectively performed in patients at risk for prosthesis-
patient mismatch, defined as calculated projected effective orifice area less than 0.85 cm²/m². Following root enlargement a mechanical pros-
thesis or a bioprosthesis was implanted. After weaning off cardiopulmonary bypass the aortic and mitral valves were evaluated with transesophageal echocardiography. Patients were examined with transcoracic Doppler echocardiography at the day of discharge, and recall at the end of 6th week and in every 6 months if patient can be followed up.

Results: There were 9 men and 12 women patients with a mean age of 55.3 ±10.7 years, ranging from 38 to 76. The mean cardiopulmonary bypass time was 102±17 min; and aortic clamp time was 76±22 min. The mean indexed effective orifice area measured preoperatively was 0.95±0.098 cm²/m². Size 21 was the most preferred valve size in all prostheses. Severe mitral insuf-
ficiency due to Manouguian procedure was experienced only in one patient and this patient underwent mitral valve replacement. The average follow up was 5.8 years. The 30-day mortality rate was 4.7% (1 patient) and the 5 year actuarial survival including all deaths was 90.47% (2 patients).

Conclusion: The Manouguian procedure is a safe and easily applicable tech-
ique in patients with narrow aortic annulus. And with this procedure aortic annulus can be enlarged 10 to 25 mm, which allow implantation of 1 or 2 size bigger prostheses.

C10 - 6
THE STENTLESS CRYOFILE-O’BRIEN VALVE IN PATIENTS WITH SMALL AORTIC ANNULUS
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Objective: To evaluate the effectiveness of the stentless CryoFile-O’Brien (C0B) valve as an aortic valve substitute in patients with small aortic orifice, we reviewed our experience with 65 patients with aortic annulus 21 mm or smaller who underwent aortic valve replacement with this bioprosthesis.

Methods: The indication for aortic valve replacement was aortic stenosis (n = 55), aortic regurgitation (n = 1) or mixed lesion (n = 9). The patients’ age ranged from 50 to 94 years. There were 10 male and 55 female patients. AVR was performed in each patient with cardiopulmonary bypass at 28 degrees C and cold blood cardioplegia. Following resection of the aortic leaflets and debridement of the aortic annulus, the aortic annular diameter was measured with Hegar dilators. Aortic annuli were measuring 19mm (n = 27) and 21mm (n = 38); implanted valve size was 21mm and 23mm, respectively. Postoperatively, the patients were prescribed coumarinic anticoagulation for three months and were followed-up with periodic clinical and echocardiographic evaluations.

Results: Surgical (30-day) mortality was 2 patients (3.07%, 1 died of ARDS and 1 of pulmonary embolism). Follow-up ranged from 1 to 102 months. There were 2 late deaths of cerebral bleeding secondary to erroneous anticoagulation. Replacement of the implanted valve was necessitated in 2 patients due to valve-patient mismatch. Thromboembolism, endocarditis or structural deterioration of the implanted valve was not observed. Mean pressure gradient was 10±3 mmHg and 11±5 mmHg at 1 and 5 years respectively, mean EF was >50% and mean NYHA class was 1±0 at 3 and 5 years of follow-up.

Conclusion: The stentless COB valve is an effective aortic valve substitute in patients with small aortic annulus.

C10 - 7
TWO YEARS PERFORMANCE OF A DECELLULARIZED PORCINE PULMONARY HEART VALVE
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Objective: Matrix P is a novel decellularized porcine pulmonary heart valve to replace the pulmonary valve in congenital and acquired heart disease. Methods: From July 2002 to 2013 patients received the Matrix P during the Ross-operation. The first 20 patients in this series in whom one year follow up has been completed including 8 patients with two years follow up form the database of this report. Postoperatively patients where followed up at 3 months, 6 months, 1 year and 2 years with echocardiography and in select patients Multislice CT was performed.

Results: Patient’s age ranged from 4 years to 71 years, 26% of the patients had concomitant cardiac surgery most often CABG. There occurred two early (1.6%) deaths and 3 patients died Patient’s age ranged from 4 years to 71 years, 26% of the patients had concomitant cardiac surgery most often CABG. There occurred two early (1.6%) deaths and 3 patients died during follow up. 3 months, 6 months, 12 months and 24 months transvalvular flow velocities are similar to the measurements at discharge, respectively 0.72±0.17 m/s, 0.79±0.28 m/s, 0.72±0.19 m/s, 0.75±0.19 m/s and 0.87±0.23 m/s. All valves showed physiologic flow pattern and normal anatomic structures could be visualized with the Multislice CT.

Conclusion: Matrix P showed excellent short term performance, undistin-
guishable from that of a native pulmonary valve.

C10 - 8
COMPARATIVE STUDY OF SMALL SIZED BILEAFLET PROSTHETIC VALVES IN AORTIC POSITION
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Objective: Aortic valve replacement with small prosthetic aortic valve in adults, is still controversial. Any prosthetic valve usually causes residual pressure gradient, which differs according to the size and type of the valve. The pressure gradient may affect the result of the operation, as it acts as a pressure overload against the left ventricular ejection. Improvement of the mechanical design of the prosthetic valves was tried to improve the flow and decrease the transvalvular gradient.

Methods: Among 246 patients operated on at South Hospital in Amiens University, and Al-Azhar University Hospital between January 2003 and December 2004, 89 patients were subjected to the study with a mechan-
ical bi-leaflet aortic valve 19 or 21 mm. Age were ranging from 16 to 82 years (mean 56), mean body surface area of 1.74 m². Each patient subjected to the study was operated preoperatively, and one year post-
operatively to: I-The patients were classified according to the NYHA classifica-
tion, II-ELECTROCARDIOGRAM, III- CHEST X-RAY, IV-ECHOCARDIOGRAPHIC PARAMETERS, V-STATISTICAL ANALYSIS.

Results: For valve size 21 mm (n = 49 patients, mean age 54). Mean maxi-
mum pressure gradient show significant decrease (t = 4.7068, P<0.001).

Mean left ventricular mass (LVM) was decreased postoperatively with a mean decrease of 41.9±13.8% which was statistically significant (t =10.8935, P<0.001).

For valve size 19 mm (n = 40 patients, mean age 48). Pressure overload against the left ventricular ejection. Improvement of the pressure gradient may affect the result of the operation, as it acts as a pressure overload against the left ventricular ejection. Improvement of the mechanical design of the prosthetic valves was tried to improve the flow and decrease the transvalvular gradient.

Methods: From July 2002 to 2013 patients received the Matrix P during the Ross-operation. The first 20 patients in this series in whom one year follow up has been completed including 8 patients with two years follow up form the database of this report. Postoperatively patients where followed up at 3 months, 6 months, 1 year and 2 years with echocardiography and in select patients Multislice CT was performed.

Results: Patient’s age ranged from 4 years to 71 years, 26% of the patients had concomitant cardiac surgery most often CABG. There occurred two early (1.6%) deaths and 3 patients died during follow up. 3 months, 6 months, 12 months and 24 months transvalvular flow velocities are similar to the measurements at discharge, respectively 0.72±0.17 m/s, 0.79±0.28 m/s, 0.72±0.19 m/s, 0.75±0.19 m/s and 0.87±0.23 m/s. All valves showed physiologic flow pattern and normal anatomic structures could be visualized with the Multislice CT.

Conclusion: Matrix P showed excellent short term performance, undistin-
guishable from that of a native pulmonary valve.
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Systolic performance and function. The 19 mm valve shows symptomatic improvement, but it leaves a residual hypertrophy with a minimal improvement in the left ventricular systolic functions. We can also conclude that the outcome of surgery was not related to the body surface area.

C10 - 9
SURGICAL TREATMENT OF LEFT ATRIUM ENLARGEMENT
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Objective: A standardization for indications and technical aspects of the left atrium’s reduction.

Methods: Between January 2003 and July 2005 250 patients underwent MVR associated with reduction of left atrial volume (LAV). LAV was = 150 cc in 4 cases (I group), 68 patients had LAV from 150 to 200 cc (II group), and 178 patients had LAV =200cc (III group). Atrial fibrillation was in 2 cases at I group, 38 - at II group and at all patients of III group. The place of plication (the roof, the posteroinferior wall which includes the ostia of the pulmonary veins and the mitral valve annulus) was chosen particularly because of irregularity of atrium’s dilation and dependent on its volume. Sewing of appendage orifice was used for reduction of LAV in the I group, the atrial wall was plicated in a semilunar fashion from the upper border left atrial appendage to the inferior angle of atriotomya with a continuous over-and-over 3-O Prolene suture in the II group. Additionally, the wall of atrial roof was plicated from cranial border of left atrial appendage upward to the superior angle of atriotomya and the court between the left and right pulmonary veins were plicated too in III group. It’s necessary to take in the suture line the borders of the orifice of the pulmonary veins for its partial “isolation”.

Results: The imminent emplacement of the suture caused the kinking of the circumflex coronary artery in 2 cases. Early mortality was 0% in the I group, 3% - in the II group and 4.2% in the III group. An investigation of LAV with ECHO showed the reduction from 120±8.2 cc to 75±6.3 cc in the I group, from 150±11.2 cc to 80±5.6 cc in the II group and from 240±10.4 cc to 100±12.5cc in the III group. A conversion to sinus rhythm was at all patients in the I group, at 43% in the II group and at 14% in III group.

Conclusions: The reduction of left atrial volume with the plication technique is fast, secure, effective and easy reproducible procedure. The partial isolation of the pulmonary veins with the plication suture let to regain the sinus rhythm.

C10 - 10
ARE ALL HUMAN BEINGS EQUAL IN DIAMETER ?
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Objective: The aortic valve annulus has a three-dimensional sigmoid shape, related to the semi-lunar attachments of its cusps, but can be divided in 2 circular plans: the aortic annular base (ventriculoaortic junction) and the sino-tubular junction (STJ). Dilation of these functional diameters leads to a lack of aortic valve coaptation and are the characteristic lesions of dystrophic aortic roots. A comparison of normal and dystrophic diameters of the aortic annular base and STJ could help in restoring normal valve function during valve sparing surgery.

Methods: Statistical analysis of correlation coefficients (r) between clinical characteristics (age, sex, height, weight, body surface area (BSA), hypertension) and diameters of the aortic annular base and STJ, measured by transtoesophageal echocardiography in two groups: Group 1, 100 healthy adults (mean age 58.8, range 21-87); Group 2, 11681 healthy adults (metaanalysis of published echographic and anatomical studies).

Results: In Group 1, there was no statistical correlation between the clinical characteristics of the patients and their aortic root diameters, except for sex, with diameters significantly smaller for women. In Group 2, the metaanalysis of the litterature supported these results and didn’t show either any significant correlation (correlation between BSA and aortic annulus diameter: r = 0.44, correlation between BSA and STJ diameter r = 0.39). In group 1, the ratio between diameters of the STJ and aortic annular base was 1.3 (STJ Ø: 28.1±3.5 mm, aortic annulus base Ø: 21.1±3.1 mm). In group 2, this ratio was comprised between 1.1 and 1.3 (STJ Ø: 26.4±3.2 mm, aortic annulus base Ø: 22.2±2.5 mm).

Conclusion: Lack of correlation between aortic root diameters and clinical characteristics of healthy adults allows to consider absolute value of diameters rather than values indexed to the BSA in adults. Therefore, a diameter of the aortic annular base could be considered as dilated when it is superior or equal to 25 mm, as well as a diameter of STJ when it is superior or equal to 30 mm. In dystrophic aortic roots, valve sparing procedures should aim at restoring a ratio between diameters of the STJ and aortic annular base comprised in the range of 1.1 to 1.3.
V09b - 1
ENDOVASCULAR REPAIR OF AAAS WITH DIFFICULT NECK USING ZENITH COMPOSITE CONFIGURATION
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Objective: Anatomic features of the proximal neck are recognized as being extremely important in patient selection for EVAR. Short, wide, heavily angulated, conical and bulged proximal necks are usually relevant contraindications for many commercial endografts leading to abandoning EVAR or making the procedure extremely difficult. In our study, we tried to find out whether a specially designed endograft configuration (Zenith Cook Composite, Brisbane, Australia) is able to treat such challenging neck anatombies, since it gains fixation strength from the aortic bifurcation, where it sits after the deployment.

Methods: During 30 months 70 patients with AAA were submitted to EVAR with various endoprostheses. Fifteen (15) of them were found to have difficult proximal neck anatomy. In these cases Zenith Composite self expanding endoprosthesis was implanted, with supraprenal fixation and attachment to the aortic bifurcation for extra support. Medium follow-up was 12 months. All patients were screened with post-op spiral CT-Angio with 3 d reconstruction during 1st, 6th, 12th month and annually thereafter. CT scans were analysed for neck recontouring, endoleak, graft migration and aneurysm maximal diameter.

Results: Primary technical success was 100%. Completion angiogram revealed no endoleak or migration. 30-day mortality was zero. Migration, endoleak type I, thrombosis, kinking, frame fracture, renal or distal embolization was not observed. One patient suffered from postoperative paraparesis which was attributed to spinal cord ischemia, but was resolved within 48 h. In another patient endoleak type II was found and is under surveillance, since the sack is not expanding.

Conclusion: Special attention should be drawn to the shape of the aortic neck when endografting AAAs. We believe that Zenith Composite endoprosthesis with terminal attachment to the aortic bifurcation enhances stability and fixation, aiding proximal sealing of the graft against the aortic wall. So it is able to deal effectively with difficult necks. Larger series and longer follow up are necessary to draw safer.

V09b - 2
SINGLE-CENTRE EXPERIENCE WITH THE TALENT STENTGRAFT FOR ENDOVASCULAR ANEURYSM REPAIR
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Objective: To report the mid-term single-centre experience with the Talent stentgraft for endovascular aneurysm repair.

Methods: Between July 2000 and July 2005, 157 consecutive patients underwent treatment with the Talent stentgraft. Patient characteristics as well as patient operative and follow-up data were prospectively gathered.

Results: Patient characteristics: Of the patients, one hundred fifty (96%) were male; 34% had hypertension; 65% had cardiac and/or pulmonary disease and 59% were at high risk (ASA = 3). Mean age was 72 years (range 52–90 years) and mean AAA diameter was 63 mm (range 30–125 mm). Hospital stay: The endovascular graft deployment was successful in all but 5 cases (97%). Median hospital stay was 3 days (range 1-67 days). In hospital mortality was 2%. In hospital morbidity was 23%. Follow-up: At discharge 39 patients (23%) had an endoleak: 5 type I; 33 type II; 1 type 3. 64% of these endoleaks resolved without intervention. During follow-up (median 20 months, range 0-36 months) 12 patients (8%) required a secondary procedure for endoleak repair and another 9 patients (6%) required a non-endoleak related secondary intervention. After 3 months AAA diameter had decreased 2% (62 mm) and after 2 year AAA diameter had decreased 7% to 59 mm. During follow-up there was one aneurysm related death (1%), 18 deaths (11%) occurred due to other causes. Eight patients (5%) required conversion to open repair. No fatal AAA ruptures occurred.

Conclusion: Treatment of infrarenal AAAs with the Talent stentgraft has good early and mid-term results although extensive follow up is necessary as secondary problems may occur.

V09b - 3
LONG-TERM RESULTS OF ENDOVASCULAR ABDOMINAL AORTIC ANEURYSMS - A SINGLE CENTER EXPERIENCE
Szmidt J., Rowinski O., Galazka Z., Nazarewski S., Grochowiecki T., Jakimowicz T., Pietraski K., Grygieł K., Solonynko B., Wojtazek M., Chudzinski W., Madej K., Pacho R., Kanski A.
Department of General, Vascular and Transplant Surgery, Warsaw, Poland; Department of Radiology Warsaw, Poland; Department of Anesthesiology and Intensive Care, Warsaw, Poland

Objective: Current methods of open surgical treatment of abdominal aortic aneurysms (AAA) have been successfully applied for almost 40 years in patients with low operative risk. In 1991 Parodi and Volodos introduced an endovascular procedure intended for patients suffering from various comorbidities and therefore unfit for open surgery. This new method was a breakthrough in effective treatment of high risk patients suffering from AAA. The aim of our study was to assess the long-term results of endovascular treatment of abdominal aortic aneurysms performed at our center.

Methods: Between April 1998 and June 2005 we performed endovascular abdominal aneurysm exclusion in 370 patients. Mean patient age was 70 years (range 48–89 years). In this population 299 (80.8%) patients were considered to be high risk in the ASA scale (grade III and IV). Diagnostic modality consisted of: color Doppler ultrasonography, spiral computed tomography and digital subtraction angiography in disputable cases. Using these investigations the following aneurysm morphologies were determined: maximum AAA diameter (42-110 mm, mean 60 mm), AAA neck diameter (18-30 mm, mean 25 mm), AAA neck length (10-45 mm, mean 24 mm). Early and late results were assessed based on the Eurostar registry protocol.

Results: In 357 (96.5%) patients successful exclusion of the AAA was achieved. In 13 patients (3.5%) conversion to open surgery was necessary because of migration of the stentgraft into the aneurysm sac (8 patients) and in five patients because of the inability to remove the introducer device from the iliac artery. In the early postoperative period 12 patients died from myocardial infarction, 3 from a pulmonary embolism and 1 from mesenteric artery embolism. Endoleaks were observed in 67 (18%) patients postoperatively which were treated by either extension, balloon angioplasty or left for observation. In two patients in 29-th and 32-nd postoperative month rupture occurred, which was successfully treated by open aneurysmectomy. Other complications included: stentgraft limb thrombosis - 24 (6.6%) cases, stentgraft limb stenosis - 31 (8.4%) cases, groin hematoma - 6 (1.6%) cases, pseudoaneurysm of the femoral artery - 1 (0.2%) case. The mean observation period was 31 months (range 1-85 months).

Conclusion: Endovascular AAA exclusion is an effective and safe method of treatment particularly in high risk patients with open aneurysmectomy remaining the method of choice for low risk patients. The short overall follow-up period for this method and the possible occurrence of late complications necessitates close postoperative scrutiny and regular diagnostic screening.

V09b - 4
LATE ANEURYSM RUPTURE AFTER ENDOVASCULAR ABDOMINAL AORTIC ANEURYSM REPAIR
Szmidt J., Galazka Z., Rowinski O., Nazarewski S., Pietraski K., Grygieł K., Kanski A.
Department of General, Vascular and Transplant Surgery, Warsaw, Poland; Department of Anesthesiology and Intensive Care, Warsaw, Poland; Department of Radiology, Warsaw, Poland

Objective: The goal of endovascular repair is to protect the patient from aneurysm rupture. Careful surveillance should be performed postoperatively in order to select patients with aneurysm growth and therefore the highest rupture risk.

Methods: From 1998 in the Department of General, Vascular and Transplant Surgery 370 patients with abdominal aortic aneurysms were treated endovascularly. All patients were followed-up postoperatively according to the EUROSTAR protocol, with a CT scan performed postoperatively in the 3, 6 and 12 month and annually thereafter with good compliance. Because of this we had the opportunity for early treatment of complications, especially endoleaks which may cause aneurysm growth and subsequent rupture. We present two cases of late aneurysm rupture after endovascular treatment of abdominal aortic aneurysms.

Results: Case 1: A 77 years old patient was admitted to our Department 29 months after endovascular repair of an 81-millimeter infrarenal abdominal aortic aneurysm (Excluder, Gore). At admission he presented with severe abdominal pain and hypovolemic shock which required dopamine admission.

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A CT-scan confirmed aneurysm rupture. The patient was immediately operated and an aorto-bi-iliac graft was implanted. The postoperative period was complicated by transient spinal cord ischemia. He was discharged in the 30-the postoperative day and remains alive. During his post-EVAR follow-up we discovered neither endoleak nor aneurysm growth. CT-scan at rupture revealed migration of proximal stentgraft extension, endoleak type IA and rupture at the proximal neck into the extraperitoneal cavity with a large hematoma. Case 2: A 68-year-old patient admitted with aneurysm rupture 32 months after EVAR for a 7ximilimeter AAA with a Zenith (Cook) device. Open aneurysmectomy was performed without any complications and the patient was discharged 21 days after rupture and is still alive and well after 6 months. CT-follow-up before rupture showed a persistent type II endoleak from the lumbar arteries with no aneurysm growth.

Conclusion: Although the risk of aneurism rupture after EVAR is low, all patients treated endovascularly should be routinely monitored in order to early select cases with potential endoleaks which may lead to subsequent fatal complications.

Objective: Among visceral artery aneurysm the splenic ones are the most frequent and since they occur most in young women, the less invasive treatment as possible, is one of the goals to achieve. The Authors report their experience with laparoscopic clipping of the last two cases got to their observation. The intervention has been conducted with the help of an laparoscopic intra-abdominal eccocolordoppler probe.

Methods: Two young women presented a splenic artery aneurysm (saccular, 25 mm) each. One was localized in the main trunk of splenic artery and the other one in a division vessel. The interventions have been conducted under general anesthesia and with three laparoscopic access port. Through one of these the laparoscopic intra-abdominal eccocolordoppler probe has been introduced into the operative field for verifying the vessels we encountered and has been fundamental when we have wanted to control the right exclusion of the aneurysm at the end of the intervention.

Results: The first case was treated by clipping the main trunk and we observed a jeopardizing of the superior pole of the spleen, but using the laparoscopic intra-abdominal eccocolordoppler probe, we noticed a good vascularization of the spleen itself, that, after some min, returned to a good and uniform appearance. The second one did not turned into a temporary ischemic mode since the aneurysm involved a division lilar trunk of the splenic artery. In this second case an adjunctive clip was delivered in another vessel starting from the aneurism itself.

Conclusion: The Authors assume that in selected cases this technique can be safely used and it is well accepted by the patients. They assume as well that the laparoscopic Intra-abdominal eccocolordoppler probe is fundamental in the management of the spleen and for verifying the complete exclusion of the aneurysm itself checking the smoke effect of the blood and the complete absence of color inside.
Objective: Abdominal aortic aneurysm (AAA) rupture is a very serious acute surgical emergency, which exposes the patient to a very high mortality risk. So-called global mortality of the rupturing AAA (rAAA) is nearing 80%, in spite of better diagnostic screening, new therapy options (EVAR), and undoubtedly better complex intensive post-operative care. Thanks to these factors, post-operative mortality has been decreased to 40-50%. The future of a patient brought to the hospital with a diagnosis of rAAA depends on many factors.

Methods: In a multifactorial study, we assessed the significance of factors affecting the survival of patients with rAAA, who were operated on in our University Hospital from November 1999 to March 2005. The group consisted of 82 patients (61 male, 21 female) with an average age of 73.5 years. We assessed the significance of arterial hypertension, ischemic heart disease (IHD), diabetes mellitus, ischemic disease of the lower limbs (IDLL), chronic obstructive pulmonary disease and status post stroke. We were also interested in whether the AAA diagnosis had been known to us, and therefore whether the patient had been in our dispensary care. Within the multifactorial study, we also assessed the time between the onset of the symptoms and the admittance to the emergency department of our hospital, the state of the patient on admittance, consciousness, necessity of cardiopulmonary resuscitation (CPCR), blood pressure, basic laboratory parameters (hemoglobin, hematocrit, leukocyte count, urea, creatinine), the diameter of the aneurysm, the presence of hemopteritoneum, the type of the operation, the quantity of transfusion, and post-operatively the duration of artificial ventilation or circulatory support.

Results: There was 38% mortality within 30 post-operative days in our group. We assessed the relationship between the particular assessed factors and mortality by using Spearman’s correlation. According to our results, there is a statistically big correlation between mortality within 30 days and CPCR necessity (P<0.001), age (P=0.02), IHD and IDLL presence (P=0.04), consciousness loss (P=0.02), hemoglobin levels (P=0.04) or the presence of hemopteritoneum (P=0.04).

Conclusion: All these factors play an important role in the resulting success or failure of rAAA treatment. Although it is obvious, that each patient must be approached completely individually, these parameters can be helpful in decision making during the treatment process.

V09b - 9
NECK RESHAPING WIDENINGS HYBRID APPROACH OF AORTIC ARCH ANEURYSM
A.O. Polo Universitario “Luigi Sacco” - Divisone di Cardiocirurgia, Milan, Italy, Policlinico San Donato, San Donato Milanese, Italy

Objective: Aortic arch repair is always a surgical challenge, specially for old patients or when associated with other pathologies. Few cases of endovascular stent graft (ESG) repair for aortic arch aneurysm are reported with transposition of the supraaortic vessels. This procedure requires, a correct placement of the ESG and an appropriate landing zone for sealing and fixation. These features limits the indication to use ESGs stimulating the market for new devices.

Methods: We propose a new technique for neck reshaping to ensure a safe and a sealing landing area, (according to Criado classification) in zone 0-1 ESG implantation. In five patients presenting aortic arch aneurysm we performed an hybrid aortic arch repair procedure (HAARP): midsternotomy, transposition of the supraaortic vessels, proximal banding of the aortic arch, Rx markers, and ESG implantation. In particular we performed the banding of the aorta to reshape the neck proximal to the aneurysm (Zone 1-2) to facilitate the positioning and fixation of the endograft in the ascending aorta (Zone 0-1) avoiding postoperative endoleaks and dislocation.

Results: Four procedures were uneventful with 1-day ICU recovery. One patient suddenly died after 30 days waiting the ESG implantation just scheduled 40 days after the epiaortic transposition. The postoperative and the following CT scan showed good patency of the eipaoic vessels and not revealed any endoleak. The mean follow-up was 16.3 (0.3 3.3) Conclusion: Transposition of the eipaoic vessels, combined with banding of the aorta and ESG implantation, provide as an alternative way of treatment to the more conventional open aortic arch repair. We believe that banding of the ascending and proximal aortic arch could optimize the fixation of the ESG in the zone 0-1. These result should be validated by other cases and long term followup.

V09b - 10
ENDOVASCULAR STENT-GRAFT TREATMENT OF THORACIC AORTIC DISEASE
Rowinski O., Szmidt J., Galazka Z., Wojtaszek M., Nazarewski S., Grochowiecki T., Jakimowicz T., Grygiel K., Solonynko B., Kanski A.
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Objective: Aneurysmal diseases of the thoracic aorta are life-threatening conditions. Endovascular treatment of aortic disease has emerged as an alternative mode of treatment that is particularly attractive for patients with severe comorbidities. Although endoluminal interventions are minimally invasive, they are associated with complications, as are surgical methods. Methods: In the Department of General, Vascular and Transplant Surgery between April 2000 and December 2005, 82 patients underwent endovascular repair for lesions of the descending thoracic aorta out of which 56 presented with aneurysmal disease and 26 with either acute or chronic dissections. Two patients were admitted after acute trauma and 4 were admitted with a diagnosed ruptured TAA. Patient age ranged between 19 and 75 years. Preoperative diagnosis was performed through spiral computed tomography and digital subtraction angiography.

Results: All patients underwent endovascular repair using straight tube commercial stentgrafts - Talent (64), Zenith (17) and Gore (1). The procedure was conducted under regional epidural anaesthesia. Upon completion we observed no severe surgical nor neurological complications. Mean follow-up was 34 months (0 to 76 months). Technically successful implantation was achieved in 81 patients. An endoleak with a growing aneurysm was observed in one patient who was eventually treated by a hybrid procedure.

Conclusion: There is much enthusiasm for the use of endovascular devices, especially for the treatment of thoracic aneurysms; for it may indeed hold the potential for the greatest patient benefit as conventional open surgical repair continues to offer serious morbidity and mortality rates.
16.30-18.30
MAY 13, 2006 3RD CONGRESS DAY

9TH VASCULAR SCIENTIFIC SESSION

VEINS

V09 - 1
FETAL FIBROBLAST THERAPY IN THE TREATMENT OF VENOUS LEG ULCERS
Saint-Petersburg Pavlov’s State Medical University, Saint-Petersburg, Russian Federation


Methods: The treatment group consisted of 42 patients with 76 leg ulcers. 51 of these ulcers (29 patients) were due to previous deep venous thrombosis, 25 ulcers (13 patients) - due to primary varicose veins. In the control group, there were 40 patients with 75 leg ulcers. 49 of these ulcers (27 patients) were post-thrombotic, 26 ulcers (13 patients) - due to primary varicose veins. The mean area of the ulcers by the beginning of the treatment was 64 mm² (from 6 mm² to 1050 mm²) in the treatment group and 56 mm² (from 5 mm² to 980 mm²) in the control group. By the beginning of the treatment the period of existing of the post-thrombotic ulcers averaged 7.6 year in the treatment group and 7.1 year in the control group. The mean existing period of ulcers due to primary varicose veins was 3.3 year in the treatment group and 3.2 year in the control one. During first (necrotic) and second (granulation) stages of ulcers healing their treatment was equal and included using of water-soluble antimicrobial ointments. During third stage (epithelialization) in the treatment group culture of fetal fibroblasts was employed, and in the control group modern hydrocollod, alginate and collagen wound dressings Suprasorb® were used. The fibroblast culture is cells of the line 1100/14, isolated from human fetal lungs and grown on the surface of micro-porous film Foldierm®. In both groups all the ulcers treatment was being conducted together with compression therapy.

Results: In the control group the healing rate was 84.6% (22 ulcers) for varicose ulcers and 77.6% (38 ulcers) for post-thrombotic ones. The mean healing term was 3.5 and 3.8 months correspondingly. Necessary frequency of wound dressing's replacement during epithelialization stage averaged 1 in 2.3 days. In the treatment group the healing rate was 100% (25 ulcers) for varicose ulcers (P<0.01) and 98% (50 ulcers) for post-thrombotic ulcers (P<0.01). Healing period averaged 1.7 weeks for varicose ulcers (P<0.01) and 3.9 weeks for post-thrombotic ones (P<0.01). Necessary frequency of wound dressing’s replacement during epithelialization stage in this group averaged 1 in 7.2 days (P<0.01).

Conclusion: Employment of human fetal fibroblasts of the line 1100/14, grown on the surface of micro-porous film Foldierm® is a very effective method to promote venous leg ulcers healing. The fibroblast wound dressing significantly exceeds modern wound dressings Suprasorb® in efficacy.

V09 - 2
LONG-TERM RESULTS OF ENDOVENOUS LASER TREATMENT IN THE MANAGEMENT OF CHRONIC VENOUS INSUFFICIENCY
Sharief A.M., Soong V.C., Lau L.L., Lee B., Hannon J.R.
Belfast City Hospital, Belfast, England

Objective: Endovenous laser therapy has been a feasible option in the treatment of uncomplicated varicose veins. This study aimed to evaluate its effectiveness in the management of chronic venous insufficiency in patients with long saphenous vein incompetence.

Methods: Patients with chronic venous insufficiency and venous leg ulcers, resistant to compression therapy, were selected for endovenous laser treatment using diode laser (DIONE) in outpatients setting from May 2003 to April 2004. Patients with sapheno-femoral junction or long saphenous incompetence were included. Compression was not used following successful endovenous laser treatment and patients were assessed for evidence of ulcer healing, long saphenous vein occlusion and patient satisfaction at 3, 12 and 22 months. Results are expressed as median (range).

Results: 23 limbs in 20 patients with chronic venous insufficiency were treated with endovenous laser treatment over a period of twelve months. The median age was 59 years (32-76) with a female preponderance of 57%.


Methods: The treatment group consisted of 42 patients with 76 leg ulcers. 51 of these ulcers (29 patients) were due to previous deep venous thrombosis, 25 ulcers (13 patients) - due to primary varicose veins. In the control group, there were 40 patients with 75 leg ulcers. 49 of these ulcers (27 patients) were post-thrombotic, 26 ulcers (13 patients) - due to primary varicose veins. The mean area of the ulcers by the beginning of the treatment was 64 mm² (from 6 mm² to 1050 mm²) in the treatment group and 56 mm² (from 5 mm² to 980 mm²) in the control group. By the beginning of the treatment the period of existing of the post-thrombotic ulcers averaged 7.6 year in the treatment group and 7.1 year in the control group. The mean existing period of ulcers due to primary varicose veins was 3.3 year in the treatment group and 3.2 year in the control one. During first (necrotic) and second (granulation) stages of ulcers healing their treatment was equal and included using of water-soluble antimicrobial ointments. During third stage (epithelialization) in the treatment group culture of fetal fibroblasts was employed, and in the control group modern hydrocollod, alginate and collagen wound dressings Suprasorb® were used. The fibroblast culture is cells of the line 1100/14, isolated from human fetal lungs and grown on the surface of micro-porous film Foldierm®. In both groups all the ulcers treatment was being conducted together with compression therapy.

Results: In the control group the healing rate was 84.6% (22 ulcers) for varicose ulcers and 77.6% (38 ulcers) for post-thrombotic ones. The mean healing term was 3.5 and 3.8 months correspondingly. Necessary frequency of wound dressing's replacement during epithelialization stage averaged 1 in 2.3 days. In the treatment group the healing rate was 100% (25 ulcers) for varicose ulcers (P<0.01) and 98% (50 ulcers) for post-thrombotic ulcers (P<0.01). Healing period averaged 1.7 weeks for varicose ulcers (P<0.01) and 3.9 weeks for post-thrombotic ones (P<0.01). Necessary frequency of wound dressing’s replacement during epithelialization stage in this group averaged 1 in 7.2 days (P<0.01).

Conclusion: Employment of human fetal fibroblasts of the line 1100/14, grown on the surface of micro-porous film Foldierm® is a very effective method to promote venous leg ulcers healing. The fibroblast wound dressing significantly exceeds modern wound dressings Suprasorb® in efficacy.

V09 - 3
ENDOVLUMINAL LASER TREATMENT OF VARICOSE VEINS: IS SAPHENOFEMORAL JUNCTION INTERRUPTION NECESSARY?
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Objective: Endolaser thermosclerosis (ELT) in surgical treatment of vein varicose disease (STVD) is an easy and less invasive ambulatory method with classical stripping procedure with good functional and cosmetic results. The aim of the study was to investigate if saphenophemoral junction rupture (SJI) associated to ELT play a role in STVD recurrence.

Methods: This is a retrospective observational study. From February 1999 to November 2005, 63 legs from 65 patients were treated by means of ELT applied inside saphena magna (48 cases) or both saphenas (15 cases) without SJI: Group I. 28 more legs from 15 patients were treated in the same manner inside saphena magna with SJI: Group II. In group I most of the patients were younger than group II, with difficult groin access. All procedures were performed using a diode laser source under local anaesthesia after eco-doppler mapping on ambulatory way. A microsurgical Müller operation was associated in both groups. In all cases severe saphenofemoral reflux was tested. The C.E.A.P functional status was not different (3.6±0.8 in group I vs. 3.7±1.4 in group II). Pearson´s chi² and Fisher’s exact tests were performed. Student’s t test independent groups was used. Kaplan - Meier actuarial studies were applied.

Results: No mortality or mayor complication were found on surgical procedures. No wound infection, lymphoceles, lymphorrhagia, paresthesies, haematomas or hyposthesia were noted. In a 3.8 years follow up (6.4 - 0.2 years) the functional status became in 1.3 in group I vs. 1.5 in group II, (P<br>0.01) and 98% (50 ulcers) for post-thrombotic ulcers (P<br>0.01). Healing period averaged 1.7 weeks for varicose ulcers (P<br>0.01) and 3.9 weeks for post-thrombotic ones (P<br>0.01). Necessary frequency of wound dressing’s replacement during epithelialization stage in this group averaged 1 in 7.2 days (P<br>0.01).

Conclusion: Employment of human fetal fibroblasts of the line 1100/14, grown on the surface of micro-porous film Foldierm® is a very effective method to promote venous leg ulcers healing. The fibroblast wound dressing significantly exceeds modern wound dressings Suprasorb® in efficacy.

V09 - 4
ROLE OF SPIRAL COMPUTED TOMOGRAPHY IN THE EVALUATION OF Iliac COMPRESSION AND CONGENITAL ANOMALIES IN PATIENTS WITH IliOFEMORAL DEEP VEIN THROMBOSIS
Boeleshko A.A., Zhuk V.H., Orlowski N.Y., Ulezko A.E., Goresckaya V.I.
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Objective: Within the last several years spiral venenonenhanced and contrast-enhanced computed tomographic emerged as a noninvasive modality for the evaluation of patients with vascular diseases. The purpose of this study was to evaluate the spectrum of underlying anatomic abnormalities in iliofemoral deep vein thrombosis.

Methods: During the past 3 years, 62 consecutive patients with symptomatic iliofemoral vein thrombosis were studied with both color Doppler sonography and spiral venenonenhanced and contrastenhanced computed tomographic with use of axial sections and their three-dimensional reconstructions. Forty seven patients had left-sided thrombosis, 10 had right-sided, and the remaining 5 had bilateral thrombosis.

Results: 50 (80.6%) of 62 patients had significant anatomic abnormalities in their iliac veins or inferior vena cava. In patients with left-sided thrombosis most common lesion (38 of 43) was external compression common iliac vein

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by the right common iliac artery and bony spur; in 2 patients iliofemoral thrombosis caused by compression of common iliac vein an iliac aneurysm, in 2 -an internal iliac artery, in 1 - pelvic lipomatosis. Of the 10 patients with right-sided thrombosis, 5 had significant anatomic abnormalities including encasement or extrinsic compression of their iliac veins by various causes. Among 5 patients with bilateral thrombosis, 4 patients had congenital anomaly of inferior vena cava, 1 had external compression of inferior vena cava by bony spur.

Conclusion: Spiral computed tomographic can demonstrate adjacent abnormalities, which may contribute to the development of thrombus. Iliac vein compression syndrome is the most probable cause of iliofemoral deep venous thrombosis.

**V09 - 5**

**ENDOVENOUS LASER THERAPY CANNOT REPLACE SURGERY IN THE TREATMENT OF VARICOSE VEINS**
Mekako I.A., Hatfield J., Bryce J., Heng ST.M., Lee HL.D., McCollum T.P., Chetter C.I.
Academic Vascular Surgical Unit, Hull Royal Infirmary, Hull, England

Objective: Endovenous laser therapy (EVLT) is a relatively new minimally invasive treatment for varicose veins. Our aim was to determine what proportion of patients with varicose veins secondary to saphenofemoral junction (SFJ) and long saphenous vein incompetence, on a waiting list for varicose vein surgery are suitable for EVLT.

Methods: A one-year prospective review of the waiting list for day-case varicose vein surgery in a university hospital was performed from May 2004. The period represented the first year of commencement of EVLT at the centre. 150 sequentially selected patients listed for unilateral primary high tie, stripping and stab avulsions were invited for duplex ultrasound scan to assess suitability for EVLT. Suitability criteria included 1. Isolated saphenofemoral junction incompetence and/or long saphenous vein reflux 2. Absence of concomitant major incompetent thigh branch 3. Pergenicular long saphenous vein diameter greater than 5 mm 4. Patient acceptance of suitability for local anaesthetic procedure.

Results: Four hundred and eighty two patients were on the waiting list (328 women), mean age 45 years (range 18-80). Of those invited, 112 (74.6%) attended. 63 patients (56%) were suitable, while 49 (44%) were unsuitable. Of unsuitable patients, 19 (39%) had an associated incompetent thigh branch in addition to long saphenous reflux, 10 (20%) had perigeneric LSV less than 5 mm, 6 (12%) wanted general anaesthetic and 1 patient (2%) preferred surgery. One patient (2%) had no sapheno-femoral or long saphenous incompetence on duplex scan investigation, and 12 patients (24%) were unsuitable for combined reasons.

Conclusion: Only approximately half of all patients listed for primary varicose vein surgery are suitable for EVLT. It is anticipated that as expertise grows, indications will be expanded and more patients will be offered EVLT.

**V09 - 6**

**ROLE OF SAPHENOUS VEIN WALL IN THE PATHOGENESIS OF PRIMARY VARICOSE VEINS**
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Objective: Varicose veins may be due to weakness of the vein wall as a result of structural problems. There are conflicting findings in the literature about these problems especially concerning collagen, elastin and smooth muscle cells content. The aim of this study was to look at the structural abnormalities of varicose veins (with and without valvular incompetence).

Methods: We studied 70 specimens of long saphenous veins from 35 patients (24 with varicose and 11 with normal veins). Two specimens were taken from each vein about 3-4 cm from the saphenofemoral junction. Vein specimens were processed for histological, immunohistochemical and electron microscopic studies. Both qualitative and quantitative analyses were performed to assess the degree of wall changes. Using the image analyzer, contents of collagen, elastin and smooth muscle cells, in addition to intimal and medial thickness, were measured.

Results: Light microscopy revealed statistical significant increase in intimal and medial thickness and collagen content of media and significant decrease in elastin content and smooth muscle optical density in varicose veins compared with normal veins. There was no statistical significant difference between varicose veins with and without saphenofemoral valve incompetence.

Electron microscopy showed marked degenerative changes in intima and media as well as the adventitia of varicose veins.

Conclusion: The findings in our study supported the theory of primary weakness of the vein wall as a cause of varicosity. This weakness is due to changes in all layers of the vein wall and disturbance in the connective tissue components and smooth muscle cells.

**V09 - 7**

**A NON-RANDOMISED TRIAL OF ENDOVENOUS LASER THERAPY VERSUS SURGERY IN THE TREATMENT OF VARICOSE VEINS**
Mekako I.A., Hatfield J., Bryce J., Heng ST.M., Lee HL.D., McCollum T.P., Chetter C.I.
Academic Vascular Surgical Unit, Hull Royal Infirmary, Hull, England

Objective: Endovenous laser therapy (EVLT) is a new minimally invasive treatment for varicose veins. This study compares early quality of life (QoL) outcomes following EVLT and surgery.

Methods: Two non-randomised groups were studied. EVLT: 70 patients, 33 men, median age 49 (95% CI 35-58) years and Surgery (saphenofemoral junction ligation, long saphenous vein strip and phlebectomy): 62 patients, 19 men, median age 49, (95% CI 35-61) years. Patients were assessed prior to, and at 1, 6, and 12 weeks post procedure using the generic QoL Short Form 36 (SF36), disease specific Aberdeen Varicose Veins Questionnaire (AVVQ), and the Venous Clinical Severity Score (VCSS). SF36 analyses 8 QoL domains: Physical Function, Role Physical, Bodily Pain, General Health, Vitality, Social Function, Role Emotional, and Mental Health. Statistical analysis was by Mann -Whitney test, and P<0.01 was considered significant. Any baseline differences between the groups were adjusted for by an analysis of co-variance.

Results: Follow-up at 1, 6 and 12 weeks was 100%, 77% and 70% following EVLT and 100%, 85% and 47% following surgery. SF36 scores were significantly better in the EVLT group at 1 week (Physical Function, Role Physical, Bodily Pain, Vitality, and Social Function) and at 6 weeks (Physical Function). At 12 weeks, no significant differences in the SF36 scores were evident between the two groups. AVVQ scores were significantly better in the EVLT group at 6 and 12 weeks. VCSS scores were significantly improved in both groups at 12 weeks.

Conclusion: EVLT & surgery provide similar QoL improvements in patients with varicose veins. EVLT however, removes the QoL limitations experienced by patients in the early postoperative period.

**V09 - 8**

**OUR EXPERIENCE OF TREATMENT OF EMBOLOGENIC THROMBOSIS OF LOWER LIMB DEEP VEINS**
Lemenev L.V., Kurgurturk V.E., Shcherbiky A.A., Nikulin I.B.
Scientific Research Institute of First Aid named by N.V. Skifikosovsky, Moscow, Moscow, Russian Federation

Objective: to work out an optimum tactics of surgical treatment of embologenic thromboses of lower limb deep veins.

Methods: Over the period from 2002-2005, Scientific Research Institute of First Aid named by N.V. Skifikosovsky carried out treatment of 362 patients with embologenic thrombosis of lower limb deep veins(195 males and 174 females); among them, 133 were diagnosed with thromboembolism of pulmonary artery(TEPA). The age of the patients varied from 35 to 90 years, which is 62.5 years on average. Newonset thrombosis of lower limb deep veins was diagnosed in 78% of patients, and recurrent one in 22%. An ultrasound duplex scanning of vessels is considered as the basic diagnostic method. In case of suspected TEPA, the radioisotopic scintigraphy was carried out.

Results: In 362 patients, a floating thrombus was detected, including the one in the lower cava in 43 patients, in iliac veins in 189 patients, in common femoral vein in 56 patients, in popliteal vein in 14 patients. Cavafilter was implanted in 271 patients. Cavafilter was implanted in all patients with recurrent thrombembolia, and also in patients with serious concomitant pathology who had a high risk of rethrombosis during the post-surgical period. In 64 patients, the thrombectomy was carried out: of common iliac vein in 4 patientsand external iliac vein in 16 patients of superficial femoral vein and common femoral vein in 42 patients of popliteal vein in 2 patients In 5 patients, the surgery was supplemented by arteriovenous fistulization; in 8 patients, the surgery was carried out after non-indwelling cavafilter implantation; in 5 patients with implanted indwelling cavafilter, the surgery was carried out with a view to ineffectiveness of conservative therapy.
and persisting floating thrombus. After the surgery, anticoagulant therapy was carried out, obligatory early activization using medical elastic tricot. Control by ultrasound dopplerography. The reasons of thrombosis in patients who have undergone the surgery generally were traumas of lower limbs (53 patients) and burn disease in 4 patients. During the post-surgical period, parietal rethrombosis developed in 5 patients, without floating thrombi. In 1 patient, one month after the surgery, a floating thrombosis on contralateral side developed due to non-compliance with the recommended anticoagulant therapy. There were no fatalities.

Conclusion: In case of vein thrombosis where floating thrombus is formed with the danger of embolism, a differentiated approach to surgical treatment methods is necessary. The patients with high risk of rethrombosis undergone cavafilter implantation, and those patients whose prognosis was favourable received operative therapy.
10TH VASCULAR SCIENTIFIC SESSION

VASCULAR ACCESS

V10 - 1
FISTULOGRAPHY IN ARTERIOVENOUS FISTULAE, A USEFUL INVESTIGATION
Lee HL.D., Beleed K., Roy B., Heng ST.M., Mekako I.A., McCollum T.P., Chetter C.I.
Academic Department of Vascular Surgery, University of Hull, Hull Royal Infirmary, Hull, UK

Objective: Fistulography is commonly requested in the investigation of malfunctioning AVFs. The objective of this study was to determine the value of fistulography in a typical tertiary referral vascular unit.

Methods: Between January 2000 and December 2003, 52 fistulograms were performed in 49 dialysis patients (36 males, median age 66 years, 34 hypertensives) who had AVFs created in this period. Most of these were sited in the radiocephalic and brachiocephalic areas and other access included thigh loop grafts, basilica vein transposition and leg-to-arm grafts. Information gathered included data on indication, procedure and outcome.

Results: Fifty-two fistulograms (49 AVFs, 2 PTFE) were performed. Indications for fistulography were difficult needling (25.0%), inadequate dialysis blood flow at dialysis (64.0%) and AVFs not developing adequately (17.3%). Sixteen (30.8%) patients required angioplasty. Outcome: At subsequent follow up (median 17.8 months (IQR 9.8-30.1)), 8 (50%) continued to be used. Thirty-six of initial fistulograms were diagnostic procedures, of which 7 subsequently clotted and 12 continued to be used. A further 3 were referred for repeat vascular access surgery.

Conclusion: Fistulography answers diagnostic questions. In up to third of patients, it may facilitate endovascular intervention with good medium term results.

V10 - 2
AXILLO-ILiac CONDUT FOR HAEMODIALYSIS VASCULAR ACCESS
Hamish M., Shalhoub J., Rodd C.C., Davies H.A.
Charing Cross Hospital, London, UK

Objective: End-stage renal failure (ESRF) haemodialysis patients frequently have complex venous drainage problems. Multiple access procedures cause central venous stenosis or occlusion, leaving venous drainage impaired. The consequences are: sub-optimal dialysis access function; and symptomatic facial and limb oedema secondary to brachio-cephalic vein and vena cava involvement. Three main surgical options exist: Anastomotic venous bypass procedures, which may require thoracotomy (veno-atrial bypass, extra-ana- tomic arterio-venous graft (AVG) and extra-anatomic venous bypass procedures.

Methods: We report eight ESRF patients with complex renal access problems. Three patients had central venous occlusion, which were both symptomatic and compromising arterio-venous fistula drainage. In addition, radiological intervention had been unsuccessful. All these patients underwent veno-venous axillo-iliac bypass. In five further patients with a symptomatic central venous obstruction who run out of peripheral or central vascular access option, we performed axillo-iliac arterio-venous grafting. All patients were assessed pre-operatively with duplex ultrasonography and venography. The axillary artery or radial artery and iliac vein were approached via infraclavicular and extra-perito- neal groin incisions, respectively. Polytetrafluoroethylene (PTFE) was used for the conduits. Anti-coagulation regimens were commenced post-operatively.

Results: Following venous diversion surgery, there was a dramatic improvement in the problematic facial and limb swelling experienced by the patients. There was no significant peri-operative morbidity. The veno-venous graft is still patent at 14 months in patient one, at 10 months in patient two, and 5 in patient three. Regarding the AVGs, the mean follow-up was 13.2 (7-20) months. Patency rate was 80% at 6 months and 100% at 12 months. Four patients had patent, usable grafts at twelve months. In two cases, graft occlusion was treated with successful thrombectomy.

Conclusion: Axillary-iliac veno-veno diversion can overcome the symptoms and complications of superior vena cava and brachio-cephalic vein obstruction. Extra-anatomical axillo-iliac arterio-venous graft fistulae formation is previously described but has not been widely used. However, we have found the procedure to have low morbidity and advocate its use in these complex cases.
Conclusion: Our results show comparable patency results to elbow fistulas and preserve it for a later time. We continue to perform these proximal and middle third radial artery to cephalic vein fistulas as a part of our all autologous fistula strategy so upper arm fistulas and prosthetic graft implantation could be postponed.

V10 - 6
ENDOVASCULAR MANAGEMENT OF ARTERIO-VENOUS FISTULA STENOSES
Swinnen J.
Westmead Hospital, Sydney, Australia

Objective: To demonstrate the effectiveness of endovascular techniques in developing and maintaining native Arterio-Venous Fistulas (AVF).

Methods: Over the last 5 years at our institution, the operator has performed over 300 AV Fistuloplasties to develop and maintain patency of native AVF. Over 90% of the AVF in our practice are native. Diagnosis of AVF problems is performed primarily with Duplex U/S prior to intervention. Techniques include balloon angioplasty, cutting balloon angioplasty and stenting of the inflow artery, the fistula vein and the outflow central venous drainage vein. Controlled rupture of the fistula vein in about 20% of cases is necessary to effectively destroy the stricture ring, and produces excellent results. Over 90% of procedures are performed as day case surgery, under local anesthetic sedation. The fistula can generally be used for dialysis within hours post intervention.

Results: Over the last 5 years at our institution, the operator has performed over 300 AV Fistuloplasties to develop and maintain patency of native AVF. Over 80% of the AVF in our practice are native. Diagnosis of AVF problems is performed primarily with Duplex U/S prior to intervention. Techniques of intervention include balloon angioplasty, cutting balloon angioplasty and stenting applied to the inflow artery, the fistula vein and the outflow central venous drainage vein. Controlled rupture of the fistula vein in about 20% of cases is necessary to effectively destroy the stricture ring, and produces excellent results. Over 90% of procedures are performed as day case surgery, under local anesthetic sedation. The fistula can generally be used for dialysis within hours post intervention.

Conclusion: Native AVF problems can be successfully treated with endovascular techniques as day case local anesthetic procedures in over 90% of cases. Complications are very uncommon. Repeat procedures are necessary in a significant number of cases to maintain long-term patency.

V10 - 7
THE UK NATIONAL SERVICE FRAMEWORK FOR HAEMODIALYSIS VASCULAR ACCESS: THREE YEARS IN
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Objective: Renal Association Guidelines (2002) used in the National Service Framework (NSF) for the National Health Service (NHS) recommend: At least 67% of patients presenting within 3 months of dialysis should start HD with a usable native AVF. No patient already requiring dialysis should wait more than 4 weeks for fistula construction including those who present late. The study objective was to examine local figures and demonstrate the compliance with NSF guidelines.

Methods: Two hundred and eighty patients (172 men, median age 65 years, 76 diabetic, 217 hypertensive) had AVFs created between January 2000 and December 2003. We extracted patient data from our departmental electronic database and supplemented this with information from patient notes. Information gathered included data on demography, procedure and outcome.

Results: Two hundred and forty four patients commenced haemodialysis during this period, of which 161 had been known to the dialysis services for at least 3 months prior to haemodialysis. Of these 161 cases, 62 (38.5%) started dialysis through a patent AVF in the 3 months post-referral period. 266 of 401 AVFs (66.3%) waited more than 4 weeks for procedure. Median time for referral to surgeons was 178 days (6 months) [IQR 93-328 days]. Length and variability of waiting times resulted from individual referrals and lack of access to imaging facilities.

Conclusion: Three years after the guidelines were issued, the proportion of patients receiving haemodialysis therapy remains unsatisfactory. Delays in referral may contribute to low rates of patients commencing haemodialysis on AVFs. Further study including numbers from other units in the United Kingdom will demonstrate the extent of difficulties. A national registry may be necessary to help meet NSF targets.
Objective: A novel therapeutic option for the treatment of acute myocardial infarction involves the use of stem cell plasticity. Methods for in vitro isolation of rat bone-marrow stromal cells (MSCs) have been well established. After culturing under defined in vitro conditions for 14 days, MSCs can differentiate into cardiomyocyte, adipocyte, osteocyte and chondrocyte upon applying certain trophic factors. However, the duration of culture can be a major handicap for cell-based therapies in the case of acute myocardial infarction or acute hind-limb ischaemia.

Methods: MSCs were isolated and expanded from bone-marrow aspirates of adult rats. We repeatedly screened rat MSCs colony forming capacity, CD90 and CD34 immuno-reactivity and Ca2+ responses during course of 14 days of culture. The cells showed a fibroblast-like morphology and started to form colonies at day 7. The cells within the colonies but not in the periphery became positive for CD90 at day 9. They were stained negative for CD34 antibody from the 5th day of culture.

Results: Furthermore, Ca2+ responses of MSCs were compared that are within vs. outside the colonies and to different stimuli including caffeine application and depolarization at 9th and 14th day of culture. We observed that caffeine (10 mM) application and depolarization with KCl (105 mM) did not evoke any Ca2+ responses in MSCs on their 9th and 14th day of culture. However, they responded to extra cellular ATP (10-4 M) application with a clear Ca2+ transient. Ca2+ response characteristics were the same in colony forming and peripheral cells. These results indicate the absence of any functional ryanodine receptor in rat MSCs and also demonstrate that these cells do not differentiate to any cell but clearly exert the characteristics of MSC by the 9th day.

Conclusion: MSC cardiomyoplasty may have a significant clinical potential in the myocardial infarction setting. Nine days of in vitro isolation of MSCs may be adequate if myogenic differentiation is warranted. Shortening the culture time for nearly 5 days could be a very useful tool for the patients awaiting urgent cell-based therapeutic options. This research has been supported by grants from Ankara University and Bilkent University Research Funds.

C11 - 3

IN VITRO FUNCTIONAL EVALUATION OF DIFFERENT ISOLATION TIME POINTS FOR BONE MARROW-DERIVED STROMAL CELLS PRIOR TO CARDIOMYOCYTE DIFFERENTIATION

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Objective: In vitro isolation of rat bone-marrow stromal cells (MSCs) have been well established. After culturing under defined in vitro conditions for 14 days, MSCs can differentiate into cardiomyocyte, adipocyte, osteocyte and chondrocyte upon applying certain trophic factors. However, the duration of culture can be a major handicap for cell-based therapies in the case of acute myocardial infarction or acute hind-limb ischaemia.

Methods: MSCs were isolated and expanded from bone-marrow aspirates of adult rats. We repeatedly screened rat MSCs colony forming capacity, CD90 and CD34 immuno-reactivity and Ca2+ responses during course of 14 days of culture. The cells showed a fibroblast-like morphology and started to form colonies at day 7. The cells within the colonies but not in the periphery became positive for CD90 at day 9. They were stained negative for CD34 antibody from the 5th day of culture.

Results: Furthermore, Ca2+ responses of MSCs were compared that are within vs. outside the colonies and to different stimuli including caffeine application and depolarization at 9th and 14th day of culture. We observed that caffeine (10 mM) application and depolarization with KCl (105 mM) did not evoke any Ca2+ responses in MSCs on their 9th and 14th day of culture. However, they responded to extra cellular ATP (10-4 M) application with a clear Ca2+ transient. Ca2+ response characteristics were the same in colony forming and peripheral cells. These results indicate the absence of any functional ryanodine receptor in rat MSCs and also demonstrate that these cells do not differentiate to any cell but clearly exert the characteristics of MSC by the 9th day.

Conclusion: MSC cardiomyoplasty may have a significant clinical potential in the myocardial infarction setting. Nine days of in vitro isolation of MSCs may be adequate if myogenic differentiation is warranted. Shortening the culture time for nearly 5 days could be a very useful tool for the patients awaiting urgent cell-based therapeutic options. This research has been supported by grants from Ankara University and Bilkent University Research Funds.
and short term follow up. But limited number of patients and short term are not enough for conclusion.

**C11 - 5**

**NEW SYSTEM FOR REPLACEMENT OF ECMO/ECLS WITHOUT INTERRUPTION OF ASSISTANCE**

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Department of Thoracic and Cardio-vascular surgery, hôpital Robert Debré, REIMS, Metropolitan France; Department of Thoracic and Cardio-vascular surgery, hôpital Jean-Minjoz, Besançon, Metropolitan France

Objective: Replacement of Extracorporeal Membrane Oxygenation (ECMO) or Extracorporeal life support (ECLS) stays dangerous with high risk of cardiac or hypoxic arrest in instable situations. We have developed a new system which allows easily changing of cardiac or pulmonary support without interruption of the assistance. We have used this new device to confirm the feasibility and advantages in term of security for our patients.

Methods: We have used the device in four patients: in two cases, after cardiac surgery (ECLS), in one case during an ECMO for pulmonary failure after blunt chest trauma and in one case after a cardiac infarction without low cardiac output and respiratory failure (ECMO). Our device realize by a medical laboratory is completely heparin bonded. For these four patients 7 replacements of cardiac or pulmonary-supports have been realized and analyzed in detail.

Results: For all support replacements no cardiac arrest has been noticed and no increase of inotrope cardiac support is needed. Analyses of arterial pressure monitoring, electrocardiogram, oxygenation or neurological status show an absence of any modification during and after these procedures. No specific morbidity has been found especially in term of thrombo-embolic event. For the fourth patient, we have replaced, without any problem, his cardiac support in the ambulance during his transfer to allow a cardiac transplantation. The patient was conscious during all the procedure and no neurological trouble has been noticed.

Conclusion: This new circuit is useful to replace ECLS or ECMO without any risk for the patient. His manipulation is easy and safety even in instable conditions. No complication, cardiac arrest or death has occurred during replacement. This kind of modification can be simply realized with all commercial actual ECMO or ECLS circuit without extra cost. In summary we think that this simple modification can improve, at list, results of ECMO/ECLS support by decreasing of adverse events during the assistance.

**C11 - 6**

**CARDIAC OPERATIONS IN HEMODIALYSIS PATIENTS: MID TERM RESULTS AND ANALYSIS OF RISK FACTORS**

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Objective: To evaluate early- and mid-term results in hemodialysis-dependent patients who underwent open heart surgery in our department, with multivariate analysis of major risk factors.

Methods: We retrospectively reviewed 29 consecutive patients on maintenance hemodialysis who were operated on in our Department from March 1998 to July 2005. Nineteen patients (65.5%) were male and the mean age was 63.9 years ±11.4. Mean duration of dialysis was 74.9 months ±67.1. Thirteen patients (44.8%) were operated on non-elective status, due most often to unstable angina. The most frequent types of operation performed were isolated CABG (18 patients; 62.1%), isolated AVR (4 patients; 13.8%) and AVR+MVR (3 patients; 10.3%).

Results: The in-hospital mortality was 10.3% (3 of 29 patients). Two of the 3 deaths were due to bowel ischemia. In-hospital morbidity was 44.8% (13 of 29 patients), mainly due to prolonged mechanical ventilation (17.2%), minor neurological complications (10.8%), sepsis (10.3%) and postoperative bleeding requiring re-intervention (6.9%). Mean extracorporeal circulatory time was 92.2±36.1 min, whereas mean clamping time was 59.8±27.5 min. Late deaths (n = 10) occurred 2 to 56 months after the operation. Main cause of late deaths were congestive heart failure (n = 4), infective problems (n = 3) and acute myocardial infarction (n = 2). One patient underwent renal transplantation 33 months after the operation. Overall survival estimates at 1, 3 and 5 years were 68.4±8.7%, 57.4±10.2% and 31.9±15.4%, respectively.

**C11 - 7**

**LEVOSIMENDAN IN PATIENTS WITH LOW CARDIAC OUTPUT AFTER CARDIAC SURGERY: THE FIRST EXPERIENCE**

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Objective: to determine the effects of new inotropic agent levosimendan in patients with low cardiac output after cardiac surgery. Methods: Fifteen adults and 4 pediatric patients received levosimendan infusion for low cardiac output after multiple valve replacement, coronary bypass with left ventricle reconstruction and arterial switch operation. Indications for levosimendan were the following: CI<2 l/min/m² not responding to high doses of catecholamines and IABC in adults and UIPE< 25% despite catecholamines or phosphodiesterase III inhibitors in children. Adult patients received the loading dose 12 µg/kg during 10 min and the infusion of 0.1 µg/kg/min next 6-12 h. In pediatric patients (10 days to 2 years old) the loading dose was increased to 24 µg/kg during 10 min and supportive dose 0.1 µg/kg/min was infused during next 24 h. We used thermodilution for the assessment of hemodynamic values in adults and echocardiography in children. We also controlled the possible side effects.

Results: All adult patients demonstrated significant increase in CI by 50-150% from 1.6 to 4.2 l/min/m² and SV from 34 to 74 ml. Meanwhile systemic vascular resistance fell from 1478 to 845 dynes/cm², CVP, PWPC and PAP also decreased, but mean arterial pressure increased from 55 to 78 mmHg. Pulmonary vascular resistance did not change significantly. Such hemodynamic improvement was manifested with decreasing catecholamine dependency and allowed to soften IABC regimen. Three patients with basic systemic vascular resistance less then 900 dynes/cm² developed arterial hypotension and required intensive volume load. Polytropic polymorphic ventricular tachycardia was occurred during the first hour of levosimendan infusion in 2 cases (both patients were successful treated with amiodaron). All the children responded to levosimendan infusion with increase in left ventricular EF from 22 to 36% and decrease in LAP from 21 to 13 mmHg. One patient received levosimendan before total cardiopulmonary bypass with ECMO during 4 days was stopped. The other patient was required levosimendan infusion twice within 9 days with evident hemodynamic improvement. We didn’t observe any rhythm disturbances and significant systemic hypotension in pediatric patients.

Conclusion: Levosimendan infusion proves to be of great benefit in adult patients and children with low cardiac output after cardiac surgery, but further researches are required to determine indications and dose regimens in these groups of patients.

**C11 - 8**

**THE USE OF BIVENTRICULAR PACEMAKER AS A COMPONENT OF MULTIMODALITY THERAPY FOR CONGESTIVE HEART FAILURE IN CARDIAC SURGERY PATIENTS**

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Objective: Biventricular pacing is emerging as a successful non-pharmacologic adjunctive therapy for the treatment of severe congestive heart failure. The purpose of this study was to investigate the utility of biventricular pacing for treatment of significant congestive heart failure following cardiac surgery. Methods: Since 2002, a cohort of thirteen patients at our institution have undergone placement of a biventricular pacemaker for the treatment of congestive heart failure at the time of major cardiac surgery-value repair or replacement with or without coronary artery bypass grafting. In retrospective fashion, the severity of each patient’s congestive heart failure was
assessed pre-operatively and postoperatively using left ventricular ejection fraction and New York Heart Association class.

Results: Pre-operatively, all patients had New York Heart Association class III or IV status and the mean ejection fraction for the group was 23±2%. Post-operatively, all the patients had improved to New York Heart Association class I or II. In addition, the mean ejection fraction had significantly increased to 39±3%. The data were analyzed using a paired t-test and found to be statistically significant (P < 0.05).

Conclusion: Patients with severe congestive heart failure and impaired ejection fraction can benefit significantly from biventricular pacing after major cardiac surgery. Biventricular pacing should be considered a valuable component of the multimodality therapy for congestive heart failure in such patients.
C12 - 1
EUROPEAN WORK TIME DIRECTIVE. HOW TO IMPROVE CARDIOTHORACIC TRAINING FOR SPR AND SHO
Szafranek A., Yusuf M., Olszowka P., Dimitrikakis G., O'Keefe P.
University Hospital of Wales, Cardiff, UK

Objective: Reduction in surgical training time due to EWTD mandates review of the use of training time. The activity of cardiothoracic SpRs on Cardiac Intensive Therapy Unit (CITU) was audited. Study aims were to identify any potential benefits in cardiothoracic training, to investigate mechanisms of communication between CITU staff and overall effect on patient care.

Methods: All calls from CITU to surgical SpRs were assessed by nurses and surgeons (n = 120). All calls were classified as: routine (predicted, non urgent), urgent (non life threatening) or emergency (surgical, life threatening) A dedicated questionnaire based on most common postoperative complications was devised to examine knowledge of CITU staff (surgical and anaesthetic SpRs, surgical SHOs and CITU senior nurses). Results were analyzed and statistical comparison was made using t test.

Results: Most calls during the day were routine (n = 97, 81%). Urgent calls (n = 18, 15%) were less common, most were during the night (n = 13, 73%). In 5 of cases surgical attention was necessary (4%) and in 2 cardiothoracic SpR needed to be involved taking patient to the theatre (1.6%). There was a significant difference in nature of calls between night and day. There was statistical difference in results of questionnaire between SHO and other groups (P<0.01).

Conclusion: Our study indicated that there is no need for cardiothoracic SpRs to be resident on CITU during the daytime. For surgical SHO there is an opportunity to improve critical care knowledge and skills Support of anaesthetist and senior nursing staff can provide safe patient care in CITU.

C12 - 2
VALIDATION OF THE 2000 BERNSTEIN-PARSONNET SCORE VS THE EUROSCORE AS A PROGNOSTIC TOOL IN CARDIAC SURGERY
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Objective: Intra- and interdepartmental benchmarking requires scoring systems with reliability (calibration) and stability over the complete spectrum of peri-procedural risk. The aim of this singlecenter study was to assess, for the first time, the performance of the 2000 Bernstein-Parsonnet risk stratification model in cardiac surgery, by itself and against the EuroSCORE.

Methods: A prospective observational design was used. The study group consisted of 1639 consecutive patients of mean age 64.6±12.04 years who underwent elective or emergency cardiac surgery from January 2003 to June 2004. The probabilities of hospital death were estimated with the 2000 Bernstein-Parsonnet and EuroSCORE algorithms. The correlation of predicted and observed mortality was compared between the 2 models, and score validity was assessed by calculating the area under the receiver operating characteristic (ROC) curve.

Results: The patients were stratified into 5 risk groups according to their scores in the two models. For the 2000 Bernstein-Parsonnet model, findings were as follows: score 0-10: predicted mortality 0.2%, observed mortality 0.6%; score 10.5-20: predicted 2.3-4.7%, observed 2.3%; score 20.5-30, predicted 4.8-10%, observed 6.7%; score 30.5-40, predicted 10.1-23%, observed 11.5%; and score >40: predicted 23.1-80%, observed 29.9%. For the EuroSCORE, findings were as follows: score 0%: predicted mortality 1.1%, observed mortality 0.6%; score 3-5%, predicted 2.1%, observed 3.0%; score 6-8%, predicted 4.1%, observed 3.5%; score 9-11%, predicted 7.6, observed 6.6%, and score >12, predicted 13.8%, observed 14.0. There was good agreement between the observed and expected number of deaths, with both models. The area under the ROC curve was higher for the Bernstein-Parsonnet model (0.83, OR 2.01, 95% CI 1.75-2.31, P<0.0001) than for the EuroSCORE (0.73, OR 1.05, 95% CI 1.04-1.07, P<0.001).

Conclusion: The 2000 Bernstein-Parsonnet model is a simple, objective system for the estimation of hospital mortality in patients undergoing cardiac surgery, with slightly higher calibration and discrimination than the EuroSCORE additive model.

C12 - 3
RISK STRATIFICATION IN CARDIAC SURGERY: THE SEARCH BETWEEN SIMPLICITY AND PRECISION
Szafran B., Szafranek A., Zembala M.
Silesian Centre for Heart Disease, Zabrze, Poland

Objective: To find out the optimal risk stratification system for cardiac surgery. To verify EuroSCORE variables in terms of both their impact and their number.

Methods: Single centre study. Typical development set/testing set approach was applied. The first sample included 1263 patients undergoing cardiac surgery in 2001-2002 (development set). The second one included 1244 patients operated on in 2004 (testing set). Two systems were used to assess the mortality risk in both groups: 1. original logistic EuroSCORE 2. simple logistic model using five basic risk factors recognized in most previous studies (age, gender, redo surgery, emergency surgery, LV function) The discrimination and calibration of both models were checked by ROC curve analysis and Hosmer-Lemeshow goodness of fit test respectively. The same analysis was performed for isolated CABG patients.

Results: The Hosmer-Lemeshow test proved satisfactory calibration for both systems in all groups. The area under ROC curve reached the following values: Development set, all (n = 1263): EuroSCORE 0.76 simple model 0.71 Testing set, all (n = 1244): EuroSCORE 0.81 simple model 0.72 Development set, CABG (n = 928) EuroSCORE 0.74simple model 0.71 Testing set, CABG (n = 818) EuroSCORE 0.82 simple model 0.66.

Conclusion: EuroSCORE despite quite satisfactory performance does not remain the only alternative in risk stratification. It is remarkable that the simple model containing just five core risk factors can offer very satisfactory prediction which could be easily applied in everyday prac-tice.

C12 - 4
ROBOTICALLY-ASSISTED TOTALLY ENDOSCOPIC ASD REPAIR: INSIGHTS FROM OPERATIVE TIMES, LEARNING CURVES AND CLINICAL OUTCOME
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Objective: Remote-access perfusion and robotics have enabled totally endoscopic closure of atrial septal defect (ASD) and patent foramen ovale (PFO). We report on a stepwise approach to a totally endoscopic procedure.

Methods: Seventeen patients (median age, 35 years; range, 16-55 years) with the diagnosis of and ADS II or a PFO and PFO and documented neurologic event, were operated on for ASD-repair on a totally endoscopic fashion using the da Vinci telemanipulation system. Learning curves and operative times were assessed by means of regression analysis. The effect of operative parameters on clinical outcome was analyzed by calculating the Spearman's r coefficient.

Results: With the endoscopic approach, significant learning curves were noted for total operative time (γ(min) = 46.0-49(ln(x), r²=0.725, P = 0.002), cardiopulmonary bypass time γ(min) = 225 - 42 * ln(x) (γ²= 0.699, P = 0.003) and aortic cross-clamp time γ(min) = 117 - 25 * ln(x) (γ²=0.52, P = .04) (x = number of procedures). There was no hospital mortality, and no residual shunts were detected at postoperative echocardiography. Median ventilation time, intensive care unit stay, and hospital length of stay were 6 h (range, 3-18 h), 20 h (range, 15-120 h) and 8 days (range, 5-14 days), respectively.

Conclusion: The implementation of robotic totally endoscopic closure of ASD or PFO in a heart surgery program seems to be safe. Learning curves are apparent, and clinical parameters and adequate defect closure does not seem to be compromised by the long operative times needed for the totally endoscopic approach.

C12 - 5
SMALL ACCESS (30 F) CLINICAL CENTRAL VENOUS CANNULATION: IS IT ADEQUATE?
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C12 - 6

IS CARDIAC SURGERY APPROPRIATE IN BARIATRIC PATIENTS?

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Objective: With the marked increase in numbers of patients suffering from extreme obesity and its associated cardiovascular complications, one can anticipate an increasing demand for cardiac surgery in this challenging population. The results of cardiac surgery in bariatric patients with a BMI >50 (body mass index: kg/m²), however, have not been established. We hypothesize that acceptable results could be achieved with a customized approach.

Methods: Between 1993 and 2004, we performed adult cardiac surgical procedures in 57 patients with BMI>50. The mean age of the study group was 55±12 years and mean BMI 54±4 (weight range: 124-226 kg). Obesity related comorbidities were common including diabetes mellitus 29(51%), hypertension 40(70%), hyperlipidemia 22(39%), and obstructive sleep apnea 16(28%). Special equipment utilized included a Chevor internal thoracic artery retractor, Airpax® (for patient transfer); Medi-Chair® (for mobility); Eclipse® Ultra Mattress (to avoid pressure ulcers); and V-Cue® Mattress (for respiratory therapy). Sternal closure was routinely performed using Moyo® Wires® to prevent sternal dehiscence. To assess the influence of obesity on perioperative mortality, a comparison of 8534 patients undergoing isolated CABG at our institution during the same time interval was performed by multivariate risk analysis.

Results: The perioperative mortality for the entire study group (n = 57) was 4 patients (7%), and 0% for isolated CABG. Prolonged intubation (>24 hrs) was required in 11(20%), surgery for wound complication in 3(5%), stroke in 1(2%), and re-exploration for bleeding in 1(2%). The length of hospital and ICU stays was 13±2 and 5±9 days, respectively. Survival at 1, and 5 years was: 93±4%, and 76±8%, respectively. On univariate analysis for patients with BMI>50: age, hypertension, and endocarditis were risk factors of mortality. A BMI of 54±4 was predictive of renal failure and prolonged intubation. When multivariate analysis was performed on only isolated CABG patients (8534), BMI>50, BMI>50, and BMI>50 were not predictors of perioperative mortality. BMI remained insignificant when considered as a continuous variable as well. However, age, ejection fraction, urgent/emergent operation, and renal failure were strongly associated with perioperative death.

Conclusion: Cardiac surgery could be performed in bariatric patients with acceptable results. However, postoperative complications are relatively common and accordingly ICU stay may be prolonged. Wound complications are also relatively common. Special equipment might be necessary for proper care. Increased resource utilization may be anticipated for these patients.

C12 - 7

THE EFFECT OF HIGHER CARDIAC INDEX DURING HYPOTHERMIC CARDIO-PULMONARY BYPASS ON HEPATIC BLOOD FLOW AND POST CABG SYSTEMIC INFLAMMATORY RESPONSE

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Objective: Reduced splanchic blood flow during hypothermic cardiopulmonary bypass (CPB) contributes to post cardiac surgical systemic inflammatory response. Dopamine analogs can improve splanchic perfusion in the post operative period with increased cardiac index. We hypothesised that maintaining a higher cardiac index during hypothermic cardiopulmonary bypass would increase splanchic perfusion and reduce inflammatory response.

Methods: Twelve consecutive patients with good LV function, undergoing elective/urgent CABG were included in a prospective randomised study comparing normal flow (NF) Vs high pump flow (>20% higher cardiac index) (HF) group during hypothermia. Hepatic blood flow was measured using the Indocyanine green dye disappearance rate before, during, and 4 hrs post operatively. Inflammatory markers (IL-1β, IL-6, IL-8, IL-10, IL-12 and TNFα) and compliments C3a, C4a, C5a a were measured. Repeated measures ANOVA test was used to compare timed samples.

Results: Both groups were comparable with regards to the pre and intra operative variables Hepatic blood flow increased by 100% in the HF group during hypothermia (P = 0.026). Mean blood pressure during hypothermia and usage of metaraminol was higher in the HF group (not significant: P = 0.275; 0.09 respectively). Inflammatory markers C3a, C4a, C5a, IL-6 and IL-8 showed attenuation in the HF group, (but statistically not significant). Other inflammatory markers were variably elevated precluding comparison between groups.

Conclusion: Hepatic blood flow can be augmented during hypothermic cardiopulmonary bypass by using a high pump flow (higher cardiac index). Whether this translates into reduction in the post operative systemic inflammatory response needs larger studies.

C12 - 8

CLINICAL PATHWAYS: AN APPROPRIATE INSTRUMENT FOR PROCESS OPTIMISATION AND COST CONTROL?

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Objective: The implementation of lump-sum remuneration in Germany (DRGs) demands standardised treatment to streamline processes and optimise interfaces. To succeed, it’s essential to offer high quality and efficient treatment services focussing on patients in the regional health market. The objective of this study was to evaluate if the use of clinical pathways would prove to be a cost effective tool for hospitals in the DRG-system.

Methods: Two clinical pathways (CABG and valve-operations) were used in our department from April 2005 until August 2005. The documentation of the clinical pathways was integrated in patient charts as a “two-in-one-solution”, in which the pathway is subjected to a timetable and monitored continuously. 211 patients were used as a control group from April 2004 until August 2004.

Results: The treatment of 147 patients (84 CABG and 63 valve-patients) was carried out via clinical pathways. Clinical pathway inclusion was 89.1%. Via timely scheduling of therapy and diagnosis, followed by early discharge according to clinical pathways, hospital stay was reduced. Median periods (days) of pathway-patients were shortened: preoperative-stay (1.08±1.31 vs. 1.02±1.16), ICU-stay (2.17±2.52 vs. 1.92±1.94), postoperative-stay (8.01±3.05 vs. 7.11±3.01) and total in hospital-stay (14.0±4.52 vs. 12.0±5.01). The fusion of pathway and patient chart reduced the complexity of documentation, which enhanced employee acceptance and clinical pathway inclusion.

Conclusion: Implementing clinical pathways makes it possible to treat more patients, and the optimised integration of resources saves money. Clinical pathways can improve interdisciplinary teamwork and offer opportunities for integrated forms of organisation, allows precise assessment of clinic costs and augments medical care via direct, streamlined processes.

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C12b - 1
DETERMINANTS OF GASTROINTESTINAL COMPLICATIONS IN CARDIAC SURGERY
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Objective: The aim of this study was to define the determinants of gastrointestinal (GI) complications after cardiac surgery.

Methods: From January 1996 to December 2000, 2802 patients underwent cardiac surgery on cardiopulmonary bypass at our institution. Data were prospectively collected and univariate and multivariate analysis conducted on more than 60 different pre-per and postoperative variables.

Results: Sixty-two GI complications occurred (2.21%). These complications were presented by: GI hemorrhage in 46 cases (1.64%), intestinal ischemia in 6 cases (0.21%), Pancreatitis in 2 cases (0.07%), choledochitis in 2 cases (0.07%) and ileus or colostasis in 6 cases (0.21%). A univariate and multivariate analysis identified 6 independent predictors of GI complications: Redo cardiac surgery (OR = 20.3), prolonged ventilation (OR = 6.2), pneumonia (OR = 4.2), transfusion (OR = 3.6), iotropes drugs (OR = 2.3) and dyspeoa NYHA class IV (OR = 2.1).

Conclusion: In absence of specific clinical signs of GI complications after cardiac surgery, the acknowledge of the predictor factors for GI complications give us the opportunity to identify the patients at risk in order to treat them rapidly.

C12b - 2
USE OF LEVITRONIX CENTRIMAG FOR ACUTE CARDIAC FAILURE
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Objective: Acute cardiac failure is a mostly lethal condition. The availability of a simple and quick to implant, furthermore easy to manage, cardiac support device is mandatory to quickly address this condition. In this abstract we report the experience with Levitronix CentriMag® in a non-transplant center.

Methods: CentriMag® is available at our institution since February 2004. In the 18 months period was used in 3 different patients. In 2 cases were young patients (< 65 yo) postcardiostomy failure (1 bivalone replacement and 1 CABG) and 1 case was a young lady (28 yo) with acute cardiorespiratory failure due to a LES pneumonia. In 2 cases CentriMag(r) was used to sustain an ECMO (MEDOS LT oxygenator applied) in a biventricular cardiopulmonary support. In one case was used as an LVAD. The cannulation sites used were both central (RA or LA to Ascending aorta) or peripheral (Femurfemural cannulation).

Results: All the 3 patients were successfully weaned from the support. In one case acute RV failure developed few ours after weaning from the ECMO, thus a CentriMag(r) RVAD support was promptly initiated; a new weaning was one case acute RV failure developed few ours after weaning from the ECMO.

Conclusion: In our experience the Levitronix CentriMag® was an easy and prompt, off the shelf, cardiac support device. We were forced to experiment different cannulation and support methods due to patient and disease characteristic. In our center, with no transplant and very limited cardiac support experience, the device allowed cardiovascular resuscitation in extremely diseased patients. No extra training was required for the OR or ICU personnel to handle the device or the patients special conditions. According to our experience the Levitronix system, in LVAS, RVAS or with oxygenator, is an optimal first level support for acute cardiogenic shock; due to the long on-the-shelf access and intuitive use, we suggest that should be available in any cardiac surgery center.

C12b - 3
REVIONS DUE TO BLEEDING OR WITHOUT TAMPOONADE IN TEN YEARS PERIOD; SINGLE CENTRE'S RESULTS
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Objective: The purpose of this study is to determine the reexploration rate for bleeding in heart operations in ten years period.

Methods: The study has included all patients performed within cardiopulmonary bypass and OPCAB procedure between January 1995-December 2004. Patients were divided into six different categories as follows; valve replacement(CABG, CABG-CPR, OPCAB, congenital operations with cardio-pulmonary bypass, ascending and/or acute aortic surgery and the others. Results: Overall reexploration rate for bleeding was 1.2% (165/13051) in ten years period. The reexploration rate was 1.09% (67/6120) during the first 5-year period (1995-1999) and 1.4% (98/6931) during the second 5-year period (2000-2004). According to subgroups of the patients; reexplorations rate was the highest in the ascending and acute aortic surgery subgroup (4.65%) and the lowest in the OPCAB subgroup (0.88%). Overall in-hospital mortality rate was 6.6% (11/165). Early revision rate was 85% (139/165) and late revision rate was 15% (26/165). Twenty of the 26 patients in late revision group have used oral anticoagulan due to mechanical valve replacement.

Conclusion: Reexplorations rate for bleeding has increased from 1.09% to 1.4% during the second 5 year period. This may be due to increasing rate in urgency or emergency of patients’ condition or worsening preoperative patients’ condition in time. Ecocardiographic examination in patients being replaced mechanical valve and used oral anticoagulan in the early postoperative period would reveal the presence of pericardial effusion. This will be useful whether the surgical intervention should be done on the later period.

C12b - 4
PLATELET ACTIVITY IN PATIENTS AFTER CORONARY ARTERY BYPASS SURGERY
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Objective: Hypercoagulability after off-pump coronary artery bypass grafting (CABG) as a one of possible cause of early graft failure is currently often discussed. We assessed platelet activity after off-, and on-pump CABG surgery.

Methods: Twelve off-pump and twelve on-pump surgeries were performed in a prospective randomized study. Blood samples were drawn before surgery, immediately postoperatively, on days 1, 2, 5 and day 30 after surgery. Platelet activity was determined by membrane expression of platelet antigen CD41 (part of GpIIb/IIIa integrin), CD62 (von Willebrand factor receptor) and CD 62P (Pselectin) by flow cytometry as mean fluorescence intensity (CD41, 42b) or % of positive cells (CD62P). Platelet aggregability was measured by arachidonic acid (ARA)-aggregometry.

Results: Baseline characteristics and intraoperative variables were comparable in both group, except for surgery duration and grafts count. Post-operative membrane antigen expression was significantly and transiently increased in off-pump and decreased in on-pump CABG compared with pre-operative values. Maximum difference of antigen expression in the off-pump was observed for CD41 on day 1 (12.5±3 vs. 12.2±1.5, P = 0.05) and for CD62 on day 2 (2.5±1.5 vs. 1.3±0.5, P = 0.05) and for CD42 on day 5 (12.2±1.5 vs. 11.7±1.2, P = 0.05) vs. 12.2 ±1.5 vs. 11.7±1.2, P = 0.05; CD62P: 1.3±0.4 vs. 1.4±0.4, P = n.s.). No changes to preoperative values were evident in both group on day 30. Platelet ARA-aggregation was significantly decreased immediately after operation and on day 1 in both groups (70%, P=0.05) and the decrease was sustained until day 30. However, there was a surprisingly transient increase of ARA aggregation on day 2 compared to day 1 in off-pump surgeries.

Conclusion: The platelet hyperactivity determined by membrane expression of platelet antigen seems to be present in early post-operative period in off-pump CABG surgery. Significant antiplatelet therapy with aspirin seems to be insufficient in early post-operative period in off-pump CABG surgery.
C12b - 5 ANGIOGRAPHIC RESULTS OF CORONARY ENDARTERECTOMY
Sareyyupoglu B., Yildirim O., Kiral K., Rabus Bulent M., Anazit H., Kara I., Polat A., Yakut C.
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Objective: To evaluate the patency of endarterectomized coronary vessels, we studied patients having recatheterization after coronary artery bypass grafting.
Methods: Clinical and angiographic variables were analyzed in 60 study patients who had coronary endarterectomy (CE).
Results: Sixty patients had 179 anastomoses with 69 CE's. The left coronary artery was the most commonly endarterectomized vessel (37 of the 69 anastomoses). The left internal mammary was grafted in 48 patients (80%). At a mean of 23.1 months of follow-up, significantly fewer bypass grafts were patent compared with nonendarterectomized vessels (54% of endarterectomized vessels compared with 70% of nonendarterectomized vessels in study patients). Distal run-off in endarterectomized vessels were excellent in 61% of CE's.
Conclusion: These results show that patency in bypass grafts to endarterectomized vessels is less common than in nonendarterectomized vessels. We consider that elective CE should be reserved only for arteries that are truly inoperable by other means.

C12b - 6 RADIAL ARTERY AS A CONDUIT IN CORONARY REVASCULARIZATION
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Objective: From a purely surgical stand point, the radial artery represents an excellent conduit for coronary bypass graft. Methods: The study conducted on 90 patients who underwent CABG utilizing RA as additional arterial conduits at south hospital in Amiens university and Alazhar university hospital between January 2004 to May 2004, age were ranging (45-65) (mean 55), male (81) female (9).
Results: Hand ischaemia: No evidence of hand ischaemia representing 0.00%. Parasthesia: 12 cases were suffered from parasthesia of the thumb and radial side of the forearm representing 13.3%. Coronary Angio: Finally a diagnostic coronary angiography was performed after 1 1/2 years from the operation and showed 87 patients with patent radial artery representing 96.7% and 3 cases with total RA occlusion representing 3.3%. Conclusion: It was concluded that Radial artery as an arterial conduit possesses an excellent early patency rate (96.7%), according to the following precautions: Safe harvesting of the RA as a pedicel, use of metal clips, pharmacologic dilatation and selection of target native vessel for revascularization.

C12b - 7 PATIENTS AND COMPLICATIONS WITH “OFF-PUMP” VERSUS “ON-PUMP” CARDIAC SURGERY - A SINGLE SURGEON EXPERIENCE
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Objective: Off-pump operations without the use of extracorporeal circulation (ECC) are growingly used for patients with coronary artery disease (CAD). We report about a single surgeon experience implementing the “off-pump” technique.
Methods: Between 11/2004 and 12/2005 41 consecutive patients with coronary artery bypass grafting (CABG) in “off-pump” technique without using ECC (off-pump group) were compared to a control group of 61 patients with CABG using ECC (on-pump group). All operations performed by the same surgeon at the same institution. All “off-pumps” were performed complete arterial using both internal thoracic arteries (ITA) in T-graft technique, while in the “on-pump” group only the left ITA and venous grafts were used.
Results: Age (63.0±10.1 vs. 66.6±9.7 years), body-mass-index (27.2±2.8 vs. 27.7±3.9 kg/m²) and gender (male, 84.2 vs. 85.2%) were comparable in both groups (off-pump vs. on-pump, all P = ns). All major preoperative risk factors (smoking, hypertension, previous myocardial infarction) were comparable between the groups. However, peripheral arterial vessel disease (5.1 vs. 8.1%, P = 0.043) and COPD (3.0 vs. 10.1%, P = 0.003) were significant more often in the “off-pump” group. Operation time was significantly longer in the “off-pump” group (218.31 vs. 169.55 min, P<0.001). The time on the ventilator (8.5±47.2 vs. 8.0±39.4 hr) time on the intensive-care-unit (ICU) (2.87±5.0 vs. 1.75±3.0 days) and number of by-passgrafts (2.50±0.51 vs. 2.69±0.65) were not significantly different. However, the rate of postoperative atrial fibrillation (AF) was significantly elevated in the “off-pump” group (26.3 vs. 8.2%, P = 0.016). Conclusion: The “off-pump” technique was primarily performed in patients with COPD and pAVD, which are relative contraindication using ECC. Despite a longer operation-time severe complications did not occur. The high incidence of AF needs to be further evaluated.

C12b - 8 ASPIRIN RESISTANCE AFTER CABG AND ROLE OF ALTERNATIVE DOSE REGIMEN IN PROPHYLAXIS
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Objective: Aspirin resistance describes the failure of aspirin to produce an expected biological response. Although it has been documented that patients undergoing CABG have high incidence of postoperative transient aspirin resistance, the causes and treatment of this phenomenon are still unknown. This study is planned to resolve these questions and determine if aspirin resistance is related with early graft patency.
Methods: Forty patients undergoing elective CABG will be included in this study. Aspirin resistance will be measured by optical platelet aggregation method and patients whom aspirin resistance is documented before the operation will be excluded from the study. Patients will be divided into two groups on the 1st postoperative day. In group I, patients will receive 100 mg of aspirin, once daily; but in group II, 100 mg of aspirin will be given three times a day. On the 1st, 5th and 10th postoperative day, aspirin resistance, C-reactive protein (CRP) levels, lipid profile and platelet count will be measured. Then, coronary angiography will be performed to all patients on multislice CT one month after the surgery.
Results: The effects of postoperative reactive trombocytosis, high levels of CRP, and alternative platelet dose regimen on postoperative aspirin resistance will be revealed by binary logistic regression analysis.
Conclusion: The results will help us to understand the role of inflamma- tory response and increased platelet turnover triggered by CABG on aspirin resistance ethiology. The effect of alternative platelet dose regimen will also be studied. Finally, the relation between early graft patency and aspirin resistance will be shown with control coronary angiography on mul- tislice CT.

C12b - 9 DOES RADIAL ARTERY HARVESTING AFFECTS THE FOREARM BONE STRUCTURE?
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Objective: There have been no reports of assessment of the effect of radial artery harvesting on forearm bone mineral densitometry.
Methods: Patients scheduled for radial artery harvesting were prospectively randomized and 33 patients were studied before and after CABG operations. Bone mineral densities of the operated forearms of the patients were measured preoperatively and postoperatively. Patients will be followed for one month after the surgery.
Results: The effects of postoperative reactive trombocytosis, high levels of CRP, and alternative platelet dose regimen on postoperative aspirin resistance will be revealed with binary logistic regression analysis.
Conclusion: The results will help us to understand the role of inflammatory response and increased platelet turnover triggered by CABG on aspirin resistance ethiology. The effect of alternative platelet dose regimen will also be studied. Finally, the relation between early graft patency and aspirin resistance will be shown with control coronary angiography on multislice CT.
C12b - 10
ON PUMP VERSUS OFF PUMP CABG IN CRITICAL LEFT MAIN STEM STENOSIS
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Objective: The aim of this study was to compare the outcome between two groups of consecutive patients (pts) with LM stenosis >50% using cardiopulmonary bypass (CPB) vs. off pump coronary artery grafting.

Methods: Three hundred and eighty-two pts with LM stenosis who underwent direct myocardial revascularization with (265 pts) and without (117 pts) CPB from 01-01-2004 to 31-08-2005 in a single center were included in the study. The following variables were analyzed: age, gender, CCS, EF, EuroScore, diabetes, neurological problems before and after surgery, hypertension, hyperlipidemia, PVD, COPD, numbers of grafts, day of stay, extubation time, ICU time, IABP, drainage, blood transfusion, inotropic support, perioperation MI, reoperation, wound infections, death.

Results: Even though patients from the off pump group were preoperatively significantly sicker as measured by EuroScore (4.7 vs. 3.8 P<0.004), stroke rate (7.7% vs. 3.0% P<0.05), with morphological changes of carotid arteries (17.9% vs. 9.1% P<0.05) the mortality and morbidity did not differ significantly after operation. On pump patients received a higher number of grafts (3.2 vs. 2.4 P<0.001). In postoperative period more on pump patients needed blood transfusion (54.5% vs. 17.1% P<0.001).

Conclusion: Beating heart surgery compared to on pump bypass surgery in pts with LM disease is safe and effective and carries a decreased need for blood transfusion.

C12b - 11
LOCAL MORBIDITY ASSOCIATED WITH ROUTINE USE OF SKELETONIZED RADIAL ARTERY IN CABG SURGERY
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Objective: The objective of the study was to evaluate the local complications in the donor arm for radial artery, in a population where it has been used as the second arterial conduit for coronary artery bypass grafting (CABG) procedures.

Methods: One hundred and twenty-three consecutive patients who underwent CABG surgery in our Institution from May 2004 to April 2005, using the radial artery as the second arterial conduit, with a uniform protocol for selection, harvesting and handling of the graft, were evaluated. The mean age of the group was 64.0±0.8 years (range 44-81), 100 male (81.3%) and 23 (18.7%) female. The functional class for angina was 2.6±0.5. They presented 2.5±0.6 diseased vessels per patient and ejection fraction (EF) was 53.5±8.9%. In the immediate postoperative period and in following month 0.24±.012 and in following month 0.17±0.11. Superficial radial nerve function, either in the immediate postoperative period or in the follow-up. patients were asked to evaluate the pain in the upper limb was 53.5±8.9%. In the immediate postoperative period and after one month was 53.5±8.9%.

Results: RA was used in 123 patients, 70 (56.9%) of which underwent a personal interview. There was not any case of hand ischemia or motor dysfunction, either in the immediate postoperative period or in the follow-up. There were no wound infections and no reinterventions due to bleeding of the harvest site. Mean subjective evaluation of pain was in the postoperative period 0.24±0.012 and in following month 0.17±0.11. Superficial radial nerve was affected in 21.4% (15 cases) and cutaneous branch of musculocutaneous nerve in 14.3% (10 cases). Force was evaluated as 4.7±0.1.

Conclusion: Use of radial artery as the second choice arterial conduit carries a very low incidence of local morbidity associated to the harvest site complications. When these complications appear, they do not interfere with daily activity of the patients. We recommend careful monitoring of these patients and we firmly believe that the use of radial artery can be extended to the general population who presents for CABG surgery.

C12b - 12
INFLUENCE OF SEX AND AGE ON LONG-TERM SURVIVAL IN SYSTEMATIC OF PUMP CORONARY ARTERY BYPASS SURGERY
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Objective: Off-pump coronary artery bypass surgery (OPCAB) is used alternatively to conventional "on-pump" approach for coronary artery revascularization. Sex and age have been shown to adversely affect operative mortality risk as well as long-term survival. The Aim of the study is to evaluate the effect of age and sex on long-term mortality following OPCAB surgery.

Methods: We have prospectively followed up 900 consecutive and systematic OPCAB patients operated between September 1996 and April 2003 representing 98% of all coronary revascularizations during the same time frame. Follow-up was complete in 99% of the cohort.

Results: Average age was 64±10 years, there were 198 women (21%) and 702 men (79%), 73% had triple vessel disease, in 69% surgical indication was unstable angina and 5.3% were operated in emergency. On average 3.2 grafts/patient were performed. Women were older (66±10 vs. 63±10 years P<0.0001). Operative mortality was 1.1%, 0.9% in men and 2% in women (P=ns). By logistic regression analysis, peripheral vascular disease (OR: 14.2, P=0.02), and CKMB (OR: 1.01, P=0.06) were the main risk factors for operative mortality. Eight-year survival was 84±2.9% for men and 69.3±7.8% for women. (P=0.004). By Cox regression analysis, age (OR: 1.07, P<0.001), incomplete revascularization (OR: 3.54, P<0.001), peripheral vascular disease (OR: 1.67, P=0.05), and diabetes (OR: 1.75, P=0.03) were significant predictors of long-term mortality. When revascularization was performed before 65 years of age, sex was identified as an adverse risk factor on survival (OR: 7.7, P=0.006) but not after (OR: 0.9, P=0.8).

Conclusion: In this series of systematic OPCAB surgery, sex was shown to adversely affect longterm survival mainly in younger patients.
C12b - 14
IS THE LEARNING CURVE A REAL PROBLEM IN OFF-PUMP CORONARY ARTERY SURGERY?
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Objective: Off-pump coronary artery bypass grafting (OPCAB) is still a relative new and difficult operative method. Some centers have implemented special courses to decrease problems during offpump coronary surgery training. In the current study we try to answer the question if the residents OPCAB training had a negative effect on hospital results. We compared the OPCAB outcomes of experienced cardiac surgeons to residents.

Methods: From March 2001 to November 2004 OPCAB was performed in 1372 patients (39% of all coronary surgery). Consultants (Group I) did 965 OPCAB procedures (38% of their coronary cases), while residents (Group II) employed this technique in 407 patients (41% of all their coronary cases).

Results: The number of preoperative comorbidities and mean EuroSCORE were similar in both groups, although more patients with low risk were operated by residents. The mean number of distal anastomosis was 2.2±0.8 vs. 2.3±1.3 in residents patients. The hospital mortality was 1.8% in Group I and 0.7% in Group II. This difference also did not differ significantly, as well as the number of postoperative myocardial infarction and other hospital complications.

Conclusion: Off-pump coronary artery bypass grafting have an established position and can also be performed safely by residents. The learning curve is not a real problem when teaching program is careful and the training program should start early.

C12b - 15
A COMPARISON OF RESULTS OF LESS INVASIVE SURGICAL TREATMENT OF CORONARY DISEASE WITH OR WITHOUT YATS HARVESTING OF LIMA ACCORDING TO VARIOUS NON-INVASIVE EXAMINATIONS
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Objective: To assess the early and mid-term (6-12 months) results of surgical treatment of single vessel coronary disease (Left Anterior Descendent Artery) by Minimally Invasive Direct Coronary Artery Bypass (MIDCAB) and Endoscopic Atraumatic Coronary Artery Bypass (EACAB).

Methods: A prospective study of 100 patients (50 in each group) operated from May 2002 to September 2005 was performed. Patients in both groups were similar in demographic data. All patients had angiography, Dobutamine stress echocardiography and SPECT done preoperatively. Some of them also had mammography performed preoperatively. Study performed postoperatively and after 12 months included physical examination, Dobutamine stress echocardiography, angiography with mammography and SPECT.

Results: Duration of MIDCAB operation and occlusion time of LAD during this had mammariography performed preoperatively. Study performed postoperatively and after 12 months included physical examination, Dobutamine stress echocardiography, angiography with mammography and SPECT.

Conclusion: Off-pump coronary artery bypass grafting have an established position and can also be performed safely by residents. The learning curve is not a real problem when teaching program is careful and the training program should start early.

C12b - 16
OFF-PUMP CABG: IS THE SIMPLEST WAY THE BEST?
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Objective: In spite of publications, which display advantage of beating heart operations, there is an opinion among surgeons concerning limitation of using off-pump technique (intramural coronary artery, low ejection fraction, small diameter of vessels, repeated interventions). Many surgeons think that it is necessary to use special devices for more extensive using off-pump technique (intracoronary shunt, hemopump etc.). The purpose of this work was to study a necessity of using special devices in case of total conversion to off-pump technique.

Methods: 2459 patients underwent coronary artery bypass grafting (CABG) from January 2000 to November 2005 in our department. Off-pump CABG were performed with using compression type stabilizer. We have never used intracoronary shunts, cell-savers, warm up devices. Also preconditioning methods were not implemented. We always performed proximal anastomosis first and distal one after that.

Results: During 2000 year 49.7% of operations were performed with using off-pump technique, 2001 -86.8%, 2002-98.1%, 2003-97.8%, 2004-97.3%, 2005-98.1%. Among 2459 OPCAB 2144 (87.2%) were elective, 315 (12.8%) were urgent and emergency. Intramural coronary artery were in 209 (8.5%) cases, LVEF<40%- in 288 (11.7%), LVEF <30% - in 39 (1.6%), re-operation - in 27 (1.1%). Mean graft number was 3.0±0.4 from 1 to 7). Conversion to on-pump CABG was necessary in 47 (1.9%) cases. Rate of low cardiac output syndrome decreased from 18.5% in 2000 to 2.0% in 2005. The intraoperative total blood loss was 374±35ml. In 2000 mortality (all CABG operations) was 6.4%; in 2001- 2.0%; in 2002- 2.1%; in 2003-1.4%; in 2004-0.5%; in 2005- 0.5%. The influence of traditional risk factors (female, low LVEF, diabetes) was eliminated as a result of OPCAB. Operative mortality was lower among women than among men (0.4% and 0.5%). In the presence of LVEF<40% mortality was 0% compared to 0.6% in the cases of LVEF<40%. Mortality was 0.2% in the diabetics group compared to 0.5% in the patients without diabetes. The postoperative length of stay decreased from 10.1 days in 2000 to 4.8 days in 2005.

Conclusion: Off-pump technique can be used practical in all cases of IHD, with the exception for patients with cardiogenic shock. Using of this method may significantly decrease mortality. OPCAB method does not need another special devices, except for stabilizer.

C12b - 17
REPAIR OF POST-INFARCT VENTRICULAR SEPTAL RUPTURE WITH INFARC EXCLUSION TECHNIQUE: EARLY RESULTS
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Objective: Ventricular septal rupture is a rare but life-threatening complication of acute myocardial infarction. Mortality with medical treatment only is extremely high, over 90% whereas mortality after surgical repair varies between 19 and 60% in different studies. Despite optimal surgical treatment, patients with septal rupture have a high in-hospital mortality rate. This study reviews our experience based on early closure of the septal rupture with infarct exclusion technique.

Methods: Data were collected on a total of 16 consecutive patients undergoing surgical repair of a post-infarct ventricular septal rupture between 1 June 2000 and 1 November 2005 in our clinic. There were 10 men and 6 women. Mean age was 65.6±5.53, ranging from 52 to 74 years. All patients had echo-cardiography and coronary angiography before operation. Rupture was closed with infarct exclusion technique for all the patients. Preoperative, operative and postoperative information was collected from patient cohorts.

Results: The median time from myocardial infarction to diagnosis of the ventricular septal rupture was 4.3±1.7 days. Thirteen of the patients had intraaortic balloon pump inserted, and 5 of them ventilated preoperatively. Surgical repair followed between 1 and 4 days after diagnosis. Nine anterior and seven posterior ventricular septal ruptures were found. Additional coronary artery bypass surgery was performed with a median of 1.25 grafts in 13 patients (81.25%). No surgical intervention was needed for bleeding. The mean postoperative embolization time was 34.13±45.11 h, ranging from 10 to 192.

Overall 30-day mortality was 18.7%. The mean stay in intensive care unit was 2000 and 1 November 2005 in our clinic. There were 10 man and 6 women. Mean age was 65.6±5.53, ranging from 52 to 74 years. All patients had echo-cardiography and coronary angiography before operation. Rupture was closed with infarct exclusion technique for all the patients. Preoperative, operative and postoperative information was collected from patient cohorts.

Results: The median time from myocardial infarction to diagnosis of the ventricular septal rupture was 4.3±1.7 days. Thirteen of the patients had intraaortic balloon pump inserted, and 5 of them ventilated preoperatively. Surgical repair followed between 1 and 4 days after diagnosis. Nine anterior and seven posterior ventricular septal ruptures were found. Additional coronary artery bypass surgery was performed with a median of 1.25 grafts in 13 patients (81.25%). No surgical intervention was needed for bleeding. The mean postoperative embolization time was 34.13±45.11 h, ranging from 10 to 192.

Overall 30-day mortality was 18.7%. The mean stay in intensive care unit was 20
Conclusion: Ventricular septal rupture is rare, but fatal sequel of acute myocardial infarction. Early surgical repair is essential to prevent other organs. With infarct exclusion technique the infarcted area was completely excluded from the left ventricular cavity with a synthetic patch. The repair was very stable, which results in no surgical reintervention for residual shunt or bleeding. Patch closure of the ventricular septal rupture with infarct exclusion technique produced acceptable results. Concomitant coronary artery bypass grafting might be beneficial to control added risk of an associated coronary artery lesion. Prompt diagnosis followed by early surgical intervention is essential for patients with ventricular septal rupture.

C12b - 19

CLINICAL SIGNIFICANCE OF HEPARIN BONDED CIRCUITS WITH REDUCED VERSUS FULL SYSTEMIC ANTICOAGULATION PROTOCOL IN CORONARY ARTERY BYPASS GRAFTING

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Objective: In contrast to widespread popularity of novel heparin coated extracorporeal circuits (HECC), uncertainty exists whether reduced anticoagulation is feasible and documented positive outcome is due to heparin dosing or coating itself. This study compares novel H-ECs with uncoated circuits under challenging clinical setting including biomaterial evaluation.

Methods: Over a 6 month period, 40 patients undergoing reperfusion for coronary revascularization were prospectively randomized to one of the two heparin coated circuits (n = 20): Group 1-Hyaluronan based and Group 2- Human albumin based heparin bonded. In each group, half of the patients (n = 10) received low systemic heparin (125 IU/kg, ACT > 250) or full dose. Group 3 (n = 40) consisted of uncoated control circuits with full heparin regimen. Blood samples were collected at T1: Following induction of anesthesia; T2: Following heparin administration; T3: 15 min after CPB; T4: Before cessation of CPB; T5: 15 min after protamine reversal and T6: ICU. Hematologic outcome was evaluated by thromboelastography, free plasma hemoglobin and thrombin-antithrombin III (TAT). Blood cell adhesion capability was analyzed on optical microscopy and scanning electron microscopy. Desorbed protein amount on circuits was evaluated by spectrophotometer. Fibers were placed in tissue culture and attached cells were counted. Perioperative follow-up was thoroughly monitored.

Results: In low dose protocol, IL-2 levels (pg/ml) were lower at T3: 30±4 and T4: 24±4 in Group 1; T3:29±4 and T4:24±4 in Group 2 vs. control (T3:84±6, T4:55±6, P<0.05). Postoperative hemorraghe was 465±50 ml in Group 1 and 438±50 ml in Group 2 (684±50 in control, P<0.05). percent change of CD11b/CD18 was significantly lower vs. control in Group 1 (T3:29±4, T4:5±1, T5: 14±2) and Group 2 (T3:26±4, T4:11±2). At T5, TAT-max (ng/ml) was 174±35 in Group 1, 180±40 in Group 2 and 139±30 in control (P<0.05). The incidence of atrial fibrillation was significantly lower in low dose heparin groups. In full dose protocol, IL-2 levels were lower at T4:33±4 in Group 1; T3:35±4 in Group 2 (P<0.05). Postoperative hemorrhage was 510±50 ml in Group 1 and 495±50 ml in Group 2 (P<0.05). Percent change in CD11b/CD18 was significantly lower vs. control in Group 1 (T4:14±2) and Group 2 (T4:19±2). At T5, TAT-max was 185±50 in Group 1, 189±40 in Group 2 and 139±30 in control (P<0.05).

Conclusion: Reduced systemic heparinization combined with H-ECC is biochemically and clinically superior, resulting in low thrombin formation. Both strategies with H-ECC provided better perioperative clinical outcome and biocompatibility vs. uncoated controls.

C12b - 20

IS ALLEN’S TEST SUFFICIENT BEFORE RADIAL ARTERY HARVESTING?


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Objective: The purpose of this study was to determine if the Allen’s test is a sufficient method for the preoperative evaluation of the forearm artery circulation before radial artery (RA) harvesting for CABG.

Methods: A total of 185 patients scheduled for RA harvest were prospectively randomized into Group A and Group B. In Group A (n = 120), to assess the collateral circulation of the hand preoperatively, the patients were routinely evaluated by modified Allen’s test and index finger pulse oximetry. In Group B (n = 65), patients additionally evaluated by color flow Doppler ultrasonography (USG) preoperatively and postoperatively. Preoperative and postoperative patients’ data were compared.

Results: In the preoperative evaluations of Group A with Allen’s test with the use of pulse oximetry, 1 patient excluded from RA harvest because of positive test result. In the USG evaluation of this patient, we did not observe any anatomic variations; however we observed insufficient palmar arch test and peak systolic velocity of the ulnar artery was 25 cm/s which was considered as insufficient flow. In the preoperative evaluations of Group B with Allen’s test with the use of pulse oximetry, none of the patients excluded from RA harvest because of positive test and in the preoperative evaluations with USG none of the patients showed any anatomic variations of the forearm artery circulation. However, 5 patients (7.7%) excluded from RA harvesting because of RA pathology in ultrasonography findings. In the USG evaluations 3 patients (4.6%) showed diffuse arteriosclerosis and 2 patients (3.1%) showed diffused calcification. As a result 1 patient from Group A and 5 patients from Group B excluded from RA harvesting (0.8%, n = 1/120 vs. 7.7%, n = 5/65, P = 0.021). After two years follow-up, neither the patients in group A nor in group B were not complaining of any form of ischemic symptoms except minimalparesthesia at the fingertips in 2 patients in Group A (1.7%, n = 2/120 vs. 0%, n = 0/65, P = 0.542).

Conclusion: Although the Allen’s test with the use of pulseoximetry is a sufficient and safe method to assess the hand collateral blood flow preoperatively, it is not a method to evaluate the graft quality. In Group B, the incidence of pathologic radial arteries which was inadequate to use as a graft was 7.7%. Therefore, preoperative evaluation of the RA with USG may thus be recommended to evaluate the hand collateral blood flow and the graft quality preoperatively to prevent unnecessary forearm exploration and inadvertent use of a diseased conduit to improve the graft patency.
C12b - 21
SINGLE SURGEON EXPERIENCE IN CORONARY BYPASS SURGERY
- COMPARISON OF CABG VERSUS OPCAB TECHNIQUE IN OVER 600 CASES
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Objective: The premise of coronary revascularization without cardiopulmonary bypass (off-pump coronary artery bypass graft [OPCAB]) proposes that patient morbidity, complications and potentially mortality can be reduced without compromising results of conventional revascularization techniques (CCABG). This retrospective study aimed to assess the results and outcome after coronary bypass surgery using two surgical techniques by one surgeon.
Methods: From Coronary Bypass Surgery Registry 675 consecutive patients were analyzed having undergone direct myocardial revascularization with (n=270, group CCABG) and without (n=405, group OPCAB) extracoronary circulation from March 2001 to November 2003. After matching age, gender, extent of coronary artery disease the two groups were compared in two revascularization modalities. Preoperative and postoperative variables were analyzed such as bleeding, myocardial infarction, inotropic support, IABP, wound infection. The number of coronary artery disease vessels detected in coronary angiography was compared to the number of performed grafts in order to evaluate complete revascularization. The EuroSCORE risk stratification tables were used to evaluate the outcome after surgery for both groups.
Results: There was one operative death in CABG group in this period. Perioperative mortality was lower in OPCAB group. The mortality rate was in group CCABG 2.6% (7/270) vs. 1.7% (7/405) in OPCAB group. Mortality (CCABG vs. OPCAB) was in the low 0.9% (1/115) vs. 1% (2/212), medium 1%, 0% (1/99) vs. 2, 5% (4/160) and 9, 0% (5/56) vs. 1, 4% (1/73) P=0.05 in high risk group according to EuroSCORE. The incidence of complications (CCABG vs. OPCAB) such as low cardiac output (inotropic support) 33% (88/270) vs. 19% (75/405) P=0.001, IABP% 7% (19/270) vs. 3% (12/405), myocardial infarction 3.3% (9/270) vs. 2.5% (10/405), reoperations 6% (16/270) vs. 5.4% (22/405), atrial fibrillation 6.7% (18/270) vs. 3.5% (14/405) P=0.05, neurological complications 4.1% (11/270) vs. 2% (8/405) was lower in OPCAB group.
Conclusion: Evidence suggests that beating heart surgery, in one surgeon’s hands, providing recurrent surgical technique is a safe method for myocardial revascularization with comparable good results to conventional techniques. The statistical analyzes showed beneficial factors such as lower incidence of used inotropic support, IABP and incidence of atrial fibrillations in patients during postoperative period operated on without extracorporeal circulation.

C12b - 22
RADIAL ARTERY IN CORONARY ARTERY BYPASS GRAFTING
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Objective: The aim of this publication is to analyse the results of CABG using linear, sequential and T-grafts of radial artery.
Methods: During 2000-2005 years 386 operations with radial artery graft were done. The mean age of the patients was 54.8 years. Male gender was 84.7%. Angina of III-IV class was in 78.0% of the patients. Unstable angina was in 16.1% of the cases. History of myocardial infarction was in 61.1% of the patients. Left main trunk disease was in 12.6% of the cases. In 71.4% of the cases linear grafts with radial artery were performed - 1st group, 19.3% of the arteries were used as a sequential graft - 2nd group, 9.3% were used as a T-graft with left internal thoracic artery - 3rd group.
Results: In all cases during operation and in postoperative period there were no ischemia in radial artery area. The mean time of intensive care unit stay was 1.5, 1.7 and 1.7 days in all groups (P>0.05). 4 (1.5%) patients died in group 1 and in group 2 and 3 mortality was 0%. In 12 (5.0%) of 242 investigated patients there was a recurrence of angina in the follow-up period from 8 months to 4 years.
Conclusion: The use of different surgical technique in CABG with radial artery does not prolong the operation time and with good immediate and follow-up results and could be recommended for multivessel injury correction.

C12b - 23
RADIAL ARTERY AS A CONDUIT IN CORONARY REVASCULARIZATION
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Objective: From a purely surgical stand point, the radial artery represents an excellent conduit for coronary bypass because: It is an arterial graft used to systemic pressure, its diameter, slightly greater than ITA corresponds perfectly to the diameter of most coronary arteries, the quality of its wall (thick and resistant) offers very good technical advantages to its use, its length (usual more than 20 cm) allows it to reach all target vessels on the surface of the heart, ease of harvesting, concomitant harvesting during take down of ITA, well tolerated scar and avoiding leg incision and early mobilization.
Methods: The study conducted on 90 patients who underwent CABG utilizing RA as additional arterial conduits at south hospital in Amiens university and Alazhar university hospital between January 2004 to May 2004, age were ranging (45-65) (mean 55). male (81) female (9). Exclusion Criteria: The exclusion criteria’s including the following factors: radial artery dependency, prior trauma or surgery to the relevant upper limb, known subclavian, or brachial artery stenosis, raynouds phenomenon, scleroderma, RA calcifications and chronic renal failure planned for haemodialysis.
Results: Hand ischaemia: No evidence of hand ischaemia representing 0.00%. Parasthesia: 12 cases were suffered from parasthesia of the thumb and radial side of the forearm representing 13.3%. Coronary Angio: Finally a diagnostic coronary angiography was performed after 1 1/2 years from the operation and showed 87 patients with patent radial artery representing 96.7% and 3 cases with total RA occlusion representing 3.3%.
Conclusion: It was concluded that Radial artery as an arterial conduit poses an excellent early patency rate (96.7%). This could to be attributed to the following precautions in the use of radial artery as a conduit in CABG: Safe harvesting of the RA that included RA removal as a pedicle instead of its skeletonization and use of metal clips instead of diathermy to minimize traumatizing handling of the artery and it’s subsequent spasm, avoidance of mechanical dilatation of the RA in order to minimize endothelial injury as the latter has a central role in preserving a high patency rate of the used graft, so a pharmacologic dilatation should be used instead of mechanical dilatation, the strategy of selection of target native vessel for revascularization is important in the surgical technique so that the target coronary artery for the RA must be the vessel with the expected critical.

C12b - 24
ON-PUMP BEATING HEART CORONARY ARTERY BYPASS GRAFTING IN HIGH RISK
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Objective: Aortic cross-clamping causes sub-clinical ischemic damages to myocardium and other organs in patients who undergo coronary artery bypass grafting (CABG). These damages are reversible and not detectable in elective patients with low perioperative risks but can represent precipitating factors in high risks patients. Moreover, it’s not always possible to perform off-pump surgery. Hence, an alternative procedure in these selected patients can be the hybrid on-pump beating heart procedure. It permits to avoid ischemic damages to myocardium and other organs. We described our experience with on-pump beating heart myocardial revascularization in high risks patients.
Methods: From January 1998 to November 2005, 100 high risk patients were referred to our Institute for surgical myocardial revascularization. The mean age was 66.6±8.9 years (range 43-86 years). 86% of the group was male. 43 patients were in NYHA functional class III-IV. 5% had previous stroke, 23% chronic renal failure, 19% Chronic obstructive pulmonary disease, 27% diabetes, 15% previous coronary artery bypass grafting. 64 patients had previous myocardial infarction while 23% of the group had recent myocardial infarction an 5 for emergency revascularization. CABG was performed on-pump beating heart myocardial revascularization because: It is an arterial graft used to systemic pressure, its diameter, slightly greater than ITA corresponds perfectly to the diameter of most coronary arteries, the quality of its wall (thick and resistant) offers very good technical advantages to its use, its length (usual more than 20 cm) allows it to reach all target vessels on the surface of the heart, ease of harvesting, concomitant harvesting during take down of ITA, well tolerated scar and avoiding leg incision and early mobilization.
Results: The mean number of grafts was 2.4±0.7. 97 patients had a graft on left descending coronary artery. No patients requested Intra Aortic Balloon Pump (IAPB) during and after surgery. No patients had perioperative stroke,
acute respiratory failure, mediastinitis. Only 1 patients (1%) developed perioperative mortality and morbidity.

Conclusions: On-pump beating heart CABG can represent a safe surgical alternative to traditional on-pump surgery in high risk patients, when off-pump CABG is not feasible. It can permit to avoid myocardial ischemia and organ damages related to continuous flows when surgical ischemia could affect perioperative mortality and morbidity.

Objective: Left main coronary stenosis, including ostial lesions, is conventionally treated by coronary bypass surgery. However, this approach restores a less physiologic, retrograde perfusion of the myocardium, that leads to occlusion of the left main coronary artery. Direct surgical reconstruction of ostial LMCA avoids these potential drawbacks.

Methods: From May 1995 until December 1997, 11 surgical angioplasties have been performed in our unit. Eight pts in CCS class II and 3 pts in CCS III. One patient had undergone coronary bypass prior to angioplasty of the LMCA. Patients were all follow-up clinically and with echocardiography.

Results: Mean age of patients 53 years (range 33-70). Male to female ratio was 1.75. The left main coronary stem was approached anteriorly in all patients. The onlay patch consisted of saphenous vein in all our cases. There were no early deaths or perioperative myocardial infarctions. During mean follow up of 8 years, there were 2 deaths (one non-cardiac and one due to unknown cause), making an 8 year all causes survival of 81%. None of those patients had any cardiac events or received repeated coronary intervention. The post-operative course was uneventful in all patients. All patients underwent follow-up transeosophageal echocardiography (at mean post-op time of 7.5 months). This demonstrated a wide open left main coronary artery normal flow pattern by pulsedwave Doppler, and no aneurysmal dilatation or calcification of the onlay patch in 10 patients. In one case the left ventricular function was compromised compared to its preoperative status and the echo failed to demonstrate flow on the anterior descending artery which had received a LIMA graft.

Conclusion: In conclusion, surgical reconstruction of the LMCA is safe and effective for the treatment of ostial left main stenosis. Re-institution of normal blood flow through the left main coronary artery possibly confers advantages over multiple and sequential bypass surgery to more distal branches.

Objective: Surgical repair of postinfarction left ventricular aneurysm repre

C12b - 25
LONG-TERM FOLLOW-UP OF LEFT OSTIAL STENOSIS SURGICAL RECONSTRUCTION

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Objective: Left main coronary stenosis, including ostial lesions, is conventionally treated by coronary bypass surgery. However, this approach restores a less physiologic, retrograde perfusion of the myocardium, that leads to occlusion of the left main coronary artery. Direct surgical reconstruction of ostial LMCA avoids these potential drawbacks.

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Conclusion: In conclusion, surgical reconstruction of the LMCA is safe and effective for the treatment of ostial left main stenosis. Re-institution of normal blood flow through the left main coronary artery possibly confers advantages over multiple and sequential bypass surgery to more distal branches.

C12b - 26
ON-PUMP BEATING-HEART LEFT VENTRICULAR ANEURYSM REPAIR: OUTCOMES AND MIDTERM FOLLOW-UP

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Objective: Surgical repair of postinfarction left ventricular aneurysm repre

C12b - 27
INFLUENCE OF FEMALE GENDER IN OFF-PUMP CORONARY BYPASS SURGERY

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Objective: Female gender is declared as an independent risk factor for adverse outcome after conventional coronary artery bypass surgery. The profit of female patients from off-pump coronary bypass (OPCAB) surgery, with regard to perioperative morbidity and mortality, is not clearly assessed. The aim of this retrospective clinical study was to evaluate the influence of the gender on the early outcome in OPCAB surgery.

Methods: In a three years period, a total of 225 patients, 49 female and 176 male, with a mean age of 64.7±11.0 years and 63.5±10.7 years respectively, underwent elective OPCAB surgery for multivessel disease at our institution. Preoperative clinical status and incidence of concomitant diseases did not differ in both groups. The operations were performed by the same surgeon. The relationship between OPCAB surgery and clinical outcome with major (MAJ) and minor (MIN) adverse events was obtained by univariate analysis.

Results: The same operative technique was applied for both female and male patient groups. No conversion to conventional coronary bypass surgery with extracorporeal circulation was necessary. Mean number of bypass grafts was 2.6 in the female group vs. 2.4 in the male group. Mean operation time was 141.7±34 min in the female group and 150.2±46 in the male group. The overall in-hospital mortality was 1.33% (3 of 225 patients), all of them in the male patient group [P = 0.08]. Male patients showed a higher rate of postoperative atrial fibrillation than female patients (15 vs. 6%), however, this difference was not statistically significant. The incidence for further postoperative complications such as rethoracotomy for bleeding, stroke, delirium, pneumonia and wound infection was similar and also statistically not different in both groups.

Conclusion: Our results show that the early postoperative outcome and the incidence of adverse events were not influenced by gender in OPCAB surgery. The female gender plays not a predictive role for postoperative morbidity and mortality. In selected female patients, OPCAB surgery seems to be more beneficial compared to conventional coronary bypass operations.

C12b - 28
INITIAL EXPERIENCE WITH THORACIC EPIDURAL ANESTHESIA IN OFF PUMP CORONARY ARTERY BYPASS SURGERY IN AWAKE PATIENTS

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Objective: This report will summarize our performance with off pump coronary artery bypass (OPCAB) in awake patients using thoracic epidural anesthesia (TEA) without general endotracheal anesthesia.

Methods: Between April 2002 and March 2005, 10 patients underwent OPCAB with TEA in our hospital. There were 8 males and 2 females. Average patient age was 62.2±7.8. Target vessels involved left anterior descending artery TEA catheter was inserted in all patients on day prior to surgery and TEA was administered perioperatively, and in the postoperative period.
Results: All patients remained hemodynamically and respiratory stable during the procedure, fully alert and conscious. Full median sternotomy was performed in all patients. All patients received LIMA to LAD. Average anastomosis time was 7.9±0.8 min, with average CABG duration of 71.7±22.1 min. Three patients with EF <30% received low dose inotropic support perioperatively and in the immediate postoperative period. Average VAS was 2.1±0.8. Three patients had early re-operation in all patients within 24 hours from the operation, and 2 patients were able to leave the operating theatre walking to their beds in the intermediate care. Average chest tube drainage was 260±69.8 ml. Chest tubes were removed during the first postoperative day, and patients were to perform limited everyday activities during the first postoperative day. Average in-hospital stay was 4.2±1.1 days. There was no mortality or morbidity associated with placement of TEA during surgery.

Conclusion: OPCAB in awake patients using TEA without general endotracheal anesthesia can be safely performed in selected group of patients. This approach reduces postoperative pain, allows faster mobilization and recovery, with shortened hospital stay.

C12b - 29

Objective: To evaluate gender difference in the early outcome of patients after CABG procedure with or without concomitant valve procedure.

Methods: From January 2001 to December 2004, we retrospectively investigated 178 patients aged more than 80 years (80 to 89 years, mean age 81.9, 87 women, 91 men) with coronary artery disease (CAD). One hundred and thirty and two patients (74.2%) underwent isolated coronary artery bypass grafting (group A), 36 patients (20.2%) had concomitant aortic valve replacement (group B) and 7 patients (3.9%) received concomitant mitral valve operation (group C). Three-vessel disease appeared more frequently in group A (84.1%) than in group B (33.3%).

Results: Mean ejection fraction in all groups was 49% with no statistically significant differences to the other groups. Three-vessel disease appeared more frequently in group A (84.1%) than in group B (33.3%). IMHA was being used in 62.9% of all operations and in 71.2% in group A with no gender predisposition. Mean length of stay was 13 days. One hundred and fifty three patients (86%) survived and were discharged from hospital (mean length of stay 12 days). Mortality of men in group A was 6.76%. One hundred and five patients and (95.9%) had urgent (70/39.3%) or emergency surgery (35/19.7). Only 12 women (20.7%) in group A compared to 35 men (47.6%) were operated electively. In group B, more women (24/66.6%) than men (12/33.3%) had concomitant aortic valve replacement with better outcome (mortality 8.3 vs. 16.7%) than men although undergoing less elective surgery (45.8 vs. 66.7%). Major complications (GIT-bleeding, major neurologic events, periadvental tamponade, cardiac low output, deep sternal wound infection) occurred in 46 patients (25.8%), whereas 16 patients (17.6%) were men and 30 patients (34.5%) were women. Especially in group A the incidence of major complications in women was significantly higher (8 men, 10.5 % compared to 20 women, 34.5%). There was no difference in group B (33.3% vs. 29.2%). Acute renal insufficiency occurred in 39 patients (21.9%) and was more frequent in women (25.9%) than in men (16.2%) in group A, whereas the use of ultrafiltration was more frequent in men (25.0%) than in women (8.3%) in group B.

Conclusion: CABG with and without concomitant aortic or mitral valve surgery in octogenarians can be performed with acceptable results even in patients undergoing urgent or emergency operations. The outcome of men receiving CABG only seems to be better in women than in men whereas it is better for women undergoing CABG within concomitant valve procedures.

C12b - 30
MOBILE ATEROMA OF THE AORTI ARCH DIAGNOSED BY TRANSTHORACIC ECHOCARDIOGRAPHY PRIOR TO CORONARY ARTERY BYPASS SURGERY Hatemi A., Ceviker K., Uzunhasan I., Celebi S., Menda F., Kucukoglu S., Suzer K. Department of Cardiac Surgery, Cardiology Institute, University of Debrecen, Hungary

Objective: Atherosclerotic lesions especially larger than 4 mm and complex atherosomas (with ulcerations on its lumen or with mobile components) of the aortic arch are potential sources of arterial unexplained embolic events, including stroke, TIA and peripheral emboli in the asymptomatic patients. Furthermore the mobile atheromas of the aortic arch are associated with increased perioperative strokes in patients undergoing coronary artery bypass surgery. Technical advances in transosophageal echocardiography enabled surgeons and anesthesiologists to obtain a detailed view of the aorta pre/peroperatively and even to quantify atheromatous plaques according to thickness and the presence of mobile components.

Methods: A 65-year-old man with a history of angina on exertion was admitted to our hospital for an elective CABG. He was hypertensive and diabetic both controlled with oral medications. Patient had no neurologic complaints. Central nervous system and cardiovascular system examinations were within normal limits. On Chest X-ray arcus aorta seemed dilated. Coronary angiography revealed triple-vessel disease with a LMCA lesion of 98%. Due to chest X-ray appearance a second echocardiographic evaluation was scheduled. TTE performed at our institution showed minimal aortic regurgitation with an EF of 60% and a mobile atheroma in the arcus aorta with a minimal aortic dilatation. Surgical strategy was modified according to these findings.

Results: Peroperative digital palpation of the aortic arch did not identify significant abnormalities. CABG and arcus replacement operations were performed instead of a standard CABG operation. Patient recovered well without any complications and was discharged on the 12th postoperative day.

Conclusion: Although several variables were identified as risk factors for perioperative stroke, the majority of strokes occur in patients in whom no definitive etiologic factors can be identified. Thorough preoperative echocardiographic evaluation of the patient, especially of the elderly, is crucial for an uneventful surgical outcome. Although TEE is a more sensitive technique in determining protruding aortic atheromas with or without mobile components, TTE can provide some indicative evidence as well.

C12b - 31
SURGICAL OPTION FOR DIFFUSE CORONARY ARTERY DISEASE Dronamraju — D., Kola — S., Sirivella — S., Swamydas — S., Durgo Prasad — R. Sri Venkateswara Institute Of Medical Sciences, Tirupati, India

Objective: Fifty seven patients underwent coronary endarterectomy as part of CABG over a period of seven years. Of these, 42 were males and 15 females. Their age ranged between 45 and 68. Forty were diabetics, 34 had severe LV dysfunction (EF<30%). Forty six patients underwent routine surgery, remaining 11 emergency surgeries. Endarterectomy was performed for LAD, RCA and circumflex arteries in 27, 16 and 14 respectively. IABP was used in 4 patients. Four patients died in the immediate post-operative period due to low cardiac output and cardiac disturbances. The follow-up period was between 6 months to 3 years. Two patients died after 6 months due to MI and rhythm disturbances. Follow-up was clinical, 2-D echo, X-ray and ECG. Endarterectomy on its own or as an adjunct to CABG is a viable option in cases with diffused coronary artery disease.

Methods: 57 patients underwent coronary endarterectomy as an adjunct with coronary bypass surgery. Under GA all the patients were connected to routine CABG with 2 stage strategy.Venous cannula and ascending aortic arterial cannulation were performed instead of a standard CABG operation. Patient recovered well without any complications and was discharged on the 12th postoperative day.

Conclusion: Although several variables were identified as risk factors for perioperative stroke, the majority of strokes occur in patients in whom no definitive etiologic factors can be identified. Thorough preoperative echocardiographic evaluation of the patient, especially of the elderly, is crucial for an uneventful surgical outcome. Although TEE is a more sensitive technique in determining protruding aortic atheromas with or without mobile components, TTE can provide some indicative evidence as well.

C12b - 32
FIVE-YEAR EXPERIENCE WITH SEQUENTIAL INTERNAL THORACIC ARTERY GRAFTS Nagy L.Z., Szuk T., Leny A., Péterffy Á. Department of Cardiac Surgery, Cardiology Institute, University of Debrecen, Hungary, Debrecen, Hungary
Objective: We present our five-year experience and mid-term results with extensive use of sequential LITA grafts to the LAD territory.

Methods: Between 1996 and 2000, 438 patients (361 males and 77 females, age 59.7±9.7 years) out of 3803 CABG (11.5%) underwent revascularisation of the LAD territory using sequential LITA grafts. Eleven percent of the patients required urgent revascularisation for unstable angina and 9% had poor LV function. 401 patients underwent isolated CABG and 37 had various additional procedures. A total of 1767 peripheral anastomoses were constructed (LITA: 884; RITA: 23; radial artery: 212 and saphenous vein: 648). 28% of the patients had total arterial revascularisation.

Results: The hospital mortality was 2.3% (3 cardiac and 7 non cardiac deaths). There were 9 perioperative myocardial infarctions (2%) including only one case related to the sequential LITA anastomosis. The follow up was 96.5% at 4.5±1.3 years. The late mortality was 6.5% (8 cardiac and 20 non cardiac deaths). Three hundred and forty four patients were in NYHA I functional class. All symptomatic patients (51 cases) underwent recoronarography 36.7±19.7 months after surgery. A total of 232 peripheral anastomoses were restudied. The patency rate was 96% for LITA, 100% for RITA, 69% for radial artery and 74% for saphenous vein grafts. Altogether 12 patients required reintervention (11 PTCA and 1 redo revascularisation). The actuarial freedom from reintervention was 96.3% at five years.

Conclusion: The LITA can be safely used as a sequential graft to the LAD territory with reproducible mid-term results. It is especially useful in young patients requiring total arterial revascularisation.
09.00-10.30
MAY 14, 2006 4TH CONGRESS DAY

11TH VASCULAR SCIENTIFIC SESSION
MINI-POSTER PRESENTATION

V11 - 1
INHIBITION OF POSTOPERATIVE INTIMAL HYPERPLASIA WITH DEFIBROTIDE
Orlando G., Castrucci T., Colli R., Parente P., Leporelli P.
Vascular Surgery Unit S. Eugenio Hospital, Rome, Italy; Semiotica Chirurgica - Università Cattolica del Sacro Cuore, Rome, Italy; Histopathology - Università Cattolica del Sacro Cuore, Rome, Italy

Objective: Intimal hyperplasia is responsible of many medium to long term failures of arterial interventions in vascular and cardiac surgery. None of the drugs tested up to date has clearly demonstrated to prevent such complication. Objective of this paper is to determine if Defibrotide prevents intimal hyperplasia after arterial damage in an experimental model on rabbits.

Methods: In August 2005 we submitted 12 male rabbits to a 1 cm longitudi- nal subenal aortotomy with brushing of the intima and direct suture with 7-0 polypropylene. The operated rabbits were divided in two groups (6 rab- bits per group), group “A-treated” was administered 20 mg of defibrotide i.m./die preoperatively and for the eight days following surgery, group “B-untreated” received saline solution in the same doses and times. All rabbits were stabulated for 30 days, then sacrificed and submitted to explantation of the aorta. In addition to the 12 operated rabbits we sacrificed 4 rabbits as controls (group “C-control”).

Results: The explanted segments were fixed in 10% formaldehyde, processed and included in paraffine, these were the cut in sections of 3 microns, photographed and analyzed with KS300 programme (Zeiss). The mean thickness of the aortic wall in group A was 2.175 (1.91-2.90) mm, in group B 3.285 (2.075.07) mm and in group C 1.2 (0.93-1.68). We then applied T test to these data resulting in a significance < 0.05.

Conclusion: This study demonstrates that administration of defibrotide prevents intimal hyperplasia in an experimental model. Considering the encouraging results of this work, and that defibrotide is a drug commonly administered in clinical practice for phlebological diseases, we are now preparing a randomized prospective study in the Human Being.

V11 - 2
COMPARATIVE CHARACTERISTICS OF PRO- AND ANTIOXIDANT BIOCHEMICAL REACTIONS OF THE PATIENTS WITH OBLITERATING ATHEROSCLEROSIS OF LOWER EXTREMITIES ARTERIES
Kalinnin E.R.
Ryazan State Medical University, Ryazan, Russian Federation

Objective: To study pro- and antioxidant status of the patients with oblit- erating atherosclerosis of lower extremities arteries.

Methods: The activity of antioxidant system enzymes was studied (superox- ide dismutase, catalase, glutathionperoxidase) and concentration of peroxi- dation of lipids metabolites (malonic dialdehyde, dien conjugates, attending cetotriens) which gave an opportunity to determine pro-and antioxidant sta- tus of the patients with obliterating atherosclerosis on the Ilia - IV stages of the disease according to Fonten - Pokrovsky classification. The activity of superoxide dismutase was examined with the help of biochemical analyzer, of catalase, glutathionperoxidase by the spectrophotometrical determination of in blood. The patients were divided into three groups: I (control) 60 patients given traditional conservative therapy, II - 30 patients before and 5 days later after revasculising operation on arteries, III - 30 patients before and after indirect revasculising operation.

Results: The first group - the superoxide dismutase activity was 18% (P<0.02) lower than normal, catalase - 3% (P>0.05) lower, glutathionperoxidase - 13% (P>0.05). The concentration of malonic dialdehyde, dien conjugates and attending cetotriens was 55%, 32%, 11% higher than normal accordingly. The second group: before operation the superoxide dismutase activity 4% (P<0.05) higher than normal, catalase - 11% and glutathionperoxidase - 39% lower than normal. The concentration of malonic dialdehyde, dien conjugates and attending cetotriens was 55% 32%, 11% lower than normal accordingly. After the operation the decrease of the superoxide dismutase activity, of catalase accordingly on 47% and 16% in comparison with the normal quantity, the increase of the malonic dialdehyde and dien conjugates concentration on 41% and 38% was registered. The third group: the superoxide dismutase activity before the operation was within normal quantity, catalase decreased on 18%, the concentra- tion of malonic dialdehyde and dien conjugates exceeded the normal quantity on 51% and 48% accordingly. After the indirect revasculization the superoxide dismutase activity and catalase were within the normal quantity, the concentration of malonic dialdehyde and dien conjugates decreased con- siderably than after revasculising operations on arteries on 30% and 32%.

Conclusion: the conservative therapy has no considerable influence on the restoration of the balance of pro- and antioxidant systems. Neither was the balance registered after revasculising operations on arteries. Considerable effects of the restoration of pro- and antioxidant systems are found with the patients after the indirect revasculising operation.

V11 - 3
RESULTS OF TREATMENT OF CHRONIC LOWER LIMB ISCHEMIA BY GENE TRANSFER OF VASCULAR ENDOTHELIAL GROWTH FACTOR AND ANGIOGENIN
Gavrilenko V.A., Voronov A.D., Bochkov P.N., Konstantinov A.B.
National Research Center of Surgery RAMS, Moscow, Russian Federation

Objective: The results of treatment of lower limb ischemia are not satisfac- tory in patients with extensive disease involving the tiatal segments (so-called “distal” forms of disease) because high peripheral arterial resistance and severe insufficiency of arterial bed. Last years, gene therapy is regarded as a potential strategy for the treatment of vascular diseases despite of its limitations. Objective: to evaluate preliminary results of gene therapy using vascular endothelial growth factor (VEGF) and angiogenin (ANG) genes in complex treatment of chronic lower limb ischemia.

Methods: The study was carried out on 15 patients (13 men, 2 women) aged 42 to 70 years with distal forms of lower limb arterial occlusive diseases. Etiology of the disease was atherosclerosis in 13 patients (including 2 cases associated with diabetes), non-specific arteritis was diagnosed in 2 patients. Distance to pain ranged from 40 to 150 m. Three patients had small trophic ulcers on toes. Complex examination including special methods (duplex scanning, tredmil-test, angiography, percutaneous detection of tissue oxy- gen tension, radionuclide imaging) was made in all the patients before and after gene transfer procedures. Gene constructions (naked and adenoviral recombinant plasmids) with VEGF (6 patients) and ANG (9 patients) were administered by intramuscular injections into tibial muscular group. These plasmids are original, and they have been successfully tested in our pre- liminary experimental studies. Before clinical study each patient has signed informed consent, the study was supervised by ethical committee.

Results: There were no side effects in majority of patients apart from 4 cases of low grade fever during first day after ANG-construction injection. Long- term results were evaluated in 9 patients, the follow-up ranged from 6 to 24 months. All the patients demonstrated positive clinical.

Results: increase of distance to pain in 3 - 5 times, healing of trophic ulcers. Special methods of examination revealed increase of ankle-brachial index (P = 0.05), tissue oxygen tension (P=0.05), perfusion of lower extremities muscles (P=0.05), and reduce of restoration time during tredmil-test (P<0.01). Safety of extremitie was 100%. There were no any symptoms of internals affection.

Conclusion: Gene therapy using VEGF and ANG demonstrates the positive results in complex treatment of the patients with distal forms of chronic lower limb ischemia. The final conclusion about effectiveness of this meth- ods requires additional studies.

V11 - 4
THE EFFECT OF GADOLINIUM CHLORIDE ON RENAL INJURY IN THE MODEL OF EXPERIMENTAL AORTIC ISCHEMIA-REPERFUSION
Kiris I., Okutan H., Savas C., Yonden Z., Delibas N.
Sievket Demireli University Medical School, Isparta, Turkey

Objective: The aim of the present study was to examine the effect of gado- linium chloride on aortic occlusion-reperfusion induced remote organ injury in kidney by assaying antioxidant enzymes in the kidney tissues.

Methods: Thirty-two rats were randomly allocated to four groups as follows. Group 1 (n = 8) underwent sham laparotomy, group 2 (n = 8) underwent Kupfer cell blockage plus sham laparotomy, group 3 (n = 8) underwent aortic ischemia reperfusion and group 4 (n = 8) underwent Kupfer cell blockage plus aortic ischemia reperfusion. Kupfer cell blockage was done by 10 mg/kg intravenous gadolinium chloride 24 h before the surgical procedures. Aortic ischemia-reperfusion was done by placing an auttraumatic microvascular clamp across the infrarenal abdominal aorta for 30 min and then removing
the clamp for subsequent reperfusion for 60 min. Tissue levels of superoxide dismutase, catalase, malondialdehyde and activity of myeloperoxidase were assayed in the rat kidneys.

**Results:** The tissue levels of superoxide dismutase, catalase, malondialdehyde and the activity of myeloperoxidase in the aortic ischemia-reperfusion group were significantly higher than in the other groups (P<0.05). However, the tissue levels of superoxide dismutase, catalase, malondialdehyde and the activity of myeloperoxidase in the Kupffer cell blockage plus aortic ischemia-reperfusion group were significantly lower than in the aortic ischemia-reperfusion group (P<0.05).

**Conclusion:** This experimental study showed that Kupffer cell blockage with gadolinium chloride attenuates ischemia-reperfusion injury in kidney induced by infrarenal aortic occlusion-reperfusion. We think that additional studies are needed to clarify the possible beneficial effect of pretreatment with gadolinium chloride in reducing renal complications caused by aortic ischemia-reperfusion during aortic surgery.

**V11 - 5 SECUNDARY AMPUTATION IN DIABETICS AFTER INFRAGINGINAL REVASCULARISATION**

**Popovic V.V., pasternak J.J., Vukobratov R.V., Pfau J.J., Nikolic D.D.**

**Clinical Centre - Novi Sad, Novi Sad, Yugoslavia**

**Objective:** Is to analyse reasons of secondary amputations after infrainguinal revascularisations. Survival dia-betic patients with infrainguinal revascularisations. Assessment of importance preoperative evaluation below knee vascular tree as indicator of patency. Importance of assessment below knee vascular tree as indicator of patients survival.

**Methods:** Patients where bypassed against obstructed arterial tree. It was formed two groups I Ischemia and II Infection. Below knee vascular tree where assessed through Morton scale and outcome where assessed after 7 days, 6 months, two and five years using “life table” method. All data where statistically analysed.

**Results:** At 177 extremities where done secondary amputation after revascularisation during last five years. From this count 63 (39.98%) where in I and 114 in II group. In patients in I group 32 where in stadium III (Morton) and in II group only 14 extremites and in III stadium and 64 in stadium I. Much more patients where died in I group in last two years.

**Conclusion:** More often cause of amputation is infection than ischemia i early period. Late amputation are caused by ischemia. In the I group below knee vascular tree is worse than in the II group. Mortality is greater in I group as well as revascularisation patency.

**V11 - 6 CLINIC AD RIABILITATIVE FOLLOW UP OF ARTERIOPATHIC AND AMPUTATED PATIENT**

**Ippolito E., Sommaruga S., Romagnoli S., Urgnani F., Belcaro G., Cesarone M., Flaviani L., DiQuattro B.**

**Istituto di Chirurgia Vascolare ed Angiologia, Università degli Studi di Milano, Milano, Italy; Dipartimento di scienze biomediche Università di Chieti, Chieti, Italy; Centro Servizi Ortopedici Milano-brescia, Milano, Italy**

**Objective:** Is to check the results of an adequate follow-up of the amputated patient, in particular about the prothetic and riabilitative problems.

**Methods:** In the period between January 2001 and december 2004, 66 patients have been undergone to an amputation operation. It has been done 71 operations: 30 transfemoral level, 22 transtibial, 10 transmetasal and 9 transphalanx.

**Results:** For 8 patients (7 subordinate to transtibial operation and 1 a transmetarsal operation) the post surgery course has been complicated from dehiscence of the surgical wound. For 5 patients subordinate to a transtibial amputation, one has recourse to an elevation of the amputation’s level of the thigh. 6 patients die for the case of pretilial neurinoma and 1 die for the skin erosion caused from the femoral osseus stump. Subsequently 14 patients (7 cases have been undergone to additional operation of the controlateral limb. 39 patients have been undergone to a complete post surgeon rehabilitatiing cycle. The result has been valued according to the Chen classification modified, that take in consideration the autonomy degree reached from the patient after 1.3-5 years from the operation. Among these patients, 2 patients have reached the second degree and 12 patients the third degree. Among 27 patients, it was not possible to do a complete rehabilitatiing cycle cause the advanced age, associated to compromising health conditions or organzative sanitary of familiar problems.

**Conclusion:** Our experience shows as a correct surgeon technic, associated to a strict monitoring of the threatened limb, of the controlateral and the complete rehabilitating cycle, allows a good functional recovery of the limb and improves the life quality of the patient.

**V11 - 7 REMOTE ENDARTERECTOMY IN THE TREATMENT OF SUPERFICIAL FEMORAL ARTERY OCCLUSIVE DISEASE**

**Shlomin V.V., Gusinskij V.A., Vajenin O.S., Lebedev V.L., Yurtaev A.E., Korovin V.I., Shatravka V.A.**

**City Hospital #2 Vascular surgery department, Saint-Petersburg, Russian Federation, Saint-Petersburg Pavlows. State Medical University, Saint-Petersburg, Russian Federation**

**Objective:** Recently the basic reconstruction types of arteries of lower extremities are autoveneous shunting operations and shunting operations using synthetic grafts. Potentialities and appropriateness of the remote femoropopliteal endarterectomy with the Ring Strip Cutter device are still uncertain. The purpose of the present research is evaluation of early and long-term results of remote endarterectomy in the treatment of SFA occlusive disease.

**Methods:** From 1998 to 2000 148 consecutive Ring Strip Cutter procedures were performed in 134 patients. Enrollment of patients was equally over the years. All patients suffered from Superficial Femoral Artery long segmental occlusion or multiple stenoses and had a patient supragenicular artery with at least one crural runoff vessel. Pokrovskii classification was used to assess the stage of ischemia. Follow-up consists of clinical evaluation, Doppler, duplex scanning, and angiography on indication. Kaplan-Meier survival curves were constructed and compared by using the log-rank test.

**Results:** Indication to operation in 96 (64.9%) cases was a severe limb ischemia, in 52 (35.1%) cases - an intermediate claudication less than 100 m. At early postoperative period due to thrombosis and ineffectiveness of repeated operative measures 5 above-knee amputations were performed. Thus, limb salvage rates in this period - 96.6%. The five year primary and secondary patency are 48.9% and 55.7% respectively. Primary patency in Pokrovskii IIb group was 52% after five years. This parameter was lower in patients with severe limb ischemia - 34.1% (P<0.01). Essential circumstance at studying the long-term results was the high percent of saved extremities.

**Conclusion:** Remote endarterectomy with the Ring Strip Cutter is an effective, minimal invasive procedure. It also leaves all other options for convenional bypass available. The high five-year limb salvage rates after remote endarterectomy were achieved because of high possibilities to perform a repeated intervention. Using this technique we have a chance to save and enhance collateral circulation in operated and distal segments. Remote end-arterectomy of superficial femoral and popliteal arteries enables not only to keep autologous vein for various cardiovascular operations and to avoid application of synthetic grafts, but also provides high enough percent of limb salvage in the long-term postoperative period. Especially this parameter is significant at patients with a severe limb ischemia (Pokrovskii classification III and IV).
group was made by 152 patients (110 operated and 42 not operated) with similar disease. They were younger 70 years. After aneurysm resection aortobifemoral grafting was performed in 83% cases. In 17% cases we used linear graft. Enrollment of patients was equally over the years. Follow-up consists of clinical evaluation, Doppler, duplex scanning, CT and angiography on indication. Patency was assessed by clinical examination and duplex monitoring. Kaplan-Meier survival curves were constructed and compared by using the log-rank test.

Results: The postoperative lethality in the first group has made 6.6% and statistically did not differ from a similar parameter - 6.2% at younger patients (p >0.05). It is necessary to note, that all not operated patients, irrespective of age, within five years were died. Ruptured aneurysm was the cause of mortality in 65% cases. No statistical significant differences were seen in mortality rates in that group when looked at aneurysm dimensions and time of its rupture. Life table analysis in groups of the operated patients shows a five years survival rate of 75% and 77% (p >0.05), respectively.

Conclusion: Diagnosis aneurysm of infrarenal aorta should serve as indication for operative treatment without dependence from age and the sizes of expansion due to almost 100% a five years mortality rates in nonoperated patients.

V11 - 9

LONG-TERM RESULTS OF CAVACLIPLING FOR PREVENTION OF PULMONARY EMBOLISM

Gordiev A.N., Sedov M.V., Baljuzek V.F., Lebedev V.L., Mjasnikova O.M., Hon E.A., Zaharova J.M.

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Objective: To evaluate the protective effect of cavacliping of infrarenal vena cava inferior (IVC) in patients with a high risk of pulmonary thromboembolism.

Methods: Seven hundred and thirty-five surgical cavacliping of infrarenal IVC and 5 - of suprarenal IVC were performed in period from 1986 till 2005 with purpose to prevent the pulmonary artery thromboembolism in patients with phlebothrombosis in venous system of IVC (inguinal, pelvic or lower extremities veins). Presence of floating thrombus in veins according to duplex scanning or phlebography data and history of previous episode of pulmonary artery thromboembolism was considered as an indication for the cavacliping of IVC. The originally designed in 1986 cavacraise made of titanic wire 0.8 mm diameter was applied in most patients. The long-term results were evaluated in 254 consecutive patients (men - 69, women - 185, in which 37 were pregnant and 39 - early after delivery with floating thrombus in pelvic veins) with mean age 47±25 years (the range 22-86). The mean follow-up was 8.2 years. All patients, who underwent the procedure less then 2 years ago, were excluded from the study. Postoperative evaluation late after surgery included clinical examination, laboratory tests (INR, full coagulogram) and complete evaluation of the venous system condition (thoracic X-Ray, CT, Dopplerography of veins, MRI, phlebography of IVC, angiopulmonography, etc.). Quality of life was estimated using modern methods of standardization.

Results: According to the intraoperative records, floating thrombus of the iliofemoral veins (n = 670) were found to be most frequent source of pulmonary embolism. Other sources of thromboembolism were veins of pelvis minor (n = 39), femoral veins (n = 17) and deep veins of shins (n = 14). Analysis of long-term results revealed the following complications of the cavacliping of IVC: 1) retroperitoneal fibrosis because of organized hematoma - 2 cases; 2) elongated thrombosis of the pulmonary artery's branches originated from a fixed ostial pulmonary trunk thrombus - 3 cases (2 cases - lethal outcome, 1 case - successful thrombectomy from PA); 3) Postthrombophlebitic syndrome - 35 cases, in which thrombectomy was not performed during the cavaclapping procedure.

Conclusion: Cavaclapping of infrarenal IVC in patients with a high risk of pulmonary thromboembolism using originally designed cavaclap is a safe and reliable method of prevention of recurrence of pulmonary thromboembolism in cases of presence of floating thrombus in IVC venous system. Cavacliping does not affect the venous blood flow through IVC. Method can be recommended for use in a wide surgical practice.

V11 - 10

RUPTURED ABDOMINAL AORTIC ANEURYSM - EXPERIENCE

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Objective: Rupture of abdominal aortic aneurysm (RAAA) is still associated with high mortality despite modest improvement during the last several years. The recent mortality in large series is between 25-55%. The aim of our study was to evaluate the results of the open surgical treatment of RAAA and to introduce the first few cases of endovascular RAAA repair (EVAR) at the University Vascular Center.

Methods: 187 patients were operated on for RAAA between 1/1/1992 and 31/10/2005. Men to female ratio was 7:1, the average age 75.8±7.2 years. 77.5% patients suffered in anamnesis from heart attack, 54.2% were hypertonics and 45.3% smokers. 43.1% patients had hemopteroneum and 16.9% were cardiopulmonary resuscitated on admission. All patients were indicated for urgent open surgery, only hemodynamically stabled patients without clear signs of RAAA were examined by bedside ultrasonography on emergency unit. 10/2005. Men to female ratio was 7:1, the average age 75.8±7.2 years. 77.5% patients suffered in anamnesis from heart attack, 54.2% were hypertonics and 45.3% smokers. 43.1% patients had hemopteroneum and 16.9% were cardiopulmonary resuscitated on admission. All patients were indicated for urgent open surgery, only hemodynamically stabled patients without clear signs of RAAA were examined by bedside ultrasonography on emergency unit. 10/2005. Men to female ratio was 7:1, the average age 75.8±7.2 years. 77.5% patients suffered in anamnesis from heart attack, 54.2% were hypertonics and 45.3% smokers. 43.1% patients had hemopteroneum and 16.9% were cardiopulmonary resuscitated on admission. All patients were indicated for urgent open surgery, only hemodynamically stabled patients without clear signs of RAAA were examined by bedside ultrasonography on emergency unit.

Results: 30 days postoperative mortality was 33.6% in open and 0% mortality in EVAR procedures. Hemorrhagic shock and cardiac insufficiency were the main causes of patients death (29.4%). The statistical significant factors of mortality were: incorrect diagnosis (P<0.001), cardiac arrest on admission (P<0.001), hemorrhagic shock (P<0.02) and hypertension (P<0.05).

Conclusion: The open surgery is still the good standard for RAAA treatment. The results of resections are dependent on vascular surgeons experience, prompt diagnosis, aggressive volume resustitation and postoperative care on intensive care units. EVAR is the method of choice in hemodynamically stabled patients. It requires experienced endovascular team with 24 h servis.
the role of SIRS in patients with massive DVT and to evaluate the effectiveness of aprotinin therapy.

Methods: We observed 38 patients for two years with symptoms of severe deep vein thrombosis of the limbs. All patients were followed-up daily to record the number of SIRS criteria. Patients were given a SIRS score of 0, 1, 2, 3, or 4 on each day depending on the number of SIRS criteria present. For scoring, the methods described by Bone R. et al. was used. All patients received standard heparinotherapy with warfarin and antplatelet drugs. In 18 cases we added aprotinin intravenously in dose - 700 000-900 000 ED associated with body weight.

Results: Thirty-four (94.4%) patients with massive DVT had two and more SIRS criteria duration 4-12 days. As a result of regression analysis all patients with duration two and more SIRS criteria after 5 days of the hospital stay had thromboembolic complications in 8 (21.1%) cases. From 34 patients we were randomly assigned to receive either standard anticoagulant therapy (30 patients) or added aprotinin (8 patients). In a group of aprotinin we were noticed the decrease of swell and pain, in a 3 days after aprotinin therapy we fixed the decrease an amount of white blood cells and temperature in these patients (P<0.01). Activated thromboplastin time in group of aprotinin was 40±3 s vs. 34±2 s in control group in a 1 days and 48±2 s vs. 36±4 s in a 2 days after was administrated heparin. So was registered the decrease of activation of fibrinolytic system (at 1 days was 40±3 s vs. 34±2 s in control group). In a group of aprotinin we were noticed the decrease of time of execution of suture repair - 72 (90%) patients, caval ligation - 5 (6.2%), and prosthetic allotransplantations - 2000±200 ng/ml vs. 5500±350 ng/ml in control group (P<0.001). In aprotinin group we won’t notice cases of thromboembolic complication. Hospital stay was 10.4±2 days vs. 18.3±4 days (P<0.001).

Conclusion: Systemic inflammatory response syndrome is a unique patho-physiological reaction on a different damage. Massive deep vein thrombosis can associated with this syndrome, duration of it is reliable correlated with thromboembolic complications. High dose of aprotinin can improve results of treatment patients with massive deep vein thrombosis.

V11 - 13 TACTICS OF TREATMENT OF PATIENTS WITH INFECTED VASCULAR ALLOTRANSPANTATIONS
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Main military clinically hospital of name Burdenko N.N., Russia

Purpose: Definition of surgical tactics at infected vascular allotransplantations remains to one of the challenges of vascular surgery. The high risk and complexity of performance of repeated operations in some cases determine a choice of conservative methods of treatment. Methods. Active - waiting tactics has been applied by us at treatment of 9 patients with infected vascular allotransplantations. The choice of such tactics was determined by a line of the reasons among which it is necessary to note high danger of development in the early postoperative period of serious complications, sharp ischemia of the finiteness resulting in amputation. Treatment of this group of patients consist in general antibacterial therapy in a combination to local use of anti-bacterial preparations. And only development arrosione bleedings from a zone anastomosis served as the indication to operative treatment.

Results: At all patients of this group, despite of spent complex treatment (the general and local), has developed arrosione a bleeding demanded emergency operation. At 3 patients in view of hopelessness of preservation of finiteness already during operation the decision on performance of amputation of a leg at a level of the top of hip was accepted. At 5 patients of amputation have been executed in the nearest postoperative period, thus 2 from them were lost from developed com-plications. Only in 1 case removal of an infected transplant has not caused development of a sharp ischemia of finiteness, that in the subsequent has allowed to execute reconstructive operation.

Unsatisfactory results of active - waiting tactics of treatment have caused necessity of re-alization of other way of the decision of this problem - obligatory performance of repeated operations. In this group of patients (19 person) for 7 patients it has been diagnosed infection thrombosis vascular transplants, and at 14 patients attributes infected are marked at functioning artificial limbs. Thrombosis the artificial limb at 7 patients has been removed without complications. Removal of functioning artificial limbs at all patients of this group has caused development of a sharp ischemia of legs I-B II-IV of the level, stopped by intensive conservative actions. At 2 patients with the complicated blood circulation in finitenesses repeated operations did not carry out. Only at 1 patient the developed sharp ischemia of finiteness has caused performance of amputation at a level of average of 1/3 hips. 11 patients of this group in 3-6 months have executed repeated reconstruction with post-tive result.

Conclusions: Thus, active - waiting tactics at infection vascular allotransplantations de-termines unsatisfactory results of treatment of this group of patients. Performance of obligatory op-erative interventions with removal of an infected artificial limb and the subsequent reconstructive operation is the most perspective method of treatment of patients at infection vascular allotransplantations.

V11 - 14 CAROTID DISEASE AND CEREBRAL ISCHEMIC EVENTS IN THE PATIENTS WITH CORONARY ARTERY DISEASE
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Objectives: Coronary artery disease and myocardial infarction are the risk factors of cerebral ischemic events. However, the causes of ischemic strokes in these patients may be different. We investigated the severity of carotid atherosclerosis, frequency and causes of TIA and ischemic strokes in the patients with coronary artery bypass.

Methods: We investigated two groups of the patients. Group 1 - 182 patients (mean age 56.8±0.63 years old) with coronary artery bypass, including 34 (18.7%) women, 148 (81.3%) men. Group 2 - 104 patients (mean age 58.6±0.71 years old) with carotid endarterectomy, including 26 (25%) women, 78 (75%) men. Duplex scan, transcranial Doppler ultrasonography, brain computer tomography, echocardiography, blood examination (serum lipids) were performed in all the patients.

Results: The athero-sclerotic risk factors (high blood pressure, diabetes mel-itus, smoking, family history, dyslipidemia in the patients of both groups doesn’t differ significantly (P>0.05); atrial fibrillation, angina pectoris, myoc-cardial infarction were significantly more frequent in the group 1 (14.3%, 100%, 74.7% against 8.7%, 6.3%, 26.9%, P<0.005), peripheral atherosclerosis is more frequent in the group 2 (48.1% against 23.1%, P<0.05). We found carotid stenoses and/or carotid occlusions in 87 (47.8%) of the 182 pa-tients with coronary artery bypass; including less then 50% luminal stenoses - in 38 (20.9%) patients, 50-75% stenoses - in 24 (13.2%) patients, high-grade stenoses (more than 75%) - in 11 (6.1%) patients, oc-clusions - in 14 (7.7%) patients. It turned out that 42 (23.1%) patients of with coronary artery bypass had ischemic stroke or TIA; out of them 11 (6.0%) patients suffered TIA, 19 (10.4%) - ischemic stroke in the carotid region, 8 (4.5%) - ischemic stroke in the vertebral-basilar region, 4 (2.2%) - the combination of TIA and stroke. It appeared that 40% of ischemic strokes were due to symptomatic carotid atheroma and 47.3% of ischemic strokes most probably due to cardio-embolic embolism (P>0.05) in patients with coronary artery bypass.

Conclusions: About half of the patients (47.8%) with coronary artery disease (group 1) had carotid stenoses. Every sixth patient in this group had the high-grade carotid stenoses and/or occlusions. Symptomatic carotid stenosis and cardio-embolic embolism were the cause of cerebral ischemic events in equal proportion in the patients with coronary artery bypass.

V11 - 15 STRUCTURE, OUTCOMES AND LONG-TERM RESULTS OF INFERIOR VENA CAVA INJURIES
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Objective: Injuries of the inferior vena cava (IVC) continue to be among the most frequent trunkal vascular injuries with high mortality. The aim of study was to conduct retrospective analysis of structure and results of rendering of aid patients with IVC injuries in various medical establishments of Belarus from 1984 through 2003 years.

Methods: For reception of the information of patients with IVC injuries has been demanded of documentation to 102 patients (6 patients in period from 1 month till 12 years were investigation with both ultrasound and spiral computed tomography for analysis of the long-term results). Results: Mechanism of injuries included penetrating injuries in 69 (67.5%) patients, blunt trauma in 29 (28.2%), gunshot in 4 (4.3%) patients. There depending on anatomic localization of an IVC injury, the cases were distrib-uted as follows: in the field of vv. iliaca communis confluence - 7 cases, infrarenal and renal segment - 53, suprarenal one -22, retro- and suprarenal patices - 20 cases. Associated injuries were common, only four patients (3.9%) had an IVC injury in isolation. Injuries were treated using primary suture repair - 72 (90%) patients, caval ligation - 5 (6.2%), and prosthetic
graffing - 3 (3.8%) cases. 55 patients (53.9%) died. Mortality of the patients with injuries of supra- and retrohepatic segment of IVC compiles 100%, suprarenal - 70%, infrarenal - 30.7%. In 2 of 6 patients detections stenosis IVC in the field of suture. At 1 patient with caval ligation had significant edema of the lower extremities with dilatations lumbar veins. Conclusion: Trauma IVC - the emergency surgical pathology demanding staged or one-stage antithrombotic treatment. It is necessary to patient with IVC injuries examination on the eve and in the nearest period (from 1 up to 3 month) after to be discharged from hospital.

V11 - 16
COMPLEX TREATMENT OF VENOUS AND ARTERIO-VENOUS FORMS OF ANGIOIDYSPLASIA OF THE LOWER LIMBS
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Objective: To improve the results of treatment of patients with venous and arterio-venous (A-V) forms of the lower limbs angiodyplasias, on basis of provision with pathogenetically proved differential approach to a treatment based on the data of the special examinations methods. There were analyzed the results of the examinations and surgical treatment of 112 patients with venous and A-V forms of lower limbs angiodyplasias, who were treated in period 1999-2005.

Methods: ultrasonic scanning, radiopaque phlebography, lymphography, arteriography, computerized tomography, tomography of extremities bones. Taking into account angiodyplasia's clinical forms surgical treatment was varied, depending on pathogenetic disturbances and in most cases it was staged. In the treatment of venous forms, which are accompanied by the anomaly of deep venous system's, surgical treatment involved the implementation of vein rehabilitation including the subcutaneous veins profundisation with the object of replacement of hypo- or aplasia venous main; in cases of valvular agenesia - transplantation of veins segments, in the position of superficial femoral and/or popliteal vein). On the next stage the correcting veins operation was carried out, and was combined with dissection of angiodyplasia formations and/or with compressive sclerotherapy.

In the cases of deep venous aplasia we limited procedures by correcting veins operations and/or compressive sclerotherapy. In the cases of A-V forms we used, depending on indications, selective arterial vessels emboilisation. In patients with trophic disturbances we carried out dissection of ulcers with following staged allo- or autodermoplasty. In cases of patients with venous hemangiommas the main treatment method was sclerotherapy using the solution of aetoxisclerol and fibrovein, and combined treatment with a sclerotherapy. The treatment also involved operations on bones with the object of length's correction. The important component in complex treatment was compressive therapy prescription. Used tactics of treatment allowed to achieve satisfactory results in 83% of patients.

V11 - 17
BALLOON ANGIOPLASTY AND SENGATING IN TREATMENT OF OCCLUSIVE AND STENOTIC SUBCLAVIAN VEIN INVOLVEMENTS
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Objective: To improve diagnostics and results of treatment of occlusive and stenotic subclavian vein involvements on the basis of carrying out of roentgenoendovascular interventions.

Methods: Under our supervision from 2000 until 2004 there were 10 patients with occlusive and stenotic involvements of stenotic veins. Age of patients is from 18 - 55 years, among them 6 men and 4 women. Changes of cardiac- and regional venous hemodynamics (Echo CS, rheophlebography, ultrasonic scanning of the main veins with Aloka SSD 500; Logiq 500 with gauges 5; 7.5 and 10 MHz) were studied. All patients have been done phlebo- graphic. The stenosis of subclavian veins of 75-90% lumens is detected. It is carried out catheterization of subclavian veins by catheters SF-6F, then balloon dilatationat by the catheter 10F with the subsequent installation of Z-stent <<Endos>>. During the first 6 days it was the heparinotherapy with the subsequent transition on warfarin. Results: The lumens subclavian veins is restored on 80-100%. The regression of clinical symptoms was noted in the early postoperative period. After carrying out of endovascular procedures the gradient of pressure was decreased up to 14.7-10 mm of waters or it absolutely disappeared; the volume of member was decreased and the edema disappeared. All patients have been restored work capacity.

Conclusions: Positive experience of the balloon dilatation and stentic of subclavian veins allows to eliminate the regional hemodynamics disturbance in basin of subclavian veins and to receive constant positive result of treatment. Endovascular recanalization of subclavian veins is not a traumatic and an effective method of treatment.

V11 - 18
INFLUENCE OF ARTERIAL HYPERTENSION ON BRAIN CIRCULATION IN CAROTID OCCLUSIVE DISEASE PATIENTS. THE PECULIARITIES OF ANTHYHYPERTENSIVE TREATMENT
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Objective: Antihypertensive treatment is the most important in stroke pre- vention. But we don't know what in-fluence has lowering of blood pressure due to medicinal treatment on brain circulation in patients with carotid oc-clusive disease, and the measure of the safe hypotension for those patients.

Methods: We carried out transcranial Doppler ultrasonography in patients with unilateral carotid occlusion, among them 40 hypertensive patients (29 (72%) men, 11 (28%) women, mean age 58.13±1.2 years old) and 19 normotensive patients (17 (89%) men, 2 (11%) women, 55.42±1.61 years old, p=0.05). We evaluated cerebral blood flow velocity in the middle cerebral artery in the occlusive region and on the opposite side; cerebrovascular reactivity to hypercapnia in the middle cerebral artery by calculating the breath-holding index. We had undertaken antihypertensive therapy in 90 patients (67 (74.4%) men, 23 (25.6%) women, mean age 56.8±1.04 years old) with high-grade sthenosis or occlusion of carotid arteries during 3-6 month. All the patients underwent transcranial Doppler ul-trasonography before treatment and at the end of the treatment.

Results: Cerebral blood flow velocity in the mid-dle cerebral artery in the occlusive region and on the oppo-site side wasn’t significantly different in hypertensive and normotensive patients. Normotensive patients had significan- tly higher cerebrovascular reactivity to hypercapnia in the occlusive region (1.22±0.03 against 1.14±0.02, P=0.05). We studied the group which underwent antihypertensive treatment (90 patients). We applied statistical analysis using T-criterion for correlative groups. Blood pressure before treat- ment was: systolic - 159.94±1.65 mmHg, diastolic 96.17±0.71 mmHg. At the end of treatment it was: systolic - 143.11±1.43 mmHg, diastolic 87.22±0.73 mmHg, P=0.01. The lowering of blood pressure was: systolic - 10.52%, diastolic - 9.31%. Cerebrovascular reactivity to hypercapnia had significantly risen in occlusive region (1.14±0.01 before treatment, 1.18±0.01 at the end of treat-ment, P=0.01) and in the opposite region (1.21±0.01 before treatment, 1.23±0.01 at the end of treatment, P=0.05). There was no veritable change of cerebral blood flow velocity. During the treatment patients had no strokes, TIA.

Conclusions: Normotensive patients have higher cerebrovas-cular reactivity to hypercapnia in occlusive region. This could be an outcome of the blood pressure influence on brain circulation compensation in occlusive region. The lowering of blood pressure by 10.52% (systolic) and 9.31% (diastolic) was safe for patients with severe carotid disease and improved cerebrovascular reactivity.

V11 - 19
OUR SURGICAL TREATMENT RESULTS IN THE AORTOILIOFEMORAL OCCLUSIVE DISEASE: MIDDLE-TERM FOLLOWING AND EXAMINATION IN A SERIES OF 133 PATIENTS
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Objective: In this study, we aimed to evaluate our retrospective surgical treatment results in the aortoiliacofemoral occlusive disease.

Methods: Between March 2001 and December 2005, 133 elective patients were operated in our clinic owing to aortoiliacofemoral occlusive disease. There were 128 men and 5 women. The mean age of the patients were 60.9 years (range.36 to 85 years). All patients were evaluated with history and physical examination of the patients, Doppler ultrasound examination of the carots and lower extremity arteries, coronary angiography, and aortoiliac and lower extremity arteriography.

Results: The comorbid diseases and risk factors were smoking (73%), coro-nary artery disease (59.3%), hypertension (25.5%), hyperlipidemia (12.7%), diabetes mellitus (11.2%), and chronic obstructive pulmonary disease
A total of 35 patients (26.3%) underwent coronary artery bypass grafting (n = 27:20.3%) or percutaneous transluminal coronary angioplasty (n = 8:6%) before being performed surgical treatment of the aortoiliacofemoral occlusive disease. Sixty-nine (51.9%) patients underwent to aortofemoral bypass graft, 34 patients (24.5%) to aortofemoral bypass graft, 17 patients (12.7%) to iliofemoral bypass graft, 9 patients (6.6%) to extraanatomic bypass graft, 2 patients (1.5%) to aortoliac bypass graft and 2 patients (1.5%) to aortobiliaic bypass graft. Nineteen (14.2%) patients were also performed simultaneous femoropopliteal bypassgraft. Mean follow-up was 12.7 months (range, 1 to 56 months). In follow-up four patients developed graft thrombosis. One patient developed graft infection. Two patients died due to multiorgan failure postoperatively. Unless contraincicated after operation, all patients were given acetylsalicylic acid. The overall mortality rate was 1.5%. Overall patency and limb salvage rates were 97%.

Conclusion: Surgical reconstruction in the aortoiliacofemoral occlusive disease is a safe method with good middle-term results in patency and limb salvage rates and has low risk in the good selected patients.

V11 - 20 MEASURING INTRASAC PRESSURE AFTER ENDOVASCULAR ABDOMINAL ANEURYSM REPAIR FOR TELEMETRY SENSOR Vaquero-Puerta C., Gutierrez V., San Norberto E., Cenizco N., Agudo J. Division of Vascular Surgery, University Hospital Valladolid, Valladolid, Spain

Objective: Evaluation of the endotension intrasac after the endovascular abdominal aneurysm repair, now the physiopathology, research the possibility of prevention of the complications and research the ideal characteristics of the new devices in the endovascular treatment of the abdominal aneurysm.

Methods: The study have two parts. The first is a clinical study with the evaluation of the cutaneous results (echodoppler, TAC and RNM in few cases) for the follow-up of the patients with the endovascular abdominal aneurysm repair. Ninety patients is possible have included in the study. The images was treated whit planimetric and morphometric study with the quantification of the aneurysm wall an thrombus intrasac The second part is a experimental study in the pig and previous study in vitro, with the purpose of evaluation of the monitoring of the intrasac pressure in the abdominal aortic aneurysm for telemetry before and after the endovascular treatment of the aneurysm sac. The study is performed in pig after of the creation artificial aneurysm in the abdominal aorta with the implantation a sensor pressure for telemetry in the sac. After a moth, all the animals are reopered and implantation a wall graft device, a half of the animal with a hole in the wall for performed a Type II endoleak. Every month all animal was examined and measured and registration the values systemic and abdominal aneurysm intrasac of the systolic pressure in different conditions of the normopressure, hypertension and hypotension provoked with pharmacological induction with ephedrine andbolinine drugs. A study statistic is performed for the analysis of the quantitative data.

Results: The study demonstrates the efficacy of the sensor system for pressure monitoring. The monitoring device is capable to indentificate changes in situations of endoleaks type II and differentes situation of sistemic hipotension and normopression.

Conclusion: Systemic pressure is transmitted to the aneurysm sac through an attachment site failure, despite no endoleak resultin in endotension.

V11 - 21 SURGICAL TREATMENT OF THE RENOVASCULAR HYPERTENSION V.S. Arakelyan, Ye.G. Tutov, A.A. Mamyrobae. A.N. Bakhulev' National Center for Cardio-Vascular Surgery, Russian Academy of Medical Sciences, Moscow

Goal: Estimation of the direct results of surgical reconstruction of renal arteries in renovascular hypertension.

Methods: From 1995 to 2004 at the Department of the Surgical treatment of arterial pathology there were investigated the direct results of 148 surgeries on renal arteries. Clinical investigation, 24 h blood pressure monitoring, ultrasound Doppler, renal arteries scintigraphy, and renal angiography were used.

Results: Most of the patients with atherosclerotic lesions - 96 (65%) underwent transaortic atherectomy with superior/inferior diaphragm splanchganlonecmy. In 37 patients (25%) with fibro-muscular displasia the renal artery resection and angioplasty accompanied by superior/inferior diaphragm splanchganlonecmy were performed. The rest 10 patients (7%) underwent other types of bypass surgery and 5 patients (3%) had nephrectomy. Positive clinical effect of the surgery was revealed in 140 patients (94%). In 7 patients (5%) the blood pressure remained on the initial level although with diminished signs of renal insufficiency. One patient (0.7%) died of acute left ventricular failure.

Conclusion: Surgical reconstruction of renal arteries gives positive clinical effect and decreases renal insufficiency in patients with renovascular hypertension.

V11 - 22 COGNITIVE BRAIN FUNCTION BEFORE AND AFTER CAROTID SURGERY Lokhman V.F., Mlznikov A.V., Isoev A.M., Lichosherst E.E. Department of Vascular Surgery, Regional Hospital, Krasnoyarsk, Russia

Objectives: Evaluation of the effectiveness of surgical treatment of internal carotid artery stenosis and kinking patients.

Methods: We measured cognitive brain function in 49 patients at our hospital. Thirty one consecutive patients with moderate to high-grade stenosis of the internal carotid artery (ICA) (mean age±5.D., 61±6 years), 18 patients with kinking of the internal carotid artery (54±10 years). Carotid disorders was verified by ultrasound duplex scanning and more rare digital subtraction angiography. Brain function was measured objectively by P300 evoked potentials before surgery and before hospital discharge (5 days postoperatively).

Results: All patients showed prolonged P300 latencies and reduced P300 amplitudes before operations. After operations performed on kinking patients, 15 of them revealed the improvement of cognitive functions, 1 - not any improvement and 2 patients showed downgrade of cognitive functions of brain. In group of patients with carotid artery stenosis, 24 of them showed the improvement of cognitive functions after operations, 3 patients - declension and 4 - no dynamics.

Conclusion: The cognitive P300 potentials is an early and sensitive instrument of evaluation of the effectiveness of carotid arteries reconstructive operations.


Objective: The authors present the computerized procedure used in the Department of Vascular Surgery at the AS of Florence. They also present some practical examples of computerized clinical data how they can be processed, and the information that can be obtained easily and quickly.

Methods: The introduction of computers into medical field has led to a revolution in data and patient management criteria. In a simpler bygone era, patient charts were nothing more than a few sheets of paper clipped together and slipped inside a light-weight cardboard file. Today, the average medical chart contains at least 70 pages of odd-sized forms, laboratory results, medication records, and hand-written notes. After a clinical and computerized experience lasted for at least 10 years the authors come to the conclusion to develop a new computerized instrument (Argos Dedalus sistem) built with the aim to look after the patient from the first contact in the ambulatory, during all the pre operative period (preoperative evaluation), informed consent, hospitalization, surgical intervention, post operative care (drugs and nurse...), follow up. All these phase are harmonically linked in our systems in a continuum of information generated in all the phase of the clinical pathway working on this workflow technologies. True automated management of patient records is now available through patient data management systems.

Results: A growing recognition of the costs and risks of data replication within paper-based charting systems is driving the healthcare industry toward Electronic Patient Record systems. Better quality patient care data, provided by computerized records, is likely to be necessary but not sufficient to improving the efficiency and effectiveness of the healthcare system. Intelligent application of this information will be essential. The equipment actually in use in our department is organized in 14 terminal, 1 server with automatic back up procedure, web connectivity for remote patient care, wireless availability for “on bed data entry”. Furthermore, to be truly effective, electronic patient record systems must address ancillary functions such as dictation and transcription.
Conclusion: From our data evaluation easily highlight the improvement that this system has lead to the clinical management of the patient with an improvement in patient safety, care quality, and communication among all the actors of the clinical scenario but particularly with the patient which every time feel in the centre of a well organized procedure finding the front line staff with the tools to settle the problems and to answer questions.

V11 - 24
SURGICAL MANAGEMENT OF INFECTED ISCHEMIC DIABETIC FOOT
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Objective: Analysis of all the early and late results of infected Ishaemic Diabetic Foot (IDF) limb salvage procedures in order to get preoperative evaluation on revascularisation according to clinical status of diabetic foot (by Wagner classification) and angiographic findings on involved limbs. Methods: The clinical 5-year material (74 IDF) includes all the early and late results of simultaneous and sequential combination of limb salvage procedures (revascularisation and mini-amputation). Results: The IDF type Wagner 2-4 have been treated with a combination of revascularisation and mini-amputation procedures in several operative acts, while the IDF type Wagner 1 have also been treated with combined surgery but in only one operative time. Staging combined limb salvage procedures have been mostly sequential (53 treated IDF) with previous mini-amputation surgery followed by delayed revascularisation. Early results (within 6 months) of this kind of procedures can be indicated as good (2/3 of IDF have been salvaged) while the late results can be indicated as satisfactory (only 1/3 of IDF have been salvaged within 2 years follow-up).

Conclusion: Sequential limb salvage surgery (revascularisation + mini-amputation) is the treatment of choice for patients with IDF. Only for IDF type Wagner 2, as alternative, is allowed to use combined simultaneous limb salvage surgery. Limb salvage success of IDF is in a direct proportion with the infect eradication and capability of arterial “run-off” on involved limb.

V11 - 25
FACE AND NECK ANGIODYSPLASIAS - MODERN PRINCIPLES OF TREATMENT WITH APPLICATION OF ELEMENTS OF PLASTIC SURGERY
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Objective: Patients with vascular malformations in the area of face and neck are difficult for treatment on account of anatomic peculiarities of this area. In some cases standard resections are absolutely impossible thus inducing to search new ways of wound surface closure with application of reconstructive surgery principles. Methods: Results of treatment of 18 patients (mean age - 26.6±10.8 years) with face and neck angiodyplasias (7 cases - venous, 11 - arteriovenous) were estimated. Diffuse affection of two or more anatomic areas was revealed in 11 patients. Extension of affection was determined by the data of clinical investigations and DS of soft tissues. Final diagnosis was performed with application of the methods of CT and MR angiography. Results: Eleven procedures of preoperative superselective embolization with application of hydrogel emboli were performed in 9 patients as an obligatory part of treatment with the infect eradication and capability of arterial “run-off” on involved limb. Excision of angiodyplasias more radically. Autodermoplasty with a split skin flap is to be performed in a long-term time. Wound surfaces are closed both with mobilized flaps (e.g. neck flap) and flaps on microvascular anastomoses. Surgical interventions are to be performed with application of the apparatus of blood return system and armed intubation tubes.

V11 - 26
SURGICAL AND ENDOVASCULAR MANAGEMENT OF ARTERIOVENOUS MALFORMATION
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Objective: Management of Arteriovenous malformation (AVM) remains a major challenge to vascular surgeons. A multidisciplinary approach was introduced in our hospital to manage these cases since October 2003. This is a report of our experience in the diagnosis and treatment of such cases. Methods: A prospective study was done on all patients with symptomatic AVM admitted to our unit since the above date until now. All patients had preoperative duplex scan, MR and conventional angiography. A multidisciplinary team assesses and treats these cases according to its type. Results: Eighteen cases were included in this study with mean follow up of 10 months. Ten cases were predominately venous and treated with surgical excision. Six cases were high flow fistula and were treated with preoperative embolization followed by surgical excision. Two cases were treated with super-selective embolization alone. The complication rate was low 21% and all were minor. Conclusion: Management of AVM by a multidisciplinary approach that integrates surgical and endovascular therapy appears to improve the results with limited morbidity and no recurrence during early follow up.

V11 - 27
AN UNUSUAL CASE OF CLAUDICATION: THE ADVENTITIAL CYSTIC DISEASE OF THE POPLITEAL ARTERY
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Objective: Cystic adventitial disease (CAD) is an uncommon cause of peripheral arterial occlusive disease (PAOD). The precise of cystic formation between adventitial and medial layers of the artery causes a compression ab estrinsco, which leads to a dynamic exercise-dependent flow inhibition. In the last 5 years more than 2000 patients suffering of PAOD were treated at our Department, and in two cases a popliteal CAD was identified. Methods: Two young males with no risk factor for vascular disease were presenting similar symptomatology: unilateral intermittent claudication in calf region with free symptom distance of approximately 200 m, worsened in the course of the last few months. On examination we noticed the disappearance of foot pulses during the knee joint flexion. The Ultrasound and Color Doppler Sonography study showed a typical cystic hypoechogenic lesion in the popliteal artery wall with severe subsequent artery stenosis. The Computed tomography scan confirmed the present of multilocular adventitial popliteal cysts. On the basis of these results we planned a surgical resection of the cyst for both cases. Results: The popliteal artery was exposed through a posterior approach in both cases. The pathognomonic features of CAD were clear: a circumscribed enlargement of arterial caliber, from which, on longitudinal incision, escaped an orange, pressurized, and gelatinous mass. No communication of cyst with the joint was noted. We resected the adventitial layer, preserving the arterial continuity, without the necessity of graft bypass. The postoperative course was uneventful for both patients. The intermittent claudication promptly resolved and at follow-up the duplex Doppler Sonography showed a good patency of popliteal artery and no signs of cyst recurrence, respectively at 4 and 2 postoperative year. Conclusion: Cystic adventitial disease is a rare cause of vascular disease, and in our experience is present in about 1/1000 patients with PAOD. The clinical suspicion is especially for young people with claudication and without risk factors for atherosclerosis. In our opinion the surgical treatment is indicate in all cases presenting a severe claudication, with an hemodynamic stenosis at duplex Doppler (signs of increased systolic and diastolic velocities, and distal flow reduction). The radiological approach -percutaneous aspiration under US guidance- has the disadvantage that the cyst fluid can be re-excreted by the cyst lining in about 30% of patients; therefore we think that the treatment of choise remains the surgical resection.
V11 - 28
AORTOILIACFEMORAL SEQUENTIAL BYPASS IN THE TREATMENT OF VASCULOGENIC IMPOTENCE WITH AORTOILIAC OCCLUSIVE DISEASES
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Objective: Leriche first pointed out the association between aortic occlusion and impotence in 1923. Leriche’s Syndrome consists of terminal aortic occlusion, impotence and weakness of the thigh muscle. Although aortoiliac surgery carries a high risk of sexual dysfunction postoperatively, approximately 1/4 of patients who have vascular impotence, regain normal sexual function after aortoiliac revascularization. Increased pelvic circulation provides sexual improvement. Penile blood pressure can be measured by using penile Doppler USG preoperatively.

Methods: Two patients who suffered from vasculogenic impotence with thigh and calf pain in Rutherford - Fontain II Classification were referred to our clinic. Preoperative DSA and Doppler USG revealed common iliac stenosis at the external - internal iliac arterial junction in the both side in one and only in left side in the other. Patients were hypertensive, nondiabetic, hypercholesterolemic and smoker. BMI is normal in one the other was obese. PSA was high in one. Pressures of the cavernosal arteries and dorsal penile artery were measured by penile Doppler USG before and after papaverine injection. Testosterone, PSA level in blood, penile-brachial index and penile - iliac index were checked before and after operation. Dacron Y graft implantation with right aortoiliac, left aortoiliac sequential bypass was performed in one patient. Only left aortoiliac sequential bypass with Dacron graft was done in the other.

Results: Significant penile blood flow increasing in the postoperative measurements was detected and both patient regained normal sexual function.

Conclusion: It is important to pay attention in order to provide at least on one side increased blood flow of internal iliac artery, especially in the left side for the adequate pelvic blood flow which can also be enhanced with femoral artery anastomosis by aortoiliac sequential bypass. The aortoiliac sequential bypass procedures can reverse vasculogenic impotence in aortoiliac occlusive diseases.

V11 - 29
SURGICAL TREATMENT OF ATEROSCLEROTIC LESIONS OF AORTA AND ILCIAC ARTERIES IN PATIENTS AGE 70 YEARS OR OLDER
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Abstracts/Interactive CardioVascular and Thoracic Surgery

Objective: Severe atherosclerosis is a major contributor for death in septuagenarians and octogenarians and a cause of multiple vascular-related ailments, including claudication and limb loss. The general treatment principles of these patients still remain unclear. The most surgeons prefer to treat these patients without surgical methods, and in case of a severe limb ischemia to perform a palliative above-knee amputation.

Methods: From 1998 to 2000 24 aortobifemoral shunting and 52 remote endarterectomies with the Ring Strip Cutter device were performed in 76 patients. The median age was 78.6 (71-94) years. The first control group included 30 patients above-knee amputations were performed. The second control group included 78 nonseptuagenarians. Indications for operation were a severe limb ischemia. They underwent aortoiliacofemoral remote endarterectomy with the Ring Strip Cutter device. Enrollment of patients was equally over the years. All patients suffered from long segmental occlusion or multiple stenosis of aortoiliacofemoral segment. Pokrovski classification was used to assess the stage of ischemia. Follow-up consists of clinical evaluation, Doppler, duplex scanning, and angiography on indication. Patency was assessed by clinical examination and duplex monitoring. Kaplan-Meier survival curves were constructed and compared by using the log-rank test.

Results: Early postoperative mortality in main group was 5.1% and was higher than in second control group -2.3% (P<0.01). I comparison with those groups early postoperative mortality in the first control group was 23.3%(P<0.01). Because of insufficient tissue blood flow only 30% of stumps were healing by first intention. In 46% cases reamputations were performed, in isolated instances coxal exarticulation were required. Life table analysis in main group shows a five year patient survival rate of 56.6% and it was significantly higher than at first group. This parameter was highest in the second control group - 71.2% (P<0.01). The five year primary patency rates after remote endarterectomy of iliac arteries were 93.3% and only 80.7% after aortofemoral shunting. Five-year limb salvage rates after remote endarterectomy were 100%. Five-year limb salvage rates after aortofemoral shunting were 96.6%. Similar results were received in the second control group.

Conclusion: We recommend performing revascularisation in octogenarians and septuagenarians. Above-knee amputations are not always provide a good healing of a stump and are accompanied by high mortality in the early and late postoperative periods. After reconstructive interventions a good primary patency and survival rates were noted and that explains high quality of life of operated patients.
09.00-10.30
MAY 14, 2006 4TH CONGRESS DAY

12TH VASCULAR SCIENTIFIC SESSION
PERIPHERAL VASCULAR DISEASE II

V12-1
OPEN REPAIR VERSUS ENDOVASCULAR TREATMENT FOR ASYMPTOMATIC POPLITEAL ARTERY ANEURYSM: RESULTS OF A PROSPECTIVE RANDOMIZED STUDY
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Objective: The aim of this prospective randomized study was to evaluate the relative risks and advantages of using the Hemobahn graft for popliteal artery aneurysm (PAA) treatment compared to open repair (OR). Primary end-point were: patency rate, secondary end-points were hospital stay, length of surgical procedure.

Methods: The study was a prospective randomized clinical trial carried out at a single centre from January 1999 to February 2004. Inclusion criteria were: 1. aneurismal lesion in the popliteal artery with a diameter > 2 cm at the angio-CT scan 2. proximal and distal neck of the aneurysm with a length >1 cm to offer a secure site of fixation of the stent-graft. Exclusion criteria were: 1. age <50 years, 2. poor distal run-off, 3. contraindication to anti-platelet, anti-coagulant or thrombolytic therapy, 4. symptoms of nerve and vein compression. The enrolled patients were thereafter prospectively randomized in a 1:1 ratio between OR or endovascular therapy (ET). The follow-up protocol consisted on duplex ultrasound scan, ankle-brachial index (ABI) measured even during force leg flexion at 1, 3 and every 6 months. Patients of Group B underwent an angio-CT scan and plain radiogram of the knee with leg flexion (+120°) at 6, 12 months and than every year.

Results: Between January 1999 and February 2004 a total of 32 PAAs (16 OR Group A - 16 ET Group B) were performed. Bypass and exclusion of the PAA was the preferred method of OR; no perioperative graft failure was observed. Twenty two stent-grafts were placed in 16 PAAs. Endograft thrombosis occurred in 1 (6.25%) case in the postoperative period. The mean follow-up period was 46.3 months (range 12-74) for Group A and 46.1 months (range 12-67) for Group B. The Kaplan-Meier analysis showed a primary patency rate of 100% at 12 months for OR and of 86.7% at 12 months with a secondary patency rate of 100% at 12 and 36 months for ET. No statistical differences were observed at the log-rank test. The mean operation time (155.3min. OR - 75.4min. ET) and hospital stay (7.7 days OR - 4.3 days ET) were statistically longer for OR respect to ET (P<0.01).

Conclusion: We can conclude, with the power limitation of the study, that PAA treatment can be safely performed using either OR or ET. The choice of the ET has several advantages as quicker recovery and shorter hospital stay.

V12-2
ENDOVASCULAR REPAIR OF ISOLATED COMMON ILIAC ANEURYSMS WITH SHORT PROXIMAL NECK USING ENDOFIT STENT GRAFT
Department of Vascular and General Surgery, Aristotle University of Thessaloniki, Papageorgiou, Thesaloniki, Greece

Objective: To evaluate the feasibility and efficacy of a specific endograft for treatment of isolated common iliac aneurysms with short proximal landing zone.

Methods: From 2003 to 2005, 7 high-risk (ASA III/IV) patients with isolated common iliac artery aneurysms with less than 10 mm proximal landing zone were treated with Endofit (Le Maitre Vascular, Germany) self expandable endograft with bare proximal stent. The proximal bare stent was deployed into the terminal aorta and the covered segment of the graft excluded the lack of the aneurismal artery. The contralateral iliac axis was left patent. All patients gave informed consent and were followed with contrast-enhanced computed tomography at 1, 6, 12, and 24 months.

Results: Endofit stent-grafts were implanted successfully in all patients. Perioperative mortality was zero. In 5 cases the ipsilateral internal iliac artery was intentionally covered because the aneurysm was extended to its orifice. During the 20 months median follow up no endoleak occurred. Thrombosis of the graft occurred in 1 case during the postoperative period due to severe external iliac artery calcification and kinking which was initially under-estimated. The deficit was treated successfully with fem-fem cross over by-pass. During follow-up all patients are alive. None of the aneurysms has ruptured or been converted to an open procedure. Graft migration, serious infection, distal embolization, or any other serious complication has not been observed.

Conclusion: In high surgical risk patients, repair of isolated common iliac aneurysms with short proximal landing zone, using Endofit tapered stent graft with bare proximal stent is feasible and efficacious. Midterm results appear quite satisfactory in this small cohort. More cases and longer follow-up are necessary to draw safer conclusions.

V12-3
PERCUTANEOUS TRANSLUMINAL ANGIOPLASTY WITH DIRECT STENT PLACEMENT IN LOWER EXTREMITY ISCHEMIA
Hospital Servidor Público Municipal, São Paulo, Brazil

Objective: The purpose of this study was to estimate effective of the percutaneous transluminal angioplasty with direct stent placement in lower extremity ischemia.

Methods: From July 2004 to September 2005, 49 limbs in 45 patients with critical limb ischemia (pain at rest in 15 [30.6%] and ulcer/gangrene in 36 [89.4%]) were treated with endovascular intervention with direct stent placement. The following variables were analyzed was clinical signs (pain at rest reduction and ischemic ulcer improvement). Patency was evaluated using ultrasound.

Results: A total of 49 limbs were treated in 45 consecutive patients with critical limb ischemia, 46.9% involving iliac segment, 40.8% femoropopliteal, 8.1% tibial arteries and 4.1% reversed saphenous vein bypass. Mean follow-up was 6.4 months (3 to 14 months). Technical success was achieved in 95.9%. Clinical success was obtained in 91.1% (pain at rest only) and 82.35% (ischemic ulcer). There was 0% mortality (intraoperative) and 1% incidence mortality for myocardial ischemia in 3 months postoperative. In each subgroup, the primary patency, continued clinical improvement and limb salvage rates at six months were 95%, 95% and 100% in iliac group, 84.2%, 89.4% and 94.7% in femoropopliteal group and 66.6%, 66.6% and 100% in tibial group. Conclusion: The percutaneous transluminal angioplasty with direct stent placement can be the primary choice for the treatment of critical limb ischemia due to iliac and infrarenal arterial occlusive disease.

V12-4
IS THERE ANY INDICATION FOR ABOVE KNEE SFA REPAIR?
L. Castellani
University of Tours, France

Objective: Femoro-popliteal occlusive diseases represents the most frequent localization (70%) of atherosclerosis in the lower extremities (PAD) and the superficial femoral artery (SFA) represents the most targeted region (50%of the patients ). In fact, the deep femoral artery (DFA) is the most important collateral vessel for bypassing the obstructed SFA and is essential for maintaining limb viability. It is important to distinguish patients with intermittent claudication (IC) and with Critical limb ischaemia (CLI). It is widely agreed that adverse limb outcomes such as gangrene and amputation are relatively rare among patients with IC.

Methods: For these patients, all the trials and meta-analysis have shown that, although angioplasty achieves better results at 6 months, by 24 months there is no significant difference in walking distance and quality of life in patients treated with exercise therapy. Superficial femoral angioplasty is a waste of time and is not recommended to treat claudication. For patients with CLI or incapacitating IC, it is most important to understand risk and benefit of each therapy. The TransAtlantic Inter-Society Consensus (TASC) document classified SFA lesions according morphology and complexity. In patients with TASC A,B,C lesions, without patent DFA, endovascular therapy is the treatment of choice (angioplasty, endografts, subintimal angioplasty, remote endarterectomy). In patients with TASC D lesions, the majority of patients will be considered for endovascular procedure as the first line of treatment. Only in case of SFA extensive calcifications, an above knee bypass is recommended (a saphenous vein bypass (SV) or a PTFE bypass to spare SV for later use). In patients with TASC D lesions, below knee lesions, surgical bypass is the gold standard.

Conclusion: Conservative management is indicated for mild,moderate IC, and there is insufficient evidence to show a benefit of stenting. For patients with Incapacitating IC or CLI, Endovascular procedures are indicated and bypass Surgery should be reserved for patients in whom endovascular procedures fail.
V12 - 5
POPITLEAL ARTERY ANEURYSMS. CLINICAL PRESENTATION AND SURGICAL REVASCULARIZATION
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Objective: Popliteal Artery Aneurysms (PAAs) are burdened with thromboembolic complications followed by amputation in 20%-30% of the patients. Optimal results are function of early diagnosis and elective surgical treatment.

Methods: Between January 1980 and December 2005, 26 patients (24 men and 2 women), with mean age 65.1 yrs (range: 38 - 82 yrs) (SD±11.7) were admitted into our vascular surgery unit because a PAA; 23 pts out of them were surgically revascularized. At the admission, 11 pts presented acute limb ischemia, 2 pts complained of rest pain, 2 pts complained of Intermittent Claudication, 6 pts presented signs of compression, and 5 pts were asymptomatic. Eighteen pts had a true aneurysm, 3 pts had an infectious pseudoaneurysm, and 4 pts had a posttraumatic pseudoaneurysm. The PAA mean diameter was 5 cm (range: 3 - 10 cm). Fifteen pts were treated by a femoro-popliteal graft, 4 pts had a popliteal graft, 2 pts underwent terminal-arterial anastomosis, In 1 pt it was performed a BK femoro-popliteal bypass and in 1 pt a femoro-tibioperoneal trunk bypass was carried out. In 3 pts it wasn’t carried out any revascularization because the massive soft tissue infection in 2 pts, and the irreversible leg ischemia in 1 pt.

Results: In postoperative period three pts died with a mortality rate of 13%. Three pts that weren’t revascularized underwent amputation. Seven out 23 revascularized pts had postoperative graft thrombosis with 70% postoperative patency rate. Six pts of them underwent thrombectomy and 1 pt was amputated because the irreversible ischemia. Four out 6 pts treated by thrombectomy were unsuccessful and underwent amputation. We obtained a postoperative salvage rate of 79%. Considering 23 revascularized pts, 5 out 10 (50%) pts presenting with acute limb ischemia underwent amputation while 2 out 15 (13%) were amputated in the control group (P>0.005). Considering 26 admitted pts, 6 out 11 (54.5%) pts with acute limb ischemia underwent amputation while 2 out 15 (13%) were amputated in the control group (P>0.005). In the FU we had a femoro-popliteal graft thrombosis treated successfully by local thrombolytic therapy.

Conclusion: Better postoperative results in terms of patency and limb salvage rate are obtained in pts operated in election. Elective surgical therapy must be considered the first line treatment.

V12 - 6
DUPLEX SURVEILLANCE FOR INFRA-POPITLEAL VEIN GRAFT BYPASS
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Objective: To determine the outcomes of infra-popliteal vein graft bypass and the influence of duplex surveillance.

Methods: A retrospective analysis of operations performed by one consultant in a 5-year period. Patient demographics, risk factors for occlusive arterial disease, operative details, duplex findings and subsequent interventions were collated through case-note analysis.

Results: Eighty-five infra-popliteal bypass grafts were performed in 77 patients, 61 in males (71.8%) and 24 in females (28.2%), mean age 69.4 years (range 34 - 90). Seventy-eight operations were for critical ischemia (91.8%), 3 for acute ischemia (3.5%) and 4 for disabling claudication (4.7%). The 4-week, 1-year and 2-year primary patency rates were 80.4%, 59.4% and 48.6%, respectively. The 4-week, 1-year and 2-year primary-assisted patency rates were 80.5%, 62.9% and 53.2%, respectively. The 4-week, 1-year and 2-year secondary patency rates were 84.2%, 63.8% and 51.5%, respectively. The 4-week, 1-year and 2-year amputation rates were 8.9%, 20.9% and 31.4% respectively. Twenty-five significant primary stenoses were detected in 21 patients, with re-intervention after mean duration of 237 days (range = 59-746), 16 (76.2%) being completely asymptomatic. Ten significant re-stenoses (5 asymptomatic) were detected in 10 grafts requiring secondary re-inter-

V12 - 7
POSSUM EQUATIONS ACCURATELY PREDICT 30-DAY INFRAINGUINAL BYPASS POSTOPERATIVE MORTALITY
Vascular Laboratory, Alderson House, Hull Royal Infirmary, Hull, England

Objective: P-POSSUM and V-POSSUM scores have previously overpredicted mortality in vascular patients. Procedure-specific POSSUM equations have been proposed in order to overcome this problem. This study aims to assess whether P-POSSUM & V-POSSUM overpredict mortality in patients undergoing femoropopliteal bypass.

Methods: 352 femoropopliteal bypasses (170 above knee) were performed in 280 patients (median age 58.7 years, 186 men) between June 1991 & April 2004. Indications for surgery were acute ischemia, claudication and critical ischemia in 30, 140 and 182 cases. Predicted mortality was calculated using P-POSSUM, V-POSSUM & V-POSSUM (physiology) equations. Predicted 30 day mortality was then compared with observed 30 day mortality using a chi-squared analysis.

Results: Observed 30 day mortality/patient episode was 4.2% (15 patients). For the group as a whole, P-POSSUM, V-POSSUM & V-POSSUM (physiology) all significantly over predict mortality for the group as a whole (P<0.05). Observed 30 day mortality varied considerably according to indication for bypass. Acute ischemia, critical ischemia & claudication were associated with observed 30 day mortalities of 13%, 4.9% and 1.4%, respectively. All 3 POSSUM models provided good fit with observed mortality when analysed according to indication for bypass (p>0.05).

Conclusion: Reinterpretation of the application of POSSUM equations (for example dividing patients according to indication for procedure) may eliminate the necessity for the derivation of procedure specific equations. POSSUM equations could then become more powerful and accurate tools for operative risk assessment.

V12 - 8
COMPOSITE BY-PASS WITH DISTAL ARTERIOVENOUS FISTULA FOR LIMB SALVAGE IN PATIENT WITH CRITICAL LIMB ISCHEMIA 7 YEARS EXPERIENCE WITH 2 DIFFERENT TECHNIQUES FOR DISTAL ANASTOMOSIS
Galeazzi E., Ganassini L., Turini L., Corato M., Doro S., Toffon A., Masotti D.
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Objective: A distal arterovenous fistula in peripheral reconstructions in patients with critical limb ischemia and poor run off is usually performed to reduced peripheral resistance.

Methods: In our vascular surgery unit from 1998 until 2005 510 patients received a femoro distal by-pass for limb salvage. 170 reconstructions in 165 patients (109 m,56 f, mean age 73.1 years .32% fontaine iii, 64% fontaine iv, 4% acute ischemia, 45% diabetics)were performed using a composite by-pass. An human umbilical vein was anastomosed at the end with a pantalonix vein graft or an “elephant trunk” graft made of autologous vein or cryopreserved omologous vein.

Results: primary patency at the discharge from the hospital was 93% cumative patency and limb salvage at 5 years were 56% and 58.5% with an incidence of redo surgery of 27%, mortality 0.9%.

Conclusion: In patient with critical limb ischemia, no vein available for a distal by-pass and poor run off a composite graft with a distal arterovenous fis-tula can offer a good chance for limb salvage preventing limb amputation.

V12 - 9
SPINAL CORD STIMULATION (SCS) FOR UNTREATABLE CRITICAL LIMB ISCHEMIA (UCLI): EXPERIENCE AND LATE RESULT OF A SINGLE CENTRE
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Objective: The treatment of UCLI with SCS has been suggested by many years, but only recently, a Cochrane review showed an evidence for this
The purpose of this study is to evaluate late results of a single centre in patients submitted to SCS for UCLI. Methods: Between 1989 and June 2003, 99 consecutive patients (72 males, mean age 72 years (53-89), affected with critical or sub-critical ischemia of the lower limbs were submitted to SCS following a prospective open study. More than 94% had CLI (31.6% rest pain and 63.6% ischemic ulcers or gangrene). Indications to SCS were absolute (impossible revascularization) in 62, and relative (foreseen poor results) in 36. The indication to treatment was based on clinical and angiographic evaluation without considering TCPO2 values. All the patients were tested for about 15 days before the implantation of the definitive device.

Results: In 1 case the electrode could not be inserted because of spine pathology; 15 (15.3%) were not responders at the stimulation trial, while 82 responders (83.7%) had the implantation of the internal device. Twelve of the non responders were amputated and/or died in a short time, 1 (ASA 4 with poor run-off) was successfully revascularized and 3 (in bad conditions) were lost at follow-up. At 1 year follow-up, 60.9% of the 82 patients with SCS implantation were alive with limb saved, 4 (4.9%) were dead with limb saved, 24.4 were amputated and 1 (1.2%) died after amputation; only 8.5% had a follow-up <1 year. At 3 years, using the life-table analysis, we observed 61.2 limbsalvage and 56.1 survivors. Following an “Intention to treat” criteria, in our sample we recorded 77.4% limb salvage in patients with rest pain and 65.5% in p. with ulcers or gangrene; all the 6 p. with very severe claudication improved. Results in diabetics were worse.

Prevalent complications observed were: infections, lead displacement or rupture. In 8 p. the device must be removed in the follow-up for complications, 3 underwent amputation while symptom worsened in the others.

Conclusion: On the basis of our data SCS can be considered for the treat-ment of CLI when surgery is not possible or at high risk of poor results even in p. with ischemic ulcers or with gangrene of 1 or more fingers. An early treatment of patients with CLI, at the rest-pain stage, could offer a very good limb-salvage and pain-reduction rate even in patient unfit for arterial reconstruction.
C13 - 1
POST-TRAUMATIC FALSE ANEURYSMS OF THE THORACIC DESCENDING AORTA. ENDOVASCULAR TREATMENT AND MID-TERM RESULTS OF A MULTI-CENTRE EXPERIENCE
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Objective: Endovascular stent-graft repair is a promising technique for treating traumatic injuries of the descending thoracic aorta. We report the results of a multi-center study of thoracic aortic injuries treated more than 15 days after the trauma: 30 (63.8%) distal at the time of the trauma, 17 (36.2%) discovered incidentally.

Methods: Between January 1996 and June 2004, endovascular repair of the descending thoracic aorta with commercially available stent-grafts was performed in 47 patients (mean age 43±19 years) at an average of 6±11 years after the injury. Because of comorbidities, 8 patients (17%) were ruled out for being reasonable surgical candidates for conventional surgical approach. Follow-up was 100% complete and averaged 18±13 months.

Results: Stent-graft deployment was successful in all patients. No early death occurred. One late transapical paraparesis occurred. Two patients had a primary endoleak, one type I and one type II spontaneously resolutive at 1 and 6 months, respectively. Two endoleak were described after 36 months (currently monitored) and 30 months (surgical conversion), Actuarial survival estimates at 1 and 3 years were 97.7±2.3% and 87.9±9.5%, respectively. Actuarial freedom from reintervention on the descending thoracic aorta was 100% and 90.9±8.7% at 1 and 3 years, respectively. Actuarial freedom from treatment failure (a conservative, all-encompassing performance indicator including endoleak, device mechanical fault, reintervention, late aortic-related death, or sudden, unexplained late death) at 1 and 3 years was 97.7±2.3% and 74.6±11.9%, respectively. The pseudo-aneurysm mean diameter was 44±18 mm before treatment and decreased significantly (P<0.001) to 40±18 mm after.

Conclusion: Chronic post-traumatic pseudo-aneurysms are generally localized lesions on a short segment of the aorta with non-degenerative neck. These particular anatomic conditions probably explain our encouraging midterm results. A long-term follow-up is required to look for stent-graft failure or late endoleaks related to aortic degenerative evolution.

C13 - 2
LEFT VENTRICLE (LV) GEOMETRY RECONSTRUCTION LEADS TO THE RESTORATION OF SPINAL FLOW
Alishibya D.M., Gorodkov V.A., Dorofeev V.A.

Objective: To study the changing of LV geometrical parameters and blood flow in the LV after surgical LV geometry reconstruction (GR) in patients with ischemic cardiomyopathy (ICMP).

Methods: Our overall experience consists of 287 cases of LVGR with synthetic patch in ICMP patients. In all but three cases LVGR was performed in combination with CABG, in 25% of cases mitral valve repair (MVR) was performed. LV geometry and blood flows were investigated by colour Doppler method.

Results: LVGR results in restoration of nearly normal geometrical parameters of LV, in reduction of end-systolic and end diastolic volumes and in substantial growth of LVEF (+12%). Significant improvement of hemodynamic status was observed: decreasing of pulmonary artery pressure. As a result of reconstruction, the normal spiral mechanism of contraction and spiral streams in the LV are restored. LVGR reduces a degree of mitral insufficiency (MI) and a probability of ventricular arrhthmias.

Conclusion: The basic mechanism causing improvement in clinical condition and contractility of ICMP patients after LVGR is the restoration of spiral blood flow in the LV cavity, normalization of geometrical parameters, normalization of MI and complete myocardial revascularisation. Hospital mortality was 6.8%. In the follow-up period positive effect of LVGR was observed in 80% of patients.

C13 - 3
REOPERATION IN PATIENTS WITH MECHANICAL PROSTHESIS: INCIDENCE AND MODES OF FAILURE
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Objective: Our aim was to evaluate the incidence, modes of failure, technical issues and outcomes related to reoperations.

Methods: From 1995 to 2005, 1020 pts underwent to the valves replacement and were followed with serial 2D echo. Data was retrospectively collected in a database.

Results: A reoperation was required in 113 pts (11.1%). Symptoms were mainly related to cardiac failure and sepsis in presence of prosthetic endocarditis. Modes of failures and pathologic findings were as follows: paravalvular leak - 23 pts, progressive of primary disease or its recurrence - 25 pts, progressive valve trombosis - 9 pts, prosthetic endocarditis - 37 pts., residual insufficiency or technical mistakes - 19 pts. Overall mortality rate was 21.2%. 71 reoperations were performed through the right sided thoracotomy and 30 through median sternotomy: AV rereplacement, reconstruction or rereplacement of the mitral and tricuspid valves, closure of different fistulas in infective endocarditis and etc. Mean age at 42±7 year, male/female ratio 2/1, NYHA class 2.9±0.7. If it was necessary more than available area for manipulation the femoral artery was cannulated instead of the ascending aorta to provide adequate CPB. The additional transverse sternotomy was performed in 4 patients underwent to reoperations following previous cardiac procedures when it was difficult to carry out cardiolysis.

Conclusion: Reoperation in patients with mechanical valves is mainly related to technical problems. Right sided anterolateral thoracotomy is less traumatic approach in this category of patients, provides a good exposure of the ascending aorta and aortic root.

C13 - 4
ADVANCED EARLY MITRAL RECONSTRUCTIVE PROCEDURES IN ACTIVE INFECTIVE ENDOCARDITIS BASED ON FUNCTIONAL ANATOMY
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Kuprijanov’s Cardiovascular Surgery Clinic, St.Petersburg, Russian Federation

Objective: The timing of mitral surgery has changed considerably to an early surgical concept preceding not only the signs of left ventricular dysfunction but severe destructive changes. The purpose of this study was to review the risk-benefit ratio of mitral valve repair in active IE patients with mild or moderate mitral regurgitation.

Methods: From September 2001 to December 2005, 61 patients were operated on for mitral regurgitation following IE. All patients were divided into 2 groups (1 – MV replacement (27 pts), 2 – MV valvuloplasty (34 pts)). Patients were in New York Heart Association class I or II with grade II-III mitral regurgitation. Mean age was 33.1 years (52.9% of patients younger than 23 years old). While performing preoperative transECHo studies the changes of the leaflets were evaluated using developed protocol based on precise Lam’s anatomical classification of the MV. Leaflet prolapse or flail leaflet following destructive changes were the mechanisms responsible for regurgitation in 26 (76.5%) patients of second group. In first group we observed extensive destructive process. All patients were operated during 2-4 weeks since the onset of the disease. The second group were operated perforations which were sutured. Mitral valve repair was performed in 34 patients, MVR in 27 pts. A standard rigid prosthetic ring was used in 2 patients and in 2 patients the dosage segmental suture annuloplasty was performed as additional procedures.

Results: Hospital mortality was 2.9% in second group, 7.4% in first. In the early post-operative period in 3 patients of second group, it was necessary to fulfill MV replacement (8.8%). During one year after operation 4 patients were reoperated (2 underwent MV replacement and 2 repeat valvuloplasty). Trivial residual mitral regurgitation observed in 3 patients.

Conclusion: (1) Mitral valve repair for mitral regurgitation in active IE patients can be performed with low mortality and good valve function. (2) Early repair may be advocated on the basis of pathomorphological changes and valve reparability rather than regurgitation and symptoms.

C13 - 5
MITRAL VALVE REPLACEMENT WITH OR WITHOUT PRESERVATION OF SUBVALVULAR APPARATUS
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Objective: The aim of this study was to evaluate the clinical significance of patient-prosthesis mismatch (PPM) and develop practical recommendations for adequate valve selection before an operation.

Methods: To assess the prevalence of PPM and its influence on long-term survival, symptomatic status and quality of life we studied 500 consecutive patients undergoing aortic valve replacement. PPM was defined in 70 cases (14%). Patients with effective orifice area (EOA)/body surface area (BSA) ratio of >0.85 cm²/m² showed unstable postoperative haemodynamic performance, excessive transvalvular gradients, decreased left ventricular hypertrophy regression. Overall postoperative mortality was 27 cases (5.4%). Postoperative mortality in the group of patients with PPM (indexed EOA <0.85 cm²/m²) was 35.6% (25 cases). Patients with and without PPM were similar with respect to postoperative mean transvalvular gradient. 21±7 mmHg vs. 14±5 mmHg, respectively. In patients with EOA <0.65 cm²/m² mean transvalvular gradient was 35±2 mmHg. Moreover, long-term results also demonstrated that only in patients with PPM haemodynamic performance got worse.

Results: There was no surgical implantation problem, mean X-clamping time was 46.4 min for the valve-replacement only and no re-operation due to prolonged bleeding was necessary. All patients survived the early postoperative period except this one patient; however one patient developed a transient ischemic stroke. Echocardiographic evaluation before discharge demonstrated favourable hemodynamics of the valve prostheses with mean transvalvular gradients of 14.7±4.8 mmHg. Transvalvular gradients were even lower after three months follow-up. No regurgitation across the valve was seen in any of the cases. There was one paravalvular leak with no hemodynamic relevance, which was implanted at the beginning of our learning curve.

Conclusion: Early experience with the SOLO FREEDOM aortic heart valve is encouraging. It offers excellent hemodynamic results and low transvalvular gradients. It is a suitable device for patients in whom anticoagulation should be avoided, and offers a very surgeon-friendly implantation with short X-clamping time.

C13 - 8 OUTCOMES AFTER TRICUSPID VALVE REPLACEMENT
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Objective: Tricuspid valve repair is the treatment of choice for severe tricuspid regurgitation and several techniques have been proposed. However, in some cases tricuspid valve replacement is necessary to achieve an adequate tricuspid valve function. It is known that a high mortality is associated with this procedure. The purpose of this study is to evaluate the outcomes of tricuspid valve replacement in our service and the follow up of patients after discharge.

Methods: All patients with tricuspid valve replacement between January 1998 and December 2005 were included. Baseline clinical characteristic of patients were analysed. Survival of patients was analysed using Kaplan-Meier and long-rank tests. All patients were contacted by examination or by telephone.

Results: Between January 1998 and December 2005 197 patients underwent tricuspid valve surgery alone or together with another procedures. A total of 28 patients (14.2%) underwent tricuspid valve replacement forming our target population. Mean age was 59.9 (SD 8.7) with a female/male ratio of 22/8. 22 (78.6%) patients have received previous cardiac surgery. Rheumatic affection in association or not with functional tricuspid regurgitation was the most common cause of tricuspid valve regurgitation (64.3%). Seventeen patients were in NYHA class III and 11 were in NYHA class IV. Twenty two patients had received previous cardiac surgery, 8 with a previous tricuspid valve repair. 50% of patients suffered pulmonary hypertension. A biological prostheses was implanted in 24 patients. Thirty-day mortality was 17.9% (n = 5). Pulmonary hypertension or previous cardiac surgery did not predict mortality. Mean follow up was 21.9 months. Two-year survival was 49.8%. After surgery 12 patients were in NYHA class I, four in NYHA class II and two in NYHA class III.

Conclusion: In our patients operative mortality was 17.9% after tricuspid valve replacement. Two-years survival was 49.8%. In those patients surviving surgery an improvement in NYHA class is expected. High risk factors as pulmonary hypertension or previous cardiac surgery did not increase mortality in our patients. Severe tricuspid regurgitation must be properly corrected in patients undergoing cardiac surgery.

C13 - 9 MULTIVARIATE ANALYSIS FOR OPERATIVE MORTALITY IN OBSTRUCTIVE PROSTHETIC VALVE DYSFUNCTIONS DUE TO PANNUS AND THROMBUS FORMATION
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Objective: The aim of this study is to investigate the risk factors for early hospital mortality in the reoperations which were performed for obstructive prosthetic valve dysfunction.

Methods: Between January 1994 and April 2005, 63 patients underwent reoperation for obstructive prosthetic valve dysfunction. The mean age of the patients was 40.3±12.8 years. The mitral valve was replaced in 47 (74.6%) patients, the aortic valve in 6 (9.5%) patients and both valves in 10 (15.9%) patients. Forty-three (68.2%) patients were re-operated in emergency conditions.

C13 - 7 SOLO FREEDOM STENTLESS PERICARDIAL AORTIC VALVE: A NEW PROMISING HEART VALVE FOR THE OLDER PATIENTS
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Objective: Due to the aging population demographics and the need to avoid anticoagulation, a wide range of biological heart valves is available on the market. Stentless valves have gained in popularity because of advantages in hemodynamics and durability compared with stented bioprostheses. In addition, surgeon-friendly implantation is an important factor. This study was conducted to evaluate the benefits of the SOLO FREEDOM aortic heart valve with the postoperative hemodynamics and clinical outcome.

Methods: Between October 2004 and September 2005, 25 patients (11 women, 14 men mean age 76.2 years) underwent first time aortic valve replacement with the above mentioned valve. The indication for surgery was severe aortic stenosis. Ten patients had concomitant myocardial revascularization. Ejection fraction was over 50% in all patients, except of one high risk patient, a 79-years-old lady with 25% of ejection fraction, left main stenosis, preoperative kidney failure who died of low cardiac output. Postoperative echocardiographic examinations were performed before discharge from the hospital and again three months later.
Results: Early hospital mortality was seen in 13 (20.6%) patients. The etiology of the valve dysfunction was pannus formation in 45 (71.4%) patients, thrombus formation in 18 (28.6%) patients. Pannus and thrombus were localized at the atrial side of the prosthetic valve in 15 (23.9%) patients, at the ventricular side in 13 (20.6%) patients, and at both sides in 35 (55.5%) patients. Inadequate anticoagulation was diagnosed in 28 (28/63; 44.4%) patients. Mean INR level in those 28 patients was detected as 1.4±0.24. In multivariate analysis, the risk factor for early hospital mortality was only left ventricular ejection fraction (P = 0.015; Odds: 0.000, 95% CI: 0.000-0.043).

Conclusion: Reoperations for prosthetic valve dysfunction have high mortality rate. This study revealed that left ventricular dysfunction is the major determinant of surgical mortality in patients requiring reoperation for valve dysfunction due to pannus or thrombus.

C13 - 10
THORACOSCOPIC LUNG BIOPSY WITHOUT PLACEMENT OF AN INTERCOSTAL CHEST DRAIN - A SAFE OPTION?
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Objective: Intercostal chest drains (ICD) have traditionally been placed following diagnostic pulmonary wedge resections by limited thoracotomy and by video assisted thoracoscopic surgery (VATS). We evaluated the validity and safety of postoperative management without chest tube placement for patients undergoing VATS lung biopsy.

Methods: Between May 2003 and September 2005, 64 patients underwent VATS lung biopsies at a tertiary care, university-affiliated teaching hospital. In January 2004, a single surgeon commenced avoiding chest tube placement in the absence of air leaks during an intraoperative sealing test - sustained inflation to 30-35 cm H2O following resection and absence of bubbling at 90 s - using a Ryle’s tube. Twenty three patients met the criteria during the period from January 2004 to January 2005. The median age of this group was 53 years. There were 9 women and 14 men. Four patients were excluded as they were operated upon by a different surgeon.

Results: The median postoperative stay for the 23 patients was 2 days. One patient had a postoperative pneumothorax requiring placement of an ICD. The other 22 patients had an eventful postoperative period with good pain control.

Conclusion: Based on our initial experience, performing VATS lung biopsies without placement of ICDs is a safe procedure. We are now conducting a prospective, randomized trial to validate our initial observations and to assess the potential benefits of reduced postoperative pain and shorter hospital stay.

C13 - 11
NOVEL METHOD FOR BIOGLUE USE IN SURGERY FOR ACUTE AORTIC DISSECTION TYPE A
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Objective: Bleeding from anastomosis suture line is still an actual question in aortic surgery. This report will summarize our experience using a novel method of bioglue application for distal and proximal anastomoses during reconstructive surgery for acute aortic dissection (AAD) type A.

Methods: Between January 2004 and October 2005, 20 consecutive patients were treated in our center for AAD. Moderate hypothermia (30 °C) with antegrade selective cerebral perfusion via the right subclavian artery was used during ascending aorta and hemiarch reconstruction in 17 and complete arch in 3 patients. Aortic walls were reinforced with dacron felt strips and bioglue sandwiching. Following construction of the distal anastomoses, bioglue was applied on the outside, simultaneously applying suction on the outside, and bioglue sandwiching. Following construction of the distal anastomoses, bioglue was applied on the outside, simultaneously applying suction on the outside, and bioglue sandwiching. Following construction of the distal anastomoses, bioglue was applied on the outside, simultaneously applying suction on the outside, and bioglue sandwiching.

Results: There was no re-exploration or early deaths as result of bleeding. Average daily chest tube drainage was 582±150 ml/day, with duration of 2±0.9 days.

Conclusion: Our method is simple and safe to use, with excellent operative results and reduced chest tube drainage and need for transfusion.

C13 - 12
PULMONARY ENDOARTERECTOMY WITHOUT CIRCULATORY ARREST: A SINGLE CENTER EXPERIENCE
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Objective: The current surgical strategy for pulmonary endarterectomy (PEA) involves the use of extracorporeal circulation (ECC) and profound hypothermia (18-20 °C). The aim of the present study was to test the feasibility of a novel strategy of extracorporeal circulation, which could prevent bronchial back bleeding and allow a bloodless operating field, avoiding the risks associated with profound hypothermia and CA in patients undergoing pulmonary endarterectomy.

Methods: We present our clinical experience in nine consecutive patients who underwent pulmonary endarterectomy with a different strategy of extracorporeal circulation, which permits a bloodless operating field, without the need for deep hypotemnic circulatory arrest.

Results: We were able to perform pulmonary endarterectomy avoiding circulatory arrest and deep hypothermia without sacrificing the effectiveness of the procedure.

Conclusion: The initial encouraging results have convinced us to apply systematically this technique in the cases operated in our center, even though further investigations are necessary to fully examine this technique.

C13 - 13
A COMPLEX AORTIC REPAIR FOR A BICUSPIDE VALVE ASSOCIATED TO AN ASYMMENTRIC ROOT DILATATION
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Objective: We present a 8 min video of a complex bicuspid aortic valve repair associated to an asymmetric dilatation of the non-coronarian Valsalva sinus (NCS).

Methods: The video starts with a complete valve and root analysis followed by a leaflet shaving technique to mobilize the valve and the replacement on the NCS by a scalloped tubular prosthesis. Then we performed a partial subcommisural anuloplasty and a free edge reinforcement by a CV-7 Goretx suture to stabilize the repair and to recreate an Aortic root Functional Unit continuity.

Results: Two years after the procedure there is no echocardiographic evidence of aortic incompetence.

Conclusion: There are different ways to repair a bicuspid aortic valve that could be used with good results.
Results: Median follow-up time was 4.6 years with 98.9% complete follow-up achieved (5,624 cumulative patient-years). Overall 30-day mortality was 3.8% for aortic, 3.4% for mitral, and 6.7% for aortic-mitral valve replacement. No structural valve failure was encountered. After-discharge adverse events: Paravalvular leak SJM: 4 (0.13%/patient-year), ATS: 16 (0.64%/patient-year); thromboembolism: SJM: 29 (0.93%/patient-year), ATS: 27 (1.08%/patient-year); major bleeding requiring transfusion: SJM: 8 (0.26%/patient-year), ATS: 12 (0.48%/patient-year); valvular endocarditis: SJM: 1 (0.03%/patient-year), ATS: 3 (0.12%/patient-year). The estimated 10-year survival probability showed a statistically significant difference in aortic valve replacement with 65.3%±4.0% for SJM compared to 79.6%±3.3% for ATS (P = 0.006), but not in mitral valve replacement with 67.3%±6.9 for SJM vs. 50.1%±12.4 for ATS (P = 0.221), and in aortic-mitral valve replacement with 74.0%±9.2 for SJM vs. 74.3%±10.0 for ATS (P = 0.984). The 10-year freedom from valvular-related mortality was 95.6%/±1.4% for SJM and 97.3%±1.2% for ATS prostheses (P = 0.362), independent of the implantation site.

Conclusion: According our 11-year experience, both bileaflet valves showed very good clinical results with low evidence of adverse events in the mid- to long-term outcome. A significant survival benefit in long-term course was observed with ATS valves in the aortic position. Gender and/or concomitant coronary artery disease were not predictors for reduced life expectancy.

C13 - 15
AORTIC INSUFFICIENCY REASONS IN ANEURYSMS OF THE ASCENDING AORTA BY TRANSESOPHAGEAL ECHOCARDIOGRAPHY
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Objective: The purpose of study was to detect the main reasons of the aortic valve insufficiency in aorta aneurysms.
Methods: Sixty patients (pts) with aneurysm of the ascending aorta underwent the multiplane TEE examination. Etiology of disease in 57 pts was the connective tissue disorders, 3 pts had atherosclerosis of the aorta. Twenty seven pts had DeBakey’s type I or II dissection of the ascending aorta. Results: Bicuspid aortic valve without hemodynamically marked stenosis was found in 12 cases. Fifty four pts (90%) had aortic regurgitation (AR) and more than 1/2 (n-35) - severe AR (AR grade 3 or 4). The size of the aortic ring and the size of the aortic root was significantly larger in pts with severe AR (n=35) than in pts with moderate AR (n=14). Rap: 29.5±1.4 mm vs. 27.2±1.1 mm (P=0.003) and root: 57.6±2.5 mm vs. 51.1±3.9 mm (P=0.003). In 9 pts (33% of dissecting aneurysms) dissection at the level of sinuses, comissures and cusps and in 6 pts - diastolic protals of the intimal membrane to the left ventricle outflow tract led to severe AR.
Conclusion: The main reasons of severe aortic insufficiency in ascending aorta aneurysms are the enlargement of the aortic ring and aortic root due to annulo-aortic ectasia, lateral displacement of the comissures due to supraannular portion of the aorta dilatation, aortic dissection at the level of sinus, sinuses, comissures and cusps and in 6 pts - diastolic protals of the intimal membrane to the left ventricle outflow tract led to severe AR.

C13 - 16
SURGICAL CORRECTION OF HOCM AFTER FAILED TRANSCORONARY ABLATION OF SEPTAL HYPERTROPHY
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Objective: The elimination of the outflow obstruction with a myocardial infarction may lead to impaired ventricular function and predispose patients sustained ventricular arrhythmias. Although it ablates part of the proximal septum, it does not alter diastolic ventricular function. The classic Morrow technique does not allow to perform the complete resection of the muscular bar at the midventricular part of septum.
Methods: We present 3 cases of HOCM surgical correction after failed transcatheter ablation of septal hypertrophy(TASH) in symptomatic patients 29.34 and 46 years. The level of obstruction was in the mid-left ventricular cavity and thickness of IVS was maximal in middle part (30.3±3.1 mm). Follow-up (1 year after TASH) showed no any symptomatic improvement and all patients had severe symptoms and functional limitations (NYHA class 3). Ventricular arrhythmias were registered by Holter monitoring after TASH in all patients. All three patients were operated on using our technique. The excision of the hypertrophied area of the interventricular septum causing midventricular obstruction was performed from conal part of right ventricle in upper third part of IVS and in middle part anteriorly of the moderator band but without penetration into the left ventricular cavity. This excision of IVS implies avoiding the damage of His bundle right branch.
Results: Follow-up echocardiography showed a significant decrease of intraventricular gradient after surgery from 83.2±11.8 to 7.1±4.8 mmHg, the septal thickness in middle part of IVS was reduced 30.3 ± 3.1 vs. 16.2±2.3 mm. Significant symptomatic improvement (NYHA class 1) was noted postoperatively in all patients. Ventricular arrhythmias were not registered. Sinus rhythm was noted in all pts.
Conclusion: This method is a safe and effective technique for surgical correction of HOCM with severe hypertrophy and complications.

C13 - 17
A SINGLE-STEP TECHNIQUE TO TREAT EXTENSIVE THORACIC AORTIC ANEURYSM: A NEW LESS INVASIVE METHODS
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Objective: Surgical repair of complex thoracic aortic aneurysm requires a two-step procedure. A single stage approach is described here combining the new hybrid prosthesis E-VITA OPEN by JOTEC and the PLEXUS 4 dacron graft by VASCUTEK. This method decreases lower body ischemia time and avoids deep hypothermia.
Methods: Via median sternotomy increased by a small left latero-cervical incision, during brachiocephalic trunk canulation for cardiopulmonary bypass, a clamp is applied between left carotid and left subclavian artery which had previously been clamped. The aortic arch is opened, a suction line is placed in the distal aorta and the self-expanding nitinol stent graft of the E-VITA OPEN prosthesis (33 mm in diameter x 16 mm in length), selected on CT-SCAN data, is deployed in the ascending aorta. The proximal woven polyester cuff of the hybrid prosthesis is trimmed and sewed to the PLEXUS graft. A second arterial line is connected to the PLEXUS side branch to start distal aortic perfusion in normothermia with supraaortic vessel perfused from a beating heart. Then left subclavian and carotid artery are sewed respectively to the third and second branch of PLEXUS prosthesis. After aortic cross-clamping and cardioplegia infusion the brachiocephalic trunk is connected and eventually the ascending aorta is replaced. De-airing is performed, aortic clamp removed and cardiac activity is promptly resumed.
Results: The lower body ischemia is 19 min, cross-clamp and extracorporeal circulation time is 30 and 64 min, respectively. The outcome was uncomplicated. The Magnetic Risonance Imaging at 2 months shows a good result.
Conclusion: We describe a one-step procedure to treat multisegment pathological conditions affecting the thoracic aorta (proximal, arch and descending aorta). However, follow-up is necessary to confirm long-term stability of this type of repair.

C13 - 18
SINGLE CENTER EXPERIENCE WITH THE NO REACT SHELHIGH STENTLESS VALVE IMPLANTED AT DIFFERENT SITES
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Objective: The Shelhigh stentless is a totally biological conduit available for implantation in aortic, mitral or tricuspid position. The valve is glutaraldehyde cross-linked, detoxified and heparin-treated with No-React, a process that is expected to reduce calcification and tissue deterioration in the long term combined with superior hemodynamic properties. The initial clinical experience of implantation of this valve type in different sites is presented herein.
Methods: From August 2001 till July 2005 a total of 44 underwent a valve replacement procedure. Sixteen Patients received an isolated aortic valve, 10 patients received an aortic valve replacement in combination with CABG, 2 patients needed aortic valve replacement with De Vega plastic, in 4 patients a mitral valve was implanted. Four patients underwent a combined mitral and tricuspid valve replacement and in 6 patients received an isolated tricuspid valve operation. Fourteen of the operations were re-do-cases. Patient’s data were assessed retrospectively.
Results: Operation time, cross-clamp time, stay on ICU, time until discharge did not differ as compared to implantation of a “classical” biological valve. One intraoperative death occurred (2.2%). There were no valve related adverse events in surviving patients. In no case there was a necessity for reoperation due to either paravalvular leakage or insufficiency of the valve. None of the patients experienced any thromboembolic event or bleeding episode during hospitalization or the follow up period.

Conclusion: The Shelhigh stentless valve is easy to handle and implantation shows up to be safe. It is also recommendable in complex cases. Whether the promised lower calcification rate and better hemodynamic long-term properties can be achieved will have to be assessed in future years.

C13 - 20
MITRAL VALVE REPAIR WITH MINIMALLY INVASIVE TECHNIQUE
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Objective: Minimally invasive mitral valve surgery with Port-Access technique constitutes an alternative to standard sternotomy. A wider diffusion of this surgery is limited by its more demanding technique. Reduced trauma, low morbidity, fast recovery and better cosmetic results are the goals of this procedure. We reviewed short and mid-term results after six years.

Methods: From October 1999 to November 2005, a group of 155 patients (mean age: 57.9) underwent mitral valve repair with Port-Access technique through a 4 to 6 cm right anterolateral thoracotomy. Severe (4+) MR was seen in 134 patients (86.4%). In 10 patients, (6.4%) contemporary closure of atrial septal defect was done. In 18 patients, (11.6%) chronic or persistent AF was treated with cryoablation or microwave.

Results: Hospital mortality observed was 0.6% (one patient, 81 y.o., died with multi-organ failure). Mean cross-clamp time was 64.8±13.6 min. Entry for bleeding was necessary in 10 cases (6.4%). Five patients (3.2%) had conversion to sternotomy. No cases of aortic dissection were seen. Mean hospital stay was 5.5±4.8 days. One patient suffered of neurological damage at discharge, two had transient episodes. New onset of atrial fibrillation was present at 23.1% rate. Follow-up showed trivial or no mitral regurgitation in 128 cases (82.5%), 22 cases (14.1%) of mild to moderate MR was seen. Five patients underwent MV replacement during the follow up period, two of them for endocarditis.

Conclusion: Port-Access mitral valve repair constitutes an alternative technique to standard sternotomy, despite a longer learning curve. Good mid-term results can be achieved. Early discharge, and reduced trauma, constitute a marked advantage, surgical treatment of atrial fibrillation is also feasible. A wider use of this technique should be encouraged.
models (3 reinforced) rewired after midline sternotomy and separation data analysed by repeated measures anova.

Results: The electromechanical test showed more lateral displacement of the unreinforced models (P = 0.001); Four to six units, two to three units in each hemisternum, have been implanted in each patient. No intra and post-operative related complications were observed. No wound dehiscence has been observed in early postoperative and maximum follow-up of 12 months.

Conclusion: This sternal reinforcement device avoids stainless steel wires cutting through the bone, allows the use of stainless steel wires in patients with osteoporosis sternum or with complete or partial bone fractures. The electromechanical test and first clinical results suggest that the new sternal reinforcement device might be of benefit in preventing sternal wound dehiscence in selected high risk patients.

C13 - 23
POST-CLAMPING TIME IS A STRONG PREDICTOR FOR HOSPITAL AND LATE MORTALITY

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Objective: A new predictive risk factor for mortality has been evaluated in patients who underwent aortic valve replacement with the CarboMedics valve.

Methods: Between June 1993 and May 2001, 269 patients (average age, 63.9 ± 12.8 years) received a CarboMedics 'Top-Hat' supraannular aortic pros thesis. Primary valve replacement was performed on 203 patients (75.5%) and repeat valve replacement on 66 (24.5%). The duration of myocardial ischemia was 70.2±31.4 min, cardiopulmonary bypass 96.1±48.3 min, and postclamping time (time between release of aortic clamp to the end of extracorporeal circulation) 22.1±41.3 min. The mean follow-up was 82.3±17.8 months. Follow-up was 97.6% complete.

Results: The hospital mortality was 5.9%. Hospital mortality was 1% when duration of postclamping time was <15 min, 2.8% between 15 and 29 min, 13.2% between 30 and 44 min, and 26.9% >44 min. In the multivariate analy sis, postclamping time, urgent surgery, and body mass index were statistically significant risk factors for hospital mortality. The late mortality was 17.1%. Cardiac-related mortality showed a linearized rate of 18.1% per 1000 patients-year. The Kaplan-Meier for cardiac-related mortality was 75.0% at 10 years. Postclamping time, aortic valve gradient, age over 70 years, and BMI were statistically significant risk factors for cardiac-related late mortality. The incidence of paravascular leak in the 'Top-Hat' aortic prosthesis was 1.7% per 1000 patients-year.

Conclusion: Using the CarboMedics supraannular prosthesis allows implantation of a large prosthesis without increasing valve-related complications. Postclamping time appears as a strong predictor of both hospital mortality and late cardiac-related death.

C13 - 24
ECHOCARDIOGRAPHY-GUIDED CATHETER DRAINAGE OF HEMODYNAMICALLY CRITICAL, TAMPONADE-CAUSING PERICARDIAL EFFUSION

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Objective: Pericardial tamponade causes hemodynamic instability that frequently requires surgical intervention. Of particular challenge is when tamponade develops in the anticoagulated patients soon after cardiac surgery.

Methods: Records of 21 patients presenting with cardiac tamponade secondarily to pericardial effusions were reviewed. Six had previous cardiac surgeries, whereas, 15 presented with spontaneous pericardial effusion. Five were fully anticoagulated; 3 presented with rhythm disturbances; 8 were unstable at presentation. Two approaches were utilized to remove the tamponade-causing pericardial fluid, an open surgical approach or an echocardiographically guided pericardial drainage. The surgical approach was via sternotomy in 1 patient; subxyphoid approach in 7; thoracotomy in 8; and via percutaneous catheter insertion in 5. The surgical entry was carried out in accordance with established and previously published techniques. In the echo-guided group, drainage was performed with anesthesiologist provided echocardiography guidance, with the 9.9 vein inserting a needle through the chest wall into the fluid filled peri-cardiac space. Once the needle tip is echocardiographically identified in the peri-cardiac space, the wire is introduced followed by successively increasing dilators and final insertion of chest tube over the guiding wire.

Results: All patients did well post-operatively. There was no operative mortality or morbidity with complete resolution of the pericardial effusion and no evidence of recurrence on follow-up visits at six months.

Conclusion: This process of active echo-aided visualization of large dilators as they are placed in the pericardial space increases the confidence of the surgeon to place the large dilators and the catheter. Complete drainage could then be confirmed. In conclusion, pericardial tamponade drainage can be safely carried out utilizing minimally invasive echo-guided trans thoracic catheter technique with equal efficiency as the more established surgical procedures.

C13 - 25
EDWARDS PERIMOUNT MAGNA BIOPROSTHESIS: REFERENCE VALUES FOR PREOPERATIVE PREDICTION OF PATIENT-PROSTHESIS MISMATCH

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Objective: Preoperative prediction of patient-prosthesis mismatch following AVR can be based on in vivo data previously reported for each bioprosthesis. We evaluate early postoperative hemodynamic performance of the Edwards Lifesciences third generation Perimount Magna bioprosthesis in order to establish baseline parameters to be used for preoperative prediction of patient-prosthesis mismatch.

Methods: Data from 67 patients undergoing aortic valve replacement and receiving Edwards Perimount Magna bioprosthesis were collected. Postoperative in-vivo hemodynamic performance was evaluated at rest using trans-thoracic echocardiography just before patient discharge. Data were analyzed according the prosthesis size with evaluation of intra-size variability.

Results: Mean size prosthesis implanted was 22.8±1.8 mm (range 19-27). Mean EOA (Effective orifice area) and EOA (Effective orifice area index) were 1.67±0.6 and 0.92±0.3 cm² respectively. Mean and peak gradients were 9.5 and 20.9 mmHg respectively. Good statistical linear regression correlation was shown between valve size and both EOA and peak gradient. According to previously defined definition of mild and severe patient prosthesis mismatch (EOA< 0.85 and <0.60 cm²/m², respectively) the overall incidence was 18/67 (26%) and 6/67 (11.9%), respectively. Size by size analysis revealed mean values which compare favorable with the values currently reported for Edwards Perimount classical (EOA = 1.10±0.28, 1.46±0.53, 1.61±0.37, 1.93±0.55 and 2.47±0.90 cm² for size from 19 to 27, respectively).

Conclusion: Newly introduced third generation pericardial Perimount Magna bioprosthesis allows for satisfactory early postoperative performance, which compare favorable with the data currently available for classical Perimount. Based on satisfactory clinical outcome and on low variability of our series these data could be useful to preoperative prediction of patient prosthesis mismatch.
with serial echoes and have been in satisfactory clinical condition for over ten years.

Conclusion: Cardiac myxomas can present as clinical emergencies with embolization or acute heart failure. With the appropriate diagnosis and high index of suspicion they can be managed successfully with satisfactory short and long-term outcome.

C13 - 27
ERUPTIVE MITRAL VALVE REPLACEMENT IN PATIENT WITH ACUTE MITRAL REGURGITATION AFTER PERCUTANEOUS BALLOON VALVOTOMY

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Objective: Percutaneous mitral balloon valvotomy (PMBV) has been accepted as an alternative to surgical mitral commissurotomy in the treatment of patients with symptomatic mitral stenosis. Most fatal complication of this procedure is acute mitral insufficiency. We reported emergent mitral valve operations after balloon valvotomy.

Methods: We investigate 17 patients undergone emergent surgery after mitral balloon valvotomy between February 1999 and march 2005. There were 8 (47%) male and 9 (53%)female patients. All patients had mitral valve area narrower than 1.8 cm² and none have mitral insufficiency before PMBV. In additon to acutely progressing dyspnea, hypotension and symptoms of lung edema, echocardiographic severe mitral insufficiency were demonstrated after PMBV. Patient with cardiogenic shock, lung edema, and NYHA class III-IV patients with 3rd or 4th degree mitral regurgitation were operated in emergent conditions. In all cases valves were either severely calcific or with more than one cordae ruptured which does not allow valves to be repaired. Posterio cordae were seen to be spared in only 4 patients.

Results: We don't have in-hospital mortality. Two (11.7%) patients needed intraaortic balloon counterpulsation. Patients were followed in ICU for 48±12 h with dopamin infusion (7±4 µg/kg/min) and postoperative extubation time was 12±4 h. Mean stay in hospital was 7±1.5 days. One patient had suffered superficial sternal infection which was treated local care.

Conclusion: PMBV is one of the method with satisfactory results in patient with isolated mitral stenosis. However, it needs special attention to quality of mitral valve for patient selection. While doing this procedure patients may prone to mitral valve replacement because of most severe complication; acute mitral insufficiency.

C13 - 30
RECONSTRUCTIVE SURGERY OF THE AORTIC ROOT AND AORTIC VALVE IN PATIENTS WITH AORTIC INSUFFICIENCY

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Objective: To evaluate the results of aortic valve-sparing operations in 64 patients with aneurysm of ascending aorta and aortic insufficiency.

Methods: From January 1998 to December 2005 in RICP were performed 170 operations in patients with aneurysm of ascending aorta. Among these, the valve-sparing operations were performed in 64 patients with degenerative aneurysm of ascending aorta and aortic insufficiency. There were 54 men and 10 women. The mean age was 49.1±10.9 (range from 16 to 65). The aortic dissection was diagnosed in 26 cases (41%): 8 patients (12.5%) had acute dissection, 18 patients (28.1%) - chronic aortic dissection. All patients, whom were performed aortic valve-sparing operations, based on surgical technique were divided into 4 groups: 1st group (n = 25) - aortic aneurysm resection with supracoronary replacement, 2nd group (n = 18) - replacement of ascending aorta and noncoronary sinus (Wolfe technique), 3rd group (n = 17) extravalvular replacement of the ascending aorta with reimplantation of coronary ostia (David technique), 4th group (n = 4) - Yacoub technique. As concomitant procedures the replacement of aortic arch was performed in 27 patients, replacement of Brachiocephal trunk in 2 patients, CABG in 4 patients. On Echo data, in 1st group the mean diameter of aortic annulus was 25.9±1.4 mm; ascending aorta-57.1±11.1 mm in 2nd group-25.7±1.9 mm and 72.4±21.6 mm; 3rd group-28.7±2.1 and 64.3±14.8; 4th group - 27.4±0.9 and 68.2±14.2 mm, respectively.

Results: Based on TTE data in postoperative period the EF increased from 57.7±0.5% to 62.1±1.6%, the grade of aortic insufficiency decreased from 2.3±0.7 to 0.7±0.5, the diameter of aortic annulus decreased in 1st group -25.1±1.1 cm, 2nd-25.2±1.4 cm, 3rd-25.9±1.5 cm, 4th-26.9±0.9 cm. The hospital mortality was 7.9% (5 patients). Three patients-from multyorgans failure and two another patients from progressive heart failure and stroke respectively.

Conclusion: The results of this study can provide the good clinical and haemodynamic data in patients with aneurysm of ascending aorta and aortic insufficiency, whom were performed aortic valve-sparing surgery. These results were supported by TTE data in early postoperative period. Aortic
valve-sparing operations in patients with degenerative aneurysm of ascending aorta can correct concomitant aortic insufficiency and avoid complications due to aortic valve replacement.

C13 - 31
SURGICAL TREATMENT OF CHRONIC TYPE A AORTIC DISSECTION COMBINED WITH CORONARY ARTERY BYPASS GRAFTING
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Objective: The aim of the study was to evaluate the operative and post-operative findings of patients operated for concomitant chronic type A aortic dissection and coronary artery disease.

Methods: Between 1995 and 2005 a total of 83 patients were operated for chronic Stanford type A aortic dissection. Among these patients 14 (16.87%) had associated severe CAD that was treated concomitantly. Mean age of the 14 patients was 58.07. Twelve patients were male and 2 were female. Hypertension was the most common associated disease present in all patients. Only ascending aorta was replaced in 8 patients (57.14%). Ascending aorta and hemiarch replacement was performed in 3 patients (21.43%). Modified Bentall procedure was performed in one (7.14%) and Arch replacement with “Elephant trunk” procedure was performed in the last patient (7.14%). The right coronary artery was the most frequent revascularized vessel in this study.

Results: Two patients (14.29%) died in the early postoperative period. The reason of death was low cardiac output in one patient and neurologic complication in the other one that also received carotid endarterectomy in the same session. Morbidity was seen in 3 patients (21.43%). One patient developed hemiparesis that resolved completely in one month, wound infection was detected in the second patient and low cardiac output in the third.

Conclusion: CABG was indicated in 16.87% of patients with chronic type A aortic dissection. In contrast the role of coronary angiography before emergency repair of acute aortic dissection is still controversial and it is not performed in many institutions because of time limitation. The mortality and morbidity rates were relatively high in patients with chronic aortic dissection that received combined aortic repair and CABG.

C13 - 32
SURGICAL TREATMENT FOR ASCENDING AORTA ANEURISM: 70 PAT.
TREATMENT RESULTS
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Objective: To evaluate results of surgery for ascending aorta aneurism and methods of its correction.

Methods: Since January 2003 to December 2005, 70 patients have been operated on for ascending aorta aneurism (AAA). Age range was 6-70 years (45.2 + 10.2). AAA dimensions were from 48 mm to 105 mm (68 + 8 mm). Min. ejection fraction was 35% (mean 49%). In 1 case AAA was associated with aorta coarctation, in 2 (2.8%) subaortic membrane. Aortic dissection I type (DeBakey) - in 14 (20%) patients, II type - 6 (8.5%). Combined disease of the coronary arteries and AAA in 5 (7.1%) cases. Mitral valve disease (insufficiency) was in 1 case. Insufficient blood circulation (NYHA): 40 (57.1%) patients III FC, 24 (34.3%) II FC, 6 (8.6%) - IV FC. Etiology: atherosclerosis in 39 (55.7%), Marfan syndrome - 15 (21.4%), bicuspid aortal valve - 4 (5.7%), connective tissue dysplasia syndrome - 9 (12.8%), Infective endocarditis, postrumaumatic - 3 (4.3%). In 38 (54.3%) cases Bentall technique was performed. In 1 (1.4%) case - aortic coarctation resection, Bentall technique was the second stage. Supracaoronary grafting of the ascending aorta was in 22 (31.4%). Wolfe’s procedure in 1 (1.4%), David’s operation in 8 (11.4%) cases. Associated procedures were: in 3 cases - supracaoronary aorta grafting, MCB+CABG2, in 2 - Bentall’s + MCB, in 1 case - supracaoronary aorta grafting with wedge plasty of the left coronary artery trunk with an autopericardial patch. In patients with subaortic membrane - membrane removal. One patient underwent mitral valve grafting and Bentall procedure. Valve-containing conduit MedEng-2 with Vascutek graft was applied for Bentall procedure, Vascutek graft was used for aortic valve function reconstruction, for mitral valve grafting - artificial heart valve MedEng -2 (31). Operation scheme was “aorta - right atrium”, in patients with aorta dissection - “femoral artery - right atrium”.

Results: During the immediate postoperative period 2 patients (2.8%) died. Acute cardiac-vascular insufficiency with decreased myocardial contractility of the left ventricle (EF - 35%), in other patient - acute renal insufficiency. Conclusion: surgical treatment for AAA shows satisfactory immediate results with individual choice of surgical technique.

C13 - 33
AORTIC EDWARDS-MIRA MECHANICAL BILEAFLET PROSTHESIS: PERMEABILITY INDEX AND MIDTERM RESULTS OF A MULTI-CENTRE STUDY
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Objective: The aim of the study was to assess the midterm clinical and haemodynamic results of the Edwards Mira curved bileaflet prostheses in aortic valve replacement.

Methods: From June1998 to October 2000, 117 patients Mean age at implantation was 64 years (range, 31–78 years) underwent an aortic valve replacement with the Edwards Mira valve in three French institutions. There where fourty concomitant procedures (n = 40) (11 CABG, 5 mitral valve repair, 3 MVR, 10 ascending aortic repair, 5 septal myomectomie, 6 others). Clinical status, haemodynamic performance and valve related complications were assessed. Serial echocardiographies were performed at discharge and at two years follow up at least.

Results: Operative mortality was 0.8% (n = 1). Follow up was 100% complete (594.1 patient-years). Actuarial Survival at 1, 3 and 5 years was 96.5±1.7%, 93.9±2.2% and 88.4±3.0% respectively. Five years Freedom from: thrombo-embolism was 96.2 ±1.9%; bleeding events 97.3±1.5%; non-structural dysfunction 97.2±1.6%. There was no structural dysfunction. Early endocarditis occurred in one patient. Infra clinical haemolysis according to Skoularigis criteria was noticed in 5 patients. Peak and mean gradients significantly decreased (P = 0.001, P = 0.03, respectively). Permeability index is 53.3% at 28 months.

Conclusion: The Edwards Mira aortic valve appears to be promising mechanical valve prosthesis with excellent haemodynamic performance, good midterm survival and low valve related complications rate.
Objective: Hypomagnesemia after coronary by-pass surgery is considered a contributing factor for post-operative AF and magnesium, like several other pharmacologic agents, has been used in the prophylaxis of postoperative AF with varying degrees of success. Studies have demonstrated that magnesium can suppress platelet activation by either inhibiting platelet-stimulating factors such as thromboxane A2, or by stimulating synthesis of platelet-inhibitory factors such as prostacyclin (prostaglandin I2), and administration of magnesium reduces platelet aggregability in healthy volunteers. The purpose of this study was to evaluate the effect of magnesium treatment on postoperative blood loss and platelet functions of patients who have undergone coronary by-pass surgery.

Methods: After drugs like aspirin ang clopidegrol which could effect platelet functions and bleeding volume had been discontinued ten days before elective, isolated, first-time coronary artery bypass grafting surgery, a total of 72 consecutive patients were prospectively randomized to two groups. Patients in the magnesium group (n = 38) received 6 mmol MgSO4 infusion in 100 ml NaCl solution (25 ml/h) during per-operative period. Patients in the control group (n = 34) received only 100 ml 0.9% NaCl solution (25 ml/h). Total post-operative blood loss volumes of all patients were recorded and platelet functions were analyzed before and after operation by using platelet function analyzer (PFA-100, Dade Behring, Germany) with collagen and/or epinephrine and collagen and/or adenosine diphosphate cartridges.

Results: There were no differences between the two groups with regard to age and sex. Total blood loss of the patients received magnesium treatment were significantly higher than the control patients (96.49±40.31 vs. 76.40±365.71 ml, P = 0.027). Although no significant difference between two groups was detected with regard to collagen epinephrine closure time measured before operation, lengthening in collagen epinephrine closure time measured before and after operation were also significantly higher for the patients received magnesium treatment (35.41±52.86 vs. 0.18±28.46, P = 0.013).

Conclusion: Magnesium usage during per operative period for the prophylaxis of arrhythmias following coronary artery by-pass surgery can increase blood loss during post operative period by affecting platelet functions. For operations which have high risk or can cause high blood loss, avoidance of magnesium treatment should be considered.

C14 - 4
RE-EVALUATION OF PREVENTING RADIOCONTRAST-INDUCED NEPHROPATHY BY N-ACETYL CYSSTEINE (NAC) - A META-ANALYSIS
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Objective: Clinical trials evaluating N-acetylcysteine (NAC) for the prevention of radiocontrast-induced nephropathy have reported mixed results. Despite formerly published meta-analyses and due to currently published randomized controlled trials (RCT), time has come to re-evaluate the current evidence of preventing RCN by administering NAC.

Methods: We performed a computerized search to identify relevant publications of RCT comparing NAC and placebo. Data were combined using random effects models with the performance of standard tests to assess for heterogeneity and publication bias. Subgroup analyses were also performed.
Results: Twenty-eight trials involving 3604 patients met our inclusion criteria. Trials varied in patient demographic characteristics, inclusion criteria, dosing regimens, and trial quality. The summary risk ratio for contrast-related nephropathy was 0.69 (95% confidence interval: 0.57 to 0.82; P = 0.02), a statistically significant trend towards benefit in patients treated with N-acetylcysteine. This effect varied, however, across the 28 trials, and only eight of the 28 trials demonstrated significant results Although higher-quality trials demonstrated a stronger benefit for N-acetylcysteine in general, few reported important elements of study design, such as concealment of allocation, placebo-controls, or double-blinding. Heterogeneity was unexplained by subgroup analyses.

Conclusion: N-acetylcysteine (NAC) may reduce the incidence of contrast-related nephropathy, but this finding is reported inconsistently across currently available trials. High-quality, large clinical trials are needed before N-acetylcysteine use in this indication can be recommended universally.

C14 - 5
INTRA-AORTIC BALLOON PUMP USE AMONG FEMALE AND MALE IN CARDIAC SURGERY - RETROSPECTIVE ANALYSIS
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Objective: Intra-aortic balloon pump (IABP) is a well-accepted and widely used mechanical circulatory support in cardiac surgery. In contrast to inotrops, this technique provides physiological assistance to the failing heart by decreasing myocardial oxygen demand. Although it is an invasive technique with several potential complications, it has proven invaluable in improving the results of surgery in high-risk patients.

Methods: Between August 1998 and August 2005, a total of 320 patients undergoing cardiac operation in University Hospital of Wales in Cardiff received IABP. 192 (60%) preoperatively. There were 86 (23.9%) females (Group A) and 214 (76.1%) males (Group B). The preoperative risk factors in both groups were studied and analyzed. Multivariate analyses were performed to identify risk factors for in hospital mortality.

Results: Logistic EuroSCORE was higher in female group 33.6 vs. 27.6 (P = 0.03). There was no difference in Parsonnet score (13.3 vs. 13.3) and additive EuroSCORE (11.2 vs. 10.5) between two groups. There was higher in hospital mortality in group A 34 (39.5%) vs. 65 (27.8%) (P = 0.003) and permanent pacemaker 6 (7%) vs. 3 (1.3%) (P = 0.007), peripheral vascular disease 6 (7%) vs. 1 (0.7%) (P = 0.04). Males more frequently had two or more myocardial infarcts in the past 9 (10.5%) vs. 4 (4.3%) (P = 0.03). Females were more likely to have good ejection fraction (EF) 31 (36%) vs. 53 (22.7%) (P = 0.03), peripheral vascular disease 6 (7%) vs. 6 (6.7%) (P = 0.03) and permanent pacemaker 6 (7%) vs. 1 (1.3%) (P = 0.007). The indication for IABP use among females was more frequently hemodynamic instability 27 (31.4%) vs. 43 (18.4%) (P = 0.003). The indication for IABP use among females was more frequently hemodynamic instability 27 (31.4%) vs. 43 (18.4%) (P = 0.006). Males more frequently were high in the first 10 (10.5%) vs. 20 (13.4%) (P = 0.027). Poor EF 20 (23.1%) vs. 91 (22.7%) (P = 0.005) and had larger BSA 1.69 (SD 0.16) vs. 1.93 (SD 0.17) (P = 0.001). Multiple logistic regression analysis revealed gender, age above 80, renal impairment, redo, CHF and IV inotrops prior to anaesthesia as independent risk factors for in hospital mortality.

Conclusion: Our data reveal that female gender is still risk factor in high-risk patients in cardiac surgery. Rest of risk factors found in our study correlate with EuroSCORE and Parsonnet score, however only logistic EuroSCORE was able to predict higher in hospital mortality among females.

C14 - 6
THE COMPARISON ANALYSIS NORMO- AND HYPOTHERMIC PERFUSION DURING OPEN-HEART SURGERY
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Objective: The aim this study was to compare Normothermic and hypothermic regimens of perfusion during open heart surgery.

Methods: Beginning from December 2004 to December 2005 was operated 1258 patients, underwent CABG and Valvular diseases, 378 patients was operated in Normothermic CPB. Mean age was 55.8±10.5 year, BSA 1.92±0.24 m², t °C during CPB - 34.7±1.5 °C, time of ischemia was 49.8±1.5 min, time CPB - 94±14 min. Control group was 400 hypothermic patients underwent open heart surgery. We use antegrade cardioplegia Custodiol 20ml/kg (ante-retrograde road used in aortic valve disorders, multivalve corrections, and conditions couple with aortic valve abnormalities). Anesthesia was induced with Fentanyl 5 µg kg⁻¹, midazolam 0.2 mg kg⁻¹, Ketamin 2 mg kg⁻¹, Vecuronium 0.03 mg kg⁻¹. For the maintenance of anaesthesia, all patients received a low-flow isoflurane anaesthesia, a continuous infusion of Fentanyl 5µg kg⁻¹h⁻¹, supplement intermittent boluses of Vecuronium 0.03 mg kg⁻¹; during CPB a continuous infusion of Fentanyl 5 µg kg⁻¹h⁻¹, 0.2 mg kg⁻¹h⁻¹. We assessed the duration of stay in ICU, time of respiratory support, necessity and duration inotrope therapy, determined the hemodynamics profile, biochemical tests such as intra- and postoperative levels of glucose, lactate, malondialdehyde, creatinine, urea, and leukocytes count.

Results: It has been shown that in Normothermic group time of stay in ICU department decrease 18.2±1.5 h vs. 23.5±0.8 h (P = 0.05); time of respiratory support 780±44 min, vs. 1140±35 min (P = 0.05), significantly decreased necessity of inotrope therapy 3% vs. 10% (P = 0.05), and it duration; reduced manifestations of systemic inflammatory response, postoperative leukocytes count 8.8±1.2 vs. 14.2±2.3 (P = 0.05), lactate level 2.2±0.8 mmol l⁻¹ vs. 4.7±1.8 mmol l⁻¹, rate of renal dysfunctions 2 patients vs. 18 in control group.

Conclusion: The use of normothermia permits to reduced time of respiratory support, time of stay in ICU, to reduced necessity and duration inotrope therapy in postoperative period, to decreased the rate of renal dysfunctions, to decrease the rate of manifestations and heaviness of systemic inflammatory response after CPB, and as a result of that to decrease the cost of treatment of patients underwent cardiac surgery.

C14 - 7
PLATELET FUNCTIONAL RECEPTORS DETERIORATE DURING MILD HYPOTHERMIC CARDIOPULMONARY BYPASS AND DO NOT RECOVER AT 24 H
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Objective: The use of cardiopulmonary bypass (CPB) is associated with coagulation dysfunction and increased risk of postoperative bleeding after cardiac operations. Although coagulation dysfunction after CPB has been intensively investigated, little is known about the fate of functional receptors which reside on the platelet membrane. We evaluated the expression of CD31, CD42b, P-Selectin, CD40L, and CD41 as well as Platelet-Monocyte- Aggregates (PMA) formation on resting and in vitro activated platelets using flow cytometry.

Methods: Whole blood was collected preoperatively, 10 min after CPB initiation, at lowest core temperature, 10 min, 5, and 15 h after protamine administration. A dual stain, no-lyse, no wash method was used to perform flow cytometric measurements on platelets before and after in vitro activation with TRAP-6. All results are expressed as mean fluorescence, or mean fluorescence difference before and after activation. PMA are expressed as percentage of platelet positive monocytes in the whole monocyte population.

Results: Compared to the baseline CD31 and CD42b expression on platelets is downregulated during CPB (163±34 vs. 150±30 and 194±34 vs. 162±44 respectively, P=0.01). This fact is not detectable any more after protamine administration. Accordingly CD31 and CD42b receptor internalization after in vitro activation is reversibly impaired during CPB (6.4±7.1 vs. -2.9±5.8 and -5.1±13.1 vs. +7.4±15.6, P=0.001), however normal values are restored postoperatively. P-Selectin expression on resting platelets diminishes during extracorporeal circulation and restores after heparin reversion. Interestingly the ability of platelets to be activated in vitro is also reduced during CPB (76±27 vs. 54±20.9, P=0.009), restores thereafter (78±31) and drops again 15 h after protamine administration (61±32) concomittant to a rebound- increase of P-selectin on resting platelets (4.2±0.4 vs. 6.1±0.7, P=0.012). PMA formation is increased 10 min after CPB-start, followed by a remarkable drop lasting till the 5th postoperative hour (85%±20 vs. 50%±17, P=0.004). The ability of platelets to form aggregates with monocytes begins to normalize on the first postoperative day 67.5±16.1%.

Conclusion: Native platelet activation as well as the ability of platelets to be activated in vitro are suppressed during extracorporeal circulation. Platelet dysfunction including deteriorated plateletplatelet and platelet-monocytes interactions can be detected even during the first postoperative day. This effect may account for late-onset postoperative bleeding after cardiac surgery.
C14 - 8
PREOPERATIVE METHYLENE BLUE ADMINISTRATION IN PATIENTS AT HIGH RISK FOR VASOPLEGIC SYNDROME DURING CARDIAC SURGERY
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Objective: Angiotensin-converting enzyme inhibitors, calcium channel blockers, and preoperative intravenous heparin use are independent risk factors for vasopлегic syndrome after cardiac surgery. We prospectively studied whether preoperative methylene blue administration would prevent the vasopлегic syndrome in these high-risk patients.

Methods: One hundred patients scheduled for coronary artery bypass graft surgery who were at high risk for vasopлегia because they were preoperatively using angiotensin-converting enzyme inhibitors, calcium channel blockers, and heparin were randomly assigned to either receive preoperative methylene blue (group 1, n = 50) or not receive it (group 2, controls, n = 50). Methylene blue (1% solution) was administered intravenously at a dose of 2 mg/kg for more than 30 min, beginning in the intensive care unit 1 hour before surgery.

Results: Although similar in terms of all demographic and operative variables, the two groups differed significantly in terms of vasopлегic syndrome incidence (0% in group 1 vs. 26% in group 2 [13 of 50]; P < 0.001). In 6 patients, the vasopлегic syndrome was refractory to norepinephrine. Four of these patients survived; the other 2 had vasopлегic syndromes that were refractory to aggressive vasopressor therapy, and they ultimately died of multiorgan failure. Stroke occurred in 1 patient. The two study groups also differed significantly in terms of average intensive care unit stay (1.2±0.5 days in group 1 vs. 2.1±1.2 days in group 2; P=0.001) and average hospital stay (6.1±1.7 days in group 1 vs. 8.4±2.0 days in group 2; P=0.001).

Conclusion: Our results suggest that preoperative methylene blue administration reduces the incidence and severity of vasopлегic syndrome in high-risk patients, thus ensuring adequate systemic vascular resistance in both operative and postoperative periods and shortening both intensive care unit and hospital stays.

C14 - 9
TRANEXAMIC ACID REDUCE THE INFLAMMATORY RESPONSE TO CPB. PROSPECTIVE RANDOMIZED DOUBLE BLIND STUDY
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Objective: Previously in a cohort study we had observed that tranexamic acid (TA) administrated on cardiopulmonary by-pass (EPD) reduce postoperative bleeding and the systemic inflammatory response syndrome (SIRS) after CPB. To confirm the protective effect of the TA on SIRS prevention.

Methods: Prospective, randomized, double blind placebo controlled study on 50 adults patients (27 male) under CPB, 64.5±1.4 year mean age, which were operated for CABG surgery who were at high risk for vasopлегia because they were preoperatively using tranexamic acid. They were randomly assigned to either receive tranexamic acid (group 1, n = 50) or not receive it (group 2, controls, n = 50). Tranexamic acid (1% solution) was administered intravenously at a dose of 2 mg/kg for more than 30 min, beginning in the intensive care unit 1 hour before surgery.

Results: Although similar in terms of all demographic and operative variables, the two groups differed significantly in terms of vasopлегic syndrome incidence (0% in group 1 vs. 26% in group 2 [13 of 50]; P < 0.001). In 6 patients, the vasopлегic syndrome was refractory to norepinephrine. Four of these patients survived; the other 2 had vasopлегic syndromes that were refractory to aggressive vasopressor therapy, and they ultimately died of multiorgan failure. Stroke occurred in 1 patient. The two study groups also differed significantly in terms of average intensive care unit stay (1.2±0.5 days in group 1 vs. 2.1±1.2 days in group 2; P=0.001) and average hospital stay (6.1±1.7 days in group 1 vs. 8.4±2.0 days in group 2; P=0.001).

Conclusion: Our results suggest that preoperative methylene blue administration reduces the incidence and severity of vasopлегic syndrome in high-risk patients, thus ensuring adequate systemic vascular resistance in both operative and postoperative periods and shortening both intensive care unit and hospital stays.

C14 - 10
EFFECT OF PRETREATMENT WITH METHYLPREDNISOLONE ON CARDIAC PROTECTION DURING CARDIOPULMONARY BYPASS
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Objective: This study was undertaken to determine whether methylprednisolone could improve myocardial protection by altering the cytokine profile toward the anti-inflammatory course in patients undergoing elective coronary artery bypass grafting surgery (CABG) with cardiopulmonary bypass (CPB).

Methods: Thirty patients scheduled for elective CABG surgery were randomly assigned to receive either 1g of methylprednisolone (study group; n = 15) or isonicotinic acid hydrazide solution (control group; n = 15) intravenously before CPB. Standard anesthesia, CPB and CABG protocols were applied for all patients. Blood samples were withdrawn prior to surgery (T1), 10 min (T2), 4 (T3) and 24 h (T4) after CPB. Levels of IL-6 and IL-10 were measured. Plasma levels of creatine kinase MB (CKMB), troponin-t and neutrophil counts were also measured at each sampling time. Fisher's exact test was applied to categorical data. Student's t test was used to analyze the demographic and clinical characteristics of patients and appropriate periprocedural data. Time-dependent variations of biological variables were analyzed by the Wilcoxon test and intergroup comparison at specific sample times by Mann-Whitney U-test. A value less than 0.05 was considered significant.

Results: There was no significant difference between both groups in terms of demographic and clinical data. Comparison of patients within study and control groups revealed significantly elevated levels of IL-6 in study group at T2, T3 and T4 and significantly elevated levels of IL-10 at T2. Comparison of patients between both groups revealed significantly high levels of IL-6 in control group at T3 and T4 (T3: P = 0.005; T4: P = 0.046). IL-10 levels were significantly high in study group at T2 in respect to study group (T2: P = 0.014). Neutrophil count was high in study group at T2, T3 and T4 (T2: P = 0.001; T3: P = 0.017; T4: P = 0.001). CK-MB levels were significantly low in study group at T4 (P=0.01). Increase of troponin-t was high in control group at T3 and T4 in contrast to study group (T3: P = 0.001; T4: P = 0.05).

Conclusion: The systemic inflammatory response after cardiopulmonary bypass is a significant cause of morbidity and an occasional cause of mortality in cardiac surgery. This study demonstrates that methylprednisolone is highly effective for ensuring a better myocardial protection in cardiac surgery by suppressing inflammatory response. We believe administration of steroids prior to cardiac operations is highly effective for decreasing postoperative morbidity and mortality.

C14 - 11
OPEN LUNG BIOPSY - A SAFE BEDSIDE PROCEDURE WITH A HIGH DIAGNOSTIC YIELD IN CRITICALLY ILL PATIENTS
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Objective: We set out to evaluate the safety, diagnostic yield and therapeutic impact of Open Lung Biopsies (OLB) performed in mechanically-ventilated adult patients.

Methods: A retrospective review of patient records was conducted on all patients who underwent an OLB over a 7-year period (1996-2003) in a 32-bed adult critical care unit in a tertiary care, university-affiliated teaching hospital. 13 mechanically ventilated patients with undiagnosed bilateral pulmonary infiltrates who failed to respond to first line therapy underwent an OLB via an anterior minithoracotomy.

Results: OLB provided a diagnosis in 12 out of 13 patients (92%). APE APACHE II score<15 (days)Ventilation (days) 48.7 20.1 17.3 15.7 (All values in table are mean values) In all 12 patients, the OLB results led to implementation of specific treatment changes. There were no procedure related mortalities. The overall mortality in the group was 53.8%, a reflection of the critically ill nature of these patients. Two patients underwent transient desaturation and hypotension intra-operatively and there was a minor haemorrhage at the site of the chest drain in one patient.

Conclusion: OLB is an accurate diagnostic tool, with an acceptable associated morbidity, in critically ill patients with diffuse pulmonary disease. OLB should be considered when conventional methods have failed to provide a definitive diagnosis to help redirect therapy.

C14 - 12
HEART IN DIABETES - WHICH PARAMETERS ARE CHANGED?
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Objective: Diabetes mellitus is a frequent comorbidity that complicates the periprocedural course of cardiac surgical patients. The objective of the study was to compare the basic hemodynamic parameters in normal and diabetic rat hearts in an isolated working heart model.
Methods: Twelve adult male rats were randomly divided into two groups. The first group (n = 60 mg/kg b.w. streptozocin intraperitoneally) received no treatment and served as the control. After 7 weeks of observation of the glycaemia and body weight the animals were heparinized, anaesthetized and hearts were harvested for hemodynamic study. Hearts of both groups were perfused in working heart mode with modified normoglycaemic Krebs-Henseleit solution. Preload was 12 mmHg and afterload 70 mmHg. After 5 min of stabilization two 5 m-periods of data collection were analyzed. Every 2 the following parameters were measured or calculated and stored: aortic pressure (expressed as a minimal, mean, maximal), coronary flow (mean), aortic flow (mean), heart rate, coronary resistance, cardiac output, left ventricle stroke volume.

Results: Analysis conducted with statistical tools (t-student test for independent samples after normal data distribution was confirmed) revealed significant differences in the following parameters between the groups.

- Most parameters were significantly higher in the diabetic group: mean aortic flow (P < 0.000001), aortic pressure maximal (P = 0.02), aortic pressure mean (P = 0.00001), aortic pressure minimal (P = 0.00001), cardiac output (P = 0.0005), LV stroke volume (P = 0.00001). There was no difference in coronary resistance between the groups (P = 0.57), but mean coronary flow was lower in the diabetic group (P = 0.00001), as well as heart rate (P = 0.00001).

Conclusion: Diabetic rat hearts when perfused with normoglycaemic, crystalloid solution presented significantly lower heart rate and coronary flow when compared to normal animals, although most of the main heart parameters were significantly better than in the control group. Accordingly, treatment focused on improvement of coronary flow and heart rate can be of special benefit in the group of diabetic patients.

C14 - 13

MID-TERM ANGIOGRAPHIC COMPARISON OF SEQUENTIAL AND INDIVIDUAL ANASTOMOSIS TECHNIQUES FOR DIAGNOSTIC ARTERY

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Objective: The mid-term patency rates for individual and sequential grafts as coronary bypass conduits for diagnostic arteries were angiographically compared; the impact of native coronary vessel and type of the conduit characteristics were investigated.

Methods: Between March 1992 and April 2000, we performed a total number of 693 distal anastomosis on diagnostic arteries of Left Anterior Descending (LAD) artery in 296 patients who underwent coronary artery bypass surgery in our clinic. The patients were divided into two groups in this prospective study. In group A individual anastomosis technique, in group B sequential anastomosis technique was chosen as the myocardial revascularization strategy. At an average of 57.3 ± 18.2 months after coronary revascularization procedure, coronary angiographies were performed and evaluated. Individual and sequential grafting techniques were compared due to graft patency rates.

Results: The patency rates of sequential conduits were markedly higher than those of individual ones (66.7% vs. 89.2%, P = 0.0001). This difference was also clear in coronary arteries with poor quality and small (<1.5 mm) diameter (49.1% vs. 66.6%, P = 0.032). Also, the patency rates of sequential radial artery conduits were higher than sequential saphenous vein graft conduits (sequential radial artery; 94.1%, sequential saphenous vein grafts; 85.3%, P = 0.043).

Conclusion: Sequential grafting for diagonal artery is technically more demanding but the mid-term results are better than individual grafting especially in coronary arteries with poor quality. Using radial artery as a sequential graft increases the mid-term graft patency rates.

C14 - 14

OUTCOMES OF SURGICAL MYOCARDIAL REvascularization IN PATIENTS WITH ISCHEMIC CARDIOmyopathy

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Objective: Many studies show that patients with ischemic cardiomyopathy may improve myocardial function and prognosis following revascularization. At the same time such patients are usually reported to carry a higher risk of postoperative complications and mortality after bypass surgery. We analyzed early and late outcomes of coronary artery bypass grafting (CABG) in patients with ischemic cardiomyopathy.

Methods: Our study included 48 patients with ischemic cardiomyopathy operated on from January 2003 to January 2005. All patients were of male sex, the age averaged 56.5 ± 8.9 years, preoperative left ventricular ejec-

- tion fraction (LVEF) - 28.6 ± 5.4%. Primary evaluation of the functional status showed that all patients related to the III and IV NYHA class and to the III-IV class according the Canadian Cardiovascular Society (CCS) classification (for angina pectoris). Square of the hibernating (viable) myocardium assessed by myocardial scintigraphy with 99Tc and liodopent (123I) was less 5% in 11 cases (23%), 6-17% in 22 cases (46%) and more then 18% in 15 cases (31%). All patients underwent CABG with the cardiopulmonary bypass.

Results: Hospital mortality was 4.2%. Twelve months after revascularization we found the improvement of LVEF up to 35.9 ± 3.7%, of the NYHA class to I-I and of the CCS score to 0-1 in all cases. In 42 patients (87%) was found perfusion defect size reduction during secondary myocardial scintigraphy one year after surgery.

Conclusion: Surgical myocardial revascularization in patients with ischemic cardiomyopathy results in improvement of viable myocardium function and reduction of heart failure as well as removal of angina pectoris.

C14 - 15

MYOCARDIAL PROTECTION IN PATIENTS WITH RECURRENT HIGH ISCHEMIC STRESS

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Objective: Sometimes patients’ cardiac diseases require more than one period of aortic X-clamping, particularly in patients (pts) with HOCM or reconstructive valve procedures, if the first operative attempt has failed. These cases pose a challenge to myocardial protection. Therefore we have retrospectively analyzed this subgroup to evaluate the efficiency of the Bretschneider method (histidine buffered solution).

Methods: In all pts (n = 60) histidine buffered Bretschneider solution (CUSTODIOL) was administered for cardioplegia. There were 25 male and 35 female pts. Most of them suffered from single valve or multivalvular diseases, while 11 pts had an HOCM and 1 pt. had an acute aortic dissection. Cardioplegia was given for more than 8 min in all pts before onset of the first and second ischemic period. Cardioplegic reperusions were necessary in 15% during the first ischemia, while during 2. ischemia no cardioplegic reper-

- fusion was performed. Time interval between 1. and 2. ischemia was 57 min in the survival group and 97 in the lethal group (P < 0.0009).

Results: Indications for 2. ischemia were transvalvular pressure gradients being inacceptable high (43%), insufficient valvular repair (42%) and severe bleedings (15%). X-clamping time lasted for 74 min during 1. ischemia and 63 min during 2. ischemia. There were 8 pts who died, but in only 3 pts (5%) a LOS occured. Follow-up examinations were performed after 24 months post-

- op (mean). In nearly 70% clinical status was excellent or good. An extended time interval between ischemia 1 and 2, as in the lethal group, seems to be disadvantageous and should be avoided.

Conclusion: The efficiency of the Bretschneider method has been impres-

- sively demonstrated in this special patient subgroup, since LOS happened in only few cases. So protective properties and simplicity of application - no mandatory cardioplegic repercussion! - of this method have been proven not only at high ischemic stress but also in single operations with recurrent ischemia.

C14 - 16

MINI-THORACOTOMICAL APPROACH FOR AORTIC VALVE REPLACEMENT: PRELIMINARY RESULTS

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Objective: To assess the feasibility of a new minimally invasive approach for aortic valve replacement.

Methods: Since January 2005, 8 patients with aortic valve disease not ame-

- table to conventional valve replacement had a mini-thoracotomical aortic valve replacement. The mini-thoracotomy was accomplished with the use of a standard clamp.
C14 - 17
INITIAL EXPERIENCE OF COMBINED APPROACH FOR THE TREATMENT OF THE END STAGE OF ISCHEMIC CARDIOMYOPATHY
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Objective: To evaluate the safety and efficacy of combined treatment for ischemic cardiomyopathy, consisting of 1) revascularization of ischemic areas off - pump 2) external reshaping of the left ventricle in order to restore LV geometry and 3) autologous stem cell injection into the myocardium.

Methods: Between July and October 2005, 5 patients (mean age 59.1 years) underwent coronary bypass using the 7-circuit technique and external reshaping of the left ventricle under offpump conditions. Autologous bone marrow (300ml) was obtained by bilateral posterior iliac bone aspiration at the time of surgery. Bone marrow mononuclear cells were isolated by means of a density Ficoll - Paque gradient. Then the cells were exhaustively washed and re-suspended in a normal saline solution containing 5% human serum albumin. Cell count, viability and cultures were appropriately performed. Following the operation the bone marrow mononuclear cells (30 ml) were injected directly to the myocardium of the left ventricle. Preop IABP was used in all patients.

Results: No significant complications were observed. The left ventricular ejection fraction at rest was improved significantly in all patients from 20.2±5 to 29.6±4, three months following the operation. Furthermore, we observed significant reduction of the end diastolic volume of the left ventricle and improvement of motions in all walls. In a follow up period of 3-6 months all patients are alive and the benefit of the operation is maintained.

Conclusion: The combination of off-pump myocardial revascularization, reshaping of the left ventricle and injection of un-manipulated autologous bone marrow into scar tissue of the human heart is safe and effective in enhancing cardiac function in ischemic cardiomyopathy.

C14 - 18
SURVIVAL AND COMPLICATION RATE AFTER LONG-TERM FOLLOW-UP OF ICD IMPLANTATION
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Objective: Purpose of the study was to analyze efficacy of ICD during long-term follow-up, to estimate survival of patients with ICD, to evaluate complications rate in early and late postoperative periods.

Methods: 214 ICDs (132 single-chamber, 74 dual-chamber and 8 triple-chamber) were implanted in Bakoulev Center for Cardiovascular Surgery from February 1990 to October 2005. Primary implantations were performed in 145 patients, in 60 cases ICDs were replaced due to battery depletion.

Results: We evaluated long-term results of 205 III to V generation ICD implantations in 154 patients, in 60 cases ICDs were replaced due to battery depletion.

Conclusion: LVEF and the type of device (single-chamber vs. multi-chamber) does not allow to perform left-ventricular resection of mid-ventricular parts of the septum in HOCM patients with severe hypertrophy.

C14 - 19
COMBINATION OF SURGICAL AND MEDICAL TREATMENT IN NATIVE VALVE BRUCELLA ENDOCARDITIS
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Objective: Although it is rare, endocarditis is the most fatal complication of brucellosis. The treatment of brucella endocarditis is still controversial.

Methods: Between 1989 and 2005 sixteen patients diagnosed as brucella endocarditis were operated in our clinic. There were 10 male and 6 female patients ranging between 19 and 68 years. In thirteen patients aortic valve was involved, whereas mitral valve endocarditis was present in three patients. Brucella antitbody titres were more than 160 in all patients. Preoperative blood cultures were positive only in thirteen patients, but remaining three have positive operative blood cultures. Echocardiographic evaluation demonstrated significant vegetations in twelve patients, and aortic abcess in 5. All the patients were NYHA III or IV. Twelve patients received Rifampycin, Streptomycin and Doxycyclin, whereas 4 received Rifampycin, Doxycyclin and Co-trimaxazole combination with a mean duration of 14±6 days.

Results: Aggressive debridment and prostatic valve replacement was performed in all patients after adequate medical treatment. A patient died at the end of first postoperative week because of stroke. All the patients were asymptomatic at discharge. The antibacterial treatment was continued for six months postoperatively. The blood cultures and serologic tests were negative in the follow ups done in every 6 months and all the patients were NYHA Class I or II. The mean duration of follow up was 51±21 months.

Conclusion: Surgical treatment combined with pre and postoperative antibiotic treatment is life saving in brucella endocarditis.

C14 - 20
SURGICAL CORRECTION OF OBSTRUCTIVE FAMILIAL HYPERTROPHIC CARDIOMYOPATHY
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Objective: HOCM is genetically and clinically heterogeneous myocardial disease. An important clinical predictor of premature death is malignant family history. We studied a severe case of HOCM by searching for mutations in b-cardiac myosin heavy chain gene (MYH7) as a candidate. A missense mutation in codon 606 of MYH7 was identified as cause in a nuclear family with a malignant history (mother and son) were affected carriers of the codon 606 mutation in MYH7 were treated this way.

Methods: We present a method of excising severely hypertrophied IVS tissue does not allow to perform left-ventricular resection of mid-ventricular parts of the septum in HOCM patients with severe hypertrophy.

Results: Follow-up studies in these 2 patients were done for 17 (mother) and 12 (son) months. The mean echocardiographic intraventricular gradient in the left ventricles after surgery decreased from 81/95 to 7/12 mmHg (mother and son, resp.). Septal thickness (by echocardiography) was reduced from 30/33 to 16/18 mm (mother and son, resp.). Follow-up echocardiography showed further a marked reduction of left atrial size. An increase in LV and RV filling fraction was shown by magnetic resonance imaging. Both patients were in sinus rhythm.

2.87±1.01 to 2.12±0.64) but patient survival as well. Patient survival was 94% among patients with multi-chamber ICD and 67% among those with single-chamber ICD (P<0.001). No intraoperative complications were observed. There was no statistically significant difference for late surgical complications rate between patients with single-chamber and dual-chamber ICDs. Incidence of unmotivated discharges with single-chamber devices was twice as high as with mutli-chamber devices.

Conclusion: LVEF and the type of device (single-chamber vs. multi-chamber) are two most significant factors influencing patient survival and quality of life.
Conclusion: RV myectomy of the IVS is an effective technique for surgical treatment of familial HOCM in cases of massive left ventricular hypertrophy which includes obstruction of the mid-cavity in addition to the outflow tract.

C14 - 21
PREDICTION OF POSTOPERATIVE REMODELING OF LV IN PATIENTS WITH CARDIOMYOPATHY
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Objective: The aim of our work is to study initial morphological and morphometrical values of myocardium of left ventricle (LV) and the right atrium (RA) and RA auricle myocardium cardiomyocytes in patients with ischemic cardiomyopathy in connection with follow-up results of surgical treatment. 10 of the patients were performed CABG, in the rest 30 patients there was performed surgical repair LV combined with CABG.

Methods: Electron-microscopical and histological methods of study were used at work. To reveal the risk factors of post-operative heart remodeling we offer to use the following morphometrical parameters: parenchymal-stromal ratio, trophic index, zone of pericapillary diffusion, Kernogan index and mitochondrial-myofibrillar ratio.

Results: In the early post-operative period all the patients had significantly increased LV EF (from 37.5±4.3% to 45.1±4.8%); decreased LVEDV (from 210.9±32.8 ml to 142.3±27.6 ml (P<0.05)). In the long-term period all the patients were spontaneously divided into two groups. Thirty-one patients (the 1st group) had satisfactory volume of cavity and contractile myocardium function. In 9 patients (the 2nd group) significant decrease of LV EF to 38.8±4.8% due to EDV/LV in-crise to 217.5±37.8 ml (P<0.05) was noticed whereas before this period signs of myocarditis, severe fibrosis (parenchymal-stromal ratio <1.5), trophic index <0.010, zone of pericapillary diffusion >1000 mkm and Kernogan index >1.6 were observed in these patients. In 17 patients from the Ist group (55%) and in all patients from the IInd group there was found mixed infiltration (lym-phocyte-macrophage), number of cells in which denoted myocarditis. In 50% of cases infiltration were of diffusive nature, rarely - focal or confluent. Moreover, identical nature of infiltration in myocardium of RA auricle was noticed in 7 patients from the 1st group (23%) and in 6 from the IInd (67%). Electron-microscopics study showed signs of regenerative - plastic insufficiency of cardiomyocytes of both LV myocardium and RA auricle, such as: myophibrillae “melting” at no restoration in proper size, exposure of perinuclear space, impairment of newly formed myophibrillae normal orientation, their redundant length growth. Noticed multiple contractures of myofibrillae, their primary clump disintegration denoted permanent alternative processes taking place.

Conclusion: The presence of inflammatory infiltration of myocardial stroma combined with evident fibrosis, low trophic index and high volumes of pericapillary diffusion zone, mitochondrial-myofibrillar ratio and Kernogan index in patients with ischemic cardiomyopathy are pathomorphological predictors of post-operative heart remodeling. Ultrastructural study revealed mixed, alternative and regenerative-plastic insufficiency of LV and RA myocardium, cardiomyocytes in patients with ischemic cardiomyopathy, which is a substrate of progressing heart dilatation and insufficiency.

C14 - 22
SUBSTANTIATION OF CHOICE FOR ASD REPAIR DEPENDING ON BIOMECHANICAL PROPERTIES
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Objective: Well known fact the first phase of choice for ASD or Opened Foramen Ovale (OFV) repair is biomechanical investigation of atrium septum and on obtained results projection and application of functional and compatible methods of defect occlusion. The variety of techniques for ASD repair - suturing, auto-, xeno- and alloplastic, endovascular occlusion depends on objective and subjective views. But no biomechanical investigation is taken in account: the size and shape of ASD. We supposed the relapses occur because of absence of biomechanical investigation.

Methods: We investigated tension and deforming state of atrial septum in normal septum and after secondary ASD. The mathematical modeling was the base of analysis - tensile Meshes epurs and dislocation epurs. The size of secondary ASD varies from 7% (1st group), 33% (2nd group) up to 56% (3rd group). All defects were at the upper part of fossa ovalis. On the base of biomechanical analysis of atrial septum in ASD we compared: 1. Manual suturing; 2. Prosthesis; 3 Amplatzer septal occluder.

Results: In normal state when fossa ovale fully closed - the tension in central area is about 82.5 kPa and dislocation 3.45 mm, at the periphery these parameters were less by 27%. In the 1st group tension reached 119.2 kPa in two points of membrane fixation to atrial septum, the rest part of membrane had tension less in two times, dislocation decreased on 10% in comparison with norm (results of dislocation in other groups: in 2nd group 10% less and in third group 20% less). In 2nd group tension in contact of membrane and edge of aperture had max level 167.8 kPa and at contact of membrane with atrial septum 100 kPa. In 3rd group tension has decreased a little bit.

Conclusion: Thus parameters of tension and deforming state of atrial septum in normal ASD varies in different parts of membrane. When suturing ASD the tension is max in needle penetrating points, thus predisposing to relapse. Implant fixation edge to edge restore normal condition of fossa ovalis and ASD, but tension still high in needle penetrating points. Implant fixation with overlap decrease tension and displacement at penetrating points, thus increasing distance from edge of fossa ovalis. Amplatzer septal occluder provides adequate repair of ASD if biomechanical parameters are taken in account.

C14 - 23
HEREDITARY HEART DISEASE (HHD) IN CHILDREN: DIAGNOSTICS, POSTOPERATIVE CARE
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Objective: Congenital heart disease (CHD) may occur alone or associated with multiple congenital defects. In CHD, which are caused by genetic syndromes, specific pathologic conditions may appear. Our study is to define useful management in children with congenital heart disease associated with genetic syndromes.

Methods: This work took place in 1998 till 2000. Total number of patients - 2907: children with CHD under 3-years-old. We revealed 354 patients with HHD: 41.6% - with chromosomal abnormalities, such as aneuploidy (32.4%), including Down syndrome (27.5%) and chromosomal structure restructurings (9.1%), incl. CATH 22 (4.2%). Nonchromosomal syndromes were presented by monogene syndromes (13.7%), unidentified syndromes (5.7%) and teratogenous syndromes (3%). In 35.9% HHD was not clear. Preoperative mortality in group with associated anomalies was 18.7%, and in group with CHD only - 1.1%, in average age - 49 days. 58.1% of infants died in neonate period. Autopsy showed congenital disorders in 87.7% of cases: renal - 32.7%, lung - 20.4%, intestine - 10.2%, liver - 6.1%. Thymus was under 40% from normal weight. In viral examination of heart, lung, cerebral tissues in 63.6% Coxakky B was found, in 36.4% - in association with herpes simplex virus, CMV, only in 27.3% the virus was not identified. We saw bacterial infection niduses in 80%.

Results: We compared postoperative period in both groups. In group with HHD complication (Infections, electrolyte disturbance, heart failure, arrhythmias, mortality) were frequent after open heart operation. Mechanical ventilation period and total time in clinic were also longer in this group. For examination period 11 infants with CATCH 22 have undergone heart operations. Postoperative period was complicated with infection in 8 cases, hypocalcaemia in 5, arrhythmias in 9, convulsions in 2, aspiration in 4 patients. Five infants were dead after operation.

Conclusion: HHD frequency accounts 12.9% in infants with CHD. Perioperative mortality and specific complications in HHD group are high and do not correlate with CHD. Genetic abnormalities needed to be identified before heart surgery. As a result of this study we propose classification of HHD.

C14 - 24
PERIVASCULAR APPLICATION OF AZATHIOPRIN REDUCES NEOINTIMAL HYPERPLASIA IN EXPERIMENTAL VEIN GRAFTS
Schachner T., Heiss S., Zipponi D., Tzankov A., Bernecker O., Laufer G., Bonatti J.
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Objective: Azathioprine is an immunosuppressive and anti-inflammatory drug and it has been shown to induce apoptosis in human T lymphocytes. We investigated whether local treatment with azathioprine can inhibit neointimal hyperplasia in experimental vein grafts.
Methods: C57BL/6J mice underwent interposition of the inferior vena cava from isogenic donor mice into the common carotid artery using a cuff technique. In the treatment group azathioprine was applied perivascularly. The control group did not receive local treatment. Vein grafts were harvested at 1 and 2 weeks postoperatively and underwent morphometric analysis as well as immunohistochemical analysis for apoptosis (TUNEL).

Results: In grafted veins without treatment controls neointimal thickness was 10 (6-29) µm, and 12 (8-40) µm at 1, and 2 weeks postoperatively. In azathioprine treated veins the neointimal thickness was 2 (1-5) µm, and 4 (3-11) µm. This reduction of neointimal thickness was significant at 1 week (P = 0.001) and 2 weeks (P = 0.016) postoperatively. Azathioprine treated vein grafts showed an increased rate of apoptosis in the vascular wall as compared with controls (593 (26-783) vs. 45 (0-106) apoptotic cells/mm² at 1 week, P = 0.063, and 656 (227-1270) vs. 19 (0-79) apoptotic cells/mm² at 2 weeks, P = 0.016).

Conclusion: We conclude that treatment of experimental vein grafts with azathioprine is associated with a reduction of neointimal hyperplasia and an increased apoptosis rate in the vascular wall. These results suggest that azathioprine may be useful for the prevention of vein graft disease after coronary artery bypass grafting (CABG).

C14 - 25
DIRECT DETERMINATION OF PLASMA HEPARIN CONCENTRATION BY ULTRAVIOLET FLUORESCENCE EMISSION SPECTROSCOPY IN CARDIOVASCULAR SURGERY
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Objective: Bleeding complications after cardiovascular operations are frequently generated by problems in perioperative anticoagulation treatment. The standard anticoagulation procedure is the intravenous administration of high molecular weight (“unfractionated”) (10-15 kDa) heparin, empirically dosed to patient’s body weight. However, the majority of unfractioned heparin preparations in clinical application usually contain varying amounts of low molecular-weight (“fractioned”) (2-6 kDa) heparins with longer half-life than unfractioned heparin. In addition, they cannot sufficiently be identified by routine anticoagulation monitoring methods and reliably neutralized by protamine. With ultraviolet fluorescence emission spectroscopy, we introduce a new method for a direct, selective concentration measurement of different heparins and heparin-protein complexes in plasma.

Methods: Fluorescence emission characteristics of heparinized human plasma samples containing unfractioned and fractionated heparins were compared by direct excitation with ultraviolet-light (wavelength: 250-300 nm). Interaction with plasma proteins, particularly with serum albumin, was eliminated by previous extraction of the fluorescence spectrum of human serum albumin from heparin. Fluorescence intensity was calibrated to varying heparin concentrations. Binding capacity of unfractioned and fractionated heparins with protamine could be determined by titration. Subsequently, heparin-protein complexes were sedimented and the supernatant analyzed.

Results: Fluorescence emission spectra of unfractioned heparins showed a maximum at 420 nm wavelength and spectra of fractioned heparins a flat peak in 350-410 nm range. Both graphs could easily be distinguished from serum albumin which presented a maximum at 335 nm. A linear calibration curve could be obtained between heparin concentration and fluorescence intensity within 0-100 µg/ml range. By titration of unfractioned heparins with protamine, a rapid formation of a strongly fluorescent heparin-protein complex was observed, significantly increasing the emission intensity of the solution. In contrast, such a complex was not detectable with fractionated heparins which only led to a slight increase of turbidity. Sedimentation and low g-values were possible for unfractioned heparin-protein complexes but not for fractioned heparins, making a selective identification of protamine-bound heparin possible. Ultraviolet-fluorescence characteristics of the supernatant after sedimentation process were virtually identical to those before titration with protamine.

Conclusion: Ultraviolet-fluorescence emission spectroscopy allows a reliable identification and quantitative determination of both protamine-bound and free heparins in plasma. Our initial results encourage us that the clinical application of the ultraviolet-emission heparin analyzer would help to perform an exact and appropriate perioperative anticoagulation management, reducing the need for transfusions and supporting cost effectiveness in cardiovascular surgery.
outflow tract reconstruction was performed in the way of a kind of Nikaidoh procedure modification.

Methods: From 2003 to 2005, 51 patients underwent surgical correction by the modified double-patch method. There were 30 (58.8%) males, 21 (41.2%) females. The mean age of the patients was 132±57 days and the weight - 4.7±1.6 kg. By the ECG diagnosed 43 (84.3%) patients with type “A”, 6 (11.7%) type “B”, 2 (3.9%) type “C”. Surgical correction was performed by the double-patch method with left atrioventricular component elevation. By this surgical technique physiological atrioventricular angle was achieved.

Results: The procedure was successful in 45 (88.2%) patients. Moderate mitral regurgitation was registered in 3 (5.9%) cases. Another 3 patients with severe mitral regurgitation required mitral valve replacement. There were 2 (3.9%) deaths after all procedures. One of these patients underwent mitral valve replacement.

Conclusion: Modified double-patch method is an effective technique that can provide an adequate atrioventricular valve function in patients with common atrioventricular septal defect.

Objective: Evaluation of the results of the common atrioventricular septal defect surgical correction by the modified double-patch method.

Methods: We retrospectively reviewed clinical records of 43 patients with functional SV who undergone Fontan procedure with extracardiac conduit between 1991 and 2005. The mean age of patients was 8.2 years (3.8-16 years) median weight - 23.7 kg (11-45 kg). The majority of patients had tricuspid atresia (n = 23; 53%) and double inlet ventricle (n = 15; 34%). A palliative systemic-tapulmonary shunt was performed in 22 patients, pulmonary artery band in 4 patients, a bidirectional cavo-pulmonary anastomosis was performed prior to Fontan in 42 patients. Mean preoperative percutaneous oxygen saturation was 78%, mean pulmonary arterial pressure was 9.2 mmHg, mean pulmonary vascular resistance was 1.5 Wood’s units.

Results: The 30-day mortality was or 9.3% (n = 4). There were no late deaths in our series. Mean CPB time was 73 min (range 0-361 min). Off-pump technique was used in 1 case. Fenestration was performed in 3 patients. Prosthetic tube grafts were used in all cases. The median duration of mechanical ventilation was 17 h, median duration of inotropic support - 32 h and median time of ICU stay - 90 h. Median chest tube drainage was 8 days. Follow-up averaged 3 years. On discharge from hospital, the percutaneous oxygen saturation on room air was 94%. At discharge all patients were assigned to the New York Heart Association functional class I.

Conclusion: Extracardiac modification of Fontan operation can be performed in patients with single ventricle with acceptable short- and medium-term results.

Objective: The aim of the study was to evaluate the results of the common atrioventricular septal defect surgical correction by the modified double-patch method.

Methods: We retrospectively reviewed clinical records of 71 patients with single ventricle with acceptable short- and medium-term results.

Results: The 30-day mortality was or 9.3% (n = 4). There were no late deaths in our series. Mean CPB time was 73 min (range 0-361 min). Off-pump technique was used in 1 case. Fenestration was performed in 3 patients. Prosthetic tube grafts were used in all cases. The median duration of mechanical ventilation was 17 h, median duration of inotropic support - 32 h and median time of ICU stay - 90 h. Median chest tube drainage was 8 days. Follow-up averaged 3 years. On discharge from hospital, the percutaneous oxygen saturation on room air was 94%. At discharge all patients were assigned to the New York Heart Association functional class I.

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Conclusion: Extracardiac modification of Fontan operation can be performed in patients with single ventricle with acceptable short- and medium-term results.
pulmonary artery valvuloplasty was needed in 13 patients, transanular patch was used in 39 cases. Mean CPB time was 87 min (ranged 43-186 min), mean cross-clamp time 39 min (19-75 min), Circulatory arrest was used in 8 patients (mean duration of circulatory arrest was 20 min). Early mortality was 2.8% (2 patient). The median duration of mechanical ventilation was 26 h, median duration of inotropic support - 2 days and median time of ICU stay - 4 days.

Conclusion: Repair of tetralogy of Fallot in infancy is associated with a low early mortality. Routine primary repair of tetralogy of Fallot in the young infant can be accomplished with excellent early results. However, long-term follow-up is necessary to assess the impact of early repair on late right ventricular function and need for reintervention.
11.00-13.00
MAY 14, 2006 4TH CONGRESS DAY
11TH BIS VASCULAR SCIENTIFIC SESSION
MINI-POSTER PRESENTATION

V11b - 1
EXTRINSIC COMPRESSION OF THE SUBCLAVIAN VEIN STENT IN HEMODIALYSIS PATIENT WITH THORACIC OUTLET SYNDROME
Hospital Servidor Público Municipal, São Paulo, Brazil

Objective: Reports a case of inadvertent compression of the stent placement in subclavian vein in patient with thoracic outlet syndrome.
Methods: Medical record review.
Results: Hemodialysis patient with an arteriovenous fistula brachial-cephalic in left arm, developed left arm edema and high access pressure at hemodialysis. Patient had a previous history of subclavian vein cannulation. Venography diagnosed left subclavian vein stenosis. The patient was submitted to endovascular stent placement (Express 10 x 37 mm) with initial technical success. The patient developed arm edema, pain and fistula failure in postoperative. Fourteen day postoperative, patient accomplished a new venography that showed left subclavian vein occlusion and stent deformity (extrinsic compression of the stent between clavicle and first rib).
Conclusion: Central venous is a common problem in hemodialysis patient. The most well known cause is intrinsic stenosis, usually a result of subclavian vein catheterization, however, before the treatment must be to exclude the diagnosis of the thoracic outlet syndrome.

V11b - 2
SCLEROTHERAPY IN THE TREATMENT OF VENOUS STASIS DERMATITIS
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Objective: Superficial venous incompetence is the most common form of chronic venous insufficiency (CVI). Stasis dermatitis is a very often complication of CVI and may be a precursor of venous leg ulceration and lipodermatosclerosis. It often appears on the medial ankles of middle-age and elderly patients. Stasis dermatitis is usually difficult to treat. Correction of retrograde flow is necessary for effective treatment. In case of minor or moderate patients. Stasis dermatitis is usually difficult to treat. Correction of retro

Results: In most patients treated by sclerotherapy good results in skin condition were achieved. Full remission of stasis dermatitis after proper treatment was in 3 - 4 weeks (37 patients or 82%), up to 6 weeks (6 patients or 13%) and more than 6 weeks (only 2 patients or 5%). In control group results were the following: remission in 3 - 4 weeks - 1 patient (4%), up to 6 weeks - 2 patients (8%), from 6 weeks to 3 months - 13 patients (52%). Nine patients (36%) have not reached a full remission of dermatitis in 6 months.
Conclusion: Sclerotherapy is an effective method for complex treatment of superficial venous incompetence and venous stasis dermatitis as its complication. This method might be recommended even for small clinics. Obligatory condition for sclerotherapy performing is a good qualification and special training of medical stuff.

V11b - 3
GENETIC RISK FACTORS FOR VENOUS THROMBOSIS IN BELARUS
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Objective: Several genetic defects are associated with increased risk of venous thrombosis. Factor V Leiden (FVL) and prothrombin G20210A mutations are the most frequent causes of inherited thrombophilia in Western populations. The relationship of C677T mutation in the 5.1 methylenetetrahydrofolate reductase (MTHFR) gene with venous thromboembolism (VTE) remains controversial. The purpose of this study was to evaluate the association of the FVL, prothrombin G20210A and MTHFR C677T mutations with VTE in Byelorussian population.
Methods: The study included 85 unselected patients with VTE and 150 controls from collection of Guthrie cards from Byelorussian newborn Screening Program. All samples were tested for the FVL, prothrombin G20210A and MTHFR C677T mutations using allele-specific oligonucleotide hybridization assay.
Results: Eight patients (9.4%) had heterozygous for FVL, 10 (11.7%) were heterozygous for prothrombin mutation, 39 (45.8%) were heterozygous and 9 (10.5%) were homzygous for MTHFR C677T. Eight patients (9.4%) heterozygous for FVL or prothrombin mutation were also hetero- or homozygous for C677T MTHFR mutation. Frequencies of FVL, prothrombin G20210A, hetero- and homozygous C677T MTHFR mutations in control group were 2%, 2%, 45.5% and 9.3% respectively. Carriership of FVL or prothrombin mutation together with hetero- or homozygous for the T677 allele of the MTHFR gene was identified in 2 (1.3%) cases in controls. For the patients the prevalence of the FVL and prothrombin mutations was significantly higher than in the control group.

Conclusion: There was no significant difference in prevalence of homozzygosity for MTHFR C677T in patients and controls. The odds ratio for venous thromboembolism in the presence of FVL was 5.09 (95% confidence interval (C.I.) 3.6 to 17.4) and 6.53 (95% C.I. 3.7 to 13.6) in presence of prothrombin G20210A mutation. Frequencies of FVL, prothrombin G20210A mutation and their combination with hetero- or homozygosity for the T677 allele of the MTHFR gene were higher among patients who had such complications of venous thrombosis as pulmonary embolism and post-phlebitic syndrome. The odds ratio for such complications in carriers of prothrombin G20210A or FVL was 4.7 (95% C.I. 2.6-8.4) and 7 (95% C.I. 3.08 to 16.58) in patients heterozygous for FVL or prothrombin mutation and hetero- or homozygous for C677T mutation.

V11b - 4
STRUCTURE, OUTCOMES AND LONG-TERM RESULTS OF INFERIOR VENA CAVA INJURIES
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Objective: Injuries of the inferior vena cava (IVC) continue to be among the most frequent trunkal vascular injuries with high mortality. The aim of study was to conduct retrospective analysis of structure and results of rendering of aid patients with IVC injuries in various medical establishments of Belarus from 1984 through 2003 years.
Methods: For reception of the information of patients with IVC injuries has been demanded of documentation to 102 patients (6 patients in period from 1 month till 12 years were investigation with both ultrasound and spiral computed tomography for analysis of the long-term results).
Results: Mechanism of injuries included penetrating injuries in 69 (67.5%) patients, blunt trauma in 29 (28.2%), gunshot in 4 (4.3%) patients. There depending on anatomic localization of an IVC injury, the cases were distributed as follows: in the field of vv. iliac communis confluence – 7 cases, infrarenal and renal segment – 53, suprarenal one -22, retro- and suprahepatic segment of IVC composes 100%, with injuries of supra-and retrohepatic segment of IVC comprises 100%, suprarenal - 70%, infrarenal - 30%. In 2 of 6 patients we detected stenosis IVC in the field of suture. 1 patient with caval ligation had significant edema of superficial venous incompetence and venous stasis dermatitis as its complication. This method might be recommended even for small clinics. Obligatory condition for sclerotherapy performing is a good qualification and special training of medical stuff.
Conclusion: Trauma IVC - the emergency surgical patholgy demanding steadfast attention at all stages of medical care. It is necessary to patient with IVC injuries examination on the every and in the nearest period (from 1 up to 3 month) after to be discharged from hospital.

V11b-5
TRAIUATIC UPPER EXTREMITV ARTERIAL INJURY
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Objective: Our aim in this retrospective study is to analise our strategies for management and surgical treatment of traumatic upper extremity arterial injury.

Methods: 147 patients with traumatic upper extremity arterial injuries were operated in Izmir Ataturk Education and Research Hospital, Department of Cardiovascular Surgery between the dates August, 1996 -December, 2005. The 136 patients were male, 11 patients were female and their ages ranged from 7 to 75 years (average 28 years). 116 of 147 patients had penetrating injuries, 16 of them had shotgun injuries and 15 of them had blunt trauma injuries. Results: Arterial repair method for all of the 199 arterial injuries were end-to-end anastomosis in 103, primary repair in 27, reverse saphenous vein graft interposition graft in 61, and ligation in 8 injury. Venous continuity was provided in 21 of 28 patients who have major venous injuries. Primary fasciotomy was performed in 20 patients (13.6%). Forty-eight of 147 patients had peripheral nerve injury. Amputation has been performed in one case. There was no mortality.

Conclusion: We believe that good result can be achieved by careful physical examination and by Doppler ultrasonographic examination and vascular repair which is combined with the debridment of non-viable tissues in order to provide viability in upper extremity vascular injuries. Traumatic neurologic injury may has a important influence in extremity disability.

V11b-6
ENDOVASCULAR THERAPY OF THE CELIAC TRUNK AND SUPERIOR MESENTERIC ARTERY OSTIAL STENOSIS: A REVIEW OF 12 CASES
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Objective: The aim of the study was to evaluate the usefulness of the endovascular therapy in celiac trunk pathology.

Methods: We reviewed 12 symptomatic patients with the celiac trunk and superior mesenteric artery stenosis, who underwent endovascular therapy in our Department in the years 2000-2005. The ostial stenosis presence was confirmed by Color Doppler, angio-CT and angiography. In all cases primary stent placement was done.

Results: In perioperative period one death was observed, because of thoracic aorta dissection. No other complications have been observed. In group patients the nutritional status improved and the abdominal symptoms diminished.

Conclusion: The endovascular therapy of the celiac trunk and superior mesenteric artery ostial stenosis is a useful therapeutic option, and the open surgery is still recommended in patients, in which endovascular treatment is not possible.

V11b-7
ENDOVASCULAR STENT PLACEMENT IN THE TREATMENT OF CENTRAL VENOUS OBSTRUCTION IN HEMODIALYSIS PATIENTS
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Objective: The purpose of the study was to report our experience and results with the endovascular treatment of central vein stenosis and occlusions in patients with failing upper extremity arteriovenous access.

Methods: Between February 2004 and September 2005, we performed 12 interventional procedures in 11 patients ranging in age from 45 to 82 years (mean 65 years). The indication for intervention was stenosis (58.4%) or occlusion (41.6%) of a central vein in the upper arm used for dialysis in patients with arm swelling and/or shunt malfunction. All patients had a previous history of subclavian vein cannulation. All patients were treated for percutaneous transluminal angioplasties with primary stent placements. The mean follow-up was 6.2 months (range 1-19 months). Following treatment, patients were monitored clinically for signs of recurrent arm edema or high access pressures and stent patency with venography.

Results: The initial technical success rate was 100%. The improvement of clinical signs appeared after 4 months. The recurrence arm edema rate was 66.6% at 30 days and 41.6% at 6 months, with a primary assisted patency rate of 50% and secondary patency rate of 50% (n = 2).

Conclusion: Central vein stenosis and occlusions are associated with previous subclavian vein cannulation. Endovascular stent placement is an effective alternative to surgery in patients with shunt dysfunction due to obstruction of the upper extremity central vein. Repeated interventions are usually required to prolong stent patency.

V11b-8
STERILE PARAANASTOMOTIC ANEURYSMS OF THE ABDOMINAL AORTA: A 25 YEAR EXPERIENCE REVIEW
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Objective: This is a single-Institution retrospective review of clinical presentation and management of sterile Paraanastomotic Aneurysm of the Abdominal Aorta treated in our Department.

Methods: Sterile paraanastomotic aneurysm is a late complication of infrarenal aortic grafting for both occlusive and aneurysmal disease. They can be true aneurysms of the aortic remnant near the anastomosis or pseudoaneurysm of the suture line. The true incidence is actually difficult to determine: some retrospective series reported an overall incidence of 0.2-1%, but the phenomenon seems to increase. From October 1979 to November 2005, we treated 25 sterile paraanastomotic aneurysms, 21 pseudoaneurysms, 2 pseudoaneurysms and type IV thoracoabdominal aneurysm of the above aorta and 2 true aneurysms. Fourteen cases (56%) were symptomatic for abdominal pain, gastrointestinal bleeding, lower limb ischemia, asesthia, back pain with lumboischilgia; eleven asymptomatic cases (44%) were discovered incidentally during a periodical follow-up. None of the patients was suspected of graft infection through clinical history, laboratory examinations, CT-scan. Nineteen cases (76%), 2 true aneurysms and 17 pseudoaneurysms, underwent elective intervention, while 6 pseudoaneurysms (24%) were treated in emergency for life-threatening conditions. Surgical management included tube grafting interposition (n=12), new prosthetic reconstruction (n=7), graft removal with extrapancreatic bypass (n=3). Endovascular management (n=3) consisted in free-flow endografting to exclude aneurysm. Data were analyzed descriptively and the inferential analysis was performed by means of Fishers exact test (significance level = 0.05 two-tailed).

Results: In-hospital mortality was 20% (n=5); no deaths were observed in endovascular subgroup. One patients died during elective extensive intervention, while 4 patients treated in emergency died in the early postoperative period. Mortality was 5.26 and 67% for elective and emergency cases respectively (P = 0.005). In elective surgical cases, mortality was 0 and 50% with localized and with extensive intervention respectively (P=0.09). Moreover, mortality was 28.57% and 9.09% in symptomatic and asymptomatic subgroup respectively (P=0.34). Early postoperative morbidity was 54.1%, 55.5% in elective cases and 50% in emergency cases (P=1).

Conclusion: Sterile paraanastomotic aneurysms tend to be asymptomatic and difficult to diagnose. They also represent an underestimated phenomenon and incidence increases with the length of postoperative interval after aortic grafting. Moreover, mortality is very different in elective vs. emergency subgroup, so elective treatment is required to obtain a good outcome. Endovascular treatment could be helpful in reducing perioperative adverse events. For these reasons, all patients submitted to abdominal grafting need a lifetime surveillance program.
Objective: Recombinant activated factor VII is well known haemostatic agent indicated for control of bleeding in patients with severe bleeding associated with hemophilia, thrombocytopenia and disseminated intravascular coagulation. It has been also successfully used to control peri-operative bleeding in trauma, cardio-vascular and neurosurgical patients. This data assessed the efficacy and safety of rFVIIa in patients with normal hemostasis undergoing abdominal aortic aneurysm reconstruction complicated with a large volume of blood loss.

Methods: We report 5 cases of previously healthy men without preexisting coagulopathy who had been operated because of ruptured infrarenal aortic aneurysm. Despite of administration of red blood cell concentrate, fresh frozen plasma and platelets specimens in the peri-and post-operative period the patients were unstable and presented non-surgical bleeding. Intravenous treat- ment with rFVIIa was used in two doses (80 µg/kg) every 2 h.

Results: In all cases bleeding stopped. The response to treatment was rapid. No sideeffects related to rFVIIa were noted. One of patients died month later because of myocardial infarction.

Conclusion: We conclude that treatment of patient undergoing AAA reconstruction complicated with non-surgical, life-saving bleeding with Recombinant Activated Factor VII seems to be effective and save.

V11b - 10
LEFT RENAL VEIN LIGATION IN ABDOMINAL AORTIC ANEURYSM OPERATIONS
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Objective: During operations in huge abdominal aortic aneurysms we faced with the question – is it possible to ligate left renal vein at the time of approach to the aorta?

Methods: From 1995 to 2005, 16 patients were operated on for huge abdominal aortic aneurysms. All patients were operated through the median laparotomy, in all patients the left renal vein at the time of approach was ligated.

Results: It was necessary to ligate left renal vein because of: in 4 cases aneurysimatic distention observed higher renal arteries; in 5 cases there was short “neck” of the aneurysm - in 7 cases observed huge aortic aneurysm. We performed ligation proximally of origins of suprarenal and visceral arteries. Such approach allowed us to preserve normal flow-out from left kidney. During operation and early postoperative time all the parameters (urea, creatinine, diuresis rate) were normal. We have not observed acute renal insufficiency. In all patients hypotonic disease was revealed before operation. Two patients developed moderate progression of the vasorenal insufficiency before operation without progression after it.

Conclusion: We advocate ligation of the left renal vein during operations in huge abdominal aortic aneurysms.

V11b - 11
ENDOTHELIN-1 BLOOD SERUM LEVEL IN PATIENTS WITH ATHEROSCLEROTIC CRITICAL LOWER LIMB ISCHEMIA AS A PROGNOSTIC TEST FOR RECONSTRUCTIVE OPERATIONS
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Objective: To study a blood serum content of endothelino-1 in patients with critical lower limb ischemia due to atherosclerosis and to determine its prognostic significance for evaluation of results of reconstructive operations.

Methods: The investigation of blood serum content of endothelio-1 was performed in 33 patients aged 49 to 78 years suffering from atherosclerotic critical lower limb ischemia before surgical intervention in regional blood flow (greater saphenous vein of the affected limb) and in systemic blood flow (cubital vein). In 28 cases were realized reconstructive vascular operations and 5 patients underwent primary amputations of lower limbs. Control group was formed of 20 healthy people aged 25 to 35 years. The content of endothelio-1 was detected by immune-enzyme method.

Results: It was obtained that blood serum content of endothelio-1 before surgical operation was increased reliably in all observed patients in comparison with control data. There were registered the reliably higher level of endothelio-1 in regional blood flow in patients with primary and secondary (after reconstructive operations) amputations of limbs relative to patients with satisfactory results after reconstructive surgical operations (P<0.01 and P<0.05 pro tanto). In systemic blood flow there was detected the contrary tendency (P>0.05). Consequently we calculated a coefficient of ratio of endothelio-1 content in regional blood flow to its systemic level (K reg/syst). The coefficient appeared to be reliably higher in patients with primary and secondary amputations than in to patients with satisfactory results after reconstructive operations (P<0.001). There was established that if K reg/syst ≥1 then prognosis for limb preservation is favorable.

Conclusion: The presented data confirm a possibility to forecast outcomes of reconstructive surgical operations in patients with atherosclerotic critical lower limb ischemia in preoperative period using the coefficient of ratio of endothelio-1 content in regional blood flow to its systemic level.

V11b - 12
COMPARATIVE ANALYSIS OF LONG-TERM MORPHOMETRIC DATA FROM CANINE AORTA AFTER ENDOLUMINAL STENTING, STENT-GRAFTING, AND STENTGRAFTING WITH BALLOON DILATATION
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Objective: We hypothesized that there are morphometrically significant differences in the long-term healing characteristics of various endovascular devices and procedures.

Methods: A total of 32 bare and covered stents were placed in the thoraco-abdominal aorta of 16 mongrel dogs. Ten animals harboring 20 devices (12 bare-stents, 4 stent-grafts, and 4 stent-grafts with post-deployment adjunctive balloon dilatation) underwent a one-year follow-up. Aortic wall morphology with comparative statistical analysis was performed in the three groups (Bare Stent, Stent-Graft, and Stent-Graft with Balloon Dilatation) with regard to medial thickness, luminal neointimal thickness, combined neointima and graft thickness, total wall thickness, number of medial lamellar units and medial smooth muscle cell density. Tissues were harvested from multiple sites within the same device to strengthen the statistical analysis.

Results: No dissection, dilatation, or stenosis of the aorta occurred in any group. At one year, aortic media in the Stent-Graft with Balloon Dilatation group was considerably thinner compared with that in the Stent-Graft and Bare-Stent groups (Balloon Dilatation group; 37±135 µm, Stent-Graft group; 548±68 µm, P<0.0001 at mid-device area). The number of medial lamellar units, however, showed no significant difference among the three groups. Neointima was the thickest in the Stent-Graft with Balloon Dilatation group and thinnest in the Bare-Stent group (Balloon Dilatation group; 570±274 µm, Bare-Stent group; 251±27 µm, P=0.004 at proximal device area). Qualitative aortic wall histology in the three groups was comparable.

Conclusion: Despite a comparable qualitative histology, certain aortic wall morphometric parameters showed important differences among the Bare-Stent, Stent-Graft, and Stent-Graft with Balloon Dilatation groups at one year. Proper understanding of these differences may help in the selection of appropriate device and procedure for a given lesion.
control group which did not received any medication. The kidneys of the rabbits were evaluated by light microscope. Microscopic renal injury is said in the presence of tubular necrosis and atrophy, regenerative atypia, hydropic degeneration, interstitial fibrosis, loss of supranuclear cytoplasm and brush border disappearance. Renal injury was scored semiquantitatively according to these characteristics as: grade 0 as normal, grade 1 as mild (focal), grade 2 as moderate (multifocal) and grade 3 as severe (diffuse) histopathologic changes. Besides, lipid peroxidation was evaluated between the groups. Results: Histologic evidence of reperfusion injury was the presence of tubular necrosis and atrophy, regenerative atypia, hydropic degeneration, interstitial fibrosis, loss of supranuclear cytoplasm and brush border disappearance. The mean histopathologic scores of the Group 1 and in Group 2 were significantly lower than the control group. Group 1 vs. Group 3; P = 0.001, Group 2 vs. Group 3; P = 0.001, Group 1 vs. Group 2; P = 0.331. There was no significant difference between IL and Ptx groups (P = 0.331; NS). The malonaldehyde (MDA) levels of the medicated groups were significantly lower when compared with the control group. Mean MDA levels were 109±11 nmol/gr tissue in group 1, 119±15 nmol/gr tissue in Group 2 and 132±14 nmol/gr tissue in Group 3 (Group 1 vs. Group 2; P = 0.130, Group 1 vs. Group 3, P = 0.002, Group 2 vs. Group 3; P = 0.045). Conclusion: IL and Ptx were proved to reduce ischemia-reperfusion injury in rabbit kidneys microscopically. Besides, IL and Ptx provided lower lipid peroxidation products. However, conclusion on their protective effects of IL and Ptx renal ischemia-reperfusion injury needs further comprehensive studies.

V11b - 14
EXTENSIVE ANEURYSM OF BOVINE MESENTERIC VENA GRAFT: A LATE COMPLICATION
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The vascular graft aneurysm is a rare complication after vascular surgery. In October 2005, a 54-years-old man was presented with severe pain and pulsatile mass of his right leg. He was operated in 2001 and right iliofemoral bypass and bilateral above knee femoropopliteal bypass was performed. Iliofemoral graft was the PTFE graft and femoropopliteal grafts were the bovine mesenteric vein grafts. There was massive pulsatile mass on right leg along the bovine mesenteric vein graft. All pulses were exist. Computerized tomography and MR angle were demonstrated extensive aneurysm of the femoropopliteal bovine mesenteric vein graft. The patient was operated because of the diagnosis bovine mesenteric vein graft aneurysm. Aneurysmectomy and femoropopliteal bypass with Sheltigh internal mammary artery graft was performed.

V11b - 15
ANATOMICAL RANGE OF GSV TRUNK INSUFFICIENCY
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Objective: The aim of the study is to estimate the anatomical range of GSV trunk insufficiency in patients suffering from varicose veins in GSV tributaries’ region. Methods: We have examined with a duplex ultrasonograph 152 subsequent cases. In 12% of cases whole GSV trunk was involved. Another 14% patients had GSV insufficiency to the mid calf segment. Trunk insufficiency reaching upper crural segment was found in 49% of examined group, with outflow to Leonardo’s vein and to anterior crural vein in 35 and 14% of cases respectively. Insufficiency involving lower femoral segment was seen in 14% of patients, while reflux limited to upper femoral segment in 11% of patients. Results: The results of histological examination showed that the endothelial denudation, the fragmentation of internal elastica lamina and microthrombus developed in the early phase. At the end of the first week, inflammatory cell infiltration of the vessel wall and smooth muscle cell-fibroblast proliferation were seen with transient mild stenosis of the lumen. In the third phase, vessel wall structural restitution and remodeling took place, with decreasing cellular infiltration and cell proliferation. In addition, a mild collagen deposition was observed and the cross-section of the vessel was distorted. Conclusion: To sum up the above findings, four distinct phases of pathologic changes are possible after stent implantation: thrombosis, inflammation, cell proliferation and vessel wall remodeling. Our results indicate that the post-implantation lesions of the peripheral artery of dog correspond to that of the human samples, so the animal model is appropriate for further endovascular modelling and investigation of pathomechanism of restenosis. The pathological changes of restenosis developed at the end of the first month, thus, the later complications should be considered as freshly forming stenosis or occlusion.

V11b - 16
COMPARATIVE HISTOLOGICAL EXAMINATION OF ACUTE, SUBACUTE AND CHRONIC VASCULAR LESIONS AFTER STENT IMPLANTATION IN HUMAN AND DOG ARTERY
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Objective: The histological examination of vascular biological alterations of peripheral vessels induced by stent implantation greatly helps to understand the pathomechanism of subsequently developed restenosis. Methods: The international literature mainly includes histological data about stent implantation in coronary arteries but follow-up studies comparing human and animal models concerning peripheral arterial wall are hardly available. Methods: The purpose of this study was the evaluation of the vascular wall response to the stent at cellular-histological level comparing human and animal models one day, one week and one month after stent implantation. To characterize these processes leading to patency of vascular lumen and to determine the factors that influence the thickness of vessel wall in the newly forming intra- and periarterial structures, we have performed parallel histological and immunohistochemical analysis in paired samples of human and animal vessels. Results: The results of the histological examination showed that the endothelial denudation, the fragmentation of internal elastica lamina and microthrombus developed in the early phase. At the end of the first week, inflammatory cellular infiltration of the vessel wall and smooth muscle cell-fibroblast proliferation were seen with transient mild stenosis of the lumen. In the third phase, vessel wall structural restitution and remodeling took place, with decreasing cellular infiltration and cell proliferation. In addition, a mild collagen deposition was observed and the cross-section of the vessel was distorted. Conclusion: To sum up the above findings, four distinct phases of pathologic reactions can be observed after stent implantation: thrombosis, inflammation, cell proliferation and vessel wall remodeling. Our results indicate that the post-implantation lesions of the peripheral artery of dog correspond to that of the human samples, so the animal model is appropriate for further endovascular modelling and investigation of pathomechanism of restenosis. The pathological changes of restenosis developed at the end of the first month, thus, the later complications should be considered as freshly forming stenosis or occlusion.
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SUBCLAVIAN ARTERY OCCLUSION AFTER RADIOOTHERAPY FOR CARCINOMA OF THE BREAST: A CASE REPORT
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Objective: Symptomatic occlusion of the subclavian artery is a very rare complication of radiation therapy for carcinoma of the breast. Numerous adverse reactions may occur secondary to radiation therapy. A well known side effect is radiation induced oclusive lesions and the enhancement of normally occurring atherosclerosis. Post-irradiation subclavian arteriopathy can develop 6 months to 20 years after radiotherapy. We report a case who presented with severe right upper limb ischemia following previous radiotherapy for breast carcinoma.

Methods: A 50-year-old female had been treated with ionizing radiation after right mastectomy for breast carcinoma seven years before. She was admitted to our clinic for rest pain, numbness, and weakness of the right upper extremity. In physical examination, upper extremity brachial systolic blood pressure difference was detected. No arterial pulse was detected in the affected extremity. Aortic arch aortography demonstrated complete occlusion of the right subclavian artery after take off vertebral artery, which was assumed to be the result of previous radiation therapy. Patient was treated surgically under general anesthesia. Right supraclavicular incision was performed for axillary artery exploration. Right subclavian artery to right axillary artery bypass was performed with 6 mm polytetrafluoroethylene (PTFE) graft.

Results: Histopathologic examination of the resected arterial sections revealed fibrotic changes in the media, and adventitia, and thrombotic changes in the obliterated vessel lumen. The patient was discharged without any complication.

Conclusions: It is our contention that radiotherapy was the cause of the subclavian artery occlusion in this presented case.

V11b - 19

ENDOVASCULAR AND SURGICAL THERAPY OF CELIAC TRUNK STENOSIS: A REVIEW OF 20 CASES
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Objective: to evaluate the usefulness of the endovascular therapy in celiac trunk pathology.

Methods: We reviewed 20 symptomatic patients with the celiac trunk stenosis, who underwent open surgery (10 cases) or endovascular therapy (10 cases) in our department in the years 2000-2005. The stenosis presence was confirmed by color Doppler ultrasound examination and angiography. Results: in the surgery group 2 deaths in perioperative period were observed, and one patient complained on epigastric pain up to 3 weeks after the procedure, however normal flow in the celiac trunk was observed in the CDD-ultrasound exam. We observed 1 death in perioperative period in the endovascular group, however no other major complications have been observed. The postoperative stay was significantly shorter in the endovascular patients. In all patients the nutritional status improved and the abdominal symptoms diminished.

Conclusion: the endovascular therapy of the celiac trunk stenosis is a useful therapeutic option, however the open surgery is still recommended in patients, in which endovascular treatment is not possible.

V11b - 20

HISTOLOGICAL EVIDENCE OF INTIMAL HIPERPLASIA AFTER PROVOQUED STENOSIS IN AN ARTERIAL RAT MODEL OF STUDY
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Objective: To characterize these processes leading to patency of vascular lumen and the pathological changes of restenosis. The international literature mainly includes histological data about stent implantation in coronary arteries but follow-up studies comparing human and animal models concerning peripheral arterial wall are hardly available.

Methods: The purpose of this study was the evaluation of the vascular wall response to the stent at cellular-histological level comparing human and animal models one day, one week and one month after stent implantation. To characterize these processes leading to patency of vascular lumen and to determine the factors that influence the thickness of vessel wall in the newly forming intra- and perivascular structures, we have performed parallel histological and immunohistochemical analysis in paired samples of human and animal vessels.

Results: The results of the histological examination showed that the endothelial denudation, the fragmentation of internal elastica lamina and microthrombosis developed in the early phase. At the end of the first week, inflammatory cellular infiltration of the vessel wall and smooth muscle cellfibroblast proliferation were seen with transient mild stenosis of the lumen. In the third phase, vessel wall structural restitution and remodeling took place, with decreasing cellular infiltration and cell proliferation. In addition, a mild collagen deposition was observed and the cross-section of the vessel was distorted. To sum up the above findings, four distinct phases of pathological reactions can be observed after stent implantation: thrombosis, inflammation, cell proliferation and vessel wall remodeling.

Conclusion: Our results indicate that the postimplantation lesions of the peripheral artery of dog correspond to that of the human samples, so the animal model is appropriate for further endovascular modelling and investigation of pathomechanism of restenosis. The pathological changes of restenosis developed at the end of the first month, thus, the later complications should be considered as freshly forming stenosis or occlusion.

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CILOSTAZOL INHIBITS BALLON-INDUCED INTIMAL HYPERPLASIA IN RATS
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Objective: An experimental study is performed for evaluation of the effects of cilostazol in the secondary damage after angioplasty balloon in the rat.

Methods: The common carotid artery was injured in rats with a 3 French angioplasty balloon catheter. The group with injured artery is compared with experimental group treated with cilostazol. Histological and ultrastructural findings were compared with those in untreated control lesions in the carotid artery with the evaluation of the images of the arterial wall in the intimal, muscular and adventitial zones.

Results: The results show the beneficial effects of the treatment with sildenafl in the prevention of the intimal hyperplasia for injury of the mechanical treatment with an angioplasty balloon.

Conclusion: Cilostazol have beneficial effects in arterial injury potangio-plasty with balloon.

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ENDOVASCULAR TREATMENT OF VISCERAL ARTERY ANEURYSMS
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Objective: To evaluate the diagnosis and treatment of visceral artery aneurysms.

Methods: We conducted a retrospective review of 12 patients with visceral artery aneurysms from 1995 to 2005. There were patients from age 43 to 67 years old. Multiplanar aortography and selective visceral angiography were performed for all patients. From 2 to 20 coils or stent-graft was used for occlusion.

Results: In our Institute 12 patients with visceral artery aneurysms were identified: 6 splenic, 2 pancreatosplenoduodenal inferior, 2 gastroduodenal, 1 gastrosplenic dextra, 1 hepatic dextra. Endovascular interventions included 4 embolizations of visceral arteries, 2 embolization of visceral artery aneurysms and 1 stent-graft. In 4 studies we used diagnostic aortography and selective visceral angiography, without endovascular treatment. In 1 case endovascular interventions was impossible because there were anatomic considerations. There were no procedure-related deaths.

Conclusion: Visceral artery aneurysms are an uncommon form of vascular disease, yet are important to the practicing vascular surgeon because of their potential for rupture or erosion into an adjacent vessel, resulting in life-threatening hemorrhage. Endovascular intervention can provide an alternative method of treatment for visceral artery aneurysms. Cather-based treatments with coil embolization and placement of stent-grafts have emerged as promising therapies to treat visceral artery aneurysms. Individual anatomic considerations play an important role in determining the best treatment strategy if intervention is warranted.

V11b - 24
COMPARISON OF TNF-ALPHA, IL-1, IL-6 IN ARTERIAL WALL AND SERUM IN PATIENTS WITH PRIMARY LOWER LIMB VASCULAR RECONSTRUCTIONS AND RESTENOSIS
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Objective: Group of proinflammatory cytokines, with IL-6, IL-1-beta and TNF-alpha plays major role in pathologic changes leading to atherosclerotic plaque formation. Excessive activation of the inflammatory process by cytokines may lead to unstable plaque formation and acute vascular incident. Having in consideration the differences in the response of the artery to an impairment caused by the atherosclerotic risk factors, and the injuries resulting from operations, morphological and immunohistochemical differences in inflammatory process in arterial wall of patients undergoing primary and secondary vascular reconstruction of lower limbs, were compared with serum concentration of selected cytokines.

Methods: Forty patients with atherosclerotic lower extremities ischemia were scheduled for vascular reconstruction. Patients with inflammatory diseases, unrelated to the ischemia, as well as patients suffering from diabetes mellitus, cancer and autoimmune diseases were excluded from study. Patients were divided into two groups, depending on type of vascular reconstruction: 1. Patients undergoing primary vascular reconstruction (PR) - 25, with no reconstructive procedures of arterial system (neither open, nor endovascu-lar). 2. Patients undergoing secondary vascular reconstruction - 15, undergoing secondary revision of the arterial anastomosis due to the symptoms of ischemia after 12 months since the primary operation. Morphological and immunohistochemical evaluation of arterial wall taken from the newly planed or previous anastomosis was made. Expression of IL-1-beta, IL-6, and TNF-alpha in arterial wall was correlated with the serum concentration of the cytokines. Results were analyzed statistically.

Results: No significant differences were observed in expression of cytokines in arterial wall of patients undergoing primary, or secondary vascular reconstruction (P = 0.8). Intensive expression of examined cytokines in the arterial wall wasn’t accompanied by the growth of serum IL-1-beta, IL-6 and TNFalpha concentration. Serum concentration of IL-6 depended of the degree of the limb ischemia, and was significantly higher in patients with critical limb ischemia (P<0.01).

Conclusion: In patients with primary and secondary vascular reconstruction no differences in the expression of IL-6, IL-1-beta and TNF-alpha were observed in the arterial walls in area of anastomosis. Serum concentration of IL-6, IL-1-beta and TNF-alpha do not reveal significant differences between the groups. Serum concentration of IL-6, IL-1-beta, TNF-alpha didn’t depend of expression of examined substances in the wall of the vessel. Advanced degree of limb ischemia causes increase of concentration of inflammatory reaction markers, especially IL-6. Morphological changes observed in examined groups reflect degenerative and inflammatory changes in arteriosclerosis and do not differ in patients with primary and secondary vascular reconstruction.
mean age 49–12) by superficializing the basilic vein. All these operations were made under local anesthesia. At first an anastomosis was made between brachial artery and basilic vein. Then second incision to the proximal part of the anastomosis was made to superficialize the basilic vein (in approximately 10–15 cm long).

Results: In early periods, two early thrombosis and one haemorrhage that required revision developed. In long-term follow-up; changing from 4 months to 36 months; 8 late thrombosis; 2 pseudoaneurysms and 1 rupture developed. Other fistulas were normofunctional.

Conclusion: Brachiobasilic fistulas which are made by superficializing the basilic vein is the chance of creating autogen AVF that must be made before greft implantations in haemodialysis patients.

V11b - 27
ADVENTITIAL CYST OF THE POPLITEAL ARTERY AND ITS RELATION TO THE KNEE JOINT. HISTOLOGY AND MAGNETIC RESONANCE IMAGING
Admettler Castiglione X., Pannela Agusti F., Diaz Torres J., Rodriguez Espinosa N., Garcia Vidal R., Mellado Joan M., Abril Arjona Y., Martin Paredero V.
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Objective: Introduction. Adventitial cysts of the popliteal artery are an infrequent cause of ischaemic symptoms in the lower extremities. It is, however, important to take them into account in the differential diagnosis in young individuals with intermittent claudication in the calf muscles. Although the causation and pathogenesis of this condition remain uncertain, a correct diagnosis allows the specialist to restore normal blood flow in the extremity.

Methods: Case report. We studied the case of a 57-year-old patient with intermittent claudication and an adventitial cyst of the popliteal artery.

Results: Which magnetic resonance imaging showed to be communicating with the knee joint, and this was later confirmed by surgery.

Conclusion: Use of magnetic resonance imaging as a diagnostic test was able to clearly demonstrate the existence of this pathology and lend support to the synovial hypothesis.

V11b - 28
DACRON MESH WRAPPING OF AN ABDOMINAL AORTIC ANEURYSM - A TREATMENT OF CHOICE OR ACT OF DESPAIR?
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Objective: In 1948, Rea and Poppe wrapped the anterolateral surface of an aneurysm with reactive cellophane. They hoped the material would induce fibrosis within the surrounding tissues, causing reinforcement of the aneurysm wall and limiting its expansion. The technique remains in use, although rather sporadically, and mainly in high-risk patients who cannot be selected for endovascular repair.

Methods: From 1996 to 2004, twenty-four procedures of dacron wrapping of abdominal aortic aneurysms were performed. Patients selected for AAA wrapping procedure were high-risk surgical candidates with low left ventricular ejection fraction (< 35%). All required urgent intervention due to the symptomatic character of the aneurysm or fast growth of its diameter (> 10 mm/year). They had been previously disqualified as candidates for conventional open repair and stent-grafting.

Conclusion: Aneurysm wrapping carries a rather insignificant risk to the patient. Aortic clamping can be avoided, which is mainly responsible for cardiological complications in patients with cardiovascular disease and low left ventricular ejection fraction (EF LV). Until further refinements in endograft technology are made and introduced to practice, such as fenestrated stent-grafts, complete dacron wrapping remains a method of relatively effective and safe AAA repair in high-risk patients disqualified as candidates for conventional open repair and stent-grafting.

V11b - 29
OUTCOME AND MOBILITY AT ONE YEAR IN UNILATERAL LOWER LIMB AMPUTEEES
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Objective: The aim of the present retrospective audit was to assess post-operative mobility, an important indicator of quality of life in amputees, one year after above knee (AKA) or below knee amputation (BKA) in a district general hospital.

Methods: Mobility at one year post operation and other risk factors for peripheral vascular disease were evaluated on all patients who underwent AKA or BKA over a five year period (November 1998 - January 2004).

Results: A total of 71 patients were reviewed (AKA n = 33, BKA n = 38). The overall mortality at one year was 15.5% (11/71) with 18.2% (2/11) in the BKA-Group and 81.8% (9/11) in the AKA-Group (P = 0.012). The remaining alive 60 patients (AKA n = 24, BKA n = 36) had an age range of 31-91 years (overall mean age 66.0 yrs: AKA-Group 66.7 yrs vs. 70.1yrs in the BKA-Group; 37 male: 23 female). Eleven out of the twenty-four patients (45.8%) who underwent AKA were mobile independently or with a walking stick compared to 55.5% (20/36) in the BKA-Group (P = 0.33). Eleven patients (45.8%) were diabetic in the AKA-Group compared to twenty patients (55.5%) in the BKA-Group (P = 0.46). Age did not affect type of amputation (P = 0.66) or mobility (P = 0.73).

Conclusion: The high mortality in the AKA-Group reflects the tendency to perform an AKA in patients with a significant co-morbidity. Furthermore, the present study demonstrates that there is no difference in mobility outcome following BKA or AKA at one year. This may have important implications in choice of lower limb amputation.

V11b - 30
DETECTION OF ENDOLEAKS AFTER ENDOVASCULAR REPAIR OF ABDOMINAL AORTIC ANEURYSM: VALUE OF THE COMPUTATIONAL MODELING PROGRAM BASED IN ECODOPPLER ULTRASOUND
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Objective: Persistent perigraft flow within an abdominal aortic aneurysm, also termed “endoaek”, remains the most common complication of endovascular graft placement. Ultrasound is cost-effective, easily available and transportable, and has found increasing use in many screening programmes for abdominal aortic aneurysms. Due to its extensive use both in screening programmes and in routine abdominal diagnosis, an increasing number of abdominal aortic aneurysms are diagnosed. However the follow-up of the endovascular treatment of abdominal aortic aneurysm is based in others procedures as computed tomography scan or angiography.

Methods: A novel computer-based method was developed based on objects’ interpretations of Doppler ultrasound scan images. With software specifically designed for this study examine the images of the Doppler ultrasound scan with a specific special data correspondent of endoleaks.

Results: Doppler ultrasound scan images results a excellent method for evaluation the different situations in the aneurysm sac treated with EVAR and evaluation of the the endoleaks.

Conclusion: Computer ultrasound method should be regarded as the most practical, non-invasive method for the assessment of evaluation of abdominal aortic aneurysm treated with endovascular methods.
MMP-9 PLASMATIC CONCENTRATIONS ARE A RELIABLE MARKER IN THE PREOPERATORY EVALUATION OF THE ATHEROSCLEROTIC CAROTID PLAQUES

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Objective: Many studies have been undertaken in order to know better the mechanisms that lead to the destabilization of the carotid plaques and to cerebral ischemic events. There are evidences that an increased metalloproteinases (MMP) activity plays an important role in the ulceration or rupture of the atherosclerotic plaque and this may determine acute neurologic events. The aim of this study is to find a correlation, in a consecutive series of patients that underwent internal carotid tromboendarterectomy, between MMP-2, MMP-9 and TIMP-2 plasmatic values and clinical and strumental evidences. We also follow the plasma metalloproteinases modifications search- ing a direct correlation between those markers and the disease presence.

Methods: The MMP-9, MMP-2 and TIMP-2 levels in the plasma of 15 patients that underwent measurements were repeated one week and one month after surgery. We also determinate by immunofluorescence the MMP-9 expression in the carotid plaque tissue after tromboendarterectomy.

Results: Our study shows that the basal plasmatic MMP-9 concentration shows a direct correlation with the MMP-9 expression in the plaque tissue. MMP-9 plasmatic levels are elevated in the patients that underwent tromboendoarterectomy compared to the group control (23.8 ng/ml vs. 11.4 ng/ml; P<0.05) The data confirm that MMP-9 values have not a direct correlation with the traditional risk factors (Hypertension, smoke, diabetes and hypercholesterolemia) and with a pregresse miocardiac ischemia. MMP-9 was also increased in Patients with an ultrasonographic evidence of an instable carotid plaque (26.2 ng/ml vs. 16.8 ng/ml; P< NS). Increased MMP-9 plasmatic levels were found in patients symptomatic for cerebral ischemia (29.5 ng/ml vs. 18.5 ng/ml; P = NS) and those differences became significant in patients that show previous ischemic lesions at the cerebral TC or RM (27.5 ng/ml vs. 16.1 ng/ml; P< 0.001), while remain similar at one week (23.8 ng/ml vs. 23.4 ng/ml; P = NS). MMP-2 and TIMP-2 didn’t show significant variations between the preoperative and one week/ one months measurement.

Conclusion: Our results demonstrate that MMP-9 plasmatic concentration is an accurate carotid plaque instability index and can be safely used as an important laboratory marker in the preoperative evaluation of a carotid stenosis correction.

ENDOVASCULAR REPAIR OF TRAUMATIC INJURIES OF THE SUBCLAVIAN AND AXILLARY ARTERIES

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Objective: Injury to the subclavian and axillary arteries is uncommon. Standard surgical techniques require wide exposure and dissection in traumatized areas which is often challenging and associated with significant morbidity, and mortality ranges from 5 to 30%. We report our experience with the endovascular treatment of these injuries.

Methods: We retrospectively studied patients with blunt or penetrating (including iatrogenic) injuries to the subclavian or axillary artery between January 2000 and September 2004. Demographic data, mechanism of injury, concomitant injuries, angiographic findings, and treatment method and outcome were recorded. Nine patients with injury to the subclavian or axillary artery were seen at our institution during the study. Two patients underwent interventions, 7 patients had lesions amenable to endovascular repair.

Results: Immediate success was obtained in all procedures (100%). All patients continue to have patent grafts with a follow-up ranging from 3 to 48 months (mean 22.6 months). The procedure related complication was the need for a brachial artery pseudoaneurysmectomy at the site of device insertion in one patient (14.7%). None of the patients developed a stent fracture.

Conclusion: Endovascular stent-grafts offer an effective, less invasive alternative to standard techniques in treating traumatic arterial lesions, resulting in shorter procedure time and less blood loss than previously reported.
V13 - 5
ENDOVASCULAR RECONSTRUCTION FOR AORTOILIAC OBSTRUCTIVE DISEASE
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Objective: Aortoiliac obstructive disease has been traditionally treated using endarterectomy and/or a surgical bypass grafting procedure. With the advent of endovascular approach, “kissing-stents” technique has been proposed for to reconstruct the aortoiliac bifurcation for complex aortoiliac lesions. We present the mid-term results of 35 patients with aortoiliac obstructive disease who underwent endovascular repair of the infrarenal aorta and/or aortic bifurcation.

Methods: Between March 2001 and March 2005, a total of 36 patients with a mean age of 65±10 years underwent endovascular treatment of occlusive atherosclerotic disease at the infrarenal aorta and/or common iliac arteries. Lesions were classified C (n = 28) and D (n = 8), accordingly to the TASC classification. Intra-aortic thrombosis was used to reveal underlying aortic or iliac stenoses, and initially instituted in 4 occlusions (11.4%). The bifurcation was then eventually reconstructed using bilateral stents placed with the kissing technique. Clinical examination and duplex scans or CT angiography were performed at discharge and 1, 6, and 12 months after the procedure, with yearly studies thereafter.

Results: Kissing-stents technique was selectively used in 26 cases (72.2%); the remaining cases were treated with kissing-balloons. Mean ABI increased from 0.69±0.26 to 0.82±0.28. Major complications occurred in 3 out of 35 patients (4.1%), and included hematoma (n = 2) and pseudoaneurysm (n = 1). Patency rate at discharge was confirmed to be 100%, by duplex-ultrasound. Overall, mean duration of hospitalisation was 3.7±2.3 days (range 1-14 days; median 3). Mean follow-up was 29.3 months (range 3-60; median 24), during which no patients were lost to follow-up: one patient died three months after the procedure for acute respiratory failure. Duplex and/or CT-A examination detected 4 re-occlusions (early (n = 1), late (n = 3); overall, 11%). Lytic therapy successfully restored the occluded vessels, revealing three re-stenoses: two were treated with kissing-stents, one patient with catheter-based thrombectomy and angioplasty. No further recurrent re-stenoses were detected in the following follow-up period. Primary patency rates at 12, 24, and 36 months were 93%, 87%, and 76%, respectively.

Conclusion: Endovascular treatment seems to be feasible, safe and effective: early and 2-years follow-up data in this study was encouraging with clinical improvement in all patients and high rates of patency. Where kissing-stents fail, surgery remains an option. Based on this experience, although we do not unequivocally support the replacement of aorto-femoral bypass surgery by percutaneous revascularization, the procedure-related mortality and morbidity are lower than those reported for conventional repair.

V13 - 6
COMPARISON OF TRANSPERITONEAL AND RETROPERITONEAL APPROACHES IN ABDOMINAL AORTIC SURGERY
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Objective: The aim of this study is to compare the retroperitoneal and transperitoneal approaches in aortic surgery by demonstrating the advantages and disadvantages of the retroperitoneal approach technique.

Methods: From December 2003 to March 2005, 80 patients who had undergone aortic surgery for either abdominal aortic aneurysm or aortoiliac occlusive disease, were studied retroproximately. The patients were divided into two equal groups as retroperitoneally (40 patients) and transperitoneally (40 patients) approached, and their clinical features, preoperative and postoperative data were analyzed and compared.

Results: Return of bowel functions, oral feeding time, duration of the operation, intensive care unit and hospital stay were significantly shorter in the patients operated with the retroperitoneal approach technique. However, aortic cross clamp time was statistically longer in the retroperitoneal approach group. Even though significance could not be proven other parameters such as total transfusion requirement in the first 24 h, postoperative pulmonary problems, wound complications, incisional hernia, intensive care unit requirement, mortality rate, and time of discharge also favored the retroperitoneal approach.

Conclusion: Even though in different studies various advantages and disadvantages of the both methods have been established we believe retroperitoneal approach to the aorta seems to be a more favorable method for the treatment of aortic pathologies.

V13 - 7
AAA SURGICAL REPAIR IN PATIENTS WITH A SIMULTANEOUS CANCER
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Objective: This paper address the problem of endovascular AAA repair in oncologic patients, a relatively frequent situation (3.9-12.6% of cases). In 1996, Nagi introduced a classification in 5 categories aimed to identify perfect timing for surgery, but nowadays it has lost its meaning in times of EVAR.

Methods: We reviewed 10 patients treated as a staged procedure, by EVAR since 2000, bearing both a AAA and a cancer. Three patients had bladder cancer, four a GI cancer, one Lung, one a NH Lymphoma, and one a breast cancer. Age was comprised between 62 and 81 years, with a prevalence of male patients. All patients were judged ASA II to IV risk class. All patients were unfit for open treatment of AAA according to EUROSTAR criteria and fit for endovascular graft. All were operated in general anesthesia through a bilateral femoral cutdown. A Talent endograft was used in all cases. In only one case a hypogastric artery was excluded. All patients were operated before (Szilagyi class II) cancer treatment.

Results: No mortality or emergency surgical conversion was necessary. In 60% of cases the graft access was sutured with a Dacron patch. No early graft related complication was noted. Only one patient had a long lasting (30 days) groin limbatic fistula. All patients were dismissed on the second or third post-procedural day.

Conclusion: Although some authors are favourable to simultaneous surgical treatment, EVAR had changed the attitude toward neoplastic patients with a simultaneous AAA. EVAR allows prompt AAA repair with minimal general risk, with fast recover, and poor infective risk in case of staged abdominal opera- tion on GI or urinary tract. We believe that EVAR must be performed first because some chemotherapeutic drugs may be toxic for endothelium, increase volemia and add risk of rupture for the AAA. Reduced life expectancy in these patients overcomes the problem of costs and concerne for long term follow-up.

V13 - 8
MANAGEMENT AND FOLLOW-UP OF DIFFICULT ABDOMINAL AORTIC ANEURYSMS (AAA)
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Objective: Articles about “difficult aortas” reported prevalently deal with the association of AAA with cancer, horseshoe-kidney, juxtaarenal (JRA) and inflammatory aneurysms (IAAA), but treat even technical difficulties, and complications. The incidence of difficult aortas will relatively increase as simple anatomic conditions can now be treated by endovascular approach. The purpose of this study was to evaluate early and late results of open surgical treatment of “difficult” AAA.

Methods: Among the records of 553 patients who underwent elective treatment for AAA between 1996 and 2003, the operative reports of 49 (8.9%) that were classified as “difficult aortas” have been reviewed. All the p. had a prospective ultrasound evaluation in the follow-up.

Results: Nobody died after surgery. Twenty-seven p. had a JRA (2 associated with renal artery disease, 2 IAAA and 1 after aortic graft), 5 were IAAA, 3 had associated renal artery stenosis and 2 had a horseshoe kidney. Other 3 had mural haematomas and ulcers in the aneurysm neck, 4 had dissections or heavy calcifications of distal anastomosis, other difficulties in the remaining cases. Almost all the p. had a type C-JRA following the Brancheriu’s classification, so a supraceliac or supraprenal clamping was necessary in only 12 cases. In p. with a pathological neck the graft was sutured near the renal outlet, within the aorta, with external polyester support or pledgets and with a further external wrapping (2 p). At 2 year mean follow-up, 1 p. presented a pseudo-aneurysm treated with endovascular graft, 1 p. (supraortic clamping) presented a 44 mm proximal dilatation associated to 5 cm ascending aortic aneurysm, other proximal 32-33 mm infrarenal aortic dilatation have been observed in 2 p. and a tapered 22-40 mm aorta in the last p. All were unchanged at periodic controls. One case an hypogastric artery was excluded. All patients were operated before (Szilagyi class III) cancer treatment.

Objective: This paper presents a series of 49 patients subjected to open surgical treatment of “difficult” AAA, with a mean follow-up of 3 years (range 1-7 years).

Conclusion: Although some authors are favourable to simultaneous surgical treatment, EVAR had changed the attitude toward neoplastic patients with a simultaneous AAA. EVAR allows prompt AAA repair with minimal general risk, with fast recover, and poor infective risk in case of staged abdominal operation on GI or urinary tract. We believe that EVAR must be performed first because some chemotherapeutic drugs may be toxic for endothelium, increase volemia and add risk of rupture for the AAA. Reduced life expectancy in these patients overcomes the problem of costs and concerne for long term follow-up.
anastomosis showed a normal aorta at CT scan performed respectively 2 and 6 years after surgery.

Conclusion: EVAR will increase the incidence of difficult aortas to treat with open surgery. Preoperative complete and appropriate imaging are essential to formulate a sensible plan before operation; the choice of a suprarenal or suprarenal clamping, the division end reconstruction of the left renal vein, or a combination of extraperitoneal approach with a supraceliac clamping can convert a complex situation into a relatively simple one.

V13 - 9
PROGNOSTIC OF CAROTID ENDA RTERI ECT OMY, A COMPARISON BETWEEN PATIENTS WITH AND WITHOUT CAROTID CONTRA LATERAL OCCLUSION
De Bast Y., Lemaître J., Goffin C., Barchiche R., Bricard R., Bellens B., Belgium
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Objective: Patients presenting a significative carotid stenosis with a contra lateral occlusion are considered at risk for neurological complication during surgery. This affirmation is more and more controversy. In this work we evaluated the risk of neurological damage at one month post surgery in two groups, one with and another without contra lateral carotid occlusion.

Methods: All carotid operations of our center between the 1st November 1989 and the 31 December 1995 were reviewed. Exclusion criteria were: bilateral significant stenosis, combined coronary and carotid surgery, and non-classical carotid surgery. Two groups were constituted one group control (patients with a significative carotid stenosis) and another group occluded (patients with a significative carotid stenosis and an occlusion of the contra lateral carotid). All patients were operated by a longitudinal arteriotomy under a general anaesthesia and an electroencephalogram monitoring. In the two groups, we evaluated different parameters like the percentage of stenosis on the surgical side, risk factors, number of shunting and number neurological events at 4 weeks after surgery.

Results: The control group (120 patients) and the group occluded (19 patients) were homogeneity for the different parameters. The follow up at one month was 94%. The rate of shunting is not statistically different (5.0 against 10.5% P = 0.6665). The rate of neurological events at 1 month of surgery (3.3% against 10.5% P = 0.4088) is not statistically different. The neurological mortality at 1 month is 0.8% in the control group and 0% in the occluded group.

Conclusions: The risk of neurological events during carotid surgery in patients with a contra lateral carotid occlusion is not statistically higher than in single carotid stenosis. The risk of neurological events during carotid surgery in patients with a contra lateral carotid occlusion is not statistically higher than in single carotid stenosis.
11.00–13.00
MAY 14, 2006 4TH CONGRESS DAY

14TH VASCULAR SCIENTIFIC SESSION
MINI-PRESENTATION

V14 - 1
THE REASONS OF EARLY INFRINGEMENTS OF BRAIN BLOOD CIRCULATION AT PATIENTS AFTER CAROTIDIS ENDARTERECTOMY
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Objective: The purpose of work: studying of system of hemostasis at patients after operation carotidides endarterectomy (CEAE) depending on current of the early postoperative period.

Methods: It is surveyed 36 patients by whom operation unilateral CEAE was executed. All patients intraoperatively received nonfractioned heparin in a doze of weight of 80-100 ME/kg. Depending on current of the early postopera-
tive period patients were shared into groups: group 1-2 pts at whom at the first o’clock after operation were developed infringements of brain blood circ-
ulation; group 2-24 pts with the not complicated current. Studied a condition plasmic and thrombocytic hemostasis, system of natural anticoagulants and fibrinolysis before, in the end, in 6 h and for 1 day after operation CEAE.

Results: Before operation all patients had no significant changes of param-
eters of hemostasis. At the end of operation group 1 and 2 did not differ among themselves in the basic parameters of hemostasis. In group 1 the expressed hyperaggregation of thrombocytes came to light. In 6 h after operation in group 1 significantly smaller values of ACT, time of blood’s clotting (TBC), INR, authentically big size APTT and the expressed braking fibrinolytic activity on a background of hyperaggregation of thrombocytes were marked. For 1 day after operation in group 1 were kept authentically smaller size TBC, significant decrease is marked both in comparison with the previous stages of supervision, and in comparison with group 2. APTT, authentically smaller activity ?? III and fibrinolysis was registered. ADF-
duced aggregation of thrombocytes in group 1 at this stage was much higher, than in group 2. Hyperaggregation of thrombocytes at ill groups 1, was the first display of hypercoagulation registered in further. Decreasing APTT and braking Xila-dependent fibrinolysis could be display coagulopathy consumption. Authentically greater value APTT was reflec-
tion compensatory emission of endogenous heparin. For 1 day after operation in group 1 the expressed consumption endogenous heparin was marked, is significant the smaller activity AT III, essential braking XIIa-
dependent fibrinolysis, the expressed hyperaggregation of thrombocytes was kept.

Conclusion: Expressiveness and prevalence of atherosclerotic process in brain vessels alongside with hyperaggregation of thrombocytes result in amplification thrombogenic potential and to increase of risk thrombotic complications the nearest hours after operation. Therapy of antiagreers and anticoagulants should be begun still before of operation and to renew right after operations.

V14 - 2
COMBINING ENDOVASCULAR REPAIR OF AORTIC DISSECTION AND RENAL REvascularization
Hospital Servidor Público Municipal, São Paulo, Brazil

Objective: Report a case of the aortic dissection in patient with Marfan’s syndrome accomplished a combining endovascular repair and splenectomy and splenorenal anastomosis (renal revascularization).

Methods: Retrospective review, case report.

Results: Patient masculine, 54-years-old, with Marfan’s syndrome, previous right nephrectomy 25 years ago, reporting thoracic and lumbar pain after defacteration. At 08/01/2005, the patient accomplished a computed tomog-
raphy that showed abdominal aortic dissection, the entry site down of the origin of the superior mesenteric artery and extended to until iliac arteries, without left renal artery exclusion. The patient accomplished laparotomy, splenectomy and the left renal artery was anastomosed end-to-end to the splenic artery. Simultaneously to surgery, the brachial artery is accessed to percutaneous puncture and guidewire was inserted and directed to true lumen until femoral artery. The exposure of the guidewire is obtained with open access of the right iliac artery. The endograft in inserted down superior mesenteric artery closed left renal artery. The arteriography accomplished after surgery showed false lumen obliterated and splenorenal bypass pat-
ent. The period in-patient was 21 days, 9 days postoperative and 4 days in intensive care unit.

Conclusion: The renal revascularizarion in combination with endovascular repair is a effective treatment method and leads to a clear reduction of perioperative morbidity and mortality.

V14 - 3
EMERGENCY SURGICAL TREATMENT OF THE EKSTRACRANIAL VASCULAR INJURIES
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Objective: Carotid artery injuries can cause serious morbidities and mor-
talities. This potential can develop in minutes and in early hours. The main importance for this serious Injury is the necessity of urgent intervention. For this reason we found it appropriate to present our 11 urgent carotid artery injury experiences.

Methods: The 11 cases those applied to our emergency service and those were operated between March 1998 and February 2005 was included in this study. Postero anterior and lateral thoracic radiograms have been taken from all of patients. For 5 of our elective patient’s carotid artery doppler ultrasonography and for three of our elective patients aortic angiography have been performed. Conventional cervical computerized tomography was performed for the patients who had mediastinal hematoma. Under intratracheal general anesthe-
sia extracranial carotid artery has been reached by a longitudinal incision that was performed medial of sternocleidomastoid muscle. The surgical interven-
tions those have been performed for 11 patients have been abstracted.

Results: Nine of our patients were male and two of our patients were female.

V14 - 4
COMPARATIVE STUDY OF ENDOVASCULAR THERAPY VERSUS ENDARTERECTOMY IN THE SYMPTOMATIC STENOSIS OF THE INTERNAL CAROTID ARTERY
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Objective: The aim of the study to compare perioperative and late results of the endovascular therapy of internal carotid artery (ICA) stenosis and open surgery in patients with critical stenosis.

Methods: Endarterectomy was performed in 184 patients (118 males and 66 females) in the age 5876 (mean 65). The procedure duration was 42-82 min (mean 61). The patients were discharged from a hospital after 4-27 days (mean 7 days). The endovascular therapy underwent 174 patients (111 males and 63 females) in the age 63-81 (mean 74). The procedure duration was 22-82 min (mean 39 min). The patients were discharged from a hospital after 2-24 days (mean 3.4 days). In major part of the endovascular group an neuroprotection was applied.

Results: The ischemic stroke during the procedure occurred in 6 (3.4%) patients in endovascular group, and in another 12 patients (6.9%) symptoms of TIA occurred. Perioperative mortality rate was 0.6%. A number of bradycardia and hypotonia episodes were observed. In the patients who underwent an open
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Introduction: In the results from the SAPPHIRE study on high surgical risk patients with carotid stenosis there are no differences between carotid stent-angioplasty (CSA) and carotid endarterectomy (CEA).

Aims: The aim of this study was to analyse the cost-effectiveness of these two interventions based on the data from the above-mentioned study and on our own experience in carotid surgery.

Methods: We evaluated 108 CSA carried out between 1999 and 2003. The morbidity and mortality rates in the subgroup of high risk patients, according to the criteria used in the SAPPHIRE study, were analysed according to whether they were symptomatic or asymptomatic. Data concerning endovascular treatment were taken from the literature. A cost-effectiveness study was conducted considering four possible perioperative events: absence of sequelae, AMI, established CVA and death. The computer software package DATAPRO was used after fitting the decision to the theoretical quality of life for each of these groups.

Cost-effectiveness was estimated based on the cost of each procedure.

Results: Of the 108 patients, 41 (37.96%) belonged to the high risk subgroup; 46.3% of them were asymptomatic and 53.7% were symptomatic. In the 30 days following the intervention, one CVA (5.2%) and one AMI (4.5%) were observed. No deaths occurred. The decision analysis for symptomatic patients showed CEA to be the most effective therapeutic option. Similar results were obtained for asymptomatic patients. The average cost for CEA was 3,963 € and rose to 5,158 € in the case of CSA.

Conclusion: In our study, CEA is the preferred technique in high risk patients owing to its having a better cost-benefit ratio.

V14 - 6 PROPHYLAXIS OF VASCULAR GRAFT INFECTION: LONG-TERM RESULTS OF A PROSPECTIVE STUDY Pedrini L., Pisano E., Senisi L., Ballestrazzi S.M., Magnoni F., Magagnoli A., Cirelli R.M.
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Objective: Graft infection is a severe complication of vascular surgery followed by a high incidence of amputation and death. To reduce this complication, antibiotic prophylaxis has been adopted all over the world, nevertheless their incidence ranges between 0.5% in the abdominal reconstruction, to 1-2% in the aorto-femoral revascularization and 5-8% after axillo-femoral bypass. The guidelines for prevention of surgical site infection (SSI) recommend many actions to reduce this complications, not being antibiotic prophylaxis the only important. The purpose of this study was to evaluate the results of a protocol to prevent the graft infection.

Methods: The patients operated between 1997 and 2003 have been treated with 6 different antibiotic protocols, and followed prospectively. The protocol treatment have been designed considering the low prophylactic action of 2nd generation cephalosporins, the increased resistance of common pathogen found in vascular graft to these antibiotics, the scarce results of some single-dose treatment with vancomycin and of multiple-dose administration of cephalosporins, and the high incidence of coagulase-negative staphylococci in late infections.

Results: At 2.4 years mean follow-up, the incidence of graft infection was 0.66% (6 early and 7 late); 1 patients presented infection in 2 sites and another patient had 2 recurrent infection. Mean time between graft insertion and infection was 6.6 months. Gangrene, emergency and reoperation were the more common risk factors even in our sample. Prolonged duration of operation and redo operation without repeated antibiotic administration was probably the most important cofactor. The more frequent pathogen was staphylococcus aureus (4 cases, 2 MRSA); in 3 cases the culture was negative.

Conclusion: The incidence of graft infection in our sample was lower than mean incidence reported in the literature and about halved if compared to that observed before this protocol. In particular there were no infections at aortic level, 1% in aorto-femoral reconstructions, 5.4% in femoro-distal bypass, excluding vein graft and 1.7% in extra-anatomic bypass. The total incidence of graft infections in vascular reconstructions involving the femoral bifurcation was 1.04%. In 3% of patients, only 1 of the isolated pathogens was sensitive to cephalotin, while 4/6 were sensitive to gentamycin. In conclusion our results seems to demonstrate that a multi-dose treatment with the association of clindamycin and gentamycin and the utilization of correct preoperative procedures, gives a low incidence of vascular graft infections than using standard guidelines recommendations, and suggest the need for new prospective randomized studies.

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Objective: Case report of the thrombolysis in aortic endograft occlusion.

Methods: Retrospective review.

Results: J.T., 59-years-old, patient with coronary insufficiency and left ventricular ejection fraction 35%, 3 previous myocardial infarction and aortic infrarenal abdominal aneurysm with 60 mm in diameter, underwent endovascular aortic repair and femoral artery patch angioplasty. Seventeen day postoperative, patient developed rest pain and pallor in left lower limb. Digital angiography showed occlusion of the left limb of the endograft. The approach was from left brachial artery using 5 F pigtail catheters that was introduced in left limb of the endograft. The infusion catheter was inserted several centimeters into the thorax. Agent utilized was Alteplase 50 mg continuous infusion for one hour. Control angiography demonstrated dissolution of thrombus; endograft was patent and left iliofemoral stenoses. Conventional management of abdominal aortic aneurysm is by open repair and is associated with a mortality rate of 2-6%. Endovascular aneurysm repair is an alternative technique first introduced in 1991. Endovascular aneurysm repair is technically effective and safe, with lower short-term morbidity and mortality rates than open surgery. Some studies showed that the need for adjunctive vascular procedures to the iliofemoral arteries at the time of endovascular aneurysm repair is significant. These procedures are necessary to either repair damage to the access arteries from the delivery system or provide a conduit for graft delivery in cases where the access arteries are inadequate. Early postoperative vascular complications are due to the technical factors resulting in residual graft limb stenoses. We couldn’t find literature reports about thrombolysis in aortic endografts occlusion.

Conclusion: Intra-arterial thrombolysis in aortic endografts occlusion is technically effective and safe; however, more studies must be done.

V14 - 8 DIAGNOSTICS AND TREATMENT OF ABDOMINAL AORTA ANEURISM RUPTURE INTO DUODENUM Shcherblya A.A.
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Objective: The most rare complication of abdominal aorta aneurism is the formation of aortointestinal anastomosis. In foreign literature, less than 200 cases are described. Mostly, anastomosis is formed with duodenum, due to intamate abument of horizontal and ascending duodenum walls to front wall of aneurism.

Methods: From 1989 to 2005, we examined only 3 patients with abdominal aorta aneurism rupture into duodenum, that is 0.5% of the total number of patients with abdominal aorta aneurism rupture admitted to our hospital. The only intravitaly diagnosed aorto-duodenal anastomosis in a...
injury to innominate vessels is still a life-threatening condition, and because of few surgeons have experience with this kind of injury. Timing of the operation.

The chest was closed following adequate hemostasis. The patient was hypotensive, hypothermic and acidotic perioperatively. This clinical situation, caused by massive hemorrhage, proximal and distal control was achieved by clamping it on either side. Polytetrafluoroethylene (PTFE) was inserted to innominate vein. Also controlled by clamping it on either side of the manubrium sterni at the level of second intercostal space. The chest X-ray revealed widened mediastinum, a longitudinal wall defect of up to 1.5 cm in diameter between front right wall of the aneurism and ascending part of duodenum was detected. Taking into account a high risk of infection, resection of abdominal aorta aneurism and prostheses was not carried out. Aorta was ligated below renal arteries, iliac artery were ligated, bypass subclavian/tomeral bifurcational prostheses was performed. The duodenal defect was stitched by standard method. The patient was discharged operation.

Conclusion: The necessary complex of examinations includes ultrasound investigation, abdominal aortography, computer tomography, EGDs. In case of indeterminate diagnosis, an active surgical tactics should be preferred, which will allow to avoid diagnostic pitfalls.

**V14 - 9**

**PENETRATING INJURY TO THE INNOMINATE ARTERIES**

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Objective: Penetrating trauma involving the innominate arteries are uncommon. Few surgeons have experience with this kind of injury. The most common causes of these injuries are penetrating trauma. It is a significant cause of mortality and most of the patients die before reaching the hospital. We report here an unusual case of coexisting proximal innominate artery injury and transection of the innominate vein.

Methods: A 29-year-old male patient admitted to emergency service of our clinic. He had an isolated stab wound of about 3 cm long located on the left side of the manubrium sterni at the level of second intercostal space. The patient had confusion and hypotension upon admission. There was no active bleeding from the wound site. The chest X-ray revealed widened mediastinum with no evidence of haemothorax or pneumothorax. The great vessel injury was suspected and the patient was taken to the operating room and median sternotomy was performed.

Results: Surgical exploration revealed transection of the innominate vein and injury to the innominate artery. In spite of the presence of the massive hemorrhage, proximal and distal control was achieved by clamping the innominate artery. The bleeding from the innominate vein was also controlled by clamping it on either side. Polytetrafluoroethylene patch plasty was performed for repair of the innominate artery. An 8 mm polytetrafluoroethylene tube graft was inserted to innominate vein. The chest was closed following adequate hemostasis. The patient was hypotensive, hypothermic and acidotic perioperatively. This clinical situation was remained postoperatively and the patient died two hours after the operation.

Conclusion: The management of this patient has not been fully defined because of few surgeons have experience with this kind of injury. Timing of surgical repair is critical for successful outcome. This case demonstrated that the injury to innominate vessels is still life-threatening condition and remains a significant cause of mortality.

**V14 - 10**

**TRANSJUGULAR INTRAHEPATIC PORTOSYSTEMIC SHUNT (TIPS) IN THE PREVENTION OF VARICEAL REBLEEDING IN PATIENTS WITH CIRRHOSIS**

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Objective: Variceal bleeding is a consequence of portal hypertension, which in turn is the major complication of hepatic cirrhosis. Bleeding from oesophageal and gastric varices is a leading cause of death in cirrhotic patients. Mortality following an episode of variceal haemorrhage without treatment is approximately 50% at three months and 66% at one year. The transjugular intrahepatic portosystemic shunt (TIPS) is a new therapeutic modality for variceal bleeding.

Methods: Thirteen patients with cirrhosis and an episode of variceal haemorrhage demonstrated by upper gastrointestinal endoscopy and with a Pugh score of 8-11 were considered for inclusion in the study. Eight patients have ascites and four of them have ascites refractory to diuretic therapy. All patients underwent endoscopic treatment (band ligation) before TIPS.

Results: TIPS was performed successfully in 11 of 13 patients underwent TIPS. TIPS failure was due to impossible puncture of the portal vein. In this study we compared the 18 months survival and rebleeding rates in cirrhotic patients treated by TIPS. Three patients died in the TIPS group (27.3%). Causes of death was liver failure. One patient underwent orthotopic liver transplantation. Three episodes of variceal bleeding occurred in 3 patients in the TIPS group (27.3%). There was no early rebleeding (within 3 month).

Rebleeding was controlled in all cases by balloon tamponade and varical, band ligation. Encephalopathy was observed in two patients (18.2%). Ascites uncontrolled in two cases (18.2%) as a result of stent stenosis. The cumulative probability of developing shunt dysfunction was 36.4% (four patient) at 18 months. The late shunt thrombosis (3 months after TIPS) was in two patients (18.2%).

Conclusion: The results showed that TIPS creation significantly reduced the risk of recurrent bleeding, with no effect on survival. TIPS is effective treatment for refractory ascites The most important side effect of TIPS creation is encephalopathy. Liver transplantation should be considered for all patients with end-stage chronic liver disease.
V14 - 12
THORACAL SYMPATECTOMY IN RAYNAUD SYNDROME
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Objective: Raynaud syndrome is a vasospastic disease which occurs due to spas tic attacks of the small size arteries induced by cold and emotional stresses. In the present study we evaluated the patients with Raynaud Syndrome who underwent thoracal sympatectomy.

Methods: Twelve patients were included into the study who had undergone thoracal sympatectomy between January 2000 and April 2004. The operation indications were ischemia, superficial ulceration and pain unresponsive to medical and palliative treatment. The data of the patients were retrospectively collected. Open thoracal sympatectomy was performed to the patients. The transaxillary sympatectomy was the preferred technique in our clinic. The T2-T4 sympathetic ganglion were excised in all of the patients.

Results: Eight patients were female and six patients were male. The mean age of the patients was 35.6±6.1 years (27-46 years). Nine patients had pain, nine had paresthesia, six had ischemia, ten had cyanosis an seven had phalangeal ulcers. Four of the patients had phalanx autoamputation. Seven patients had right and the rest had left thoracal sympatectomy. All of the patients had improvement in their cyanosis and superficial ulcers in the early postoperative period. Seven of the patient had pain relief contrary to the two patients who needed postoperative analgesia. One patient underwent distal phalangeal amputation due to severe ischemia. Two of the patients underwent contralateral thoracal sympatectomy for their contralateral limb symptoms.

Conclusion: Thoracal sympatectomy may be the preferred treatment strategy for the vasospastic syndromes unresponsive to medical treatment. The early postoperative outcomes are worth trying.

V14 - 13
THE ROLE OF SEPS IN THE TREATMENT OF CHRONIC VENOUS INSUFFICIENCY
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Objective: Chronic venous insufficiency (CVI) of lower limbs can be caused by valvular insufficiency, due to congenital or acquired disorders, of superficial, deep and perforator veins. In the advanced stages CVI (C4-C6 of CEAP classification) becomes a considerable social-health problem. CVI occurs in a relatively large proportion of the population and it is associated with significant morbidity, high cost of healthcare, and impairment of quality of life. As Linton suggested since 1938, in the stasis ulcers pathogenesis, an important role is played by the perforator veins insufficiency. The aim of the surgical treatment, by interruption of perforators, is abolishing venous reflux. The conventional surgical approaches, as Linton’s or Cockett’s techniques require large or multiple incisions on diseased skin. In order to avoid these problems a minimally endoscopic veins surgery has been applied in the treatment of severe CVI, since 1986 by Bergan.

Methods: We perform subfascial endoscopic perforator veins surgery (SEPS) by means of two devices (Glivickz’s technique): the Space-Maker®, to create a subfascial space in lower limbs, and the Ultrasicion®, to perform the perforator veins interruption. From April 1999, we treated 126 lower limbs in 122 patients (mean age=67.2±7; 46 patients was in C4, 22 in C5 and 55 in C6 of CEAP classification). In 4 cases we didn’t use the SpaceMaker and we perform the “single access” technique (Hauer’s technique). In one case we converted SEPS to Linton’s procedure. The treatment is done in Day-Surgery even in old patients.

Results: At the follow-up (1-78 months) we report: in C4 patients no progression of lypodermatosclerosis and no appearance of stasis ulcers; in C5 patients no ulcers recurrence. Concerning C6 patients we observed: in 55 pts (83%) a complete and lasting healing of the ulcers, in 7 pts (13%) an improvement of skin lesions, in 1 pt (2%) no changes and in the last one (2%) an ulcer recurrence.

Conclusion: Conventional treatments need a long inhospital stay and disabling due to an high rate of complications (up to 17%); moreover they show also an high rate of recurrences (up to 10%), even if they seem to be a low cost procedures. Compared to the conventional treatments SEPS allows to reduce the complications rate and the inhospital stay, and it seems to be a safe and effective procedure with early and lasting healing of ulcers.

V14 - 14
STUDY OF THE COMPLIANCE OF THE ANEURYSM WALL WITH DIFFERENT DIAMETER, IN A IN VIVO MODEL IN THE PIG
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Objective: To examine the relationship between the distensibility of the sac abdominal aortic aneurysm model and the tension o pressure and the possibility of measurement with sensors placed into the sac, and its variation in normal, hyper and hypopressure systemic pressure.

Methods: In an in vivo model, an artificial aneurysm sac was created in the pig with surgical techniques. In the wall of the sac, three sensor are placed in horizontal and vertical planes. Registration of the signals for telemetry are performed in 7 days intervals. Distances in the different phases of the distensibility period are measured. With the values registered, analysis of variance was performed, with significance accepted at P = 0.5.

Results: The different values of the distensibility of the sac are registered in relation of the systemic pressure and endotension sac situation.

Conclusion: The method evaluated show the liability of method.

V14 - 15
CAROTID TO SUBCLAVIAN BYPASS UNDER MODERATE HYPOTHERMIA
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Objective: There are different medical and surgical treatment modalities for carotid artery disease. We present the surgical intervention under moderate hypothermic cardiopulmonary bypass (CBP) for the case with total occluded right internal carotid artery, and serious narrowed left common carotid artery.

Methods: The patient (66 years old, male) had cerebral stroke (February 2005), diabetes mellitus (since 1994), myocardial infarction (1997), coronary artery bypass grafting (1997), smoking one box of cigarette per day till 30 years. There was atherosclerotic plaque on both bilateral carotid arteries that were shown with carotid arterial doppler ultrasonography. Right internal carotid artery was totally occluded, left internal carotid artery had plaque that made 25% stenosis, so we decided to have carotid and coroner angiography. Carotid angiography showed totally occluded right internal carotid artery and serious left common carotid artery stenosis on proximal segment and poststenotic dilatation. Afterwards we had digital subtraction angiography in order to see the distal vascular bed better. Digital subtraction angiography showed totally occluded right internal carotid artery, orificial localized hour glass type serious stenosis and poststenotic dilatation of left common carotid artery.

Results: The case was exterminated on postoperative fifth day without any complication.

Conclusion: Different surgical therapies can be applied for carotid artery surgery. It might be recommended patients with bilateral narrowed carotid artery can be operated safely under moderate hypothermic CPB.

V14 - 16
CASE REPORT: AN ALTERNATIVE MATERIAL IN TREATMENT OF THE VASCULAR ACCESS GRAFT INFECTION
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Objective: Infection is one of significant problems in patients with arteriovenous (AV) grafts for hemodialysis access. Occurrence the infection of AV grafts demands the graft replacement with autologous tissue access. In absence of suitable autologous material, we use, at our University Hospital, allogenous human saphenous vein (HASV), as good alternative material for vascular reconstruction surgery.

Methods: We present three cases of infection of the vascular access grafts (PTFE). All patients had diagnosed the graft infection, based on local and systemic clinical signs, the laboratory analyses and the Doppler-sono graphic findings. All patients had surgical and antibacterial treatment due to the infected PTFE graft. During the operation the infected PTFE graft was removed and new vascular access with HASV was implanted. In two cases

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was performed one stage operation and in one case was performed two-stage operation (in the first stage was removed the infected graft and in the second stage the new AV was reconstructed using the HASV). At our University Hospital the human saphenous vein allografts are stored in the saline solution containing heparin and antibiotics at 4°C for up to 30 days.

Results: In first case the vascular access with HASV was patent 15 months. One week after the kidney transplantation, the vascular access was occluded. Second patient is still on hemodialysis and the vascular access is patent up to now. In follow-up evaluation CT-angio showed patent AV access with the athero-thrombotic plaques in the wall. Third patient died 10 months after the implantation of the HASV due the pulmomcardial insufficiency. The HASV vascular access was patent and used routinely up to the death. We would like to emphasize the fact that there was no infection in the HASV vascular access grafts.

Conclusion: We consider that the human saphenous vein allograft is a good alternative material to use in treatment of the graft infection of vascular access in absence of suitable autologous tissue material.

V14 - 19 PRIMARY AND SECONDARY HAEMODIALYSIS VASCULAR ACCESS HAVE SIMILAR OUTCOME
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Objective: Secondary arteriovenous fistulae (AVFs) are subsequent AVFs in patients whose primary procedure has failed. This study aims to find a difference in the patency rates of primary and secondary AVFs and factors explaining the difference.

Methods: 379 native AVFs were created in the four years from January 2000 and December 2003. Of these, 97 were secondary procedures. We extracted patient data from our departmental electronic database and supplemented this with information from patient notes. Information gathered included data on demography, procedure and outcome in the form of the failure rates of primary and secondary AVFs.

Results: Of 240 primary procedures, 33 (14%) failed prior to discharge and 56 (23%) failed to develop. The overall primary patency rate for AVFs was 63%. Of 97 secondary AVFs performed, 11 (11.3%) failed prior to discharge and 24 (24.7%) failed to develop, giving a secondary patency rate at 3 months of 63.9%. Only 19% of Brachial AVFs experienced primary failure as compared to 42% of radiocephalic AVFs. However, as secondary AVFs, both radiocephalic and brachial AVFs had the same failure rate (34%). Data were non-normal and subjected to nonparametric statistical tests (Mann-Whitney U test) and no significant difference was found between primary and secondary outcome.

Conclusion: Short term success rates of primary and secondary surgical arteriovenous fistulae are similar.

V14 - 18 BENEFITS OF EARLY SURGICAL REVISION IN FAILING ARTERIOVENOUS FISTULAS AND EARLY USAGE OF THE REVISED FISTULAS
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Objective: Arteriovenous fistulae (AVF) are the most commonly used vascular access for the haemodialysis patients. If the fistula fails because of a thrombosis or stenosis the common policy to follow is to create a new AVF from the proximal part of the limb or from the other limb.

Methods: Between November 2001 and November 2004, 680 fistulas have been created to 604 patients by the same cardiovascular surgeon. In this period early surgical revision procedures were performed to 112 patients (61 men, mean age 41±13). The elbow fistulas that were created 3 months ago; in which there is no chronic fibrotic or thrombotic changes in the venous system of the forearm were considered to be suitable for early revision.

Results: In thrombosis cases; thrombosis time changes from 6 h to 8 days. The fistulas that have been revised were successfully used within 1 or 7 days. Seventy-five revised fistulas (67%) were used in the next dialysis session without the requirement of temporary catheters. Embolectomy was performed to two patients who developed early thrombosis. Late thrombosis developed in seven patients. The other revised fistulas were all functional.

Conclusion: If an arteriovenous fistula becomes nonfunctional, early surgical revision decreases the need of temporary catheters and decreases the need to create new fistulas and provides early usage and constancy of the fistula.
Objective: Atherosclerosis is the most common cause of lower-limb ischemia in young adults. Premature atherosclerosis is characterized by rapid progressive, and an aggressive course producing early disability or death. The cause and incidence of this form atherosclerosis is not precisely known. The aim of our work is to determine the rate of early atherosclerosis and role of homocysteine, inflammation, androgen hormones and insulin as risk factor for accelerated atherosclerosis in young adults.

Methods: We have identified 2152 patients with peripheral atherosclerosis of low-extremities (all men) for 8-years period. They were analyzed according to age, risk factors (smoking, hypertension and diabetes mellitus) and presence of concomitant diseases. We analyzed two groups of different age patients to identify risk factors of atherosclerosis development. The first group comprised 30 young patients (less than 55 years). The concentration of homocysteine total homocysteine, testosterone, C-reactive protein and insulin were measured while subjects were fasting. A second group of 20 patients over 60 years of age, with the same disease distribution as the younger patients served as a control group.

Results: This study included a group of 387 patients (less than 55 years), corresponding to about 18% of total number of patients. The higher rate of the younger patients were smokers (96% vs. 79%), majority of older patients had hypertension. There was not a significant difference in incidence of diabetes between groups. The C-reactive protein concentrations were higher in young patients than in control group: 6.7±1.3 mg/l (range 0.6-9.8 mg/l) vs. 3.1±0.15 mg/l (range, 0.4-5.3 mg/l). The levels of homocysteine were 12.07±2.1 and 18.1±3.4 nmol/l in younger and older patients, respectively. We have not found the statistically significant differences in testosterone and insulin concentration between two groups.

Conclusion: Our findings strongly suggest the significant role of inflammation and smoking in pathogenesis of peripheral atherosclerosis disease in younger patients.

V14 - 22
DIAGNOSIS AND TREATMENT OF CAROTID BODY PARAGANGLIOMA
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Objective: The carotid body paraganglioma is a relatively rare neoplasm of obscure origin. These are usually benign and commonly present as asymptomatic cervical mass. The resection of carotid body tumors show difficulties due to their localization at cranial nerves and arteriae.

Methods: Records of 6 patients (All of these cases female) with carotid body tumors treated between 1985 and 2005, treated at our center were retrospectively reviewed. Data on classification, clinical presentation and surgical treatment were extracted from the case records. Results: Between 1985 and 2005, carotid body paraganglioma were diagnosed in 5 patients. All of these cases female and the average age of the patients 51.2 years (range 38–62 years). All of the cases presented as a large asymptomatic non-tender neck mass. As per Shamblin classification three of tumors were type 2 and three were types 3. In three cases subadventitial tumor excision was performed. The carotid artery was repaired with polytetrafluoroethylene(PTFE) graft in Shamblin type 3 three cases. There was no operative mortality After a mean follow-up 36.4 months (range 1 months to 108 months), there were no signs of tumor recurrence and neurologic deficits in any of the cases.

Conclusion: Surgical excision is the treatment of choice for the carotid body paragangliomas. For the tumors that are in intimate contact with carotid arteries, the treatment by vascular surgeon. The advances in vascular surgery techniques have reduced the risk of perioperative complications such as carotid injury, stroke and death; but the risk at crani al nerve complication still remains.

V14 - 23
SURGICAL DECISION FOUND FOR THE TREATMENT OF THE GRAFT INFEC TION OF THE DESCENDING THORACIC AORTA, DEVELOPED AS A RESULT OF THE LATE ESOPHAGEAL FISTULA
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Objective: Despite the fact that the graft infection of the descending thoracic aorta is quite uncommon, nearly always it leads to a lethal outcome, especially if the infection is connected with the formation of the esophageal fistula. The aim of the report is to analyse the successful case of surgical treatment of the posttraumatic rupture of the thoracic aorta, complicated by esophageal fistula, mediastinitis and empyema.

Methods: (Clinical data): A 41-year-old man experienced the blunt trauma of the chest with the formation of the pseudoaneurism of the thoracic aorta. Because of the concealed clinical course, the operation was done only in 12 days after the trauma. On the temporary bypass of the ascending and media thoracic aorta there was made the prosthesis of the descending aorta and an immense haemotoma mediastinum was liquidated. In a month after the operation the fistula was diagnosed, mediastinitis, empyema and, consequently, the aorta graft infection were detected. Secondary surgical operation included: extraanatomic subclavian-liac bypass on the right side, “switching off” the intrathoracic esophagus, gastrostomy and esophagosomy. The infected graft was removed and the thoracic aorta was ligated. Just after the operation the right ankle index was 0.6, and the left - 0.45. The systolic tension in the right brachium was 50 mm of mercury less, that in the left. The stomach-derived esophagoplasty was performed and the “switched-off” intrathoracic esophagus was removed in 7 month after the trauma.

Results: The patient gained 20 kilograms during the first year after the operation. In two years all laboratory parameters are in normal ranges, there is no loss in function in the organs that are supplying by the bypass. The ankle index comprises 0.9 (on the left) and 0.8 (on the left).

Conclusion: 1. One of the fatal complications after thoracic aorta grafting is graft infection due to the late esophageal fistula. 2. Extraanatomic subclavian-liac bypassing and “switching off” the esophagus with the subsequent esophagoplasty in the long term provides a life-saving opportunity for a patient.

V14 - 24
VASCULAR COMPLICATIONS RELATED TO LUMBAR DISC SURGERY
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Objective: Vascular complications related to lumbar disc operations are rare but extremely fatal conditions. The authors analyzed data retrospectively obtained in 6 patients with vascular complications that occurred during lumbar disc operations performed between 2001 and 2005.

Methods: One patient underwent an L5-S1 procedure and the remaining underwent L4-5 surgery. In six patients with complications occurring early in the postoperative period, Dacron graft was placed in four with arterial injuries and saphenous vein graft in one. In two cases of arterial injury and four of venous injury, the lesion was repaired using the primed suture technique.

Results: The most commonly affected vessels were left common iliac arteries (80%) and left common iliac vein (40%). In six early cases, shock or pre-shock due to hemorrhage developed during the early phase. There was no mortality. During a mean follow-up period of 3.2 years, none of the patients suffered any problems related to vascular injury.

Conclusion: Despite its low incidence, iatrogenic vascular injury related to lumbar disc surgery is a possible complication. During lumbar disc operations early diagnosis of vascular injuries and urgent transperitoneal surgery can save patients’ lives.

V14 - 25
ROLE OF MULTIDETECTOR CT ANGIOGRAPHY IN EVALUATION OF INDICATIONS FOR RECONSTRUCTIVE OPERATIONS ON BRACHIOCEPHALIC ARTERIES
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Objective: To evaluate efficiency of MDCT-angiography in the diagnosis of carotid stenosis.

Methods: MDCTA of brachiocephalic and brain arteries was performed to 271 patients. 286 investigations were made. Siemens Somatom Sensation CT was used. 100-120 ml of Visipaque-320 were injected with injection speed 3.5 ml/sec. Scan delay was determined by Bolus Tracking. Scan time was 30-35 seconds. Aortal arch, extra- and intra cranial parts of carotid arteries, circle of Willis, common carotid arteries, internal, external carotid and vertebral arteries were scanned. 3D volume rendering and multiplanar reconstruction were performed. For determining the level of stenosis, two groups were created. The first group comprised 0.9 (on the left) and 0.8 (on the left). The second group comprised 0.9 (on the left) and 0.8 (on the left).

Results: This study included a group of 387 patients (less than 55 years), corresponding to about 18% of total number of patients. The higher rate of the younger patients were smokers (96% vs. 79%), majority of older patients had hypertension. There was not a significant difference in incidence of diabetes between groups. The C-reactive protein concentrations were higher in young patients than in control group: 6.7±1.3 mg/l (range 0.6-9.8 mg/l) vs. 3.1±0.15 mg/l (range, 0.4-5.3 mg/l). The levels of homocysteine were 12.07±2.1 and 18.1±3.4 nmol/l in younger and older patients, respectively. We have not found the statistically significant differences in testosterone and insulin concentration between two groups.
of Willis and injuries of brain parenchyma were investigated. Next investigation were made: MDCTA, carotid angiography, MR-angiography and MRI of brain. All patients underwent US examination. One hundred and forty two reconstructive operations were made: 89 of them were classic carotid endarterectomy (CAE), 21 evasion CAEs, 12 corrections of kinking, 12 carotid stenings, 3 carotid-subclavian anastomosings, 5 prosthessings of aortal arch and brachiocephal arteries.

Results: By the protocols of operation the accuracy of MDCTA evaluation of carotid stenosis is 97.2%, sensitivity is 94.7%, specificity is 98.3%. MDCTA and US examination found out atherosclerotic stenosis in 223 patients, kinking in 95 (35%), In 22 (8%) of them atherosclerosis was not found, In 11 patients (4%) abnormal brachiocephal arteries were found, 1 without aterosclerosis, Takayasu arteritis found in 5 (2%) patients, fibromuscular dysplasia in 2 (1%) patients, other patology in 25 (9%) patients, abnormal circle of Willis in 46 (17%) patients. There was no complications of 286 procedures of MDCTA.

Conclusion: MDCTA is minimal invasive procedure. It can find out stenosis of carotid arteries, intramural changes, structure of the plaque, variations of circle of Willis, brain injuries and pathology of near-lying organs. Using hemo-dynamic characteristics of US the invasive angiography may be declined in determining of indications for CAE in the majority of cases.

V14 - 26
THORACOSCOPIC SYMPATHECTOMY IN PERIPHERAL VASCULAR DESORDERS OF UPPER LIMBS IN LONG TERM FOLLOW-UP
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Objective: Thoracic sympathectomy is a reference treatment of peripheral arterial vasoconstrictor, inflammatory and atherosclerotic disorders of upper extremities. The aim of the study is the comparison of short and long-term effectiveness of thoracoscopic sympathectomy in patients with different different types of peripheral vascular disorders.

Methods: From 1995 to the end of 2004-332 thoracoscopic sympathectomies were performed (in 120 patients unilateral and in 106 - bilateral). According to the indications five groups of patients were selected: Raynaud disease (MR), hyperhydrosis (HH) of upper extremities, atherosclerotic ischemia (AD), ischemia related to the Buerger’s disease (TAO) or ischemia related with thoracic outlet syndrome (TOS). Early and long term complications were compared. Long-term results were evaluated by the postal questionnaire.

Results: Majority of patients were female (76.8%). Hyperhydrosis and Raynaud disease were the most common indications for the operation (37.65% and 49.1% respectively). Other indications were rare: Atherosclerosis obliterans (6.63%), Thrombangitis obliterans (4.22%), thoracic outlet syndrome (2.4%). Mean hospital stay was 5.48 days (±4.44); mean duration of the procedure was 55.78 min. (±21.82), mean postoperative hospital stay was 2.8 days (±1.85). The hospital stay (overall and pos-op.) in Buerger’s disease were 78.57%, atherosclerotic ischemia -77.27%, thoracic outlet syndrome -75%. Late result obtained from the postal questionnaire in ischemic group were even worse (thoracic outlet syndrome -60.0%, atherosclerotic ischemia -53.3%, Buerger’s disease -42.86%), comparing to hyperhydrosis and Raynaud disease groups where the efficacy of the procedure was continuously good (93.7 and 69.00, respectively) (P<0.01). Satisfactory perioperative effect was found in hyperhydrosis and Raynaud disease (100 and 98.77% of satisfactory results respectively). Satisfactory perioperative effect was less significant in other groups: Buerger’s disease -78.57%, atherosclerotic ischemia -77.27%, thoracic outlet syndrome -75%. Late result obtained from the postal questionnaire in ischemic group were even worse (thoracic outlet syndrome -60.0%, atherosclerotic ischemia -53.3%, Buerger’s disease -42.86%), comparing to hyperhydrosis and Raynaud disease groups where the efficacy of the procedure was continuously good (93.7 and 69.00, respectively) (P<0.01). Conclusion: Thoracoscopic sympathectomy is safe and effective therapeutic method in hyperhydrosis and Raynaud disease. The late results in ischemic changes are not so spectacular, but immediate effect of sympathectomy allows i.e. healing of existing ulcerative changes.

V14 - 27
SURGERY FOR VASCULAR TUMOR INVASION: TEN YEARS EXPERIENCE
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Objective: With the improvement in postoperative mortality and morbidity in patients with malignancy indication for resection of selected tumors with invasion vascular structures have steadily widened. The aim of this report is to examine our perioperative morbidity and mortality of tumor excison requiring a major vascular resection and reconstruction.

Methods: From January 1995 through November 2005 36 patients were operated at our instution. There were 22 male and 14 female patients. Mean age was 47.7±15.7 years (range, 18 to 68 ).

Results: Six patients (16.7%) had aortic resection and graft reconstruction, and 8 of them (22.2%) had inferior vena cava resection and reconstruction. Iliac or femoral artery and/or vein resection with reconstruction were perfomed in 14 patients (38.8%), subclavian artery and/or vein intervention was performed for 3 patients (8.3%), and carotid artery intervention was performed for 5 patients (13.9%). There was no operative mortality. There were two early morbidity related to bleeding. There was no limb or other organ ischemia.

Conclusion: Despite the success of vascular reconstruction, many surgeons still consider tumor invasion of vascular structures a relative contraindications tumor resection. We are in the opinion that concominant vascular surgical interventions can be safely performed with acceptable results in patients with vascular tumor invasion.
Results: Endovascular stent was placed to the femoral artery to the level of arteriovenous fistula by means of percutaneous intervention. The flow through the fistula was seen to disappear just after implantation of the stent. Physical examination after the intervention revealed that the thrill and the murmur disappeared. The patient was heparinized and oral antiaggregation was done after the procedure. The patient was discharged on the second day of the intervention without any complication.

Conclusion: The endovascular stent grafting seems to be a good alternative for treatment of the arteriovenous fistulas occurring after penetrating injuries in selected patients.
P - 3
PREOPERATIVE SERUM LEVELS OF C-REACTIVE PROTEIN AND POSTOPERATIVE ATRIAL FIBRILLATION IN ELECTIVE CORONARY ARTERY SURGERY: WHAT DO WE REALLY KNOW?
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Objective: Despite the use of prophylactic antiarrhythmic medication, atrial fibrillation (AF) still occurs in 20% to 40% of patients undergoing coronary artery bypass grafting (CABG). Multiple studies have now focused the attention on preoperative serum levels of C-reactive protein (CRP). Elevated baseline CRP might represent a subclinical preoperative inflammatory state that, when altered by the surgical procedure, may trigger the arrhythmia.

Methods: Blood samples for determination of CRP were collected at admission from the last 218 consecutive patients underwent elective on-pump CABG at our institution. Baseline CRP was then dichotomized into a low and a high baseline group, using a cutoff value of 3.0 mg/l, according to the American Heart Association scientific statement, suggesting that levels greater than 3 mg/l should be considered high.

Results: Baseline CRP was 1.2±0.6 in Group I (CRP < 3.0 mg/l) and 11.0±9.2 in Group II (CRP = 3.0 mg/l). After CABG 26 out of 153 patients with low preoperative CRP levels had AF vs. 7 out of 65 patients with high baseline levels (P < 0.24). To estimate the risk of developing AF in both groups we used odds ratios and 95% confidence intervals: the relative risk of developing AF was 0.871 (0.712-1.066) in Group I and 1.478 (0.740-2.950) in Group II. We quantified the association between postoperative AF and any possible known predictor by univariate analysis (age, sex, diabetes, hypertension, hypercholesterolemia, peripheral vascular disease, preoperative creatinine, ejection fraction, preoperative use of beta-blockers, intraoperative use of blood products, preoperative CRP levels and perfusion time). Because the distribution of CRP was highly skewed, logarithmic transformation of CRP was used for the logistic regression. None of this factor was associated to increased risk of developing AF after surgery. Patients with AF were cardioverted to sinus rhythm using amiodarone ev.

Conclusion: In the present study, patients with high preoperative CRP levels did not have a significant increased risk of having AF after surgery. Moreover, in our study high CRP levels were not associated with prolonged length of stay.

P - 4
INFLUENCE AMINOCAPRONIC ACID AND LOW DOZES OF APROTININ ON BLOOD LOSS AFTER CARDIOPULMONARY BYPASS
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Objective: Results of retrospective research of influence of 2 million KIE of aprotinin (group 1) and aminocaproic acid (group 2) on size postoperative blood loss at patients after cardiopulmonary bypass (CPB) are submitted.

Methods: Results of retrospective research of influence of 2 million KIE of aprotinin (group 1) and aminocaproic acid (group 2) on size postoperative blood loss at patients after cardiopulmonary bypass (CPB) are submitted.

Results: Average postoperative blood loss has made 4.7±0.2 ml/kg of hour in group 1 and 4.8±0.4 ml/kg of hour in group 2 (P<0.05). Lower is marked authentically blood loss at use aprotinin at patients with normothermic long CPB in comparison with hypothermic long CPB (P<0.05). Can be connected not only to a temperature mode, but also with authentically smaller average duration normothermic CPB (113.1±3.4 and 136.9±6,0 mines, respectively; 7 < 0.05). Postoperative blood loss at patients after hypothermic long CPB in group 1 and 2 authentically did not differ, thus duration CPB at ill groups 1 was authentically above (P<0.02), than at ill groups 2. It testifies to advantage of use aprotinin in case of long hypothermic CPB.

Conclusion: Use of aprotinin is preferable at patients with the big volume of operative intervention in conditions long hypothermic perfusion.
Objective: Major studies have identified the use of bilateral internal thoracic arteries (ITAs) as a significant risk factors for sternal dehiscence and mediastinal wound infection in diabetics. We present our findings in 80 consecutive diabetic patients referred at our institution for myocardial revascularization.

Methods: We retrospectively evaluated the incidence of infections in 80 patients underwent elective on-pump coronary artery bypass graft surgery, using left (Group I, n = 41) or both (Group II, n = 39) pedicled ITAs, according to surgeon’s choice. In patients who received two ITAs we used two adjunctive drainages, removed on 5th postoperative day, to keep dry the sternal wound. A Jackson-Pratt drainage (15 Fr) was placed in the anterior mediastinum, and a Redon drainage (15 Fr) was placed between the sternum and the pectoralis fascia.

Results: The two groups were homogeneous for sex, associated diseases and total number of grafts received. Admission blood fasting glucose was 155±53 mg/100 ml in Group I and 149±42 mg/100 ml in Group II, P = 0.600. Patients in Group I were more likely to have previous myocardial infarction (P = 0.037), to be older (P = 0.01) and to have a slightly worse ejection fraction (P = 0.045), Skin-tashkin task time (274±49 vs 245±40 min, P = 0.003) and cardiopulmonary bypass time (111±21 vs. 97±21 min, P = 0.004) were increased in Group II. In both groups there were no operative deaths and all patients were discharged after a medium length of stay of 9±3 days in Group I and 9±4 days in Group II, P = 0.220. Superficial sternal wound infections developed in 3 patients (2 in Group I and 1 in Group II), were all sustained by S. aureus and complete recovery was obtained before discharge. No sternal dehiscence occurred in the two groups.

Conclusion: The use of both ITAs and the loss of sternal blood supply aren’t the major contributors to infections development in diabetics. Strict blood-glucose monitoring and the use of adjunctive drainages provide satisfactory results in bilateral ITA group.

Objective: There have been still some controversies in aortic arch reconstruction especially the cerebral protection methods. We in the present study report the operative and postoperative outcomes of the cases of aortic arch replacement using whole body perfusion during the aortic reconstruction under 28 °C moderate hypothermia.

Methods: A total of 11 patients were operated between March 2003 and through September 2005. Two of the patients were female. The mean age of the patients was 53.2±7.6 years (range; 23-74 years) were operated with the diagnosis of Type A aortic dissection (66.1%) patients (Group 1) whereas antegrade selective cerebral perfusion with flow control was used in the first 37 (33.9%) patients (Group 2). The groups were compared according to postoperative neurologic outcomes.

Results: The hospital mortality was 8.9% with 5 patients. The mean ASCP flows of the Group 1 was 663±76 ml/min. It was 692±56 ml/min in Group 2. There was no difference in the incidence of pulmonary hypertensive crisis. Lung infection rate was higher in group B but sternal dehiscence was more common in group A (P<0.05).

Conclusion: Antegrade selective cerebral perfusion through side graft cannulation technique may serve better cerebral protection because it avoids pressure oscillations during cerebral perfusion.

Objective: We aimed to determine the impact of Down’s syndrome on surgical outcomes in children with cardiac malformations.

Methods: The surgical results of 79 patients with Down syndrome were compared with 59 patients having normal karyotype. The mean age was 27.3±4.2 months. Preoperative, intraoperative, postoperative parameters and mid-term follow-up results were recorded and compared.

Results: Preoperatively; heart failure symptoms were more common in group B, pulmonary artery pressure and pulmonary vascular resistance index were higher in group A (P<0.05). Mortality rates were 6.3% and 5.1% in group A and B, respectively.

Conclusion: We conclude that patients with Down syndrome can undergo open heart surgery for the correction of congenital cardiac anomalies without increased mortality. Absolute sedation and maintaining optimum respiratory conditions are mandatory to prevent pulmonary hypertensive crisis. Incidence of sternal dehiscence and elongated intubation time were found to be patients with Down syndrome. Because of cooperation problems, special care in early postoperative period is necessary.

Objective: Off-pump coronary artery bypass grafting has comparable or superior results according to the conventional on-pump coronary artery bypass grafting. Because of high incidence of comorbid conditions, elderly patients suffer more from the harmful effects of cardiopulmonary bypass.

Objective of this study was to determine the efficacy of off-pump coronary artery bypass grafting for patients 70 years of age and over.

Methods: From April 2001 to January 2005, off-pump coronary artery bypass grafting was performed on 47 patients and on-pump coronary artery bypass grafting was performed on 99 patients over 70 years of age. Medical records concerning the clinical and catheterization findings, operative and postoperative events were collected retrospectively.
P - 10
OUTCOMES OF REDO-CORONARY ARTERY BYPASS GRAFTING - A SINGLE CENTER ANALYSIS
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Objective: The number of patients requiring a repeat CABG is on the rise. It is associated with an increased risk of mortality and morbidity as a result of manipulation of patent grafts, mediastinitis, and the presence of pericardial adhesions. The aim of the current study was to evaluate the outcome of re-CABG at a single institution as compared to first time cABG during the same time period.

Methods: From January 1998 to December 2005, 107 patients presented with stenocardia, 40 (37.4%, mean age, 59.5±8.2 years) of whom were qualified for repeated revascularization, whereas 67 underwent percutaneous coronary intervention. Surgical results were analyzed for mortality, morbidity, duration of the procedure, hospital stay, and event-free survival.

Results: The percentage of patients qualified for repeated revascularization remained stable during the entire observation period and was in the range of 0.35% to 1.53% and did not differ significantly from the population undergoing first time CABG. 31 patients (77.5%) were regularly scheduled for surgery, while 9 (22.5%) patients required an urgent procedure. All patients were operated on by consultants. Only one patient died (neurological complication), keeping the mortality in redo patients even lower than in the first time cABG group. Hospital stay did not differ significantly between the groups.

Conclusion: Even though patients requiring redo coronary artery bypass grafting are at a significantly higher risk as evaluated by Euroscore calculation and despite the fact that a high number of these patients underwent urgent surgery the outcome is favorable. Redo CABG can be performed safely in experienced hands.

P - 11
AORTIC VALVE REPLACEMENT IN AORTIC STENOSIS IN PATIENTS WITH LOW OUTPUT, LOW GRADIENT
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Objective: In patients with anatomically severe aortic stenosis and a low ejection fraction, aortic valve replacement relieves symptoms. Benefits of the aortic valve replacement in patients who present lowoutput, low-gradient and true small valve area are controversial.

Methods: We have operated on 14 patients with low output, low gradient. All of these patients have <0.30 left ventricular ejection fraction values, <30 mmHg mean transvalvular gradients and <1 cm² aortic valve area and NYHA class III. Aortic valve replacements have been applied using mechanical prosthesis to all patients.

Results: One patient died early postoperative period. Eleven patients discharged. Three patients have been repeatedly hospitalized five times cause of heart failure symptoms. Ten patients were alive at the end of their postoperative care. Significant left ventricular ejection fraction value improvements have not been seen in the postoperative period. Functional capacities have improved significantly in most of the patients.

Conclusion: Aortic valve replacement can be performed at an acceptable risk level in patients with left ventricular systolic dysfunction and low output.
no source of thrombi in lower extremities in our patients. The later courses were uneventful and patients were discharged in 8th and 9th postoperative day. Follow up period lasted for 12 and 14 months without any event. In follow-up, patients were free from dyspnea with NYHA class I. Thorax CT scans did not reveal any residual thrombus.

Conclusion: As a result, rapid diagnosis and aggressive surgical approach offers great benefits rather than thrombolytic therapy and percutaneous intervention. CT and TEE provide easy and accurate diagnosis with high sensitivity and specificity. We believe that open embolectomy should be considered as the best option for acute massive PE especially in patients with a history of recent coronary bypass surgery.

P - 14
CORONARY BYPASS GRAFTING IN A CASE OF PERSISTENT LEFT AND ABSENT RIGHT SUPERIOR VENA CAVA
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Objective: Persistent left superior vena cava (PLSVC) is a common anomaly although simultaneous complete absence of right superior vena cava is rare. We report herein a 66-year-old woman who underwent a coronary bypass grafting (CABG) with a PLSVC draining into the coronary sinus with the absence of right superior vena cava.

Methods: A 66-year-old female patient was referred to our cardiovascular surgery unit for coronary artery bypass grafting. Her complaints were chest pain at rest and dyspnea on exertion. She had a three year history of antihypertensive medication and also thirty-year diabetes mellitus that was undercontrolled with insulin. The electrocardiogram was normal. Chest radiogram demonstrated cardiomegaly and probably absent right superior vena cava. The coronary angiographic evaluation showed three vessels coronary artery disease.

Results: After median sternotomy the pericardium was opened. On surgical exploration, it was noted that the coronary sinus was dilated. A left PLSVC which appeared to drain into the coronary sinus and the absence of right superior vena cava were identified. Due to the absence of right superior vena cava, central venous catheter was also seen in the innominate vein. CABG was performed under cardiolaparotomy bypass. Four vessel revascularization was done to the patient (Left internal mammary artery was used as the conduit for LAD while long saphenous vein graft was used for the posterior descending artery, circumflex artery and the first diagonal artery anastomosis). After wararming period, the rhythm was atrial fibrillation with slow ventricular response. For this reason, epicardial pace wire was placed to the right ventricular wall. Her postoperative recovery was uneventful.

Conclusion: CABG can be performed safely without any technical difficulty in PLSVC with absence of right superior vena cava.

P - 15
SURGICAL LEFT VENTRICULAR EPIMYOCARDIAL LEAD IMPLANTATION FOR BIVENTRICULAR STIMULATION IN PATIENTS WITH CONGESTIVE HEART FAILURE
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Objective: Cardiac resynchronization therapy (CRT) is an established method to decrease mortality and hospitalization in patients with congestive heart failure (CHF). Biventricular pacing can be achieved by surgical epicardial lead placement. We report our experiences and the responding rate in our patients.

Methods: From March 2003 to November 2005, 42 patients with CHF received biventricular pacemakers in our institution. In 14 of these patients (4 women, 8 men, age 51 to 79 years), surgical procedures for placing the left ventricular lead were performed (13 patients with left lateral minithoracotomy, 1 patient with median sternotomy and additional OPCAB surgery). Nine patients had dilative cardiomyopathy (DCMP), 5 patients coronary artery disease (CAD) - two of them with previous CABG procedures - and all had highly impaired LV function < 30%, sinus rhythm, complete LBBB and ORS >150 ms. Thirteen patients were in NYHA class III or IV preoperatively.

Results: All 14 patients survived and were discharged from hospital. Postoperatively, in 12 of 14 patients improved LV function, lower BNP levels and echocardiographically documented remodelling of the left ventricle were documented. Two of the patients were non-responder to CRT, one for elevated stimulation threshold of the left ventricular lead and one for unknown reasons. Follow-up showed all 14 patients in NYHA class 0, I or II.

Conclusion: Surgical left ventricular epicardial lead implantation is a safe and effective procedure in cardiac resynchronisation therapy. Operation time is short, and the responding rate is acceptable. New approaches are providing even better cosmetic results.

P - 16
NATIVE INFECTIVE ENDOCARDITIS: WHICH DETERMINANTS OF OUTCOME AFTER SURGICAL TREATMENT REMAIN
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Objective: Surgical therapy of native infective endocarditis is still consid- ered as a particular challenge, due to remaining morbidity and mortality up to 20%. Further risk analysis and characterization of clinical features is of great importance for further improvement of surgical results. The aim of this retrospective study was a risk analysis concerning clinical features of the pre-, intra and postoperative period.

Methods: Between 02/97 and 12/2003 165 patients (130 male, 35 female, age 55.5±13.8 years) were referred for surgical therapy of infective endo- carditis in our institution. Preoperative, intraoperative and postoperative features were evaluated on their influence on the early postoperative course and the mid-term follow-up.

Results: In the majority of pts the aortic valve was infected (n = 83, 50.3% of pts), followed by mitral valve (n = 33; 20.0%), tricuspid valve (n = 10, 6.0%) and pulmonary valve (n = 2; 1.2%). Double valve affection was recorded in 37 pts (22.4%). Streptococci (n = 66, 40.0%) and staphylococci (n = 66, 40.0%) were the most common pathogens. The overall hospital mortality rate was 10.9% (n = 18), during the follow-up (mean follow up 3.3±2.5 years) further 20 pts (12.1%) died. Main predictors for hospital mortality in multivariate analysis were older age (P = 0.01), prolonged ICU stay, prolonged intubation (P = 0.03; P = 0.02) and the continuous postoperative need of alphacat- echolamin medication (P<0.01). Predictors of overall mortality were older age (>70 years) and diabetes as significant variables (P = 0.03; P = 0.03). Reinfection occurred in 6.1% of patients (n = 10). Actuarial freedom from recurrent infection was 97% at 1 year and 93.9% at 5 years.

Conclusion: Surgical therapy of infective endocarditis is associated with good clinical results in the early and mid-term follow-up. Predictors of outcome particular include preoperative risk constellation or comorbidity (age, dia- betes) and variables of the immediate postoperative course.

P - 17
OFF-PUMP CORONARY SURGERY IN WOMEN
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Objective: to compare early and long-term results of OPCAB and CABG with CPB in women.

Methods: Between 1994 and 2005 we have operated on 108 women for coronary disease: 49 of them were operated conventionally (CABG with CPB) - control group; 59 of them were operated using OPCAB technique - off pump group. Mean EuroScore in control group was 6.2±1.2%, in off pump group 4.3±1.0%. 18.3% of control group required urgent operation for acute coronary syndrome while in off pump group urgent interventions performed in 5.1%. There was no significant difference among two groups of age and comorbidity.

Results: The number of distal anastomoses was 2.9±0.5 in control group and 2.5±0.6 in off pump group. Mechanical ventilation time after operation was 15.0±5.5 h in control group and 8.4±3.5 h in off pump group (P<0.05). Pneumonia complicated early postoperation period in 6.1% patients of the control group, while in off pump group we never faced to this complica- tion. Nonfatal myocardium infarction occurred in 2.2% of control group and never in off pump group. Wound and neurological complications, mean stay at hospital did not significantly differ in both groups. There were 3 (6.1%) hospital deaths in control group and 4 (6.8%) in off pump group (all of them occurred when we just began off-pump technique, "learning curve"). The main cause of death was acute heart failure right after operation. Long-term results were studied in 62 patients (from 0.5 to 9 years after operation, mean 5.2 years). We found that avoidance of CPB does not influence long-term outcome. Angina recurrence of high degree occurred.
in 20 patients (32.2%). Most of them (15) have diabetes mellitus. Detailed analysis showed, that optimal long-term results have a patient after CABG who: having been regularly observed by cardiologist, follows special diet, controls blood pressure, lipoproteins levels, blood sugar content (in case of diabetes mellitus), strictly takes prescribed medicines, especially statins. Those women who refused of these recommendations have the highest incidence of angina recurrence.

Conclusion: Off pump CABG in women in comparison with conventional CABG significantly reduces the risk of pulmonary complications, but may increase the risk of fatal heart failure, therefore it must be careful selection of the patients to this procedure. Long-term results do not depend on avoidance of CPB during CABG. The main factor influencing late results remains discipline of the patient with strict following to medical recommendations.

P - 18
THE EFFECT OF OFF-PUMP CORONARY REVASCULARIZATION ON THE LEFT VENTRICULAR EJECTION FRACTION IN SEVERE LEFT VENTRICULAR DYSFUNCTION
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Objective: Impaired left ventricular function affects the short term mortality in coronary artery bypass surgery. But in these patients, left ventricular function may improve after operation. We studied the early postoperative outcomes of on-pump and off-pump postoperative outcomes in the patients with left ventricular dysfunction.
Methods: We prospectively analyzed the data of the 137 patients with left ventricular ejection fractions below 30%. There were 79 patients in the off-pump coronary artery bypass group and 58 patients in the conventional on-pump coronary artery bypass group.
Results: Mean age of the OPCAB group was 65.77 ± 9.83 years, whereas it was 61.31 ± 9.74 years in the CCABG group (P = 0.009). Preoperative characteristics of the groups were similar. The preoperative mean ejection fraction of the off-pump group was 25.08 ± 4.20%. Mean ejection fraction of the on-pump group was 26.53 ± 3.26%. Six patients died in the early postoperative period, 4 (6.8%) in the on-pump group and 2 (2.5%) in the off-pump group. Mean number of distal anastomosis was 1.91 ± 0.29 in off-pump group and 2.55 ± 0.91 in on-pump group (P = 0.001). Postoperative echocardiographic evaluation of the patients in the 6th month of discharge showed significant increases in the ejection fractions from 25.08 ± 4.20% to 31.49 ± 4.93% in the off-pump group and from 26.53 ± 3.26% to 33.13 ± 3.31% in the on-pump group (P < 0.001). Early mortality rates were similar in both groups. The need for blood transfusion, length of ventilator support and postoperative length of stay were significantly higher in the on-pump group.
Conclusion: Postoperative left ventricular ejection fraction ratios increased in both the off and onpump groups. However, off-pump decreased the postoperative complications. Therefore, off-pump procedure might be chosen in severe left ventricular dysfunction.

P - 19
A METHOD TO PREDICT RESULTS OF SURGERIES ON MAIN ARTERIES OF LOWER EXTREMITIES
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At present obliterating atherosclerosis of vessels of lower extremities (OAVLE) is still one of the most important problems in medical and social care. According to data of western authors lethality with natural behavior of the disease at the stage of critical ischemia of extremities makes 20% for the first year. Rest of the patients tolerate the given operative treatment. 45% of patients used to undergo amputation, for the rest reconstruction operation is performed on the arteries of extremities (J.V.R.G.). In postoperative period from those who have undergone reconstruction of the main arteries of lower extremities only 75% show “recovery” (60%) or improvement (15%) of their state. Despite this improvement, patients have shown clinical symptoms of increase in the resistance of the vessels anastomosis, which is registered by Doppler US Imaging. To predict possible outcomes of surgical treatment on the main arteries of lower extremities, we decided to use the method of calculation of the peripheral resistance RPR = 100%/(V1² - XV2²)t1/(V1² - V0²)t2, where t1 and t2 are observation periods after the operation of 1 year. Rest of the patients tolerate the given operative treatment. 45% of them were women, the rest - men. Before the surgery the stage of OAVLE according to Pokrovsky made 67.9% - II b, 25.8% - III, 6.3% - IV. Resistance was assessed according to the formula of the RPR = 100%/((V1² - XV2²)t1/(V1² - V0²)t2) x100%, where RPR is the rate of peripheral resistance. Data for estimation were received from a standard Doppler US imaging. The examined patients were under a dynamic follow up within 2 years, results of their operative treatment were estimated. Further we compared the received results.
Results: Aiming to illustrate the received outcome we made up the data table 1.

<table>
<thead>
<tr>
<th>Site of Injuries</th>
<th>Number of observations</th>
<th>Number of follows up with the increased RPR (&gt;63%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aorto-femoral segment</td>
<td>166</td>
<td>72</td>
</tr>
<tr>
<td>Femoralpopliteal segment</td>
<td>06</td>
<td>52</td>
</tr>
<tr>
<td>TOTAL</td>
<td>272</td>
<td>124</td>
</tr>
</tbody>
</table>

% of follows up with the increased RPR

<table>
<thead>
<tr>
<th>Site of Injuries</th>
<th>Number of patients who have overcome postoperative thrombosis</th>
<th>Concurrence of thrombosis cases with the increased RPR, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aorto-femoral segment</td>
<td>43.4</td>
<td>53</td>
</tr>
<tr>
<td>Femoralpopliteal segment</td>
<td>47.8</td>
<td>38</td>
</tr>
<tr>
<td>TOTAL</td>
<td>45.6</td>
<td>91</td>
</tr>
</tbody>
</table>

Person correlation 0.7 P < 0.01.

Discussion: Correlation between results of the RPR and data of dynamic follow up is statistically reliable. Although it is necessary to emphasize that a correlation connection can be more strict, since in the study we considered indices of the RPR > 63% in patients with a small period of follow up. Besides, received results of the frequency of occurrence of the increased resistance in the arteries of lower extremities coincide completely with statistic data of the patients with OAVLE.

Conclusion: 1. The offered method for assessment of the peripheral resistance in main arteries of lower extremities is statistically reliable in order to make prognosis for results of surgical treatment in patients with OAVLE.

2. Non-invasive examination and assessment of the RPR in a postoperative period will allow to correct in good time the conducted therapy.

P - 20
INTRACoronary SHunt REDuces POSTOPERATIVE TROponin LEaks: A PROSPECTIVE RANDOMIZED STUDY
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Objective: The purpose of this study was to evaluate whether intracoronary shunt usage reduced the myocardial damage on the basis of the cardiac markers when compared with the shuntless anastomosis in OPCABG surgery of isolated left anterior descending artery lesions.
Methods: 40 patients who had stable angina with isolated LAD coronary artery lesions undergoing OPCABG surgery were randomized into two groups. Shunt group consisted of 20 patients who had OPCABG using intracoronary shunt whereas the shuntless anastomosis in OPCABG surgery without using intracoronary shunt. Cardiac troponin I, CK, CK-MB levels. The preoperative troponin I levels of the groups were not significantly different between the groups concerning the preoperative and postoperative CK and CK-MB levels. The need for blood transfusion, length of ventilator support and postoperative length of stay were significantly higher in the on-pump group.
Results: There were no deaths in the study. The two groups were similar with respect to sex and age. Duration of LIMA-LAD anastomosis was significantly higher in the shunt group (P = 0.01). There was no significant difference between the groups concerning the preoperative and postoperative CK and CK-MB levels. The preoperative troponin I levels of the groups were not different (P = 0.238; NS) whereas, postoperative levels of this marker was significantly higher in the shuntless group (P = 0.003).
Conclusion: Intracoronary shunt reduced the postoperative troponin I levels significantly, so it may be indicated in the patients who are thought to be susceptible to transient ischemia.
IMPACT OF DIABETES ON PERIOPERATIVE OUTCOME IN PATIENTS FOLLOWING AORTIC VALVE SURGERY - PRELIMINARY RESULTS

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Objective: Diabetic patients have poorer short-term outcome after coronary artery surgery [1]. However, little is known about the impact of diabetes mellitus on short-term outcome following aortic valve surgery. The aim of this study was to compare postoperative complications and 30-day mortality in diabetic (D) and non-diabetic (ND) patients following aortic valve surgery.

Methods: Patients with acute bacterial endocarditis and those in a critical preoperative condition were excluded. Of the 126 consecutive patients who underwent first-time coronary artery surgery over a 3-year period, 42 patients were randomly matched for age on the 1:2 basis, so 126 patients were analyzed. Perioperative complications and 30-day mortality were compared. The t-test and two-tailed Fischer test were used, P < 0.05 was considered as significant.

Results: Mean preoperative EUROscore was similar in D and ND patients (4.4±2.4 vs. 4.1±1.9, respectively, P = 0.51). The same was found in the preoperative EUROscore (4.4±2.4 vs. 4.1±1.9, respectively, P = 0.50). Mean glucose (mmol/L) and peak glucose (mmol/L) were similar in both groups (8.5±2.4 vs. 8.0±2.2, 12.0±2.4 vs. 11.2±3.1, P>0.05). Insulin consumption (U) was significantly higher in patients with HbA1c > 7% (58.9±27.5 vs. 42.5±23.8, P<0.01). Preoperative HbA1c was not linked to the mean and peak postoperative glucose levels, but showed positive correlation with the postoperative insulin consumption (P = 0.03).

Conclusion: Higher preoperative HbA1c levels are not linked to worse glycaemia control following coronary artery surgery but these patients require more insulin in the postoperative period.


P - 23
PREOPERATIVE HBa1c LEVELS AND POSTOPERATIVE GLYCAEMIA CONTROL FOLLOWING CORONARY ARTERY SURGERY IN DIABETIC PATIENTS
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Objective: HbA1c reflects long-term glycaemic control, is related to diabetic morbidity and mortality and also predicts length of stay of patients admitted for coronary artery bypass surgery [1]. The aim of this study was to establish what are the relations between preoperative HbA1c and postoperative glycaemia control in diabetic patients following coronary artery surgery.

Methods: Patients with diet-controlled diabetes and those in a critical preoperative condition were excluded. Of the 126 consecutive diabetic patients who underwent first-time coronary artery surgery in a period of 11 months and had their HbA1c assessed preoperatively, blood glucose levels were registered every 2 h in the first postoperative day. Mean glucose levels (all measurements) and peak glucose levels as well as mean overall insulin consumption (per patient - for a given time period) were calculated for each patient and compared between the groups. Descriptive statistics, t-test and Pearson’s correlation were used and P<0.05 was considered as significant.

Preoperative HbA1c > 7% was a threshold for uncontrolled hyperglycaemia and was found in 71% of patients.

Results: Mean age of patients with HbA1c >7% and HbA1c <7% was similar (64.9±8.7 vs. 63.8±7.9, P = 0.51) The same was found in the preoperative HbA1c (4.4±2.4 vs. 4.1±1.9, respectively, P = 0.50). Mean glucose (mmol/L) and peak glucose (mmol/L) were similar in both groups (8.5±2.4 vs. 8.0±2.2, 12.0±2.4 vs. 11.2±3.1, P = 0.05).

Conclusion: Preoperative HbA1c levels are not linked to worse glycaemia control following coronary artery surgery but these patients require more insulin in the postoperative period.


P - 24
LONG-TERM FOLLOW UP OF PATIENTS WITH INFECTIVE ENDOCARDITIS AFTER VALVE REPLACEMENT
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Objective: Infective Endocarditis (IE) is a problem both for cardiologists and cardiosurgeons. Among its dispute aspects are the national, regional, ethnic, morbidity and mortality differences of the patients with IE after valve prosthetic appliance (VPA). Objective: to study long-term results of VPA in patients with IE in the North-West Region of Russia.

Methods: Follow-up results (up to 17 years) of 144 patients with IE having been operated by one cardiosurgical term. Material includes 144 cases: 71 (49.3%) with aortic (AV), 41 (28.5%) with mitral (MV) and 32 (22.2%) with both valves (AV + MV) replacements.

Results: Among 28 dead cases there were 4 extracardial. Chronic heart failure (CHF) was registered in 78% of patients. It was up to III f.c. (NYHA) in 26 (49.3%) patients, radial artery in 9 (15%) patients, and saphenous vein in 40 (66.7%) patients.

Conclusion: Well-timed surgery for IE prevents progress of CHF. During the study period there were 46 (32.1%) relapses of IE, 22 (15.3%) patients died. The following complications were recorded: aortic valve dysfunction, requiring aortic valve replacement. CABG must be performed in all patients with coexisting coronary heart disease and aortic valve dysfunction, requiring aortic valve replacement.

Objective: Congenital diaphragmatic hernia and accidentally founded peroperatively ASD repaired and performed ACBG operation in a step. We analyzed it in the light of findings from literature.

Methods: 68 years-old, male, patient with complaints of dyspnea and chest pain applied to our hospital and hospitalized with acute coronary syndrome. Critical stenosis was founded in LAD and CX arteries in coronary angiography and founded diaphragm hernia in thorax CT. We planned to repair congenital diaphragm hernia and perform ACBG at the same session. In the operation, we discovered that intra abdominal organs were covered with peritoneum at the anterior mediastinum and the heart’s apex rotated to the posterior mediastinum of left hemithorax, left lung has collapsed and there was no left pericardium and mediastinal pleura. Vancomycin and cephalosporone-sulbactam were given antibiotic-prophylaxis. Firstly, adhesions of diaphragmatic surface of heart and posterior diaphragmatic border lasted to realize the defect border. We used cell-saver for bleeding control. Diaphragmatic defect was repaired with pyrolyne mesh graft. Standard aorta-caval cannulation has been done and cardiopulmonary by-pass started. Because of the heart’s apex over-rotation through the posterior of left hemithorax, we couldn’t use LIMA graft in situ and anastomosed CX saphen vein graft. We noticed light venous line blood and decided to explore right atrium due to suspicion of ASD. ASD was found and repaired.

Results: Until the 5th postoperative day, he couldn’t wean from respirator, because of the low PaO2 level and respiratory failure. He was discharged from hospital at the 14th day and had no complaints six months later.

Conclusion: Congenital diaphragmatic hernias prevalence is 1/2100-5000 of births. Neurologic and major cardiac anomalies occur 20-30% of the patients. Congenital diaphragmatic hernia and isolated ASD were only mentioned as sporadically. Left pericardial defects including agenesis occurs 57% of all pericardial defects and pericardial agenesis is mostly seen in left side. Generally, it is asymptomatic, but phrenic nerve localization may be change on this kind of defects and especially you have to be careful with harvesting LIMA graft. LIMA graft can not be used in situ due to herniation and rotation of the heart. Long standing compression atelectasis causes the patient to have respiratory failure on postoperative course.

P - 27
CORRELATION BETWEEN ACTIVATED CLOTTING TIME AND ACTIVATED PARTIAL THROMBOPLASTIN TIME IN CARDIAC SURGERY PATIENTS WITH EXCESSIVE POSTOPERATIVE BLEEDING
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Objective: Heparin anticoagulation is utilized during and after cardiac surgery procedures. The short half-life of heparin, the importance of maintaining therapeutic anticoagulation, and the time delay inherent in the processing and retrieval of the activated partial thromboplastin time (aPTT) by the hospital laboratory has generated interest in point-of-care heparin monitoring. We evaluated the role of the activated clotting time (ACT) in monitoring heparin reversal in postoperative period in patients with excessive bleeding.

Methods: In an observational analytic study from March to November 2005, 60 cases of post cardiac surgery bleeding in the intensive care unit were enrolled in the study. The ACT and aPTT were obtained from the same sample of blood in these patients and compared with each other. Clinical decisions regarding heparin reversal with protamine on ACT results were compared with those based on aPTT results. In the cases with extra need for heparin reversal with protamine, after protamine administration, these tests were repeated again and compared respectively. Data were analyzed by SPSS 10 software using appropriate tests including t paired and regression tests. The results were evaluated as the mean ±SD and considered statistically significant for P<0.05.

Results: Heparin dosage adjustment decisions based on ACT results agreed with decisions based on aPTT results 76-88% of the time. The correlation between the aPTT and ACT (r = 0.65) was good (P<0.01). Mean±SD ACT was 199±24 and mean aPTT was 47±12. In 14 patients with excessive bleeding the aPTT showed a normal range. After protamine administration in 31 cases, the mean ACT declined to 112±9 but the mean aPTT was only reduced to 42±7 (P<0.01 and P<0.05 respectively).

Conclusion: Considering the time delay inherent in the processing and retrieval of the aPTT by the hospital laboratory and the results of this study indicate that ACT is the method of choice for monitoring protamine requirements in post cardiac surgery bleeding patients.

P - 28
OFF-PUMP CORONARY ARTERY BYPASS GRAFTING IN MULTI-VESSEL DISEASE, EFFECT OF EJECTION FRACTION ON EARLY AND MIDTERM MORTALITY AND MORBIDITY
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Objective: LVEF is an independent predictor of operative mortality. The outcome of myocardial revascularization is greatly affected by the severity of impairment of cardiac function.?? The present study was undertaken to find out the early and midterm mortality and morbidity among patients with different degrees of myocardial function undergoing off-pump bypass.

Methods: 142 patients who underwent isolated coronary revascularization were divided into three groups according to ejection fraction (EF). 48 patients with EF<30% (group I), 48 patients with an EF between 30 - 40% (group II), and 46 patients with an EF>40% (group III). Clinical, operative and post operative outcome were compared. Patients were followed up to find midterm survival and control of symptoms.

Results: The mean age for all groups was 56.5±9.8 years. Group I had the highest percentage of patients with CHF (79.2%), COPD (16.7%), and recent MI (68.8%).?? Coronary vessel involvement was similar among the three groups. Group I had a lower percentage of complete revascularization (P<0.001) and fewer grafts performed (P = 0.036) when compared with group III. Morbidity was similar among all groups. The incidence of AMI and AF were slightly higher among patients in group I. Hospital mortality for groups I, II, III were 6 (12.5%), 0 (0.0%), and 0 (0.0%), respectively. 95.6% of patients were followed up, the mean follow-up was 27.6±17.6 months (range from 7-69 months). The incidence of angina in groups I, II, and III were 20%, 6.5%, and 2.2%, respectively. Symptoms of heart failure were seen in 17.5% of patients in group I, 6.5% in group II, and 2.2% in group III. Cardiac interventions among groups I, II, and III were 12.5%, 4.3% and 2.3%, respectively. Redo CAGB was higher in group II (4.3%) compared to 2.5% in group I, and 0% in group III. Late mortality in group I was 5.0% (n = 2) compared to 2.2% (n = 1) and 2.3% (n = 1) in group II and III, respectively.

P - 26
RULE OF CATHECHOLAMINE THERAPY IN THE TREATMENT OF ATRIAL FIBRILLATION AFTER CORONARY ARTERY BYPASS GRAFTING
Bauer A., Saenger S., Knoerig J.
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Objective: Postoperative atrial fibrillation has an incidence of 11 to 50% in patients after CABG procedures. It leads to a prolonged hospital stay and to higher treatment costs. Antiarhythmic drug therapy as well as cardioversion are not always successful, and some patients need anticoagulation therapy when discharged from hospital. We report our experiences with additional catecholamine therapy in the treatment of postoperative atrial fibrillation.

Methods: In 2004, 1038 patients received CABG in our institution. All patients were operated on cardiopulmonary bypass (CPB) and with cardioplegic arrest (Calafiore). In 266 (25.6%) patients, atrial fibrillation (AF) was observed postoperatively. We analyzed 139 patients with AF in two groups. Preoperative cardioversion therapy was performed with 13 patients (14%) of group I and failed in 5 of these patients, who were discharged with anticoagulation therapy. 11 patients had a prolonged hospital stay for the reason of atrial fibrillation. In group II, 6.5% in group II, and 2.2% in group III. Cardiac inter-
Conclusion: Off-pump bypass can be used among patients with different degrees of myocardial function. Patient with EF>40% and those with 30 - 40% have similar results. Those with EF<30% have a higher incidence of mortality and morbidity. However, the difference was not statistically significant. Although, complete revascularization was not encountered among patients with EF<30%, 95.0% of these patients were alive and 80% had good control of angina.

P - 29 PREVENTING ATRIAL FIBRILLATION AFTER CORONARY ARTERY BYPASS GRAFTING WITH MAGNESIUM THERAPY
Bilgin F., Findik D., Aksoy T., Aykilidiz M., Haberal I., Zorman Y., Zengin M. Department of Cardiovascular Surgery, Maltepe University Medical Faculty, Istanbul, Turkey

Objective: Atrial fibrillation (AF) is the most common complication that is seen after cardiac surgery. The etiology of AF after coronary artery bypass grafting (CABG) is still unclear. Optimal dose and timing of magnesium infusion also need clarification. The aim of the study was to investigate the effect of magnesium sulfate (MgSO4) on postoperative AF.

Methods: Hundred patients who underwent elective and first time CABG were divided into two groups. Patients in the magnesium group (n = 50) received 1.5 gram (6mmol) MgSO4 infusion in 100 ml 0.9% NaCl solution (in 4 h) before the surgery, just after cardipulmonary bypass and once daily for four days after surgery. The control group patients (n = 50) received only 100 ml 0.9% NaCl solution (in 4 h) at the same time periods.

Results: Postoperative AF developed in 2 (4%) patients in the magnesium group and in 10 (20%) patients in the control group (P = 0.02). The arrhythmia started, on average, 48.2±16 h postoperatively. Length of hospital stay was not significantly different in patients with AF compared with patients without AF.

Conclusion: The use of magnesium in the preoperative and early postoperative periods is really effective in reducing the incidence of AF occurring after CABG.

P - 30 TWIDDLER SYNDROME: AN INFREQUENT CAUSE OF PACEMAKER MALFUNCTION
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Objective: Twiddler’s syndrome refers to a displacement of pacemakers/defibrillators’ electrodes due to intentioned/unintentioned rotation/manipulation of the pulse generator inside the subcutaneous pocket.?? Our objective is to present one of these unusual cases and review the literature on this field.

Methods: A 69-year-old female, with a previously implanted VDD pace-maker at a different institution, due to complete-A-V block, came to our department (via Emergency ward) complaining of diaphragmatic contractions. After accurate checking of the system, a complete failure of atrial sensing and ventricular sensing/pacing was noted. The X-ray showed a great displacement of the electrode, with its tip located at the superior vena cava, thus resulting in intermittent stimulation of the phrenic nerve and subsequent diaphragmatic contractions. Initially questioned about conscient manipulation of the pocket, the woman denied this possibility. The patient underwent a reoperation, under local anesthesia, to replace the electrode. At this time, two things were noted: 1- An unusually big subcutaneous pocket; 2- The generator was not fixed to the pectoral muscle, thus permitting its free movement.?? Both things were corrected.

Results: The postoperative period was uneventful. After verifying the normal function of the complete pacing system, the patient was discharged next day.

Conclusion: Although infrequent, Twiddler’s syndrome is a cause that should be addressed in case of pacemaker/defibrillator disfunction. It was first described in 1968 and usually caused by nervous, conscient and external manipulation of the pacemaker. The vast majority of patients are old and obese females with lax subcutaneous tissue. In patients at risk, a small pocket and the suture of the generator to the pectoral muscle are mandatory. Variations of this syndrome have been described with different implantable devices (subcutaneous infusion systems, defibrillators, etc.).
Objective: In right ventricular failure a decrease of right ventricular afterload and improvement of left atrial filling could be achieved by a pulmonary artery-left atrial-shunt. To avoid cyanosis, artificial oxygenation of the shunted blood is necessary. This study investigated the use of a pulmonary-atrialshunt together with a low resistance lung assist device in experimental right ventricular failure.

Methods: In 11 pigs a pulmono-atrial-shunt was created by a homograft. The lung assist device (Novalung; Germany) was installed from the femoral artery to femoral vein in 5 pigs (serial; Group I) and into the pulmono-atrial-shunt in 6 pigs (parallel; Group II). Right ventricular failure was induced by pulmonary artery banding. Right ventricular performance and hemodynamics were determined by the use of pulse contour analysis (Pulsion, Germany) as well as direct pressure lines. Flows were monitored by ultrasonic flow probes; serial blood gas analyses were taken. The observation period was 90 min after declamping the shunt and the lung assist.

Results: In both groups a stable right ventricular failure could be generated with a significant decrease of cardiac output and right ventricular ejection fraction. After declamping the pulmono-atrial-shunt and the lung assist in Group I cardiac output increased to increase but neither right ventricular filling pressures nor arterial pressure changed significantly. Despite the lung assist, pO2 tended to decrease. In Group II cardiac output and arterial pressures increased significantly (p<0.05; t-test) under a shuntflow of 2.3-2.6 l/min. Right ventricular ejection fraction and left ventricular volume increased significantly; whereas right ventricular filling pressures remained unchanged. pO2 and mixed SvO2 significantly increased. Taken together the animals in Group II recovered from cardiogenic shock over the observation period. These effects were immediately reversed when the shunt was clamped again.

Conclusion: Pulmono-atrial-shunting with a parallel lung assist can effectively reverse the deleterious effects of right ventricular failure. This concept may be an option to treat right ventricular failure surgically.

P - 34

EFFECT OF THE RADIAL ARTERY HARVEST FOR CORONARY ARTERY BYPASS GRAFTING ON POSTOPERATIVE BLOOD FLOW IN THE FOREARM AND HAND FUNCTION

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Objective: The potential reduction of forearm blood supply after radial artery harvest for CABG remains a major concern. The purpose of this study was to evaluate whether the removal of the radial artery affect blood flow in the forearm or hand function.

Methods: 32 patients (29 male, 3 female; mean age 53 ±8.6 years) were enrolled in this study. They had the radial artery from their non dominant forearm harvested to coronary artery surgery at least 6 months earlier. The mean follow up time amounts 14.3 ±9.5 months. Every patient underwent bilateral assessment of hand function. Light touch sensation and discrimination sensation, thresholds of warm sensation, gross grip and pinch strength and fine motor function were evaluated. Oxygen saturation on forefinger was measured at baseline and after short hand exercises. Doppler ultrasound was performed in 21 patients. The internal diameter and peak systolic, end diastolic and mean flow velocity of the radial and ulnar artery at the wrist were recorded. All patients were asked to score the efficiency of the operated hand using 10 score scale.

Results: No altered sensation and fine motor function of the operated hand was observed. There was no significant difference in gross and finger pinch strength in the operated and non operated forearm. Pulse oximetry observations did not detect any differences between both hands. Doppler studies in extremities after radial artery harvest demonstrated an increase in ulnar artery diameter (0.25±0.04cm vs. 0.19±0.04cm; P<0.001) and ulnar flow velocity (mean flow velocity: 33.1±17.2 cm/s vs. 23.1±10.6 cm/s; P = 0.03) compared against the non operated forearm. The calculated blood volume supplied for the hand was comparable at both sides (operated: 1.7±1.2 ml/s; non operated: 1.4±0.7 ml/s; P = 0.4). The mean subjective patient evaluation of the operated hand amounted 8.7±1.3 scores.

Conclusion: Radial artery can be safely use as a conduit for coronary artery surgery, with no significant deterioration in blood flow in the forearm or hand function.

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OFF-PUMP VERSUS ON-PUMP CORONARY ARTERY BYPASS GRAFTING - THE EFFECT OF THE OPERATIVE TECHNIQUE ON THE POSTOPERATIVE GLOMERULAR FILTERATION RATE

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Objective: The purpose of this study was to compare the effect of OPCAB and conventional coronary artery surgery with use of the cardiopulmonary bypass (CPB) on the early postoperative renal function assessed on the basis of calculated creatinine clearance.

Methods: 35 glomerular filtration rates (GFR) were estimated in 85 consec- utive patients undergoing OPCAB and in 179 consecutive patients undergo- ing conventional CABG (CPB group) who composed the control group. Patients with chronic renal failure and operated in the cardiogenic shock were excluded from this study. Creatinine clearance calculated using the Cockcroft-Gault formula was assessed preoperatively and up to 6th day postoperatively. The demographic and clinical data (age, sex, EUROSCORE value, mean LVEF, prevalence of hypertension, prior myocardial infarction, unstable angina) was comparable in both groups (p>0.05) except from the prevalence of diabetes mellitus which was greater in the CPB group (n = 63; 35.2% vs. n = 17; 20%, P = 0.017). Preoperatively calculated creatinine clearance was equal in both groups (CPB: 80±22.9 ml/min; OPCAB: 77±24.3 ml/min, P = 0.34). Perioperative and postoperative factors which may affect renal function were analyzed. There was no differences between both groups (p>0.05) in the number of patients who suffered cardiac arrhythmias, needed inotropic support, IABP application or sustained perioperative myocardial infarction. The decreases of mean arterial pressure below 60mmHg during the operation occurred more frequently in the CPB group (n = 66; 36.9% vs. n = 3; 3.5%, P=0.001).

Results: None of patients required postoperative dialysis or hemofiltration. A statistically significant decrease of GFR compared against preoperative values was not observed in both groups (CPB: 1.9±16.8 ml/min, P = 0.49; OPCAB: -3.4±17.2 ml/min, P = 0.38). The changes of GFR value did not differ between CPB and OPCAB group (P = 0.5).

Conclusion: Both OPCAB and conventional CABG with use of CPB seemed to be comparable safe for postoperative renal function.

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THE ROLE OF TRANSOESOPHAGEAL ELECTROPHYSIOLOGICAL STUDY IN DIAGNOSIS OF PAROXYSMAL RECIPROCAL AV-NODAL ARHYTHMIA

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Objective: The aim of this study is to value the effectiveness of transo- esophageal electrophysiological study (TEEPS) in diagnosis of paroxysmal reciprocav AV-nodal arrhythmia (PRAVNA).

Methods: We observed 61 patients (37 male and 24 female) with PRAVNA. The average age of the patients was 47.9±10.1 years old. Spontaneous paroxysms of tachycardia were registered by ECG in 42 (68.9%) patients. In other patients paroxysms were induced artificially and were documented. Signs of two conducting ways in AV-node were discovered in 37 (60.7%) patients. Signs of discontinuity of AV conducting were not observed in 24 (39.3%) patients. There was a “gap” phenomenon in 4 (6.6%) patients against a background of uninterrupted curve of AV conduct.

Results: During TEEPS PRAVNA was induced in all patients by at least one regime of transoesophageal electrostimulating (TE). PRAVNA was induced in 45 (73.8%) patients with the help of increasing the frequency of electrostimulating (ES) of the left atrium (LA). But in 5 (8.2%) patients PRAVNA was induced only by aggressive regimes of ES of the LA. PRAVNA was induced in 35 (57.4%) patients by one stimulus while programming ES of the LA. In 26 (42.6%) patients PRAVNA was induced by two stimuli. Almost in every fifth patient (19.7%) PRAVNA was induced by all regime of TE of the LA.

Conclusion: All cases of diagnosed PRAVNA were confirmed by intraoperative endocardial EPS. It can be the evidence of high diagnostic value of TEEPS. It should be performed in all patients with paroxysmal reciprocav AV-nodal arrhythmias.

P - 37

SOPRANO BIOPROSTHETIC VALVE IN AORTIC POSITION: INITIAL HEMODYNAMIC RESULTS

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Objective: The soprano pericardial valve is a newly designed stented bio- prosthesis recently introduced in Europe. We present the initial hemody- namic data for this device and its performance in the clinical setting.
Methods: We analyzed the echocardiography data for the forty-four procedures performed in our institution between May 2003 and February 2005. The mean age for the patients was 73.8±0.5 years (range 65-81) and the average ejection fraction was 54.6±2.2%. The E/A average cross clamp time was 66.6±5.2 min and the bypass time 106±8.5 min. Two patients had aortic procedures associated with aortic root replacement with composite grafts.

The follow up time was 31±10 months.

Results: The mean size implanted was 19.8±2.9 mm. The peak gradient was 33.9±2.1 mmHg and a mean gradient of 19.8±1.5 mm. The BSA was 1.73±0.2 m². There were not any case of severe mismatch (EOA<0.65 cm²/m²). When the gradients were compared between the different sizes there was no significant difference in these figures. There were not any structural failures in the early follow up period of the valve.

Conclusion: This device shows in an initial series limited by the short-term follow-up an excellent hemodynamic result even in the small sizes. It might constitute a valuable resource in the small annulus for the elderly patients.

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AN EFFECTIVE METHOD FOR HARVESTING ITA GRAFT: ENDOTHORACIC PAPAVERINE APPLICATION
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Objective: This study was conducted to compare the effects of different papaverine applications on free blood flow and harvesting time of ITA graft.

Methods: Patients were randomly divided into 3 categories: group I received papaverine applications into the endothoracic tissue around ITA before dissection, Group II received papaverine injections into the periarterial tissues of the ITA pedicle, and group III had no intraarterial papaverine application retrogradely to the ITA.

Results: Mean flows were 21.1±13.2 and 20.9±9.1 ml/min in groups II and III respectively and 56.3±23.1 ml/min in group I (flow 1). Flow 1 in group I was statistically better than that of group II and group III (P < 0.001). Mean flows were 89.8±19.1, 97.6±35.4, and 95.9±19.9 ml/min after the application of papaverine (flow 2) in groups I, II, and III, respectively and no significant difference was detected between the three groups (P = 0.5). ITA harvesting times were shorter in group I than in groups II and III (P < 0.001).

Conclusion: The administration of papaverine into the endothoracic fascia space of ITA’s bed prior to the dissection is an effective, reliable and quick method.

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INFLUENCE OF TEMPERATURE REGIMEN DURING CARDIOPULMONARY BYPASS ON GAS EXCHANGE IN COMBINED SURGERY ON CORONARY ARTERIES AND MITRAL VALVE
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Objective: The aim of the study was to evaluate gas exchange in different temperature regimens of cardiopulmonary bypass (CPB).

Methods: Samples of arterial and venous blood were studied in patients who underwent coronary artery bypass surgery (CABG) combined with mitral valve surgery. 79 patients were divided into 3 groups: I group (n = 25) - moderate hypothermia, rectal temperature was 28; II group (n = 21) - mild hypothermia, rectal temperature was 32-34; III group (n = 20) patients were operated without hypothermia, rectal temperature 35.5. The groups were similar in age, sex, CPB and aortic clamping duration. The blood samples were taken before CPB, after caval veins clamping, after cardioplegia, if on maximal hypothermia, before rewarment, after restoring of heart activity at the end of CPB. Calculated blood gases the following values were calculated: 1. Blood oxygen capacity (BOC, vol%) of arterial and venous blood: BOC = (1.34*Hb*Sat O2)/100 + 0.24*pO2/(100-HT) / 760 2. Arteriovenous O2 difference (vol%) AVD = BOCart -BOCven 3. Whole body oxygen consumption (ml/min/m²) VO2 = Q*B(BOCart-BOCven). Q is the perfusion rate.

Results: Patterns of gas transport were revealed. As shown on figure1 attenuation in VO2 occurred in the first two groups since cooling stage. Both BOC art and BOC ven drop contribute to VO2 changes. In blood samples which were taken after cardioplegia profound decrease in VO2 was seen in hypothermic CPB (groups I and II) but in the III group it was near baseline. The lowest VO2 was occurred before rewarment but even here VO2 was the highest in group III. At the end of CPB there was further decline in VO2 which can be explained by peripheral spasm with microcirculation impairment. Meanwhile in last two groups VO2 was near baseline and this can display effective peripheral blood flow.

Conclusion: Normothermic perfusion provides adequate parameters of gas transport function, even does not cause diminution in VO2.

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REDO HEART VALVE OPERATIONS
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Objective: The aim of this study is to reveal predictors that influence negatively on patient status during operation and to estimate their mortality rate (both operative and early postoperative). The other aim is to compare the operative mortality with estimated by the logistic Euroscore mortality.

Methods: During 1999-2004 period 100 patients were undergone redo heart valve operations (1st group). 37% were male and 63 were female. The structure of the causes of redo operations were the fol-low-ing: mitral valve restenosis after mitral comissurotomy - 53%; paravalvular fistula - 4%; mitral valve insufficiency after previous repair procedure - 10%; prosthetic valve endocarditis - 10%; previously mitral valve repair endocarditis - 14%; mitral prosthetic valve thrombosis - 9%. The control group (2nd group) consisted of patients (n = 50) who were firstly operated on heart valves. The expert crite-rion was concomitant coronary artery lesion. Estimated operative mortality rate was counted by Euroscore.

Results: The average age of the 1st patient group was 49.7±12.31 years old and 40.3±12.8 years old (P<0.05) in the 2nd group. Average time of defect duration time was 31.3±9.3 and 22.4±12.7 (P<0.05) years old in both groups accordingly. High systolic pulmonary pressure (over 50 mmHg) was observed in 52% and 37% (P<0.01) accordingly. Severe left ventricular dysfunction (Ejection fraction by Simpson < 40%) existed up to 43% and 36% (P<0.05) cases before operation in both groups accordingly. Average CPB time was 126.3±43.2 and 66.4±21.6 min (P<0.01) accordingly. Average operative blood loss was 812.3±195.3 and 385.1±115.3 ml (P<0.05) accordingly. One valve procedure was presented in 36% and 42% (P<0.05); two valves procedure - 50% and 44% (P<0.01); three valves - 13% and 14% accordingly. Calculated mortality rate was 24% and 2.9% by Euroscore accordingly. Actual mortality rate was 11% and 2% (P<0.05) accordingly.

Conclusion: Patients for redo valve operations are more complicated. As a result the mortality rate in this group is much higher then in patients operated firstly. In redo surgery it is particularly necessary to estimate preoperative patient status and predictive risk factors for success redo operation.
was restored in 28.6% of the patients. Paroxysmal atrial fibrillation turned into chronic form in 6.6% of the patients. 6.6% of the patients required an implantation of permanent pacemaker due to total AV blockade. In 3rd group sinus rhythm remained in 28% of the patients. Paroxysmal atrial fibrillation was medically arrested in 23%. Chronic atrial fibrillation developed in 41% of the patients.

Conclusion: The rate of postoperative arrhythmias is very high after redo heart valve surgery. Their prophylaxis before operation, reveal and early cure in postoperative period is an important aim.

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ATRIAL FIBRILLATION AFTER CORONARY ARTERY BYPASS GRAFTING

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Objective: In spite on all modern achievements in cardiac surgery postoperative arrhythmias in patients with ischemic heart disease is still very important problem. Existence of such arrhythmias leads to increasing of in hospital stay and treatment cost. Besides, it’s not necessary to say about risks and that patients feel of our manipulations when we cure them.

Methods: We observed 162 patients with ischemic heart disease that were operated on coronary arteries while the period 2002-2004 years. Average age was 59.4±8.6 years old. The duration of ischemic heart disease existing was 12.6±5 years old. Off pump cardiac revascularization was performed in 60.4% of the patients; otherwise CABG with cardiopulmonary bypass - 39.6% of the patients. All patients were divided into two groups, with atrial fibrillation (1st group) and without it (2nd group).

Results: Average age in the 1st group was 66.3±4.3 years old. 41% of the patients had myocardial cardiосclerosis after infarction. 19% of the patients had unstable angina or subacute myocardial infarction before operation. Average amount of anastomosis 3.1±0.9 per patient. Off pump cardiac revascularization was performed in 26% of the patients; in the postoperative period 89% of the patients were administered Diltiazem and 11% of the patients required Metoprolol with cardiopulmonary bypass - 39.6% of the patients. All patients were divided into two groups, with atrial fibrillation (1st group) and without it (2nd group).

Results: Transvalvular gradients (ΔP) was a function of HR (P<0.05) but not of valve type (P>0.05). ΔP was consistently lower in group 3 EPC with Quadrox oxygenator. Group 4 EPC with Hilite oxygenator. Group 1 EPC with Affinity oxygenator. Group 2 EPC with Quadrox oxygenator. Group 4 EPC with Spiral Gold oxygenator. Group 5 EPC with D-703 oxygenator. We performed platelet counts, ADP aggregation, XIIa-kallikrein dependent fibrinolysis (24%) and a low degree of hemolysis particularly noticeable with oxygenators with polyurethane heat exchange fibers. These two oxygenators were the most biocompatible and atraumatic. There was a low frequency of factor on platelet numbers and quality, fibrinolysis and the frequency and activity, D-dimer concentration and hemolysis before and after CPB.

Conclusion: The performance characteristics of the extracorporeal perfusion circuit on platelets & fibrinolysis and the increase in hemolysis Charnaya A.M., Morozov A.Y., Gladisheva G.V.
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Objective: We evaluated the performance characteristics of the extracorporeal perfusion circuit (EPC) on platelets, fibrinolysis and the increase in hemolysis.

Methods: One hundred and ninety patients undergoing elective cardiac surgery with cardiopulmonary bypass were randomised into five groups according to the EPC type. Group 1 EPC with Affinity oxygenator. Group 2 EPC with Hilite oxygenator. Group 3 EPC with Quadrox oxygenator. Group 4 EPC with Spiral Gold oxygenator. Group 5 EPC with D-703 oxygenator. We performed platelet counts, ADP aggregation, Xila-kallikrein dependent fibrinolysis activity, D-dimer concentration and hemolysis before and after CPB.

Results: Platelet counts and functional activity were better (P<0.05) with the Quadrox oxygenator independently of perfusion time and temperature protocol. No fibrinolysis activation was observed. This result was due to the use of a coated EPC, the small membrane surface area and its gas transfer characteristics. Heat exchange was more efficient in the Quadrox and Hilite oxygenators with polyurethane heat exchange fibers. These two oxygenators were the most biocompatible and atraumatic. There was a low frequency of hemolysis (24%) and a low degree of hemolysis particularly noticeable with the Hilite oxygenator. Other EPC’s had a similar effect on the investigated parameters.

Conclusion: The performance characteristics of the EPC are an important factor on platelet numbers and quality, fibrinolysis and the frequency and degree of hemolysis during cardiopulmonary bypass.
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NORMOTHERMIC PERFUSION PROVIDES ADEQUATE PARAMETERS OF GAS TRANSPORT FUNCTION, EVEN DOES NOT CAUSE DIMINUTION IN VO2
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Objective: The aim of the study was to compare hematological values during cardiopulmonary bypass (CPB) with different temperature regimens.

Methods: Samples of arterial and venous blood were studied in patients who underwent coronary artery bypass surgery (CABG). 61 patients were divided into 3 groups: I group (n = 20) - moderate hypothermia, rectal temperature was 28°C; II group (n = 21) - mild hypothermia, rectal temperature was 32°C-34°C; III group (n = 20) patients were operated without hypothermia, rectal temperature - 35.5°C. The groups were similar in age, sex, CPB and aortic clamping duration.

Results: During CPB, an initial decline in leucocyte count developed in all three groups which is due to hemodilution. In rewarming, however, significant elevation of leucocyte count was observed in I group which did not return to baseline values by the end of CPB. These changes may be explained by systemic inflammatory reaction which was strengthened during rewarming. Decrease in red blood cells (RBC) count in all three groups was shown, whereas in III group quantity was significantly greater than in the first two. Histogram analysis revealed a decrease of the mean corpuscular volume (MCV) during cooling with further MCV rise in rewarming. No statistically significant differences in MCV were seen between groups II and III which was attributed to low temperatures influence on the RBC membrane. Men concentration of hemoglobin in erythrocyte (MCHC) reduced during cooling in I and II groups. Decrease in total platelets count (PLT) was noted in all groups and was related to their destruction in extracorporeal contour and hemodilution. Less profound decrease in PLT count was seen in the latter two groups (blood specimens collected after cardioplegia) which indirectly suggests about negative influence of hypothermia on platelet cell membrane stability. Analysis of mean platelet volume (MPV) showed that on rewarming MPV increased in group I, while volume parameters in groups II and III were near baseline values and did not have statistically significant differences with preCPB levels.

Conclusion: Hypothermia influences qualitative and quantitative parameters of all blood stems. 1. Cooling and rewarming enhance systemic inflammatory response increasing total leucocyte count, preferably granulocytes. 2. Cooling lessened MCV with further decrease hemoglobin concentration. Against, rewarming leads to rise of RBC volume, nevertheless hemoglobin did not become greater. 3. Megacaryocyte stem reaction to cooling and rewarming included MPV growth and total platelet count drop.

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ATTENDANT BRAIN PATHOLOGY AT CHILDREN WITH CONGENITAL HEART DISEASES BASED ON DATA OF CT IMAGING
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Objective: The purpose of our research was revealing a brain pathology of children in the age of till 1 year and from a year till 5 years with various CHD.

Methods: 165 patients with various congenital heart diseases in the age of from 1 day till 5 years are surveyed. The computer tomography (CT) was carried out on spiral computer tomograph HiSpeed CT and electron beam tomograph C-150 XP under the program of step-by-step axial scanning with cuts thickness about 5-6 mm.

Results: As a result of inspection the various changes of a brain have been caused by the transferred insults. were available atrophyed changes of a brain, for three patients it was diagnosed ventricular hypostasis and hearth changes of substance of a brain. CT-attributes of an encephalopathy (a combination of a hydrocephaly, periventricular hypostasis and hearth changes of substance of a brain) are noted. Sharp infringement of brain blood circulation is revealed in minimally short terms allows the attending doctor to estimate possible risk of cardio surgical interventions. Diagnostics of defeats of the central nervous system by means of a tomography is necessary to carry out for all children requiring operations on open heart in conditions of artificial blood circulation in occasion of CHD, for correction of preoperative preparation of patients, and also for planning anaesthesiological manual, the report of operation and methods of “protection of a brain” with the purpose of reduction of number of postoperative neurologic complications in view of a previous accompanying pathology of the central nervous system. The computer tomography of a brain is shown to all patients with the developed neurologic frustration in the postoperative period for a choice of treatment tactics for these patients.

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PROGNOSIS OF THE RESULTS OF THE AORTIC VALVE REPLACEMENT WITH A MECHANICAL PROSTHESIS
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Objective: The choice of the optimal size of the mechanical prosthesis in the aortic valve surgery.

Methods: An estimation of function of the disk prosthesis in the isolated aortic valve replacement carried out on the basis of the intraoperative transesophageal echocardiography and the use of the transthoracic echocardiography in the early postoperative period. Transesophageal and transthoracic echocardiography carried out by a standard technique with the use of the ultrasonic systems “Sonos 5500”, “Sequioa 256”. Parameters of the central hemodynamics and systolic function of a left ventricle, doppler echocardiographic parameters of the mechanical prostheses in the aortic position were estimated. 120 patients who underwent isolated aortic valve replacement with monoleaflet (44) and bileaflet (76) mechanical prostheses were analyzed. There were 83 men and 37 women, with a mean age of 41.5 ± 14.7 years (range: 18 to 68 years). The mean body surface area was 1.73 ± 0.16 m² (range: 1.48 up to 2.3 m²). Diameter of the aortic annulus varied from 16 to 32 mm. The divergence of the sizes of an aortic annulus measured at echocardiography and by the calibrator intraoperatively did not exceed 1 mm. 36 patients with small aortic annulus underwent aortic annular enlargement using a xenopericardium patch.

Results: The effective orifice area of the prosthesis, received by the echocardiography in all observations was less settlement for each standard size of the prosthesis. At comparison of The different types of the prostheses have revealed that the appreciable deviation doppler echocardiographic parameters from norm was observed because of incorrect prosthesis orientation and unextracted calcification of the interventricular septum. With other things being equal, bileaflet prostheses give the best parameters of the peak and mean pressure gradient in comparison with the monoleaflet once. We have revealed dependence of the trans-valvular pressure gradient from the effective orifice area and from the body surface area of the patient.

Conclusion: The body surface area of the patient is a starting point for calculation of the optimum size of the mechanical prosthesis in aortic valve replacement. The choice of the appropriate prosthesis size, depends from the index of the effective orifice area of a prosthesis. The index of the effective orifice area of the prosthesis should be more, than 0.9 cm²/m². In all cases when the settlement size of a prosthesis exceeds the size of an aortic annulus, it is necessary to resort to an aortic annulus enlargement.

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EVALUATION OF THE CARDIAC MORPHOMETRY IN INFANTS WITH COMPLEX CONGENITAL HEART DISEASES BY COMPUTED TOMOGRAPHY
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Objective: To define the possibilities of computed tomography (CT) in the evaluation of cardiac morphometry in infants with complex congenital heart disease (CHD).

Methods: 40 patients (17 boys, 23 girls; age range 15 days-7 months) with CHD were examined with contrast-enhanced electron beam tomography (EBT). We used 1.5-2.5 ml/kg iodinated contrast material (350mgI/ml). The start delay was 25-30s. All examinations were performed on the EBCT-scanner “Evolution 150, GE-Imatron” in the step volume scan mode with a 1.5-3mm slice thickness and diastolic ECG-gated. Linear or curved planar reformatting, MIP and SSD-reconstruction were used depending on target
structure and purpose. Images were analyzed off-line on an “Advantage Windows” workstation.

Results: In all patients we could define situs, diameter of vessels and камер; volume of right and left ventricles. In addition, we calculated volume and myocardial mass of the heart. Volume of heart varied from 30 to 110 ml and myocardial mass from 31 to 111 g. Volume and myocardial mass heart depended on hemodynamic findings. Volume and myocardial mass heart were different in infants of the same age and with similar surface of the body. We carried out a study on the hearts of pigs, so that to confirm the real values of the measures of computed tomography. Calculated and real heart volume and myocardial mass of the pig were identical.

Conclusion: Calculation of the heart volume and myocardial mass should be included in the standard protocol of computed tomography for the abnormal cardiac anatomy in infants due to the fact that CT is an accurate method for preoperative evaluation of the heart volume and mass.

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DIMENSION PULMONARY VEINS AT PATIENTS WITH ATRIAL FIBRILLATION AFTER RADIOFREQUENCY CATHETER ABLATION WITH USING SPIRAL CT
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Objective: To estimate possibility SCT scanner in determination anatomy PV patient with atrial fibrillation (AF) and diagnostic different changes in PVs after radiofrequency catheter ablation (RFA) left atrium (LA) and left ventricle (LV).

Methods: 196 patient with different types AF were examined with SCT scan. The outcome of RFA was examined in 38 patients at the different time after operations (6 days, 3 months, 6 months). All patients underwent scanning using SCT technique, with multiplanar reconstruction (MPR) and three-dimensional reconstruction (3D), selective angiography and electrophysiologic study with RFA of arrhythmia foci.

Results: 823 PVs were estimated. The sizes of the PVs were examined in axial planes and MPR. These results were compared with selective angiography dates. The most exact dimension of PVs was typically seen in MPR with axial views underestimating the vein size. Anatomy characteristics of the orifice PVs were assessed with 3D. 11% patients had Common Trunk of PV in the left, 10% patients had Vestibule of PV in the left and 2% patients had Vestibule of PV in the right. Typical left pulmonary veins were observed at 79% patients and right - at 78% patients. Three separate ostia PVs had 20% patients. According dates of the electrophysiologic study with spiral CT the arrhythmia focus was localized to the most widest vein (P<0.05) or to the common Trunk of PV(94%). The changes from 18 to 48% occurring in the PVs with RFA with separate LP were showed in 9 veins (45%). 91 PVs were estimated in patients after ablation with separate LP. In this case 14% veins had changes in PV from 18 to 48%. The maximum dimension of PVs was observed in the remote period of time after ablation and depended on the type of interventional procedure.

Conclusion: SCT is a highly effective method of estimating anatomy and dimension PVs. Exact determination anatomy and dimension of PVs is a significant condition for planning intervascular surgery and estimating changes after ablation.

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USE OF INTRACORONARY THEROX AQUEOUS OXYGEN SYSTEM AS HEMODYNAMIC SUPPORT DURING BEATING HEART CORONARY REVASCULARIZATION: PRELIMINARY RESULTS
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Objective: During Beating Heart Revascularization areas of the myocardium may be exposed to ischemia. Protection of the myocardium against ischemia is mandatory. Aim of this study is twofold: to evaluate the capability of the Aqueous Oxygen (AO) to protect against ischemia during Beating Heart Revascularization and B) its technical feasibility. An animal model was developed.

Methods: In 5 muttons (55-72Kg) a single bypass to the left anterior coronary artery (LAD) was performed. Beating heart techniques without heart and lung machine were used and intracoronary shunts were avoided. The LAD was previously occluded in hits proximal part. To prevent myocardial ischemia during the time spent to perform the anastomosis, a small cathetere was introduced into the distal part of the arteriotomy and Aqueous Oxygen (TherOx, Inc.; Irvine, CA) was injected into it (1.3 cc/sec.). Systemic blood pressure, oxygen blood tension and the electrocardiogram were continuously monitored. To evaluate the myocardial function an epicardial echocardiogram was performed.

Results: One animal (last in the study) was excluded because of sudden Ventricular Fibrillation (VF) before the use of the TherOx and another one (first in the study) died during RFA with separate LP during the procedure because of technical problems not related to the use of the TherOx. Tree animals had The Left Internal Mammary Artery (LIMA) successfully anastomosed to the LAD without myocardial transitory ischemia or wall motion modification at the echocardiogram. The mean systolic blood pressure was also monitored and there were no modifications before, during and after the use of the TherOx.

Conclusion: Preliminary study shows that, in an experimental animal model, the use of the TherOx System during beating heart coronary revascularization is safety and helps to protect the myocardium against ischemia.
GE system. To reduce flow and motion artifacts ECG triggering and respiratory compensating and sedation were used in all patients. All infants were placed in head coils. We used multislice spin-echo and gradient-echo technique. Coronal, transverse, sagittal and oblique images were obtained for all patients. The oblique planes were selected in areas of interesting. The selected slice thickness was 3-4 mm. 240 infants (128 boys,112 girls) with CHD were examined with contrast-enhanced EBT. We used 1.5-2.5 ml/kg iodinated contrast material (350mg/ml). The start delay was 25-30s. All examinations were performed on the EBCT-scanner “Evolution 150, GE-imatron” in the step volume scan mode with a 1.5-mm slice thickness and diastolic ECG-gated. Linear or curved planar reformatting, MIP and SSD-reconstruction were used depending on target structure and purpose. Images were analyzed off-line on an “Advantage Windows” workstation. For the analysis of abnormal anatomy we used a segmental approach.

Results: In all patients we defined sites, atrioventricular connections, type of ventricular loop, orientation of great arteries to each other and ventricular arterial connections by both methods. EBT was best for the evaluation of ductus arteriosus and anomalous of lung and vessels. Also EBT was more useful in an unstable patients. MRI was much more informative to detect small septum defects and diagnostics of single ventricle. It was also preferable for determination of functional abnormalities. All findings were confirmed by angiocardiography findings and surgical findings. MRI and EBT can be used for postoperative evaluation.

Conclusion: EBT and MRI are accurate techniques for preoperative diagnosis and postoperative evaluation in children and infants with CHD. EBT and MRI can be used to coil to catheter angiocardiography for detecting the details of CHD. The choice of methods is made in each case based on history, cardiac status of the patients and clinical picture.

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MINI INVASIVE APPROACHES FOR INTRAMYOCARDIAL CELL DELIVERY

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Objective: Cell therapy for cardiovascular pathology has entered clinical trials around the world. One of the main problems is cell delivery into ischemic region of myocardium. The most reliable and effective way of delivering is direct intramyocardial injection, which is possible only in time of CABG. The aim of our study is development of mini invasive approaches for intramyocardial injection.

Methods: On 50 human cadavers (25 women and 25 men: 23 normosthenic, 15 hypertenshenic and 12 asthenic) we compared: transaphegaphic pericardiomy, transthoracic pericardiomy in 4th and 5th intercostals spaces left and right side. We investigated accessibility to different parts of myocardium by means of criteria: position of operational axis, wound depth, angle of operational movements, inclination of operational axis, access area and necessity of video assistance. We paid attention to age, weight, sex, previous operations on thoracic and abdominal cavity. The injection was performed with 22G needle (BD) and syringe with water soluble iodine solution as a dye to mark the place of injection, evisceration had been performed with 22G needle (BD) and syringe with water soluble iodine solution as a dye to mark the place of injection, evisceration had been performed in 30-45 min.

Results: The transthoracic mini invasive approaches allowed access to surfaces of right ventricle, anterior parts right and left atrium, direct injection was performed in reliable manner. While transaphegaphic pericardiomy allowed intramyocardial injection to all regions of left ventricle and right ventricle. Criteria statistically significant were: wound depth 15±2.0 cm for thoracic approach and 16±2.2 cm (P<0.005) for transaphegaphic approach, angle of operational movements for thoracic approach 42±3.4º and 34±2.8º (P<0.005) for transaphegaphic approach, inclination of operational axis 75±5.0º for thoracic approach and 30±5.0º(P<0.005) for transaphegaphic approach, access area was 22±2.4 cm² in thoracic approach and 33±2.6 cm² (P<0.005) for transaphegaphic approach. Video assistance was obligatory in asthenic patients for transaphegaphic approach. At the autopsy the position of dye in myocardium: injections to all parts of ventricles were possible only in transaphegaphic approach. In patients with previous cardiac or thoracic operations (8 from 50) because of adhesive process it was impossible to perform mini invasive transthoracic pericardiomy, while transaphegaphic approach proved it’s possibility to achieve access to diaphragmatic part, anterior and posterior third of ventricle surfaces and possibility of injection. There were no severe adhesions between pericardium and heart.

Conclusion: Ventricles are the most frequently involved in ischemia. Transaphegaphic approach allowed full access to ventricles and direct intramyocardial injection. In asthenic patients video assistance is obligatory. No barriers in case of previous thoracic and abdominal operations.

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LEFT-SIDED GRAFT FOR INTERRUPTED AORTIC ARCH AND ACQUIRED MITRAL REGURGITATION

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Objective: Interrupted aortic arch (IAA) is a rare congenital malformation. ?? Delayed diagnosis in adulthood is rare and in these cases IAA is usually isolated. We describe a rare case of type A interrupted aortic arch in a young adult patient associated with symptomatic acquired mitral regurgitation. We successfully treated this unusual and to date undocumented association by one-stage surgical procedure with left side aorta-aortic bypass and edge to edge mitral valve repair. This is the first reported intra-cardiac left sided aorto-aortic bypass.

Methods: A 59 year old man was referred for treatment of severe mitral regurgitation Transesophageal echocardiography showed A2 prolapse and a flail P2 due to chordal rupture. Femoral artery access for coronary angiography failed for a blockage at the aortic isthmus level. Right radial approach demonstrated aortic occlusion distal to the left subclavian artery and an 80 mm gradient. CT scan and MR angiography confirmed the diagnosis and documented an extensive collateral blood supply to the descending aorta. Through median sternotomy, cardiopulmonary bypass was instituted by direct caval cannulation and double arterial cannulation of ascending aorta and left common femoral artery. Valvuloplasty included central edge-edge repair (Alfieri et al) and a 30 mm flexible ring (Cosgrove-Edwards, Edwards Lifescience). After atrial closure, the aortic cross-clamp was removed. The aortic graft was adequately tailored and positioned around the left side of the heart with a generous loop.

Results: One year later neurological function was normal and blood pressure was 115/70 mmHg without medications. Echocardiography showed mitral valve competence and angiography demonstrated wide patency of the aortic graft without gradient.

Conclusion: The present is the 7 th reported adult case of type-A IAA surgically treated, and the first associated to mitral valve regurgitation. Coexisting mitral pathology was consistent with myxomatous disease. Adult isolated IAA usually repaired through a left thoracotomy, while one-stage correction, through median sternotomy, is indicated in most infants with IAA and ventricular septal defect. The combination of IAA and mitral valve disease necessitated the use of median sternotomy and bypass graft for one-stage repair. Cross-clamp time was limited to the intracardiac portion and the graft was anastomosed on cardiopulmonary bypass and beating heart.?? Extra-anatomic graft positioning was different from other published cases since it was placed on the left side of the heart. This choice avoided leaving the graft behind the sternum or in close proximity to the inferior cava vein or the esophagus reducing the risk of long-term complications.

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INTRA-AORTIC BALLOON PUMPING IN AORTIC VALVE REPLACEMENT AND COMBINED CARDIAC PROCEDURES: OUTCOME AND INDICATIONS

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Objective: Intraaortic balloon pump (IABP) has become the most commonly used mechanical assist device in cardiac surgery. Due to augmentation of the coronary flow IABP is in the majority of cases used in coronary artery bypass grafting. Only little is known about the outcome of IABP in patients undergoing aortic valve replacement or combined cardiac procedures. The purpose of this study is to analyze this subgroup of patients and to discuss future indications of IABP use in these patients.

Methods: From 1995 to 2005 118 patients at our institution received IABP after undergoing aortic valve replacement or combined cardiac procedures. Age of patients ranged from 30 to 84 years with a mean of 68 years. 77 cases were investigated and 41 cases medical records were analyzed. There were 60% males and 40% females. The most frequent diagnoses were coronary artery disease (87 patients) and aortic valve disease (27 patients), followed by atrial septum defects and diagnostics of single ventricle. It was also preferable for determination of functional abnormalities. All findings were confirmed by angiocardiography findings and surgical findings. MRI and EBT can be used for postoperative evaluation.

Conclusion: EBT and MRI are accurate techniques for preoperative diagnosis and postoperative evaluation in children and infants with CHD. EBT and MRI can be used to coil to catheter angiocardiography for detecting the details of CHD.
Chest X-rays at the age of six year showed displacement of the cardiac sign of carina and right bronchus, terminal trachea was slightly narrowed.

Methods: A boy (born at 42 weeks with 3280 g and 9 Apgar score) was the congenital defects in primitive respiratory apparatus were responsible for other congenital anomalies, e.g. esophageal atresia, tracheal stenosis or hypoplasia. The absence of the right lung was due to the right-sided aortic arch obstruction. From embryological consideration it is known that in embryo trachea grows earlier and pulmonary artery (from sixth arch).

Conclusion: Outcome of IABP in cardiac operations other than isolated coronary artery bypass surgery is crucial for outcome and indication of insertion should be considered prior to first weaning from cardiopulmonary bypass.

Objective: Stentless biological valves have had significant impact on the hemodynamics and left ventricular remodeling after aortic valve replacement (AVR). Our aim was to determine hemodynamic and clinical results of the stentless pericardial valve implanted for aortic stenosis and to evaluate the regression of left ventricular hypertrophy (LVH) postoperatively.

Methods: Between November 2004 and June 2005, a total of 16 patients with aortic stenosis (mean age 72.7±5.9 years, 10 men and 6 women) underwent AVR with a Sorin Freedom Solo stentless pericardial valve (Sorin Biomedica, Saluggia, Italy). Single suture line technique was used for implantation. All were in NYHA class III or IV. Five patients required coronary bypass grafts. Two were reoperations. They were prospectively investigated by Doppler echocardiography at 6 months after operation. Current follow-up data are available for all patients.

Results: All patients survived the early postoperative period. Ischemic times ranged from 52 to 82 min for isolated AVR and up to 98 min for aortic plus CABG. NYHA functional class improved in all patients. Mean postoperative intensive care stay was 1.3±0.7 and hospital stay was 9.3±4.9 days. Mean ventilation time was 18±4 h. At echocardiographical examination within 6 months of the AVR, the mean aortic valve gradient was 11±4, 9.2±3, 7.3±3, and 6.2±3 mmHg for 21, 23, 25, 27 mm valve sizes, respectively. Left ventricular mass index declined accordingly over 6 months (166±45.7 g/m² to 115.6±29.4 g/m²). Left ventricular end diastolic diameter decreased from 5.3±0.7 cm to 4.7±0.5 cm. In the follow up, aortic insufficiency developed in one patient. During six months follow up no endocarditis or thromboembolic events were registered.

Conclusion: Early results of Sorin Freedom Solo pericardial valve in the aortic position are promising. Significant regression of LVH was achieved even in the small aortic roots at 6 months follow-up.

Objective: Agenesis of the lung, defined as the complete absence of the lung tissue, main bronchus and pulmonary vasculature is found once in every 10,000 autopsies. Almost half of the patients with agenesis of the lung have other congenital anomalies, e.g. esophageal atresia, tracheal stenosis or others. For cardiac surgery of ASD II we employed CPB with circulatory arrest and deep hypothermia, because of difficult surgical exposure. We state that the congenital defects in primitive respiratory apparatus were responsible for complete absence of the lung.

Methods: A boy (born at 42 weeks with 3280 g and 9 Apagar score) was diagnosed in infancy by roentgenographic findings, because of pneumonia. Agenesis of the right lung was recognized. At bronchoscopy there were no signs of carina and right bronchus, terminal trachea was slightly narrowed. Chest X-rays at the age of six year showed displacement of the cardiac shadow, absence of the right lung and presence of left-sided thoracic scoliosis with hemivertebrae T7. Cardiac catheterization revealed main pulmonary artery, left pulmonary artery, very short stump of the right pulmonary artery and a few collateral vessels directed from the main pulmonary artery to the left atrium. ASD type II was diagnosed by echocardiography. Patient with mild circulatory and respiratory symptoms was referred to surgery. The cardiac surgery was performed at the age of six year through a midline sternotomy. The right atrium was positioned posteriorly at the right costovertebral region and the left atrium anteriorly. Because of difficult exposure a single venous cannula was inserted into right atrium, CPB with circulatory arrest and deep hypothermia (16.5°C) was used. ASD II was directly sutured through the left atrium.

Results: Eight years after surgery 14-years-old boy was re-examined. His physical growth was satisfactory, without complaints. On spirometry there was moderate mixed deterioration of the ventilation.

Conclusion: The factors responsible for agenesis of the lung are not clearly understood. In our patient development of the right pulmonary artery stopped 1 cm from its origin. From embryological consideration it is known that in embryo trachea grows earlier and pulmonary artery (from sixth arch). Thus, vascular underdevelopment of the right pulmonary artery could not attribute to produce lung agenesis and was secondary malformation.
Methods: Forty type II diabetic patients who were on gliclazide with stable angina undergoing elective CABG for triple vessel coronary artery disease were prospectively randomized into control or IP groups (20 patients for each group). The IP patients received two periods of 2-min ischemia followed by 1-min reperfusion by aortic cross-clamped after the initiation of cardiopulmonary bypass. Perioperative cardiac specific troponin I (cTnI), creatine kinase myocardial isoenzyme (CKMB), CPK, lactate release and hemodynamics (heart rate, mean blood pressure, CVP, mean pulmonary artery pressure, pulmonary capillary wedge pressure, PVR, SVR and cardiac index) were recorded at 7 different time points.

Results: There were no differences in baseline levels of cTnI, CKMB, CPK and lactate levels between the groups. There was no difference in postoperative CK-MB (P = 0.965) and CPK levels (P = 0.756), patients who received IP released significantly less cTnI than did the controls postoperatively (cross-clamp release, IP, 0.06±0.17 vs. control, 0.01±0.03/mg; 1 hour, IP, 0.79±0.8 vs. control, 2.51±0.58 U/L; 6 h, IP, 1.04±0.76 vs. control, 2.3±0.58 ng/ml; 48 h, IP, 0.09±0.04 vs. control, 0.57±0.25 ng/ml; analysis of variance [ANOVA] for repeated measurement, P = 0.003). Lactate release were also significantly lower in IP group than in control group (P = 0.005). 

Conclusion: The present findings show that in diabetic patients with three-vessel coronary artery stenosis undergoing a CABG operation, IP has a protective effect against ischemia-reperfusion injury. However, there is no clinical benefit or improvement in the postoperative haemodynamic data.
Objective: Mitral regurgitation contributes to restricted survival in patients with dilated left ventricle. This concerns patients with ischemic as well as patients with non-ischemic mitral regurgitation. The intermediate and mid-term outcome of mitral reconstruction in both groups was studied.

Methods: The retrospective analysis included 163 patients with isolated mitral valve reconstruction or in combination with other interventions in dilated left ventricle. This included 73 patients (54 (74%) men, and 19 (26%) women, mean age 67±8.8 years) with ischemic and 90 patients (61 (67.8%) men, 29 (32.2%) women, mean age 64±11.7 years) with non-ischemic mitral regurgitation. In the 73 patients with ischemic mitral insufficiency, the mean left ventricular end diastolic diameter (LVEDD) varied from 56 to 81 mm (mean: 62.2±5.1 mm), and 67% of the patients were in NYHA class III or IV. The mean follow-up time was 973±268 (429 - 1479) days. In the group of the non-ischemic mitral regurgitation were 90 patients. The mean left ventricular end diastolic diameter was 52.9±14%, and the left ventricular end diastolic diameter (LVEDD) ranged from 56 to 78 (mean: 62.2±5.2) mm, and 52% of the patients were in NYHA class III or IV. The mean follow-up time was 950±304 (462-1515) days. We have analyzed in the follow-up the survival, hospitalizations, complications, echocardiography, quality of life etc.

Results: The in hospital mortality in mitral valve reconstruction was 6.8% in the ischemic group, and 4.4% in the non-ischemic group. Postoperative recovery for bleeding was necessary in 12 patients (7.3%), postoperative use of IABP in 7 patients (4.3%), temporary dialysis in 7 patients (4.3%), the intensive care time was 3 days, and the average length of hospitalization was 13 days. During the follow-up, late deaths occurred in 9 patients (13.25%) in the ischemic group, and in 6 patients (7.14%) in the non-ischemic group. 95% of the patients were in NYHA class I or II. The mean left ventricular end diastolic diameter (LVEDD) was 58.6±8.1 mm in the ischemic group, and 55.1±7.7 mm in the non-ischemic group.

Conclusion: Mitral reconstruction is effective in patients with dilated left ventricle and has an acceptable operative mortality and morbidity. The midterm follow-up revealed good life quality in surviving patients.

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ANALYSIS OF ENDOTHELIALIZED BIOPROSTHESIS IN THE SHEEP MODEL
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Objective: The long term results of bioprosthetic heart valves (BPHV) are still disappointing due to tissue degeneration, calcification and inflammation. Native human heart valves are physiologically covered by a monolayer of endothelial cells (ECs), which act as an effective barrier between the tissue and the blood. This monolayer is not present in BPHV. It is assumed that the lack of this endothelial barrier contributes to the long-term failure of bioprostheses. The aim of the study was to clarify the benefit of an endothelialized BPHV regarding calcification and inflammation.

Methods: Porcine aortic BPHV were fixed in 0.2% GA and detoxified with an acetic acid buffered amino-reagent (0.1 M Urazole) for one week. The fixed valves were inserted in the descending thoracic aorta of 15 juvenile sheep weighing 43 ± 3.25 kg for a period of 12 weeks. Three groups were compared: (A) 0.2% glutaraldehyde (GA) + detoxification, (B) 0.2% GA + detoxification + EC, C) 0.2% GA control (no detoxification). For the endothelialization, autologous cells were harvested, masscultured and seeded on fibronectin-detox fixation + EC, C) 0.2% GA fixation (control). For the endothelialization, sheep weighing 43 + 3.25 kg for a period of 12 weeks. Three groups were compared: (A) 0.2% glutaraldehyde (GA) + detoxification, (B) 0.2% GA + detoxification + EC, C) 0.2% GA control (no detoxification).

Results: All animals showed fast recovery after surgery. Echocardiography demonstrated that the leaflets were functioning in all groups. Gomori, Weigert and von Kossa staining, and immunohistochemical staining were used to evaluate EC coverage. The results showed that the highest level of calcification was found in the 0.2% GA group in both leaflets and aortic wall, with statistical significance towards the detoxified groups (P<0.05). Detoxified groups had similar Ca++ results. Beyond transannostomus pannus outgrowth, surface endothelialization was completely inhibited in the control group. In both detoxified groups, sinuses were fully endothelialized, whereas leaflet endothelialization was restricted to the in-vitro lined group (P<0.02). Tissue inflammation both on the blood surface and the adventitia was most pronounced in the control group and least expressed in the endothelialized valves (P<0.004).

Conclusion: In the sheep model, in-vitro endothelialization further enhances the beneficial effect of GA detoxification with regards to low calcification and inflammation.

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SEVERE PATIENT- PROSTHESIS MISMATCH AFFECTS EARLY MORTALITY AFTER AORTIC VALVE REPLACEMENT FOR AORTIC STENOSIS
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Objective: Small valve size and patient-prosthesis mismatch generates high postoperative transvalvular gradients and may decrease early and long-term survival. The objective of this study was to evaluate whether mismatch affects early mortality after aortic valve replacement (AVR) for aortic stenosis.

Methods: The study included 701 patients who underwent AVR between 1985-2005 in our institution. The indexed effective orifice area (EOA) for each prosthesis was derived from published normal in vitro EOA divided by the patient’s body surface area (BSA). If the indexed EOA was >0.85 cm²/m² PPM was considered clinically insignificant whereas mismatch was considered severe if the indexed EOA was > 0.65 and moderate if it was >0.65 and <0.85.

Results: Early mortality was 5.4% (38/701) and moderate or severe mismatch was present in 46.5% of patients, nevertheless severe mismatch was present in 12.8% of patients. Multivariate analysis revealed age > 70 years (P = 0.001) and severe patient-prosthesis mismatch (P = 0.001) as independent predictors of early mortality. Moderate mismatch was not a predictor of early mortality on both univariate and multivariate analysis.

Conclusion: Although moderate patient-prosthesis mismatch is not predictor of early mortality severe mismatch is independent predictor of early mortality in patients who underwent AVR for aortic stenosis. The indexed effective orifice area can be calculated at the time of operation and strategies to avoid severe mismatch should be developed.

P - 67
THE IMPACT OF PULMONARY OR AORTIC POSITION ON RECELLULARIZATION OF HEART VALVES; AN EXPERIMENTAL STUDY
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Objective: This study was performed to evaluate the influence on decellularized heart valves implanted into the pulmonary or aortic position. Methods: Ten juvenile sheep were operated, implanting a decellularized xenograft into either the pulmonary or aortic position. Prior to exanguinations echocardiographic examination was obtained. The valves were evaluated by gross examination, X-ray, light microscopy (H&E, serials red, Gomori), and immunochemical staining (CD 31, 34 and 68). Atomic absorption spectrometry was used to quantify determination of calcium.

Results: All animals showed fast recovery after surgery. Echocardiography showed a mean flow velocity of 0.8±0.1 m/s (pulmonary position) and 1.2±0.1 m/s (aortic position). Absence of valve regurgitation was seen in both groups. Gross examination showed smooth and pliable leaflets without retraction in both groups. Light microscopy showed a monolayer of endothelial cells at the wall and the base of the leaflets in both groups. In the deeper layers, however there was earlier recellularization with interstitial cells in the left side group. Collagen production was also in favor of left side group. There was no evidence of calcification in any decellularized xenograft, confirmed by atomic absorption spectrometry showed similar levels.

Conclusion: In the juvenile sheep, decellularized xenograft showed similar hemodynamic behavior in the pulmonary and aortic position, however there seems an earlier recellularization in favor for the left heart side.

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PROSTHETIC VALVE ENDocarditis: IMPORTANCE OF SURGICAL TREATMENT
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Objective: Surgical therapy of prosthetic valve endocarditis is still associated with high mortality up to 80%. Further risk analysis and characterization of clinical features is of importance for further improvement of surgical results. The aim of this retrospective study was a risk analysis concerning clinical features of the pre-, intra and postoperative period.

Methods: Between 02/97 and 12/2003 52 patients (39 male, 13 female, age 62±11 years) were treated for surgical therapy of prosthetic valve endocarditis in our institution. Preoperative, intraoperative and postoperative features were evaluated on their influence on the early postoperative course and the mid-term follow-up.

Results: In the majority of pts the aortic valve was infected (n = 38, 73.1% of pts), followed by mitral valve (n = 22; 43.2%), tricuspid valve (n = 3, 5.7%) and pulmonary valve. Double valve affection was recorded in 10 pts (19.2%). Staphylococci (n = 5, 9.6%) and staphylococci pneumonia. Double valve affection was recorded in 10 pts (19.2%). Staphylococci (n = 5, 9.6%) and staphylococci infection (n = 14, 26.9%) were identified as causative agents in blood cultures. The overall hospital mortality rate was 19.5% (n = 10), during the follow-up (mean follow up 2.1±1.8 years) further 9 pts (17.3%) died. The overall-mortality was 36.5%. Main predictor for hospital mortality in multivariate analysis was preoperative heart failure (P = 0.01) and staphylococcus aureus infection (P = 0.01). Predictors of overall mortality were staphylococci infection (P=0.01), heart failure (P = 0.02) and abscess formation (P = 0.02).

Conclusion: Surgical therapy of prosthetic valve endocarditis is still associated with quite high mortality in the early and mid-term follow-up. Predictors of outcome particular include preoperative risk constellation (heart failure, staphylococci infection).

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DIRECT LEFT VENTRICLE-TO-CORONARY ARTERY BYPASS WITH VSTENT DEVICE: PERIOPERATIVE OUTCOMES AND 1 YEAR FOLLOW-UP
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Objective: Recently a stent-based approach for surgical implantation of an expanded polytetrafluoroethylene (e PTFE) membrane covered stent (VSTENT) to provide a left ventricle-to-coronary artery bypass (VCAB) was developed (Percardia, Inc, Merrimack, NH). We describe the perioperative and 1 year follow-up results of the pilot phase of the ADVANTAGE study, designed to assess the feasibility and safeness of VSTENT implantation.

Methods: Eight patients referred to our hospital with diagnosis of coronary artery disease were eligible and accepted to be enrolled in the study. The mean age was 57.3±11.8 years and all patients were male. The patients underwent VSTENT implantation concomitant to traditional coronary artery bypass grafting. CABG was performed at first. VSTENT procedure was performed on-pump with beating-heart. The target vessel was exposed using a stabilizer and a 10 mm long incision was made. After exposure of the posterior wall of the coronary artery, an access needle was inserted in the myocardium through the posterior wall toward the ventricular cavity until there was backflow. The guide-wire was inserted and the needle removed. The delivery system was loaded on the wire and inserted in the myocardium. After correct positioning of the tabs, the balloon was inflated and afterwards deflated and removed. At the end, a saphenous vein patch was implanted. Perioperative data were registered in a collect form and 3 month, 6 month and 1 year follow-up was obtained by means of direct visits and telephone interviews.

Results: The target vessel for the VSTENT was diagonal branch in 2 patients and marginal branch in 6 patients (diagnose2 intermedio3 margem3). Intraoperative trans-esophageal echocardiography demonstrated VSTENT flow. Successful VSTENT implantation was achieved in all patients. The mean number of associated grafts was 2.7±0.7. No perioperative death was registered. At 6-month follow-up, patients did not referred symptoms, echocardiograms was normal and no major adverse events or V-stent-related minor events were registered. 6-month-follow up angiography visualized normal positioning of VSTENT in all cases but flow detection was difficult. At 1-year follow-up no patients experienced VSTENT-related complications.

Conclusion: Our preliminary experience indicates that VSTENT is feasible and safe in the perioperative period and short-term follow-up. We did not report technical problems and VSTENT related events. The learning curve appeared to be simple. Middle term VSTENT patency was lower than expected but it correlates with intimal proliferation and represents a common problem of all noeluted stents.

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LOSS OF VALVULAR NERVOUS ELEMENTS IN AORTIC VALVE INSUFFICIENCY
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Objective: The aortic valve is a complex structure and no recent studies evaluated nerve endings functions at leaflets’ level. The aim of this study is to correlate morphologic changes (mainly loss, ramification and type of nerve fibers, presence of inflammatory cells) with aortic valve insufficiency.

Methods: 14 human aortic valves were obtained from patients with valvular insufficiency who underwent aortic valve replacement and 7 aortic valves from normal preserved valves not suitable for clinical surgical implant. Pathologic valves after formalin fixation were embedded in paraffin with standard treatment and 4 micron thick slides were immunostained for actin, neurofilaments, PGP 9.5, GFAP, synaptophysin, S100, vimentin, CD117 and acetylcholinesterase. Different antibodies microwave settings for antigen retrieval were used. Seven frozen cases of normal valves in DMSO and embedded in OCT were evaluated with same immunostains both with immunohistochemistry and immunofluorescence. Negative control were obtained with primary antibodies omission.

Results: First results show a discrete immunoreactivity for neuronal markers (S100, GFAP, PGP-9.5, neurofilaments) in normal frozen valves, less intense and with a different distribution in pathologic valves, especially in terminal arborizations. No significant inflammation or endothelial damage was present. Morphologic alterations were similar in all leaflets from same valve. Actin was positive in few cells, synaptophysin and CD117 were constantly negative. Age had a minor influence on valvular innervation while nerves’ distribution seemed to be related to valvular damage.

Conclusion: Our first data concerning human aortic valve leaflets innervation suggest that nervous fibers’ alterations in aortic valve insufficiency are visible and often the main morphologic damage. No recent studies on human aortic valves innervation are present in scientific literature. Further studies are requested to better understand if innervation loss is related to aortic disease and to evaluate eventual differences between leaflets.

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CARDIOPULMONARY BYPASS AND AORTIC CROSS CLAMP DURATION: EFFECTS ON PLASMA TETRANECTIN AND OTHER KNOWN ENDOTHelial MARKER LEVELS
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Objective: Tetranection (TN) is a fibrinolytic regulator negatively associated with coronary artery disease severity, the gene of which is recently identified to be transcriptionally upregulated in hypoxically stimulated human umbilical vein endothelial cells. Cardiopulmonary bypass (CPB) with hypothermic cardiac arrest is closely related with hypoxia, ischemia and anoxia of vascular endothelium. The aim of the study was to investigate the effect of CPB duration and/or aortic cross clamp (ACC) duration on plasma tetranection and other known endothelial activation markers.

Methods: This study was conducted in 31 consecutive patients, undergoing first-time coronary artery bypass grafting with CPB and hypothermic cardiac arrest. Redo's, patients with seriously impaired L.V. function or recent M.I. were excluded. Cold blood cardioplegia was used. Peripheral blood samples were collected on the morning of operation, before induction of anaesthesia, 24 h and 72 h postoperatively and analysed for plasma levels of the endothelial markers: von Willebrand factor (vWF), E-selectin, P-selectin, E-selectin and Tetranection (TN), TN, vWF, P-selectin, E-selectin levels were measured by using enzyme-linked immunosorbent assay and ACE activity was measured spectrophotometrically. The data were analyzed in a two-way ANOVA mixed model with endothelial markers as factors to elucidate the interaction between them. Mann-Whitney test was used to elucidate the percent change from baseline values of each variable at every time of sampling.

Results: The statistical analysis indicated significant interactions of TN with CPB duration and time [F(2.58)=3.421; P=0.040] and ACC duration and time [F(2.58)=3.251; P = 0.045] but no interactions of all other measured markers.
with CPB or ACC duration and time. There was no significant difference in TN and P-selectin percent change from baseline levels between CPB<100 min and CPB>=100 min at 24 h, but a statistically significant difference was found (P = 0.05, P = 0.05, respectively) at 72 h postoperatively. Moreover, there were no significant differences in TN and P-selectin percentage changes from baseline levels between ACC<60 min and ACC>61 min in the 24 h but statistically significant differences were observed (P = 0.049, P = 0.05, respectively) at the 72 h, postoperatively. No statistically significant differences were found between CPB<100 min and CPB>=100 min or ACC<60 min and ACC>61 as regard vWB, E-selectin and ACE percent change from baseline values both at 24 h and at 72 h postoperatively.

Conclusion: Our findings indicate that TN levels are well correlated to the CPB and ACC duration and thus to the degree of hypoxia/ischemia of endothelium early in the postoperative period.

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IS THERE A DIFFERENCE BETWEEN CRYOPRESERVED AND DECULLERATED PULMONARY HOMOGRAFTS IN RIGHT VENTRICULAR OUTLET TRACT POSITION IN ROSS OPERATION
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Objective: The Ross procedure provides excellent long-term results in the majority of patients. However, dysfunction of the pulmonary homograft in young patients remains an unresolved problem that may be related to immunologic factors. The purpose of the study was to compare the clinical and echocardiographic and CT scan findings of the two types of homografts (cryopreserved homograft and decellularized homograft).

Methods: 17 patients who received a decellularized pulmonary homograft during Ross-procedure (median: 20 months postoperatively) and 18 patients who underwent a Ross-procedure with cryopreserved pulmonary homograft (median: 33 months postoperatively), underwent CT with angiography and resting echocardiography.

Results: Neither the pressure gradients (mean: 9±4 vs. 10±4 mmHg; P = 0.64) across the homograft, nor the indexed effective orifice area [EOA] (0.93±0.80 vs. 0.93±0.42 cm²/m²; P = 0.96), or the degree of regurgitation differed between the decellularized and cryopreserved homografts. The EOA showed a significant correlation with the smallest homograft-conduit-area measured on CT (r = 0.81; P<0.001) which was most frequently (n = 23) measured on the level of the proximal anastomosis or valve and only occasionally on the mid-tubular or distal level (n = 5). Calcifications were observed in 3 cases. The diameter of the homograft conduits was significantly smaller than at implantation (19 and 20 mm vs. 25 mm at implantation in both groups; P<0.001).

Conclusion: Despite a significant shorter follow-up in the decellularized pulmonary homograft group, no functional or radiologic differences were observed as compared to cryopreserved group. In the short term observation we did not observe a significance differences in pressure gradients on the homografts (cryopreserved, decellularated), but still in the group of decellulrised conduit it was lower.

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PULMONARY EFFECTS OF N-ACETILCYSTEINE IN PATIENTS UNDERGOING CORONARY ARTERY BYPASS SURGERY WITH CARDIOPULMONARY BYPASS
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Objective: Cardiac surgery and cardiopulmonary bypass (CPB) initiate a systemic inflammatory response which adversely affects postoperative pulmonary function. The development of strategies to control the inflammatory response following cardiac surgery is currently a focus of considerable research efforts. The purpose of the present study was to assess the pulmonary effects of Nacetylcysteine (NAC) in patients undergoing Coronary artery bypass graft surgery (CABG).

Methods: In a randomized, double blind, clinical trial study (April-October 2005) in our institution, forty consenting patients undergoing elective CABG were randomized into two groups. Group I (20 patients) received a physiologic saline solution as a placebo one hour before CPB; Group II (20 patients) received 50 mg/ kg NAC intravenously for one hour before CPB. Perioperative hemodynamic and pulmonary data were recorded. Postoperative tracheal extubation was accomplished at the earliest appropriate time. Data were analyzed by SPSS.10 software using appropriate tests including Chi-square and t tests. The results were evaluated as the mean ±SE and considered statistically significant for p < 0.05.

Results: The preoperative demographic and basic clinical variables including mean age (59.1±1.4), body mass index (25.7±0.6), cardiac ejection fraction (47±11.7), pulmonary function test (PFT) and CPB time (109±2.4) were similar in the two groups. Patients in Group I exhibited significantly lower dynamic lung compliances in the ICU (P < 0.05). The rapid shallow breathing index (RSBI) was significantly more in Group I (P < 0.001). Both groups exhibited significant postoperative increases in alveolo-arterial oxygen difference (AaDO2) (P < 0.001), but patients in Group II exhibited significantly lower increases in postoperative AaDO2 (P < 0.05). Other hemodynamic and pulmonary data (static lung compliance, PaO2/FiO2 and PaO2/PAO2) exhibited no differences between the groups in the ICU at 0, 3, 6, 12 and 24 h after admission. There was no significant difference in terms of mechanical ventilation duration, intubation time and ICU stay.

Conclusion: This clinical study reveals that administration of NAC to patients undergoing elective CABG with CPB improves some pulmonary parameters and systemic oxygenation in the postoperative period but does not alter the duration of mechanical ventilation and ICU stay. So we believe that the effect of NAC in the pulmonary function after CPB needs to be further evaluated with lower and/or higher doses of NAC to obtain more reliable results.

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GENETIC PREDISPOSITION IN POST-OPERATIVE BLEEDING IN PATIENTS SUBMITTED TO CARDIAC SURGERY UNDER EXTRACORPOREAL CIRCULATION
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Objective: To determine if there are genetic polymorphism associated with coagulation, fibrinolysis and inflammation, that can affect post-operative bleeding in patients submitted to elective cardiac surgery under extracorporeal circulation.

Methods: 26 patients who didn’t receive anti-fibrinolytic treatment, from a total of 50 patients submitted to elective cardiac surgery under extracorporeal circulation, were studied. Data was compiled related to coagulation, complement and fibrinolysis, preoperatively, at admission to the intensive care unit, at 4 and 24 h. Bleeding and its relationship with the different polymorphism were analyzed: insertion/deletion in the intron 16 of the gene of the angiotensin converting enzyme; el polymorphism G1691A of the factor V gene (Leiden); the polymorphism G20210A of the factor II gene; el polymorphism 4G/5G of the plasminogen activator inhibitor gene (PAI-1), el Alu-repeat insertion/deletion of the tissular plasminogen activator gene (tPA) and the polymorphism of the first intron the tumoral necrosis beta factor gene (TNF=250).?? The Pearson Chi2 and the Fisher exact test, univariated analysis of the variable and non-parameters tests such as U of Mann-Whitney or Kruskal-Wallis, in accordance to the sample’s characteristics, were used.

Results: 1) the insertion/deletion polymorphism of the angiotensin converting enzyme gene (P = 0.046), of the plasminogen activator inhibitor gene (PAI-1) (P = 0.037) and of the tumoral necrosis beta factor gene (TNF=250) (P = 0.029); were associated to greater bleeding in the 24 h postoperative period.
2) The GG Homocytogs (TNF=250) presented higher basal plasmatic levels of Interleukine-6 (P = 0.01). 3) Homocytogs 5.5 of the plasminogen activator inhibitor gene (PAI-1) polymorphism were associated to lower levels of complement: C1-inhibitor (p = 0.038) and CT (P = 0.016); of leptines (P = 0.019) and of plasminogen activator inhibitor gene (PAI-1) (P = 0.019).

Conclusion: We have identified three genetic polymorphisms associated with post-operative bleeding that can help us to stratify the pre-operative risk in heart surgery under ECC to optimize prophylactic therapeutic measures.

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ADENOSINE A1 & A3 RECEPTOR ACTIVATION BEFORE ISCHEMIA REPUPERFUSION IN NORMAL AND HYPERTROPHIED HEART
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Objective: The increased susceptibility of hypertrophied hearts to ischemic injury has long been recognized. The purpose of this study was to investigate...
the effects of pre-ischemic pharmacological preconditioning (PC) with adenosine A1 and A3 receptor activation on the recovery of the isolated myocardium after cardioplegic ischemia.

Methods: In addition, we examined p38 MAPK activation in this process. Two different modes of PC in WKY and SHR hearts were studied: In the perfusion mode (P), isolated rat hearts were perfused with A1 receptor agonist (CCPA) or A3 receptor agonist (CI-IB-MECA), 10 nm for 20 min, followed by 30 min of warm cardioplegic ischemia and 30 min of reperfusion. In the injection mode (I) CCPA or CI-IB-MECA (100 mg/kg), were administered 24 h before the experiment. Phosphorylated p38 MAPK was examined using western blot analysis.

Results: CCPA improved recovery of left ventricular developed pressure (LVP), ATP levels and infarct size of the hearts (normal and hypertrophied) in both modes of treatment. LVP recovery of WKY hearts: P = 78±12.9%, I=75.2±4.0% and control=57.6± 4.1%. In SHR hearts P = 60±1.5%, I=64.2±8.1%, control=38.5±3.7% (P<0.0005). ATP levels in WKY hearts (nmole/mg protein) was P = 15.8±0.2, I=15.4±0.1, and controls=3.1±0.5. In SHR hearts P = 12.4±0.3, I=14.9±2.8 and control=3.3±1.1(P<0.005). CI-IB-MECA was partially beneficial. Both agonists mediated activation p38 MAPK in both modes of treatment. This protection was completely abolished by prior treatment with their antagonists that had no effect on their own. Conclusion: CCPA in both modes of treatment and CI-IB-MECA especially in the injected mode were beneficial in protecting the perfused isolated rat heart (normal and hypertrophied) subjected to normothermic cardioplegic ischemia (1st and 2nd window of PC). This protection was partially related to the increased phosphorylation of p38 MAPK before and during ischemia.

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LEFT ANTERIOR DESCENDING CORONARY ENDARTERECTOMY: EARLY AND LATE RESULTS IN 227 CONSECUTIVE PATIENTS WITH REPEAT CORONARY ANGIOGRAPHY BACK-UP

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Objective: Following advances in percutaneous coronary interventions, many patients that referred for coronary artery bypass grafting have diffuse coronary artery disease. We performed this retrospective study to determine whether left anterior descending (LAD) coronary endarterectomy is a safe and effective therapy to whom cannot otherwise be completely revascularized.

Methods: Between November 1996 and October 2005, 227 of 9064 (3%) consecutive patients underwent LAD coronary endarterectomy with coronary artery bypass grafting. Median age was 59 years, 42% had unstable angina, 54% of patients had left ventricular dysfunction. All patients underwent LAD endarterectomy with coronary artery bypass grafting to the LAD. The left internal mammary was grafted to the LAD in 194 patients (85%), and 15 of 194 (58%) of these required additional vein patch to the endarterectomized bed. 227 patients had 632 anastomosis with 271 endarterectomies.

Results: Overall hospital mortality was 2% (4 of 227). One-year survival was 94%, whereas 5-year survival was 85%. Freedom from cardiac events (angina, myocardial infarction, congestive heart failure, percutaneous coronary interventions) was 90% at 1 year and 72% at 5 years. Clinical and angiographic variables were analyzed in 60 study patients who had coronary endarterectomy (CE). At a mean of 15.2 months of follow-up, bypass grafts on 62% of endarterectomized vessels were patent.

Conclusion: Despite the presence of diffuse coronary artery disease, coronary artery bypass grafting with LAD endarterectomy offers excellent results with very low hospital mortality and morbidity, and favorable long-term survival.

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MINIMALLY INVASIVE APPROACH FOR IMPLANTATION OF LEFT VENTRICULAR EPICARDIAL LEADS FOR BIVENTRICULAR RESYNCHRONIZATION

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Objective: Biventricular pacing has demonstrated improvement in cardiac function in treating congestive heart failure associated with ventricular dysynchrony. Sometimes the endocardial implantation of the lead by way of the coronary sinus fails. In these cases an epicardial approach could be a valid alternative.

Methods: Between February 2003 and September 2005, 19 patients with depressed left ventricular function (mean ejection fraction 28.8±8.08% ranging from 15 to 40%), left bundle-branch-block (QRS >140 ms) and congestive heart failure NYHA III or higher were enrolled. 12 were males, mean age was 71.42±5.07 years, 4 had previous cardiac surgery. A limited left-lateral thoracotomy (10 cm) was performed after a thoracic epidural space blockage was performed 15 min prior to an incision being made at the Th 3-5 level. 4 patients were awake. By using routine instruments, an incision was made under the phrenic nerve and the device was placed on the posterolateral left ventricular wall in the obtuse marginal branch area. In 15 patients we implanted an epicardial lead with a suture and in 4 patients were placed a steroid-eluting bipolar sutureless lead. In a second moment the lead was guided subcutaneously to the pacemaker.

Results: No hospital deaths and major complications occurred. Mean intraoperative threshold was 1.1±0.72 V. All patients remained in the intensive care unit for less than 18 h. Chest drains were removed after a mean of 2 days and the patients were discharged after a mean of 5 days. Postoperative pacing thresholds at 7.5 months follow-up were satisfactory in all cases and there was no lead dislocation. The percentage of responder patients (based on NYHA class improvement) was 80%.

Conclusion: Epicardial approach is effective and safe and it can be considered a primary option for resynchronization therapy in congestive heart failure.

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PALLIATION IN CONGENITAL CARDIAC SURGERY: SYSTEMIC-TO-PULMONARY ARTERY SHUNTS - ANALYSIS OF 577 PATIENTS

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Objective: Although indications for systemic-to-pulmonary artery shunts are limited in modern pediatric cardiac surgery era, they are still used in complex congenital pathologies. Shunt operations are indicated in patients with conotruncal anomalies, with single ventricle physiology and in candidates for staged arterial switch correction. While carotid arteries were preferred at the beginning, current strategy is median sternotomy especially in complex pathologies. Significant predictors of mortality are; type of underlying pathology, size of graft used, place of anastomosis on the pulmonary artery and surgical experience. A total of 577 modified Blalock-Taussig shunt operations performed in a single institution during a period of 19 years were retrospectively analyzed.

Methods: Patients ages varied from 1 day to 20 years. In the first period (1985-1995) shunts were constructed in 311 patients including 25 neonates. During that period shunts were performed with thoracotomy depending on the side of the aortic arcus, using 5 mm gortex conduits. In the next period (1995-2004) a total of 266 patients were operated. In 30 of 52 neonates operated in this period, median sternotomy approach with 3.5-4 mm gortex conduit was preferred. For the patients older than 1 month thoracotomies were mostly used with 5 mm gortex grafts.

Results: For the first period mortality was calculated as 12% overall and 15% in the neonates while data for the second period showed 9% and 14% mortality for overall and neonate group respectively.

Conclusion: Current surgical strategy for systemic-to-pulmonary artery shunt operations the neonates is median sternotomy with special care of constructing distal anastomosis on the pulmonary bifurcation.
evaluation of long-term results of radiofrequency modification of Maze pro-
cedure combined with other cardiac surgery. Methods: Seventy-eight patients, aged from 12 to 67 with chronic atrial fibrillation (mean longevity 4.3±2.2 years) were operated from 1999 to 2005. Combined (epicardial and endocardial) monopolar non cooling RF ablation (Maze procedure) was performed in all CPB cases. Concomitant procedures: mitral valve replacement - 61 pts, double valve replacement - 3 pts, CABG - 5 pts, congenital septal defects repair - 9 pts. Cardiopulmonary bypass was used in all operations. Mean aeration time was 13±6.3.2 min.

Results: All the patients were discharged from the hospital. Thirty days effi-
ciency were 78.4% (61 pts) with decreasing to 50.5% to the fifth year after procedure. Non-effective cases (17 pts - 21.6%) included: atrial flutter and fibrillation persistence in 13 pts (16.7%), sick sinus syndrome and pacemaker implantation in 4 pts (4.9%). In all cases peak A at the echocardiogram was more than 0.8 m/s-1. All patients after AF recurrence underwent electrical conversion and admission of amiodarone long-term after operation. 53 pts (68%) demonstrated sinus rhythm to October 2005. No tromboembolic complica-
tions and no late death in this group was revealed.

Conclusion: Radiofrequency Maze procedure is successful in early follow-up
period without specific complications. Efficiency of this procedure decreases in long-term follow-up to 68% at antiarrhythmic therapy.

P - 80

SIXTYFOUR-ROW MULTISLICE COMPUTED TOMOGRAPHY IN PATIENTS WITH VASCULAR RING

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Objective: Vascular ring is a rare congenital abnormality often representing with common respiratory and gastrointestinal symptoms. Our aim was to evaluate trends in diagnostic tools used for the surgical treatment and their impact on the outcome.

Methods: Retrospective analysis of 13 patients with vascular ring diagnosis at the Institute of Cardiology, Istanbul University between April 1988 and December 2005 was realised. Eight patients with double aortic archus and 5 patients with aberrant right subclavian artery were included in the study. Mean age and weight of patients were 4.9 years and 12.9 kg respectively. Diagnostic tools used were barium esophagogram, transthoracic echocar-
diography, angiography, thorax CT and MR angiography. Additionally 64-row multislice CT was used for the last two cases. Tracheal compression was found in 8 and esophageal compression in 6 of 13 patients.

Results: There was no perioperative or postoperative death. Two compli-
ations occurred; pericardial effusion and subcutaneous emphysema in 2 patients. Hospital stay was 4-35 days according to the associated cardiac pathologies. With the use of MSCT examination preoperative evaluation period and postoperative hospital stay diminished apparently.

Conclusion: Sixty-four-row multislice computed tomography with 3D recon-
struction allows a precise evaluation of airway and esophagus compression with a detailed assessment of vascular anatomy. Major advantages of the MSCT which are especially accentuated in the pediatric patients are: less invasiveness, short scanning time which avoids deep sedation/anesthesia, higher image quality and resolution and reduction of radiation dose. The most important limiting factor is the cost of the diagnostic tool.

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SURGICAL TREATMENT OF THE ISCHEMIC HEART FAILURE

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Objective: To evaluate the results of the surgical treatment in patients with ischemic heart disease complicated heart failure. Methods: From January 2000 to December 2005, 164 patients underwent sur-
gical treatment. There were 156 men and 8 - women, with a mean age 55±7, whom had prior one or more myocardium infarction, with 3-4 NYHA function-
mental class, and EF less then 40%. With echocardiography study we estimated left ventricular and mitral valve dysfunction. For determine the necessity of surgical ventricular restoration we used preopera-tive modeling of “new” LV. Based on the data of complex estimation of anatomy and function of LV and MV we choose the optimal method of surgical treatment of ischemic heart failure. ?? Myocardial revascularization was performed in all patients, and also surgical ventricular reconstruction was performed in 84 patients (51%), mitral valve repair - in 32 patients (20%). Intraaortic balloon pump was used in 44 patients with EF less then 25%, which was introduced before one day of operation and was continued in early postoperative period. Results: The hospital mortality rate was 4.9%. All surviving patients had early and late postoperative study (from 1 month to 5 year). The mean NYHA functional class decreased from 3.3±0.7 to 2.1±0.6 late postoperatively. The mean global ejection fraction improved early postoperatively from 29±5% to
35±6%, and late postopera-tively to 32±7%.

Conclusion: Surgical treatment of patients with left ventricular dysfunction includes myocardial revascularization as well as surgical left ventricular reconstruction and also mitral valve repair if it is necessary.

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SUPERIOR SEPTAL VERSUS TRANSSEPTAL APPROACH FOR MITRAL VALVE SURGERY: EARLY AND LONG-TERM RESULTS

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Objective: The purpose of this study was to evaluate the early and long-
term changes of cardiac rhythm in the superior septal approach for mitral valve surgery.

Methods: We studied 409 patients who underwent mitral valve surgeries either through superior septal (177 cases, group 1) or transseptal approach (232, group 2) from September 1992 to August 2004. All patients underwent 12-lead electrocardiography on admission, discharge and the last follow-up day.

Results: No significant differences in ejection fraction (58.9±9.8% in group 1 vs. 56.7±8.20% in group 2, P = NS), left atrial size (54.6±14.94 mm in group 1 vs. 52.9±10.90 in group 2, P = NS), cardiac pulmonary bypass time (98.3±63.05 min in group 1 vs. 89.5±47.33 in group 2, P = NS), and aortic cross clamping time (81.7±35.08 min in group 1 vs. 73.2±29.48 in group 2, P = NS) were found between the two groups. At discharge, 41 of the 72 patients with preoperative sinus rhythm in group 1 (60.0%) had maintained their rhythm and 48 of the 98 with preoperative sinus rhythm in group 2 (49.0%) had kept their rhythm (P = NS). In group 1, 44 of the 72 survivors with preoperative sinus rhythm (61.1%) maintained the same one during follow-up (8.1±3.45 years; median, 8.8; range, 1.6 - 13.1). And, in group 2, 71 of the 98 survivors with preoperative sinus rhythm (72.4%) kept their rhythm at late follow-up (8.4±3.37, median, 8.8; range, 0.8 - 13.1) (P = NS). The incidences of newly developed postoperative atrial fibrillation, junctional beat, and atrioven-
tricular block were not significantly different between the two groups.

Conclusion: The superior septal approach for mitral valve surgery is con-
sidered to be safe from the rhythm disturbances comparing to transseptal approach in the early and long-term follow-up. However, the transseptal approach had a tendency to recover the sinus rhythm in the long-term fol-
low-up.

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MITRAL VALVE REPAIR OF ISCHEMIC HEART FAILURE

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Objective: To evaluate the results of the surgical treatment in patients with ischemic heart disease complicated of left ventricular dysfunction and mitral insufficiency.

Methods: From January 2003 to December 2005, 32 patients underwent surgical treatment. There were 31 men and 1 women, with a mean age 54±6±2, whom had prior one or more myocardium infarction, with 3-4 NYHA functional class, EF less then 40%, and 3 grade of mitral regurgita-
tion. ?? To estimate mitral valve function we used 3-D echocardiography and analyzed the following parameters: grade of mitral regurgitation, localiza-
tion of regurgitation jet, sizes of mitral annulus, leaflets motion, depth of leaflets coaptation, papillary-annulus distance, papillary-papillary distance, diastolic flow in pulmonary veins, sizes of left atrium, pulmonary pressure, function valve dysfunction. For determine the necessity of surgical ven-
tricular restoration we used preoperative modeling of “new” LV. Based on the data of complex estimation of anatomy and function of MV apparatus and LV we choose the optimal method of surgical treatment of ischemic heart.
heart failure. Myocardial revascularization was performed in all patients, and also mitral valve repair was performed in 26 patients (81%) and mitral valve replacement in 6 patients (19%). For mitral valve repair we used annuloplasty with rigid ring and segmental resection of posterior or anterior leaflets in 8 patients, sutures annuloplasty with or without xenopericardial strip in 10 patients, annuloplasty with edge-to-edge technique in 8 patients. On mitral valve replacement we saved chordopapillary apparatus of posterior leaflet and partial anterior leaflet. Surgical correction of coronary and mitral incompetence combined with left ventricular reconstruction in 11 patients (34%). Intraaortic balloon pump was used in 12 patients with EF less then 25%, which was introduced before one day of operation and was continued in early postoperative period.

Results: The hospital mortality rate was 6.3%. The mean NYHA functional class decreased from 3.4±0.6 to 2.1±0.7 postoperatively. The mean global ejection fraction improved from 28±4.0% to 32±6.0%, and mean grade of mitral regurgitation decreased from 3.0±0.5 to 1.4±0.6 postoperatively.

Conclusion: Surgical treatment of patients with ischemic heart failure includes myocardial revascularization as well as mitral valve repair and also left ventricular reconstruction if it is necessary.

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CORONARY ARTERY BYPASS GRAFTING OF LEFT ANTERIOR DESCENDING ARTERY WITH RADIAL ARTERY
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Objective: The aim of this study is to analyse the results of CABG of left anterior descending artery (LAD) with radial artery (RA) comparing with left internal mammary artery (LIMA).

Methods: During 2000-2005 years 528 isolated CABG procedures were performed. In 386 operations radial artery graft was used. In 53 (13.7% and 10.0% from the whole number) cases radial artery used for LAD grafting. In 375 (71.0%) procedures from the whole number LIMA to LAD was used. The mean age of the patients was 54.8 years in RA group and 55.3 in LIMA group. Male gender was 82.4% and 84.5%. Angina of III-IV class was in 84.7% and 80.8% (P=0.05) in both groups. Unstable angina was in 16.8% and 15.5%. History of myocardial infarction was in 60.8% and 61.5% in both groups. Left main trunk disease was in 11.9% and 12.5%.

Results: In all cases during operation and in postoperative period there were no ischemia in RA group. In 7 LIMA-LAD procedures haemodynamic instability in LAD area was found. In 6 cases an additional LAD vein grafting was performed and in 1 case additional RA graft was performed. The mean time of intensive care unit stay was 1.3 and 1.6 days in both groups. There was no mortality in group 1 and in group 2 died 5 (1.3%) patients. In 2 (3.8%) patients of group 1 there was a recurrenc of angina in the follow-up period from 8 months to 4 years and in group 2 from 146 (39.0%) investigated patients ischemia during the same period was found in 8 (2.1%) patients in LAD area.

Conclusion: The usage of radial artery for CABG of left anterior descending artery with radial artery accompanied with good immediate and follow-up results and is recommended for patients in which the CABG of left anterior descending artery with internal mammary artery is impossible or undesirable.

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RESTRICTIVE CARDIOMYOPATHY DUE TO SEVERE EPICARDIAL CALCIFICATION MIMICKING CONSTRUCTIVE PERICARDITIS
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Objective: Constrictive pericarditis and restrictive cardiomyopathy differentiate could be challenging because of they share common clinical and pathophysiological features.

Methods: We describe the case of 58-year-old male in NYHA Class II-III functional status that suffering from fatigue and exertional dyspnea for two years. Patient represented the classic clinical evidences of diastolic dysfunction due to compression of the heart according to the transthoracic echocardiography and thorax CT.

Results: He underwent to the operation for pericardiectomy but intraoperatively, grossly visible epicardial calcification wrapping both ventricles with morphological normal pericardium were seen. Laboratory and histopathologic examination did not reveal any infiltrative or storage diseases such as amyloidosis, hemochromatosis, glycogen deposition, hypereosinophilia, etc. or connective tissue disorders.

Conclusion: Patient was included into the heart tx waiting list and followed-up as an idiopathic restrictive cardiomyopathy for one year.

P - 87
ON-PUMP BEATING HEART MITRAL VALVE REPLACEMENT AND RF ABLATION IN PATIENTS WITH CHRONIC RENAL FAILURE
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Objective: Surgical treatment of atrial fibrillation by radiofrequency ablation becomes a standart procedure in addition to primary valvular or coronary surgery even in patients with chronic renal failure. Recently, some reports strongly recommend the beating heart surgery for valvular disease to prevent early postoperative reperfusion injury due to cardiopilegic arrest.

Methods: We describe two cases with dialysis dependent renal failure having degenerative mitral valve insufficiency and chronic atrial fibrillation.

Results: Both cases had severe pulmonary hypertension and moderate left ventricular dysfunction so we decided to perform mitral valve replacement and RF ablation during on-pump beating heart without using hemofiltration in order to eliminate hyperkalemia due to potassium enriched blood cardioplegia.

Conclusion: This report confirm the feasibility of this technique without myocardial damage as a surgical option especially in patients with renal failure.

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URGENT SURGICAL REVASCULARIZATION OF SPONTANEOUS CORONARY ARTERY DISSECTION IN TWO YOUNG MAN
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Objective: Spontaneous coronary artery dissection is a very rare cause of acute coronary syndrome leading to hemodynamic deterioration.

Methods: Two cases in third decade without any known cardiac risk factor presented with hemodynamic instability and signs of acute myocardial infarction. Dissection of the RCA extended to the posterior descending artery in one case and isolated dissection of the proximal segment in the LAD in another case were detected after emergency coronary angiogram. There were no any atherosclerotic lesions in the affected coronary artery nor in the other vessels.

Results: Both cases were treated with urgent coronary artery bypass surgery successfully.

Conclusion: An early clinical invasive diagnosis and attempt to the urgent aggressive treatments including coronary angioplasty with stent implantation or coronary bypass surgery should be considered at this unexpected clinical situation.

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LONG-TERM RESULTS OF PTCA IN PATIENTS WITH RECURRENCE OF ANGINA AFTER CORONARY BYPASS
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Objective: Spontaneous coronary artery dissection is a very rare cause of acute coronary syndrome leading to hemodynamic deterioration.

Methods: Two cases in third decade without any known cardiac risk factor presented with hemodynamic instability and signs of acute myocardial infarction. Dissection of the RCA extended to the posterior descending artery in one case and isolated dissection of the proximal segment in the LAD in another case were detected after emergency coronary angiogram. There were no any atherosclerotic lesions in the affected coronary artery nor in the other vessels.

Results: Both cases were treated with urgent coronary artery bypass surgery successfully.

Conclusion: An early clinical invasive diagnosis and attempt to the urgent aggressive treatments including coronary angioplasty with stent implantation or coronary bypass surgery should be considered at this unexpected clinical situation.
Objective: To evaluate the late results of PTCA in patients with recurrence of angina after coronary bypass surgery.

Methods: From 1996 to 2005 28 patients underwent PTCA due to recurrence of angina after previously made coronary bypass. Mean age of patients was 57.1±5.8 years (46-73 years), 92.8% (26) men, 7.2% (2) women. 4 (15%) patients had II functional class, 24 (85%) patients had III-IV functional class of angina. Average time of angina return after CABG was 4.7±0.9 years (6 months to 7 years). PTCA was performed in 6.8±1.3 years (6 months to 11 years) after CABG. In 26 (92.8%) patients PTCA with stenting, in 2 (7.2%) - PTCA without stenting was performed.

According to the data of graft angiography, performed previous to PTCA, total number of aortocoronary grafts was 39, 13 (33.3%) of them were occluded, 5 (12.8%) had significant stenoses. Average revascularization index was 2.1±0.6. Twenty six patients underwent PTCA with stenting, 2 patients - PTCA without stent implantation. Total number of stents was 20. Twenty five stents (84%) were placed into native coronary arteries, 4 (12%) into aortocoronary grafts, 1 (4%) into a mammary artery graft. Nine of 30 stents (30%) were drug-eluted.

Results: Hospital mortality was 8% (2 patients, who underwent PTCA as a palliative procedure). The results were evaluated in 29.6±7.4 months after PTCA. Mortality was 3.5% (1 patient died from abdominal aorta rupture). Six (23%) of patients developed Q acute myocardial infarction, 5 (19%) - non-Q infarction. On early terms after PTCA 38 (86%) patients did not have angina, 3 (14%) had angina of I-II functional class. In the long-term period 23 patients (82%) had II-IV functional class, 5 (8%) - III class of angina.

Conclusion: PTCA can be used as a palliative procedure, however, it can be connected to a rather high risk. PTCA gives good early result and good survival rates in a long-term period. High percentage of angina return in the long-term period is probably connected with restenose development in the coronary arteries, diffuse coronary artery disease, and incomplete revascularization.

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REMOVAL OF A VENTRICULAR MITRAL VALVE FIBROELASTOMA BY AN AORTIC APPROACH
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Objective: Cardiac papillary fibroelastomas (CPFEs) are rare neoplasms usually incidentally found by echocardiography for unrelated problems.

Methods: We report the unusual case of a papillary fibroelastoma located on a mitral valve chorda presenting acute psychiatric symptoms as a consequence of cerebral embolism. The surgical excision was performed through a aortotomy with videocopy used to help exposure and removal.

Results: A 55-year-old man, suffering from depression and loss of interest at work, unexplainedly ran away from work on two occasions, driving aimlessly and drinking until he was found without aforethought. Investigations found a right hypothalamic hole without any localized tumor via an MRI and a one centimeter diameter mobile mass on the ventricular side of the anterior mitral valve via a transesophageal echocardiography. Under cardiopulmonary bypass, an exploration was first performed through an aortotomy and the aortic valve with the help of a thoracoscope to ensure the mass nature and the possibility of its resection. It revealed a small myxoid mass attached to one anterior mitral valve chorda. Excision of the tumor and the chorda was performed using this same approach with thoracoscopic instruments. The patient was weaned from bypass without difficulty and intraoperative transesophageal echocardiography showed no evidence of valvular regurgitation. Recovery from the operation was uneventful and the patient had no cardiac or neurological problems. The histological diagnosis was confirmed to be papillary fibroelastoma, with clear margins.

Conclusion: The potential for life-threatening complications of CPFEs, even asymptomatic ones, is an indication for their surgical excision whatever their size, as long as there are no major contraindications to the operation. Surgical excision must be total, and when the valvular tissue is involved, the valve should be preserved if possible. The exposure and the analyze of a mitral valve mass on its ventricular side and finally its resection can easily be performed through the aortic valve with the use of videocopy.

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GIANT CELL MYOCARDITIS SUPPORTED BY ECMO SUCCESSFULLY BRIDGED TO TRANSPLANTATION
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Objective: Giant cell myocarditis (GCM) is a rare and fatal heart disease in young males.

Methods: We describe a successful management of an acute GCM heart failure.

Results: A 43-year-old previously healthy man was admitted in a general hospital with a 2-week history of breathlessness, fatigability and abdominal pain. He was first diagnosed for a cholecytitis and underwent a cholecystectomy. Postoperatively he presented unstable haemodynamics and respiratory failure and was therefore transferred to our hospital for diagnosis. An echocardiogram showed a globally hypokinetic heart and a left ventricular ejection fraction of 10% with a normal coronarography. He was diagnosed for acute heart failure initially stabilized by medical therapy which secondarily deteriorated to cardiogenic shock. After implantation of an extra-corpororeal membrane oxygenation (ECMO), hemodynamic conditions were stable and peripheral organ function returned to normal range. However, no cardiac recovery was observed on day 4 while hepatic and renal functions began to deteriorate. Therefore it was decided to transplant the patient in emergency rather than bridge to another assist device. The histological diagnosis was confirmed to be GCM. No recurrence was diagnosed by biopsy at a nine-month follow-up after transplantation.

Conclusion: GCM is a rare and fatal disorder presenting as acute congestive heart failure. ECMO or mechanical heart assist devices can be safely used as a bridge to transplantation which remains a reliable therapy despite the risk of post-transplantation recurrence of GCM.

P - 92
TWO CASES OF PYODERMA GANGRAEONOSUM AFTER CORONARY ARTERY BYPASS GRAFTING
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Objective: The Pyoderma Gangrenosum (PG) is a very uncommon and a potentially lethal disease with necrotic ulcerations. Even more uncommon is its postoperative variation, the “progressive gangrene of Cullen”. We report about two patients, who showed the typical signs of a PG, after a coronary artery bypass operation at our clinic.

Methods: The first patient was 71-year-old, had a three vessel disease and underwent coronary artery bypass operation in Off-Pump technique. The second patient was 74-year-old and was reoperated for coronary artery bypass. His first operation was 7 years ago without any complications. ?? The primary postoperative care was in both cases eventless. On the 4th postoperative day the temperature rose up to 38 °C and there was an increase of the leucocytes and the C-reactive protein. Typical both patients showed on the 6th postoperative day necrotic ulcerations developed at the wound sites (saphenectomy, sternotomy). The ulcerations spread rapidly with a surrounding areola of erythema. All surgical intervention exacerbated symptoms and there was no regression under antibiotic therapy. After exclusion of all other possibilities, we finally diagnosed progressive gangrene of Cullen.

Results: A thorough therapy with corticosteroids was initiated and speedy recovery was noticed in both cases. The PG is a potentially lethal disease with a mortality rate of approximately 30%. Accordingly, early diagnosis is very important. In the event of septic necrotic ulceration without any bacterial culture and with no recovery under antibiotics, the possibility of PG should be considered.

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INFANTILE CARDIAC EPITHELOID MEOANGOENDOTHELIOMA
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Objective: To evaluate the late results of PTCA in patients with recurrence of angina after coronary bypass surgery.
Objective: Primary cardiac tumors are very rare with an incidence of 0.0017 to 0.028% in reported series. Among them myxomas constitute about 2.8% of all primary tumors of the heart. However cardiac occurrences of epithelial myxomaoidothelioma are exceptionally rare. To the best of our knowledge and one being presented by our clinic, only six cases of cardiac EHE have been previously reported in the literature. Hence we report the two cases of EHE of the right atrium occurring in the infancy period.

Methods: The first patient was a 2 month old infant whose tumor was incidentally diagnosed during exploratory sternotomy for pericardial effusion after several pericardiology synthesis. The second patient was 3 month old baby who had been treated once for pericardial effusion and diagnosed a possible cardiac tumor preoperatively by echocardiography. Regrettably in both cases an effort was made in order to excise the tumors completely by resecting the tumoral tissues on the right atrial wall, atrial septom and superior vena cava. The respective defects were reconstructed with pericardial patches. Postoperative course of the 1st patient was uneventful and discharged on the 8th postoperative day. Since the pericardial effusion was in chronic basis and the lungs were compressed the postoperative course of the second patient was mostly complicated with respiratory problems and she was weaned of ventilatory support in 28 days time and discharged on the 38th postoperative day. Both of the cases are followed periodically for any possibility of recurrence and until now no recurrence has been observed.

Conclusion: The behavior of these tumors varies from stopping growing and involuting to sometimes proliferation. They are usually asymptomatic. Majority of them are diagnosed on autopsy studies. Most cases reported up to date usually died suddenly due to pericardial effusions and arrhythmias. Dyspnea on exertion, pseudoangiina, dysfunctions of the atroventricular valves, congestive heart failure, outflow tract obstructions, and failure to thrive may be the other symptoms. Only a few infants have been reported to have primary cardiac epithelial myxomaoidothelioma and our cases are the youngest patients in the relevant literature.

P - 94
VACUUM-ASSISTED THERAPY FOR THE TREATMENT OF STERNAL WOUND INFECTIONS
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Objective: The VAC (vacuum-assisted closure) system is a non-invasive therapy based on the application of negative pressure by controlled suction to the wound surface. This method has been proved to be effective on the promotion of granulation tissue proliferation. The aim of the study was to evaluate the effectiveness of the vacuum-assisted therapy with a handcrafted system, because the commercialized one was not available in our Institution.

Methods: Since July 2004, nine patients with sternal wound infection after cardiac surgery were treated with the vacuum-assisted therapy system. Oakley’s classification was 2A in 7 patients and 2B in 2 patients. Bacterial cultures isolated Staphylococcus aureus in 3 patients, Staphylococcus epidermidis in 4 patients, Haemophilus influenzae in 1 patient and Escherichia coli in 1 patient. All patients underwent surgical debridement under aseptic conditions, including removal of sternal wires in the patient with mediastinitis. Thereafter, a sterile sponge (Actibel-3M©) was cut and fitted into the sternal wound. A 19F (Blake© Ethicon, Inc.) drain tube was inserted into the sponge drape (OpSite© Smith+Nephew) which overlapped the margins. Every 24 to 72 hours the patient was subjected to a supracoartical arteriograph to detect the presence of thromboemboli. The patient underwent a post-operative protocol for coronary patients, a total of 95 patients were followed periodically for any possibility of recurrence and until now no recurrence has been observed.

Results: Complete healing with a tension-free wound direct closure could be achieved in all patients. Removal of the vacuum-assisted therapy system was done after a median of 15 days after surgery (the range of the treatment went from 8 to 47 days). All patients received intravenous antibiotics during vacuum-assisted treatment. The cultures became negative after a median of 7 days (range from 2 to 21 days).

Conclusion: We suggest that the vacuum-assisted therapy system is a valuable and effective tool in the management of patients with sternal wound infection after cardiac surgery. Our handcrafted system, based on the negative pressure principle, is a safe and easy option when the commercialized one is not available.

P - 95
OVER 14 YEARS EXPERIENCE ON CARDIAC MYXOMAS
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Objective: Atrial myxomas are the most commonly encountered tumours of the heart and can present at different ages with different clinical symptoms. They are one of the curable tumours of the heart with appropriate surgical treatment and their surgery must be performed with great precautions in order to prevent fatal systemic embolisations. In this retrospective study we will present our 14 years experience between 1990 and 2004 on 27 patients who had been operated for cardiac myxomas.

Methods: Diagnosis of the myxomas were made by echocardiography in all cases. Surgical approach to the tumour was btrial in nine, left atrial in 11, and transeptal in seven patients. Associated procedures included coronary artery bypass grafting in one, mitral valve repair with tricuspid annuloplasty in two, mitral valve replacement in one and bilateral femoral embolectomy in one patient.

Results: One hospital mortality occurred as a result of multiorgan failure in a patient with peripheral emboilization. None of the patients required recur- rent operation however, mitral valve insufficiency was surgically corrected in one patient.

Conclusion: Myxomas occur at different ages with various clinical symptoms. They must be excised as soon as they are diagnosed and maximum care must be taken during the procedure.

P - 96
CAROTID ENDOVASCULAR TREATMENT AS PREOPERATIVE PROTOCOL IN CORONARY SURGERY
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Objective: 1) View the incidence of significant carotid lesions in our patients awaiting coronary surgery; 2) Treat the carotid lesions with stenosis >70% implanting specific stents; 3) Demonstrate a lower incidence of ictus during the post-operative and follow-up periods.

Methods: From June 2004 to May 2005 we have routinely studied, as part of the pre-operative protocol for coronary patients, a total of 95 patients performing Magnetic resonance of the supraaortic root. We detected the carotid lesion and treated the patient with double anti-agregation (300 mg of Acetylsalicylic acid + 75 mg of clopidogrel) for 5 days. A selective supra-aortic root arteriograph was performed on the 6th day, and a carotid Wallstent or Acculink stent was implanted. Two protection systems were used: the Spider and the Filter Wire Ez. After stent implantation the patient was treated with the same double anti-aggregation medication for a month. Controls were performed with Echo-Doppler of the carotid during the first week, at 1 and 6 months, at 1 year and once a year afterwards.

Results: Ten patients with significant carotid lesions were detected (70%), 10.2% of incidence, 2 patients has related symptoms, 1 patient had bilateral lesions, 2 patients could not be treated preoperatively due to urgency of the coronary surgery. Stents were placed in 11 carotid lesions, without any complications. No patient has presented ictus post-operatively. No restenosis or neurological complications have appeared during follow-up at one year.

Conclusion: The endovascular treatment of significant carotid stenosis, symptomatic or asymptomatic is a procedure, with little aggression, for patients with an important associated morbidity, with scant immediate complications and we have not detected any restenosis in the first year follow-up.

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BAX DEFICIENCY REDUCES INFARCT SIZE AND IMPROVES LONG-TERM FUNCTION AFTER MYOCARDIAL INFARCTION
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Objective: We have previously found that isolated hearts from knockout mice for bax gene exhibited higher cardioprotection than wild type, following myocardial ischemia/reperfusion injury. In this study we explored the effect of the bax knockout gene following myocardial infarction (MI) in vivo.

Methods: Two groups of mice were studied: homzygotic knockout mice lacking the bax gene, Bax (-/-) and matched wild type Bax (+/+) mice. Under general surgical ligatures of the left anterior descending coronary artery (LAD). Echocardiography was performed before surgery and at one day or four weeks after the induction of infarction. Left ventricular end diastolic diameter, end systolic diameter and fractional shortening (LVEDd, LVESd, FS), infarct size and serum CK and LDH, caspase-3 activity were measured.

Results: Post infarct mortality was about 25% in both groups four weeks post MI. The progressive increase in LVEDd and LVESd in Bax (-/-) group was significantly smaller when compared to Bax (+/+) group at 28 days following MI (P<0.03). Concomittantly, FS was higher in the Bax (-/-) group (35±4.1% and 27±2.5%, P=0.001). Infarct size was smaller in the Bax (-/-) compared to the wild type at 28 days following MI (34±3.7% and 37±3.3%, P=0.001). Lower CK and LDH release in serum were found in the Bax (-/-) compared to Bax (+/+) group, 24 h following MI. Caspase-3 activity was elevated at 2 h after MI only in the wild type, but reduced to baseline values at 1 and 28 days post MI.

Conclusion: Hearts of Bax knockout mice demonstrated smaller infarct size and better myocardial function following permanent coronary occlusion. The Bax gene and its intracellular mechanisms should be further investigated since it appears to play a significant role in the post MI response.

P - 98
EARLY AND LONG-TERM OUTCOME IN PATIENTS FOLLOWING STERNAL WOUND INFECTION: A 5-YEAR FOLLOW-UP STUDY
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Objective: Analysis of short and long-term impact of sternal wound infection (SWI) on survival in patients following cardiac surgery.

Methods: Prospectively collected data were extracted for 146 patients among all patients operated from 1996 to 2004. Follow-up was 100% complete. Univariate analysis was used to determine prognostic variables for early and late mortality.

Results: Out of 5,897 cardiac procedures, 146 SWI were documented (2.4%). Superficial SWI and deep SWI were present in 36 (0.6%) and 110 patients (1.8%). The 90-day mortality for superficial and deep SWI patients were 5.5% and 14.5% respectively (P=0.0001). The 5-year survival rate was 72.7%.

In univariate analysis, prognostic factors for early and late mortality were chronic renal failure (OR 9.5), peripheral vascular disease (OR 4.9), congestive heart failure (OR 2.6), ICU stay >72 h (OR 3.5), need for reexploration (OR 2.5) and perioperative stroke/TIA (OR 2.8) whereas unilaterial ITA use had a protective effect (OR 0.2). Redo-procedures and positive blood culture were significant risk factors for early death only (OR 2.7 and 2.3, respectively) whereas COPD was a risk factor for late mortality (OR 2.8). Interestingly, the magnitude of sternal resection had no impact on long term survival for the 90-d survivors in whom the 5-year survival was 83.5%.

Conclusion: A simple approach of closed drainage combined with vascularized flaps resulted in satisfactory short-term results. The prognostic factors for late mortality are similar to uninfected patients. After successful resolution of infection, long term survival is excellent and is not jeopardized by the extent of resection.

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RESULTS OF CORONARY ARTERY BYPASS GRAFTING IN PATIENTS WITH ACUTE CORONARY SYNDROME
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Objective: For the first time the efficiency of coronary artery bypass grafting (CABG) vs. drug therapy in patients with acute coronary syndrome has been shown in several randomized trials. There is no significant data about benefit of coronary angioplasty or CABG in treatment of coronary heart disease against a background of unstable angina. However, in patients with left main stem or 3 vessels disease, the opportunity to perform complete revascularization during CAGB seems to be more preferable. We describe the surgical results of this high-risk patient.

Methods: Between January 2000 and May 2003, 72 patients with acute coronary syndrome were operated. There were 65 (90%) males, 7 (10%) females with mean age 56.9±9.1 years (range 29-74 years). Eight patients had a clinic of unstable (progressive) angina, 64 patients had early severe angina after ST or Not-ST elevation myocardial infarction. 59 (82%) patients had a history of 1 to 4 myocardial infarctions (mean 1.6±0.91), that has caused low left ventricle ejection fraction (LVEF). Mean LVEF was 56.4±11.2%. In 30 (42%) patients LVEF was <50% and in 7 (10%) patients <40%. The indications for urgent CABG were the following: high functional class of angina against a background of massive antiangial therapy, multivessel critical coronary lesions and a hopelessness of coronary angioplasty.

Results: Average time of stay in intensive care unit was 2.43±0.27 days, time of ventilation 6.9±5.43 h. Low cardiac output syndrome (LCSO) was diagnosed in 49 (68%). In 43 aortic balloon pumping was used in 7 patients (10%/14%). In group with LCSO the majority of patients were operated in the first day after myocardial infarction and LVEF was <40%. Intraoperational myocardial infarction or the expansion of a risk zone was diagnosed in 4 (5%) patients, however, decrease of LVEF was not noted in the early postoperative period (LVEF = 55.10±10.81%). Three (4%) patients have died during first 30 days after operation. The reason of death was LCSO in 2 patients and stroke in 1 patient.

Conclusion: CABG can be used as an effective and safe method of treatment in patients with multivessel disease. However, the need of circulatory support in this group of patients is significantly higher, especially in patients with low LVEF operated in first day after myocardial infarction.
treatment of the syndrome, diagnosis and surgery for this lesion has been remaining a challenge in congenital heart surgery. Our purpose was to evaluate efficacy of surgical treatment (aortic valve (AV) repair and replacement) of the Laubry-Pezzi syndrome.

Methods: Thirty-six patients with the Laubry-Pezzi syndrome were operated on at the clinic. The patients’ age ranged from 3.5 to 42 years (mean 15.5 ± 7.1 years). Twenty-five patients were males, 11 were females (2:3:1 ratio). ?? According to the type of surgical treatment, patients were divided into 3 groups: 1) VSD closure and AV repair (22 pts), 2) VSD closure and AV replacement (9 pts), 3) VSD closure only (5 pts). Closure of VSD only was performed in 5 patients with aortic regurgitation of the 1st degree. Aortic valve repair included commissuroplasty (11 pts), plasty by Trusler (9 pts), Histami (3 pts), Spencer (2 pts), sinus of Valsalva’s aneurism suturing (4 pts) and combination (7 pts). Enderdiastolic volume (EDV LV) and end-diastolic dimension (EDD LV) of the left ventricle calculated to the body surface area were assessed in all patients before and after the operation.

Results: Mortality in our series was 8.6% after AV repair (2 cases) and 11.1% after AV replacement (1 case). There were no mortal cases in the VSD closure group. In early postoperative period, patients after AV repair demonstrated heart decrease in EDV LV and EDD LV from 185.20± 63.39 ml to 116.45±72.02 ml and from 5.51±1.34 cm to 4.59±1.26 cm respectively. Patients in AV replacement group demonstrated reduce of EDV LV and EDD LV from 205.92±63.36 ml to 157.19±57.97 ml and from 4.89±0.97 cm to 4.35±0.12 cm respectively. Residual aortic regurgitation in the 1st group of patients was minimal or of the 1st degree. Of 9 patients of the 2nd group, two (9.1%) underwent AV mechanical prosthesing because of failure after initial repair of the AV. Conclusion: Aortic valve repair can be used in children without severe changes in the AV (insufficiency of 1st-2nd degree). Commissoval pllication, AV repair by Trusler and Histami provide excellent results with minimal residual aortic regurgitation. AV replacement remains a firm indication for patients with 3rd degree AV incompetence, indexed EDV LV ±100 ml/m² and EDD LV >10 cm/m².

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ASSOCIATION BETWEEN ANGIOTENSIN-CONVERTING ENZYME GENE POLYMORPHISM AND THE SEVERITY OF CORONARY ATHEROSCLEROSIS
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Objective: To investigate the relation between the angiotensin-converting enzyme (ACE) gene polymorphism and severity of coronary atherosclerosis, we analyzed the association of genotype with the coronary angiography findings of patients with coronary artery disease (CAD).

Methods: We determined the ACE genotype in 102 Russian patients with CAD and 112 healthy individuals. The genotype distributions were not different between two groups (P = 0.48; Chi-square test). In the first group, coronary angiograms were evaluated by criteria based on the number of stenotic lesions (H0%), the priority level of lesion (proximal or distal) and the type of lesion (diffuse or discrete).

Results: We failed to determine any significant differences between patients with DD and combined ID or II genotypes based on the priority level of coronary artery lesion (P = 0.285). Although the occurrence of diffuse coronary artery lesion was higher among patients with the DD genotype than in those with the ID or II, the differences did not reach the level of significance. There were significant differences in the number of stenotic vessels among groups of patients with DD or ID and ID genotypes (P = 0.043) with prevalence of three vessel lesion in patients with the DD genotype. Having divided all patients on two groups with single and three vessels lesion we found that patients with the DD genotype significantly more frequently had three vessels lesion than those with the ID or II genotypes (48% vs. 21.9%, respectively; P = 0.023).

Conclusion: The results indicate the influence of ACE gene polymorphism on severity of coronary atherosclerosis, based on this data we may propose that CAD patients with the DD genotype have more extended coronary atherosclerosis in comparison with patients having ID or II genotypes.

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AORTIC VALVE REPLACEMENT AFTER PREVIOUS CORONARY ARTERY BYPASS GRAFTING: INCIDENCE AND SURGICAL CONSIDERATIONS
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Objective: to replace the aortic valve in patients with mild to moderate aortic stenosis undergoing scheduled coronary artery bypass grafting (CABG) is still controversial. We evaluated the risk of the redo-operation in this group of patients.

Methods: From January 1, 2003 until June 30, 2005, 287 aortic valve replacements were performed in our institution. Among those 18 patients underwent aortic valve replacement after previous coronary artery bypass grafting. ?? ?? The mean age of the patients at the time of the redo was 70 years (62-82 yrs), 15 patients were male and 3 female. The mean interval between the 1st and 2nd operation was 6.7 years (1 - 12 yrs). In ten patients the internal thoracic artery had been used and was patent. The indication for redo-operation for aortic valve replacement now was symptomatic aortic valve stenosis with valvaral gradients between 50 and 107 mmHg. 13 patients received biological and 5 pts mechanical valve prostheses. Two patients received additionally CABG. The mean time of the operation was 268 min, the mean bypass time was 142 min, the mean X-clamp time was 64 min.

Results: Our operation-strategy followed the KIS-principle: after heparinization we canulated both femoral vessels using the Seldinger technique. Resternotomy was carried out with an oscillating saw. We dissected only the aorta in the chest. The extensive use of intraoperative device and real-time imaging outfits offered a novel one-stop platform for the cardiac surgeon to avoid cadiopulmonary bypass, minimize the trauma and thus could improve the outcomes of the management of congenital heart disease.
perform an aortotomy and to insert a catheter for retrograde cardioplegia and an LV vent. The anterior aspect of the heart and the left side, in which the internal thoracic artery was embedded and patent was left alone, untouched and not clamped. Mild hypothermia (32 °C) was induced and blood cardioplegia was given. One pt died because of severe heart failure. All other pts had an absolutely uneventful postoperative course.

Conclusion: We believe, that the indication for aortic valve replacement in pts scheduled for CABG has to be re-evaluated. In those pts, in which redo-surgery for new or increased valve stenosis is indicated, a simple and safe surgical option is presented.

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THE EVALUATION OF PRE- AND POST-OPERATIVE CONDITION BASED ON AUTONOMIC NERVE FUNCTION CALCULATED FROM HEART RATE VARIABILITY
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Objective: We have argued that the cumulative parasympathetic nerve system (PNS) activity per day calculated from heart rate variability is an indicator of the reserved force available for recovery from surgical stress. In this study, we investigated the recovery process after off-pump aort-coronary bypass surgery by the cumulative PNS activity per day.

Methods: Sixty patients undergoing off-pump aort-coronary bypass were studied. The P-R period of all heart beats over 24 h were analyzed in mS units and time series data of R-R periods over 24 h were continuously divided into 10-min periods intervals. From time series data of each 10-min intervals, we calculated the PNS function by the coarse graining spectral analysis method and defined that calculated PNS function as the average value of PNS function during relevant period. All 10-minute values for PNS function were accumulated over 24 h and the 24 hour values was calculated, these defined as the cumulative PNS activity per day. Progression of the cumulative PNS activity per day was followed postoperatively.

Results: Mean patient age was 65.5±9.7 and mean postoperative follow-up periods was 4.8±2.0 days. The results of comparing cumulative PNS activity per day between pre- and post-operative periods showed significant difference (P<0.008) with lower values being recognized in the postoperative period (5.8±4.1) compared to those in the preoperative period (7.6±2.3). The progression of cumulative PNS activity per day during pre- and post-operative periods was minimal (4.6±3.9) on postoperative 3 days. After the third day, the cumulative PNS activity per day gradually increased to 8.0±6.2, then recovered to the preoperative value after seventh day.

Conclusion: In this study, the cumulative PNS activity per day during postoperative period was lower than that in the preoperative period, even following less invasive off-pump aort-coronary bypass surgery. This finding showed that surgical stress was significant and on third postoperative day, patient condition was worst. After this period, patient condition recovered gradually and finally after 7 days, the condition reached the preoperative level. Therefore, management of postoperative patients must be carefully monitored at least 7 days, even when they appear to be recovering well.

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OFF PUMP BYPASS GRAFTING OF POSTEROLATERAL LEFT VENTRICAL WALL CORONARY ARTERIES USING THE VACUUM STABILISER
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Objective: To evaluate an opportunity of OPCAB for the rear-lateral left ventricle wall coronary arteries using the vacuum stabilizer.

Methods: Two hundred and one patients from 2002 to 2005 underwent OPCAB surgery. CTS OPCABTM. Access PlusTM System with deep traction sutures in the posterior pericardium in 148 (73.6%) patients (group 1) and GUIDANT Axiustm XposeTM Device with the vacuum stabilizer of the heart top in 53 (26.4%) patients (group 2). For patients (group 2), control were used for exposing of the distal coronary targets. Mean age of patients was 55.3±1.1 and 54.2±2.3 years accordingly.

Most of patients in both groups had severe angina symptoms, mean quantity of myocardial infarctions was 1.32±0.72 in group 1, 1.37±0.52 in group 2, mean UVEF 0.60±0.1 (0.58±0.1 in group 2), accompanying diseases were present in 125 (84.3%) patients in group 1, 13 (81.2%) in group 2 (P > 0.05). Identical techniques of anesthesia were used in both groups.

Results: There was no hospital mortality. Time of surgery was 205±48 min in group 1, 212±43 min in group 2. During operation the conversion to cardio-pulmonary bypass surgery was made in 7 (4.73%) patients of group 1 and in 2 patients (3.8%) in group 2. The average number of grafts was 1.75±0.62 in group 1 and 2.93±0.47 in group 2 (P<0.05). Only for 5 (3.4%) patients of group 1 in was possible to reach the circumflex artery on the rear wall of the left ventricle (in group 2 for 16 (30.2%) patients). During heart fixation with the vacuum stabilizer, mean systolic arterial pressure for group 2 was 72±4.0 mmHg, PA pressure -18±4.0 mmHg, heart index 2.7±0.1 l/min/m². 9 (6.1%) patients of group 1 and 3 (5.6%) patients of group 2 developed low cardiac output syndrome. Time of mechanical ventilation in 5.4±1.9 and 5.2±1.3 h accordingly. ICU time was 1.4±0.6 and 1.7±0.8 days accordingly.

Conclusion: Use of the vacuum stabilizer of the heart allows increasing the amount of OPCAB procedures due to patients, who require the revascularization of the LV rear wall. During heart fixation adequate hemodynamic parameters stay stable, allowing to perform the distal anastomoses with the branches of a circumflex artery.

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RESULTS OF INTERNAL MAMMARY AND RADIAL ARTERY USE FOR CORONARY BYPASS
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Objective: Analysis of CABG results with use of internal mammary and radial arteries.

Methods: From 1997 to 2004 884 patients underwent CABG with use of radial artery in a combination with internal thoracic artery. Mean age of patients was 56.5±7.6 years (from 32 to 81 years), 90.2% men. Seven hundred and sixty (86%) patients had III-IV functional class of angina, 619 (70%) had 1 myocardial infarction, and 203 (23%) - 2 and more infarctions. In 186 (21%) patients LVEF was less than 0.5. The indications for radial artery use were: necessity for 2 and more grafts, satisfactory Allen test, and satisfactory ultrasonic radial artery test: Average time of harvesting was 56.4±12.8 (44-68) min. Average clamp time was 66.8±19.8 (47-85) min. Average cardiopulmonary bypass time -106.6±32.1 (76-140) min. Mean number of grafts was 3.1±0.7 (2-5).

Results: Twenty-nine patients (3.3%) developed myocardial infarction on the 1st day after surgery. Hospital mortality was 1.38%. Eight patients died of low cardiac output syndrome, 2 of neurological complications, 1 of arrhythmia, and 1 from bleeding. Long-term results were analyzed in 80 patients. Average time of follow-up was 5.8 (5-7) years. Total survival was 97.5% (78 patients). One patient has died of myocardial infarction, the death of another was not connected to a cardiovascular pathology, 54 patients (67.5%) have no angina, 16 (20%) have I-II functional class of angina, 8 (10%) patients returned to the pre-operative angina functional class. Ischemic ECG changes were marked in 17% patients. Graft angiogram was performed in 55 patients; radial artery graft was functioning in 47 patients (90%). There were no cases of palm ischemia after radial artery harvesting.

Conclusion: Radial artery use in CABG provides good early and long term results, according to the clinical and angiographic data.
stenooses in coronary arteries had developed. In 7 (33%) patients we used cold blood cardioplegia, in 8 (38%) - crystalloid cardioplegia, 1 operation (5%) was performed under electric fibrillation, 5 (24%) under parallel blood circulation. In 5 (24%) patients number of grafts was 1, in 8 (38%) - 2, in 7 (33%) - 3, and in 1 (5%) - 4. The total number of grafts in all patients was 43. Average revascularization index was 2.1±0.8. The left mammary artery was used in 14 (71%) patients, radial artery in 9 (43%), vein in 20 (95%) patients.

Results: Hospital mortality was 9.5% (2 patients). Long-term results of reoperation were evaluated in terms from 3 months to 9 years (43.3±6.4 months). In long-term postoperative period 2 patients (9.5%) died (one died of myocardial infarction, 1 death was not connected with cardiovascular pathology). In the long term period 6 (28%) patients developed myocardial infarction. In 1 patient (4.7%) coronary angioplasty with stenting was performed. After surgery 19 patients had no angina before discharging from the hospital. In long term period 7 (41%) patients have no angina, 10 patients have recurrent angina in 27.3±8.1 months after reoperation. 5 patients (24.5%) have I-Ill functional class of angina, 5 (24.5%) have III-IV class.

Conclusion: Long-term results of CABG reoperations show, that in spite of higher risk, survival rate and clinical efficiency are comparable to those at initial CABG. Frequency of angina recurrence after CABG reoperations is significant and it demands improvement of surgical techniques along with active secondary preventive maintenance of atherosclerosis.

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IS THE MITRAL PROSTHETIC VALVE AREA INDEX A PREDICTOR OF PEAK TRANSMITRAL GRADIENT AFTER VALVE REPLACEMENT?

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Objective: To estimate correlation between area index of MedEng mitral prosthetic valve and postoperative transmirtal peak gradient.

Methods: Two hundred and two patients underwent mitral valve replacement in 1995-2005. Mean age was 51.3±11.5 years - 67.8% women. The valve area index (cm²/m²) was calculated as a relation of valve area (given by the manufacturer) to body surface. Mean body surface was 1.75±0.17 m² (1.35-2.18), mean valve area index - 2.58±0.26 cm²/m² (2.09-3.37). Patients were divided into 5 groups: 30 patients with area index <2.3 cm²/m² (group 1), 62 with area index 2.3-2.55 cm²/m² (group 2), 65 patients with area index 2.55-2.8 cm²/m² (group 3), 45 patients with area index >2.8 cm²/m² (group 4); group 5 consisted of patients with area index >2.3 cm²/m² (1.35-2.18), mean valve area index - 2.58±0.26 cm²/m² (2.09-3.37).

Results: 12 patients died in long-term period, 1.1-9.6 years after surgery. 10-year survival rate in the main group was 63.4%, in the control group - 68.9%. 5-year freedom from severe heart failure for patients with pulmonary hypertension was 80.7%. 10-year - 54.6%, in the control group - 90% and 60.4% accordingly. Five-year freedom from atrial fibrillation in the main group was 50.5%, in the control group - 80.2%. Quality of life analysis in patients with pulmonary hypertension provided evidence of low physical and psychological health components, but comparing with the control group did not reveal any significant difference.

Conclusion: No significant difference in survival rate between patients with and without pulmonary hypertension, undergoing mitral valve surgery, was revealed. A tendency is seen to a greater severe heart insufficiency appearance in patients with pulmonary hypertension, without any significant difference. A significantly higher frequency of atrial fibrillation in long-term period is revealed in patients with pulmonary hypertension, who had sinus rhythm after surgery. Pulmonary hypertension does not influence the quality of life on long terms after mitral valve surgery. The study shows that it is possible to expand indications for mitral valve surgery in patients with pulmonary hypertension.

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DEVELOPMENT OF AORTIC AND TRICUSPID VALVE DYSFUNCTION IN PATIENTS WITH MYXOMATOUS DISEASE AFTER MITRAL VALVE SURGERY

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Objective: To determine a possibility of aortic and tricuspid valve significant dysfunction development in patients who underwent surgery for degenerative mitral valve insufficiency. In comparison with patients after other etiology mitral valve insufficiency correction.

Methods: Echocardiography data was analyzed in 54 patients in terms from 5 months to 12 years (4.9±3.3) after surgical correction of mitral valve insufficiency caused by myxomatous disease (group 1). Mean age of patients - 53.2±11.2 years, 64.8% men. Mitral regurgititation of III grade was presented in 85.2% patients before surgery, mean class of heart insufficiency was 3.2±0.52 (NYHA), mean PA pressure - 50.3±19.3 mmHg. Mean LV size was 64.9±7.9/43.3±8.1 mm, average size of left atrium - 55.7±9.1 mm, LVEF - 0.63±0.11. 70.4% of patients underwent mitral valve replacement, 29.6% - mitral valve repair. As additional procedures in 24.1% patients tricuspid valve repair was performed, 7.4% patients underwent CABB. Control group (group 2) consisted of 43 patients with rheumatic heart disease and 7 patients with endocarditis (remission phase).

Results: In long-term period 3 patients in group 1 and 1 patient in group 2 died of progressing heart insufficiency. In 51.9% patients in group 1 development of significant aortic insufficiency (from 0 and I grade up to I-II and III grade accordingly) was marked. In patients with endocarditis no significant changes in aortic and tricuspid valves were marked. In group 2 significant increase of aortic insufficiency (always combined with moderate stenosis) was revealed in 7%, and significant increase of tricuspid insufficiency - in 23.3% patients (in 3 cases combined with tricuspid stenosis). Five-year freedom from aortic insufficiency progress in group 1 was 65%, 10-year - 23%, in group 2 - 100% and 92% accordingly. Freedom from tricuspid insufficiency progress in 5 and 10 years after surgery was 57% and 22% in group 1, in group 2 - 94% and 64% accordingly.

Conclusion: In patients with myxomatous valve disease development of aortic and tricuspid insufficiency is possible in long terms after surgery, which is connected with involving of all heart valves into the pathological process.
Patients with myxomatous disease should pass frequent echocardiographical control during all subsequent life.

P - 112
COMPARISON OF REPAIR TECHNIQUES FOR MITRAL VALVE PROLAPSE
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Objective: To compare the results of mitral valve repair with or without ring implanting for mitral regurgitation caused by prolapse.

Methods: Between January 1995 and December 2004, 40 patients with isolated mitral regurgitation due to prolapse underwent mitral valve reconstruction. There were 19 men and 21 women whose mean age was 49.5±9.27 years, ranging from 28 to 70 years. Follow-up was 85% complete and totaled 119.68 patient-years (mean: 3.74 years). We used several types of techniques: (1) leaflet resection in 21 patients; (2) artificial chordal replacement or chordal shortening in 12 patients; (3) sliding plasty in 4 patients; (4) Batista technique in 3 patients; (5) Alfieri technique in 2 patients.

Results: Hospital mortality was 5.3% (7.5% in the control group); \( P<0.05 \). We used several types of techniques: (1) leaflet resection in 21 patients; (2) artificial chordal replacement or chordal shortening in 12 patients; (3) sliding plasty in 4 patients; (4) Batista technique in 3 patients; (5) Alfieri technique in 2 patients. In order to repair the annular dilation, ring prostheses were implanted in 23 patients (group 1). The group without ring implanting (group 2) consisted of 17 patients.

Conclusion: No statistically significant difference between the groups was confirmed. A larger group of patients is required to estimate the benefits of each mitral reconstruction type. Nevertheless, a low incidence of reoperation and thromboembolic complications was revealed.

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10-YEAR EXPERIENCE OF RUSSIAN BICUSPID MEDENG MITRAL PROSTHETIC VALVE USING (EARLY AND LONG-TERM RESULTS)
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Objective: evaluating of early and late results of MedEng bicuspid mechanic valves implantation.

Methods: Between 1995 and 2005, 264 MedEng 2-leaflet mechanic valves were implanted into mitral position. Mean age of patients was 51.5±11.7 years; 35.2% men. Twenty-seven size valve was used in 29 (10.9%) patients, 2 patients. In order to repair the annular dilation, ring prostheses were implanted in 23 patients (group 1). The group without ring implanting (group 2) consisted of 17 patients.

Conclusion: No statistically significant difference between the groups was confirmed. A larger group of patients is required to estimate the benefits of each mitral reconstruction type. Nevertheless, a low incidence of reoperation and thromboembolic complications was revealed.

P - 114
INTRA-AORTIC BALLOON PUMPING IMPROVES CEREBRAL PERFUSION IN PATIENTS WITH DECREASED EJECTION FRACTION AFTER BYPASS-SURGERY
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Objective: The understanding of changes in cerebral blood flow is of major interest in the field of cardiac surgery. Neurological deficits of unknown origin are a well known problem. Goal of the study is the evaluation of IABP on cerebral blood flow by means of transcranial Doppler-sonography in anesthetized cardiac surgery patients.

Methods: In eleven patients blood flow velocities in the middle cerebral artery were assessed at three different IABP settings: Without support, assist ratio 1:1, 1:2 and 1:3. Additionally hyper- and hypoventilation manoeuvres were performed to investigate the cerebral autoregulation response. Protein S 100 determination was performed to evaluate the preexisting cerebral cell damage associated with cardiopulmonary bypass.

Results: In 11 patients (age 61±10a) with decreased ejection fraction (31±16%) balloon pumping caused an averaged increase of blood flow in the middle cerebral artery by +18%. Antegrade mean flow velocity in the middle cerebral artery significantly increased from 49±14 cm s-1 (no IABP support) to 59±14 cm s-1 (IABP assist ratio 1:1). During hyper- and hypoventilation manoeuvres with and without IABP support a normal autoregulation response with a significant increase in mean blood flow velocity was observed (\( P<0.05 \)). A 10-fold higher level of protein S100 compared to healthy test persons could be shown.

Conclusion: IABP may play an important role for improving cerebral blood flow in cardiac patients particularly in those with limited cardiac reserve combined with the need of increased cerebral blood flow following cerebral cell lesion.

P - 115
MITIGATION OF THROMBObGENICITY OF PORCINE AORTIC VALVE PROSTHESSES IN A SHEEP MODEL
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Objective: Purpose was to investigate the influence of an endothelial cell layer on biocompatibility which was established on stentless aortic bioprostheses under in vivo conditions.

Methods: Endothelial cells and fibroblasts were obtained from the right external jugular vein of seven sheep. Endothelial cells were labeled using a fluorescent dye (PKH-26). Using a special seeding device, the cells were seeded onto pretreated (citric acid) stentless porcine aortic valves (Freestyle, Medtronic). Three unseeded valve prostheses served as controls. All ten valves were implanted into the descending aorta. Using an aorto-left atrial shunt, systolic/diastolic movements of the leaflets were achieved and documented by intraoperative direct sonography. After three months, the chests were reopened and the patency of the shunts and the motions of the leaflets examined by direct sonography. Thereafter, the valves were explanted. Specimen for immunohistochemical staining and scanning electron microscopy were taken prior to implantation and after explantation of the valves.

Results: All animals survived surgery and had their valves explanted after three months. Control group: Formation of a neointimal covering the first 0.5 cm of the prostheses. Structural degeneration of the leaflets without significant calcification but with evident leaflet retraction. Thrombus formation was found macroscopically in all sinuses. Histology confirmed these results and showed additional microthrombi on all leaflets. No endothelial cell layer on the cusps. Study group: Degeneration was similar to the control group. The leaflets and sinuses were still covered with endothelial cells as was proven with staining against factor VIII and CD31 as well as by scanning electron microscopy. No thrombus formation was found in the sinuses and the leaflets of the study group valves

Conclusion: The achieved endothelial cell layer seemed to act antithrombotic since thrombus formation was suppressed. This obviously improved biocompatibility of these biological prostheses.

P - 116
GEOMETRICAL DEFINITION OF THE ASYMMETRIC AORTIC LEAFLET ATTACHMENT LINES IN HUMAN
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Objective: With advances in tissue engineering and improvement of surgical techniques, stentless biological valves and valve sparing procedures have become an alternative to the traditional aortic valve replacement with stented bio-prostheses or mechanical valves. Stentless aortic valves and valve sparing procedures preserve the advantages of a native valve but require a better understanding of the anatomical structure of the aortic root. The leaflet attachment line is an area of special interest for valve designers and cardiac surgeons performing valve-sparing procedures. Only a few studies described the aortic leaflet attachment line but they omitted the aortic root asymmetry. New insights into the importance of anatomic asymmetry of the aortic root emphasize the need to give a precise and reproducible description of the asymmetrical leaflet attachment line in humans.

Methods: Silicone rubber was injected in aortic roots of nine human cadavers under a pressure of 80 mmHg. The casts were used to digitize twenty-seven leaflets attachment lines. Leaflet attachment lines were normalized and described with a mathematical model.

Results: Mathematical model and precise geometrical construction of leaflet attachment lines for all three sinuses could be defined. During diastole each leaflet attachment line was found to be a intersection between a created tube and a specific surface. The leaflet attachment line: dimensions: inter-commissural width (right 19.6±2.4 mm, non 17.5±2.0 mm, left 17.25±1.8 mm), sinus of Valsalva height (right 15.0±2.6 mm, non 13.85±1.9 mm, left 12.1±2.3 mm), leaflet tilting angle (right 9.21±0.15 mm, non 8.96±0.13 mm, left 8.72±0.19 mm), and angle of constructed tube in relation to commissural plane (right 29.2±0.5º, non 27.5±0.4º, left 26.7±0.4º), leaflet tilting angle (right 8.9±0.7º, left 8.7±0.6º), sinus of Valsalva height (right 15.0±2.6 mm, non 13.85±1.9 mm, left 12.1±2.3 mm), leaflet attachment lines for all three sinuses could be defined. During diastole each leaflet attachment line was found to be an intersection between a created tube and a specific surface. The leaflet attachment line: dimensions: inter-commissural width (right 19.6±2.4 mm, non 17.5±2.0 mm, left 17.25±1.8 mm), sinus of Valsalva height (right 15.0±2.6 mm, non 13.85±1.9 mm, left 12.1±2.3 mm), leaflet tilting angle (right 9.21±0.15 mm, non 8.96±0.13 mm, left 8.72±0.19 mm), and angle of constructed tube in relation to commissural plane (right 29.2±0.5º, non 27.5±0.4º, left 26.7±0.4º). The tilt angle (11.3±7.8°) between commissural and annulus plane was found to be independent of the aortic valve size.

Conclusion: The asymmetric aortic valve leaflet attachment line can be described as an intersection between a constructed tube with a profiled surface. This precise geometrical definition of the leaflet attachment line gives a better understanding of the aortic root anatomy and is useful for heart valve design and improvement of aortic valve reconstruction technique.

P - 118
REGRESSION OF LEFT VENTRICULAR MASS IN PATIENTS WITH AORTIC STENOSIS AFTER AORTIC VALVE REPLACEMENT
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Objective: This study analyzes the change in left ventricular (LV) mass index and ejection fraction after aortic valve replacement in adult patients.

Methods: Between January 1998 and May 2005, 70 patients underwent aortic valve replacement and were followed at the Bakulev center for cardiovascular surgery. Among patients: Men were 47 (67%). Etiology of the aortic stenosis was mainly bicuspid aortic valve disease in patients 49 (70%), Rheumatism 20 (28.5%), in one patient stenosis of the aortic homografts. All patients were in the 34 FC (NYHA). Left ventricular mass was measured by Doppler echocardiography in all patients undergoing aortic valve replacement. All patients underwent aortic valve replacement with bioprostheses (n = 20) and mechanical valves (n = 50). Left ventricular mass before operation was 400±32.1 g. IMMA was 210±38.5 g. EF was 32±5%. Results: Hospital mortality was 2 (2.8%). Left ventricular mass after operation was 360±52.1 g. IMMA was 205±19.7±7.2. EF was 41±3%. Of all factors which we had examined we find that the rate of left ventricular regression after aortic replacement depend at type of prosthesis, size of the prosthesis and hypertension.

Conclusion: Patients undergoing aortic valve replacement had an improvement in functional status, and a reduction in left ventricular mass index, irrespective of prosthesis size and type. Bioprosthetic valves are somewhat less obstructive than mechanical valves of the same size. They are also associated with a concomitantly more pronounced reduction of left ventricular mass.

P - 119
PERCUTANEOUS TECHNOLOGY OF VASCULAR SHUNTING FOR CONGENITAL HEART AND VESSELS PATHOLOGY. EXPERIMENTAL STUDY
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Objective: To investigate the anatomical feasibility of creating percutaneous vascular connections in an animal model.

Methods: Connections between several medium size vessels were attempted in ten Beagle dogs. Different approaches and devices were tested to best bridge the path between both vessels. The catheter’s system for magnetomechanic positioning of a zone vascular bypass is developed. The flexible kinematic needle located in catheter with a magnetic tip at a high degree of accuracy of prompting both magnetic catheters, can be entered into nearby vessels (5-30 mm). The effective emission of a needle from a gleam of one vessel in a gleam adjusts another by the special terminator located on proximal end of a needle. Capture and realization of a core of a needle and also further use has shown it as an axis for realization of a stent-graft an opportunity of application of coxial system of delivery last and its exact positioning between connected vessels. The vascular connection was established with a prosthesis specially designed for this study.

Results: Among the 10 dogs used in this study, it was possible to establish a porto-caval shunt in 4. An aorto-caval communication, right atrium-pulmonary artery and a superior vena cava-right pulmonary artery shunt were attempted in 3 dogs each. Ascending aorta-truncus pulmonalis shunt were attempted in 2 dogs. In last experiment we made Glenn operation extremely by endovascular approach. The tract was tried stabilized with a polyurethane cone-shaped covered prosthesis This prosthesis had a tubular configuration in its mid portion and flared ends which allowed an effective anchoring between two vessels without leaks.

Conclusion: Preliminary studies carried out in Beagle dogs open a new perspective of establishing a direct connection with prosthesis between two vessels. Although the technique needs to be improve, the targeting with flexible kinematic needle, Dormia basket and the use of magnetic devices on both vessels are promising elements to achieve this ambitious step.

P - 120
MAGNESIUM REPLACEMENT DURING AND AFTER CORONARY BYPASS SURGERY
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Objective: Atrial fibrillation is among the common complications of cardiac surgery. It potentially leads to some other adverse events. Magnesium, has been used in the prophylaxis of postoperative atrial fibrillation with varying degrees of success. But the dose and timing of magnesium therapy has not been clearly defined. The aim of this study was to assess the effect of magnesium replacement on postoperative atrial fibrillation.

Methods: A total of 60 consecutive patients who had elective, isolated, first-time coronary artery bypass surgery were prospectively randomized to two groups. Patients with obstructive pulmonary disease and/or renal failure were excluded from the study. Patients in the magnesium group (n = 30) received 1.5 gr (12.17 mEq) MgS\textsubscript{2}O\textsubscript{4} infusion in 100 ml 0.9% NaCl solution before the initiation of cardiopulmonary bypass and once daily for 3 days after surgery. Patients in the control group (n = 30) received only 100 ml 0.9% NaCl solution at the same time points. Serum calcium and potassium concentrations were measured before and after cardio pulmonary bypass, at 1st postoperative hour and each morning for the first 3 days postoperatively.

Results: Groups were comparable with respect to demographics and aortic cross clamp and cardiopulmonary bypass times as well as number of vessels grafted. Postoperative atrial fibrillation developed in 4 patients in the magnesium group and in 7 patients in the control group (P<0.05). The mean time for atrial fibrillation development was 29.8±5.13h in control and 38.9±6.32h in magnesium groups postoperatively. The extubation time (8.56±1.90 vs. 9.96±2.61), the length of intensive care unit(16.06±3.58 vs. 18.06±2.53) and hospital stay (6.30±0.98 vs. 6.93±0.73) were significantly shorter in patients who received magnesium (P<0.05).

Conclusion: Our findings indicate that the use of magnesium in the peroperative and early postoperative periods is highly effective in decreasing the incidence of atrial fibrillation after coronary artery bypass surgery.

P - 121
DIAGNOSTICS OF VASCULOPATHY OF RADIAL ARTERY USED AS A CONDUIT DURING CABG
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Objective: For reduction of risk of radial artery vasoconstriction during coronary artery bypass graft (CABG) surgery we suggest the method of preoperative diagnostics of vasculopathy of radial artery.

Methods: We investigated 105 patients with ischemic coronary heart disease, who were referred to CABG. All patients underwent standard protocol Duplex Ultrasound and functional tests: reactive hyperemia and test with the application of cold. Intraoperative specimens of radial artery (RA) were obtained during CABG. After that the data of Duplex Ultrasound and functional tests were compared to data of intraoperative biopsy.

Results: The data of Duplex Ultrasound allowed to divide all Dopplerograms into 5 types: corresponding to normal structure and various morphological deviations of RA, such as intimal hyperplasia, dys trophy of smooth muscle cells, media hyperplasia and media calcification. All patients are divided into 3 groups on histological base.?? The first group (I) contained 16 patients (15%) with normal morphology of RA, the growth of RA diameter during reactive hyperemia was 12±1.85%, reduction of RA diameter during test with the application of cold was 1.5±0.15%. There were 48 patients with vascuopathy of RA, without histological signs of acute spasm in the second group (II). The growth of RA diameter during reactive hyperemia was 5.85±0.88%, the reduction of RA diameter during test with the application of cold was 2.9±1.9%. and after the removal of cold the growth was 4.7±0.76%, with the total time of reduction of diameter of 2.68±0.42 min. The third group (III) contained 41 patients (39%) with significant vascuopathy and histological markers of acute spasm, the growth of RA diameter during reactive hyperemia was 1.78±1.12%, the reduction of RA diameter during test with the application of cold was 9.68±1.22% and after the removal of cold the growth was 0.16±0.87%, with the total reduction time of 7.4±0.51 min.

Conclusion: For reduction of risk of spastic responses of RA all patients require Duplex Ultrasound and functional tests on potential transplant before undergoing CABG. RA with normal morphofunctional characteristics or with not significant vascuopathy and satisfactory functional tests can be used as a transplant. RA with vascuopathy and pathological functional tests should not be used as a conduit, as it is prone to prolonged vasospasm.

P - 122
17 YEARS EXPERIENCE OF INTRA AORTIC BALLOON PUMPING IN TREATMENT OF LOW CARDIAC OUTPUT SYNDROME IN CARDIAC SURGERY PATIENTS
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Objective: The intra-aortic balloon pump (IABP) is an established additional support to pharmacological treatment of the failing heart after myocardial infarction, unstable angina and cardiac surgery. The aim of this study is to present our experience in treatment of low cardiac output syndrome in cardiac surgery patients.

Methods: Between January 1989 and September 2005, 3681 patients with coronary heart disease and valvular heart disease were operated. Intra aortic balloon pumping was used in 154 patients (4.2%) (84 males, 70 females; mean age 57.0 years; range 31 to 75 years). Operations included 107 coronary bypass grafting (CABG) (69.5%), 22 valve replacements, single or double (14.3%) and 25 valves combined with CABG (16.2%). The majority of patients (97.1%) were III-IV New York Heart Association class, 23.1% had end stages of a pulmonary hypertension, 69.2% have had 1 to 3 recent myocardial infarction. Left ventricular ejection fraction range 29 to 53% (mean 39%). We divided patients into two groups according to tactics of IABP application. Group A - 41 patients of 1085 operated between 1988 and 1995 (frequency of IABP use 3.8%). Group B - 113 patients of 2596 operated during 1996 and 2005. (frequency of IABP use 4.4%). There were no significant differences in age, gender and initial patient condition.

Results: The decision on IABP application for patients in group A accepted chaotically on a background of repeated unsuccessful attempts of switch-off the cardiopulmonary bypass despite of high doses of vasoactive drugs. In group B we start IABP according on the indications based on the following algorithm: 1. Absence of adequate hemodynamic reactions to average doses of vasoactive drugs after switching -off the cardiopulmonary bypass. 2. Mean blood pressure = 55 mmHg; 3. CI = 2.4 l/min/m\textsuperscript{2}; 4. Decrease of diuresis = 10 ml/h; 5. PO\textsubscript{2} in mixed venous blood = 30 mmHg; 6. VO\textsubscript{2}I = 115 ml/min/m\textsuperscript{2}. The result of radical change in tactics of IABP use was substantial improvement of the results of this method of circulatory support for low cardiac output syndrome treatment. The duration and doses of vasoactive drugs, and the main result - hospital mortality have considerably decreased: in group A 28 patients (68.3%) in comparison with group B 39 patients (34.5%).

Conclusion: IABP is effective method of low cardiac output syndrome treatment in cardiac surgery patients. Direct effect and final results of treatment directly depend on timeliness of application according on the indications and algorithms.

P - 123
DECELLERATED AORTIC HOMOGRAFT IN TREATMENT OF AORTIC ROOT ABCESS
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Objective: The aim of this study is to evaluate the short results of decellularized aortic homografts in the treatment of active aortic endocarditis in the presence of aortic root abscess.

Methods: Between January 2004 and oct. 2005 16 patients with aortic root abscess underwent aortic root replacement with decellularated aortic homografts. The main age was 24±6, 1 y. among patients men were 10 (62.5%). Endocarditis was in native aortic valve in 13 (86.6%) patients. 2 (13.3%) patients had endocarditis of prosthetic aortic valve. all cases. Intraoperative transesophageal echocardiography was systematically used. Precise bacteriological diagnosis was available in 12 (80%). The common responsible microorganism was S. Epidermidis.

Results: All the aortic homografts were inserted as aortic root replacement. No hospital mortality. Early recurrent infections and paravalvular leaks occurred in 1 patients. During follow-up (21±7 months) no recurrent endocarditis nor thromboembolic complications were observed. The function of the decellularated aortic homografts was satisfactory in all cases.

Conclusion: Decellularized aortic homograft and radical debridement of the infected tissue offer a low recurrent infection rate. Allowing the possibility to avoid a prosthetic material. Decellularized aortic homograft could represent an option for surgically treating active aortic endocarditis more rapidly.
P - 124 CORONARY ANGIOSCAN. THE SHIFTING PARADIGM
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Objective: Recent trends in CT scanner technology has opened new fron-
tiers in the field of non invasive coronary angiography. Given the relatively
important number of negative invasive angiographies performed each year,
eliminating the risks inherent to this procedure by non-invasive methods
greatly contribute to diminishing the risk.

Methods: After injection of contrast, the procedure is performed under short
apnea and triggered by ECG recording giving a multitude of possible image
reconstructions, i.e., volume rendering, virtual angiography and three-dimen-
sional reconstruction of the heart and coronary vessels.

Results: In 100 patients, adequate visualisation of the coronary arteries was
achieved in 98 of patients with the advantage of visualizing the coronary
wall as well as the lumen. The main reasons for failure was arrhythmia and
excessive motion. Besides evaluating coronary artery atherosclerosis,
CT angiography allowed the diagnosis of coronary aneurysm and the exact
localization of postoperative false aneurysm. The main disadvantages of the
technique are the absence of dynamic films and exposure to radiation

Conclusion: The increased accuracy and sensitivity of noninvasive coronary
angiography makes it an excellent diagnostic tool and a probable replace-
ment to invasive procedures. It should reduce the morbidity and mortality as
well as the cost of conventional coronary arteriography. Furthermore, it has
the added benefit of offering spacial resolution of the examined vessels.

P - 125 COMPARATIVE STUDY OF SMALL SIZED BILEAFLET PROSTHETIC VALVES IN AORTIC POSITION
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Objective: Aortic valve replacement with small prosthetic aortic valve in
adults, is still controversial. Any prosthetic valve usually causes residual pres-
sure gradient, which differs according to the size and type of the valve.

Methods: Among 246 patients operated on at South Hospital in Amini
University, and Al-Azhar University Hospital between January 2003 and
December 2004, 89 patients were subjected to the study with a mechanical
bi-leaflet aortic valve 19 or 21 mm. Age were ranging from 16 to 82 years
(mean 56).

Results: For valve size 21 mm (n = 49 patients, mean age 54). Mean maximum
pressure gradient show significant decrease (t = 4.7066, P<0.001). Mean
left ventricular mass (LVM) was decreased postoperatively with a mean
decrease of 41.9±13.8% which was statistically significant (t = 10.8935,
P<0.001). Mean end systolic wall stress (ESWS) show no detectable change
(t = 1.0020). For valve size 19 mm (n = 40 patients, mean age 48). Mean
maximum pressure gradient show statistically insignificant difference, (t =
0.5147). Mean ESWS show no detectable change. Mean LVM show signifi-
cant decrease with a mean of 15.7±6.6% which was statistically significant
(t = 5.3269, P<0.001).

Conclusion: We may conclude that valve of 21 mm is an acceptable size as
it gives a regression of the left ventricular hypertrophy and a significant
improvement in the left ventricular systolic performance and function. The
19 mm valve shows symptomatic improvement, but leaves a residual hyper-
trophy with minimal improvement in the left ventricular systolic functions.

P - 126 COMPARISON OF BIOMECHANICAL AND STRUCTURAL PROPERTIES BETWEEN HUMAN PULMONARY HOMOGRAFTS AND PULMONARY XENOGRRAFTS
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Objective: In the last years there has been an increase in number patients
undergoing Ross procedure. One of problems after Ross procedure is the
durability of the conduit used in reconstruction of right ventricular outlet
tract. The aim of this study was to compare pulmonary homograft and pul-
monary xenograft valve properties.

Methods: Experimental studies of biomechanical properties and structure of
pulmonary homograft and xenograft valve were carried out on pathologically
unchanged pulmonary valve, collected from 15 cadaveric hearts and 30 pul-
monary xenografts(15 pulmonary xenografts is a 0.25% glutaraldehyde -fixed,
the other 15 is a diepoxy fixed Butandiol diglycidylether 95%). Biomechanical
properties of 100 specimens (all valve elements: cusps, fibrous ring, commis-
sures, sinotubular junction, sinuses) were investigated using uniaxial tensile
with universal testing machine INSTRON. Ultrastructure was studied using
transmission and scanning electron microscopy.

Results: Strength in circumferential direction for pulmonary homograft valve
cusps is higher than for pulmonary xenograft valve (12.6911 and 22.6461.83
mp, respectively). Strength in radial direction for human pulmonary and pulmonary
xenograft is practically the same (0.4100.3 and 0.4070.04).

Conclusion: Mechanical differences between pulmonary homograft and xenograft valve are minimal. Ultrastructural studies show that the pul-
monary homograft and xenograft valve have similar structural elements and
architecture. This investigation suggests that the pulmonary xenograft valve
can be considered mechanically and structurally suitable for use as a conduit
for RVOT during Ross procedure.

P - 127 SUCCESSFUL MANAGEMENT OF PULMONARY ARTERY PERFORATION FOLLOWING CHEST TUBE INSERTION
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Objective: Chest tube placement is frequently used in the treatment of a
variety of pleural disease. Pulmonary artery injury is the rare complication
during tube thoracostomy, and the prognosis is usually grave. We present a
case of pulmonary artery injury in order to raise awareness of this potential
complication and the management.

Methods: A 68-year-old man with chronic obstructive pulmonary disease
was admitted because of left empyema thoracis, and a 32 FR. chest tube
was placed for drainage of the empyema which culture revealing group D
streptococci. Because of the tube dislodgement and some fluid collection
still noted by chest radiography, another 32 FR. chest tube was inserted
through the 4th intercostal space at the anterior axillary line without
the use of a trocar at 7th hospitalization day. During the procedure, a finger
was inserted into the pleural cavity to guide the chest tube, a little resistance
to advancement of the tube was noted, and then followed with 500 ml of rapid
drainage of pulsating dark red blood. Shortness of breaths, tachycardia and
hypotension developed progressively. The tube was clamped and the patient
was resuscitated with volume replacement. Chest radiography demonstrated
the tube crossing the mid-line and projecting over the cardiac outline.
The patient was brought to the operative room under the impression of inader-
rent cannulation of pulmonary artery.

Results: The standard left thoracotomy revealed severe pleural adhesion and
the tube was seen to be penetrating the superior part of the left lower lobe,
into the interlobar fissure, and the pulmonary artery. Because of the frozen
pleural space, the pulmonary artery was unable to be clamped. A 14FR.
FOLEY catheter balloon catheter was placed to occlude the perforation for
temporal hemostasis and proper placement of the sutures. Pleural decorti-
cation was performed concomitantly and the recovery was uneventful.
The patient was discharged 10 days after the operation.

Conclusion: This case emphasizes the potential complication of pulmonary
artery catheterization during chest tube insertion and points out the Foley
balloon catheter used to achieve hemostasis under the condition of inade-
quate pulmonary hilum control.

P - 128 EARLY POSTOPERATIVE PULMONARY FUNCTION IN OFF PUMP VERSUS ON PUMP CORONARY ARTERY BYPASS SURGERY
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Objective: Conventional CABG with cardiopulmonary bypass has been asso-
ciated with significant pulmonary complications and functional changes.
In the last several years OPCAB procedures became much more popular
because of data suggesting reduction in postoperative morbidity, includ-
ing better pulmonary outcome during off-pump procedures. The aim of
this study was to evaluate potential benefits of avoiding CPB on pulmonary
outcome including spirometry.

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Objective: Many of studies are showed poorly quality of life (QOL) in a women after coronary artery by-pass surgery (CABG). The aim was to examine the presumption that the female gender can be the predictor of quality of life change after coronary artery by-pass surgery.

Methods: For this study, there were prospectively studied 243 consecutive patients who underwent elective CABG. The Nottingham Health Profile Questionnaire part 1 was used as the model for QOL determination. The questionnaire contains 38 subjective statements divided into six sections: physical mobility, social isolation, emotional reaction, energy, pain and confidence interval 1.74 to 8.88).

Conclusion: Female gender is independent predictor of QOL worsening in sections of pain six months after CABG.

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CHANGING TRENDS IN CARDIAC SURGERY IN A MULTISURGEO GROUP

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Objective: Review of changing patterns in a cardiac surgical practice can help to guide the long-term strategy options in a setting of changing population demographics, evolving technology, and environmental shifts.

Methods: Review of all 13,843 adult cardiac operations from 1991 until 2004 of our group.

Results: Coronary artery bypass surgery (CABG) peaked in 1995 and declined with 40% in 2004. Early mortality remained stable despite the increase of age, risk profile and previous percutaneous interventions. There was no major rise in late redo CABG. Off-pump and minimal invasive CABG increased up to 33% in 2004. Multiple arterial grafting increased up to 60% in 2004. Valve surgery volume increased from 1997 up to 2004 with 140%, from 166 to 380 cases annually. Limited access surgery accounted for 64% of all the valve procedures in 2004. There is an increase of mitral valve repair and declining use of mechanical prosthesis. Combined valve and CABG surgery increased with 170% over the last 10 years, from 106 cases in 1996 up to 235 cases in 2003. There is a small decline in 2004 due to the changing trends of hybrid therapy.

Conclusion: CABG volumes are decreasing continuously with an increasing use of multiple arterial grafting and less invasive procedures. Valve opera- tion volumes are steadily increasing, with an important shift to minimal access surgery, valve repair and tissue valves. Combined procedures increase significantly with hybrid therapy as an alternative in the recent years.

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THE EFFECT OF DIABETES MELLITUS ON SHORT-TERM MORBIDITY AND MORTALITY IN CORONARY ARTERY BY-PASS SURGERY

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Objective: Currently, 15 to 30% of the patients that undergo coronary artery bypass grafting (CABG) are diabetics. However, the effect of diabetes mellitus (DM) on short-term morbidity and mortality after CABG is controversial. The aim of this retrospective study was to investigate whether DM increases short-term morbidity and mortality after CABG or not.

Methods: Two hundred and fortyeight patients who underwent CABG operations in our clinic between June 2003 and September 2005 were included in the study. Mean age of the patients was 59.8±9.75 and there were 187 male (76%) and 59 female (23.9%). Seventy-nine patients (32.1%) were diabetic (DM group) and 167 patients (67.8%) were nondiabetic (control group). The groups were compared for morbidity data and mortality rates in the postoperative short-term.

Results: The incidence of superficial wound infection were significantly higher in the patients with insulin-treated DM than both in the patients with oral antidiabetic-treated DM and in the nondiabetic patients (P<0.05). When the groups were compared for the incidence of intra aortic balloon pumping, acute renal failure, multi organ failure, cerebro vascular complications, superficial wound infection, sternal dehiscence, mediastinitis and reoperation due to mediastinal bleeding, there were no statistically significant difference (P>0.05). Mortality rates in the DM group and the control group were 3.7% and 4.7%, respectively but there were no statistically significant difference (P>0.05).

Conclusion: In this study we found that DM does not significantly increase short-term morbidity and mortality in the patients who undergo CABG. Provided that strict measures are taken against infections, CABG can be performed in diabetic patients as safely as it is being performed in nondiabetic patients.
Objective: Cardiopulmonary bypass (CPB) is associated with a systemic inflammatory response determining generalized endothelial activation, and statins have previously been shown to modulate inflammatory reaction in acute coronary syndromes and after CPB. In this study, we evaluate the immunomodulatory effect of pravastatin and its capacity to reduce the inflammatory expression of interleukin-6 (IL-6) and C-reactive protein (CRP) by using a model with known plasmatic levels of these inflammatory mediators.

Methods: Twelve patients with coronary artery disease were enrolled in a prospective study. Six of them received pravastatin; the others served as controls. Pravastatin group received 40 mg daily 48 h before surgery and additional dose after CPB. Treatment lasted for seven days. Plasma levels of tumor necrosis factor (TNF), interleukin-1 (IL-1), interleukin-6 (IL-6), soluble IL-6 receptor (sIL-6R), and brain natriuretic peptide (BNP) were measured at baseline, during hemodynamic changes and at 12, 24, 48 h, and at seven days after surgery.

Results: Pravastatin reduced by 50% the IL-6 levels at 48 h and on the seventh day; [means ± SD values, treated vs. untreated patients 81.0 ± 49.2 vs. 193.0 ± 93.2 pg/ml and 15.0 ± 9.8 vs. 30.0 ± 16.2 pg/ml, respectively (P < 0.05)]. CRP decreased on the seventh day with plasma levels of 3.6 ± 1.2 vs. 8.2 ± 1.9 mg/dl (P = 0.05). IL-1 and TNF levels remained low in both groups, while sIL-6R and BNP showed no differences.

Conclusion: Early use of statins induced a precocious modulation of IL-6 expression and later reduction of plasma CRP levels. Statin effects on the kinetics of inflammation markers could represent a valuable index to decide early and intensive therapy.

Objective: Reduced splanchnic blood flow has been hypothesized to be responsible for the initiation of the systemic inflammatory response produced by cardiopulmonary bypass (CPB). Fenoldopam (DA-1 receptor agonist) has been shown to be specific renin-splanchnic vasodilator in animal and human studies. We set out to study the effects of Fenoldopam on hepatic blood flow and systemic inflammatory response.

Methods: Twenty-four consecutive patients with good LV function, undergoing elective/urgent CABG were included in a prospective randomized study. Patients were randomized to receive either Fenoldopam (0.2 µg/kg/min) (F; n = 12) or normal saline (NS; n = 12), continuously after induction of anaesthesia until 24 h following completion of surgery. Hepatic blood flow (HBF) was measured using Indocyanine green dye disappearance rate before, during and after CPB. Interleukins IL-18, IL-6, ILB, IL-10, IL-1, TNF-a, complement Cs3, C4a, C5a were measured as inflammatory markers. Repeated measures ANOVA test was used to compare the timed samples.

Results: There were no statistical differences between the groups in pre and intra operative variables. In the F group heart rate (P = 0.007) and cardiac index increased following the commencement of infusion, mean arterial pressure was similar (P = 0.699). Hepatic HBF was similar in both groups during CPB and in the post operative period. Increase of C3a, IL-8 was attenuated in the group-F (P = 0.005). Increases in TNF-a, IL-18, IL-6, IL-10 and IL-12 were not uniform in both the groups precluding comparison.

Conclusion: Fenoldopam does not augment hepatic blood flow pre and post-operatively in patients undergoing CABG. Partial attenuation of inflammatory response is possible with Fenoldopam infusion.
Methods: We retrospectively reviewed clinical records of 35 patients with functional SV without PS and with no systemic flow obstruction, who were palliated by pulmonary artery banding. The age, weight, postoperative values of oxygen saturation, peak pressure gradient across the band, duration of ICU stay, duration of mechanical ventilation and inotropic support were studied. We used Cox regression to find a prognostic indicator of the time of ICU stay.

Results: The patients median age was 90 days, median weight 3.9 kg (2.3-13 kg). Early postoperative mortality was 2.8% (n = 1). The median duration of ICU stay was 117 h, mechanical ventilation - 63 h, duration of inotropic support - 36 h, median postoperative Sat O2 was 85% (70-98%). Median peak pressure gradient across the band - 56.5 (ranged 27-85) mmHg. We have found no correlation between postoperative saturation and duration of ICU stay, mechanical ventilation and inotropic support. Positive correlation was found between peak pressure gradient across the band and postoperative parameters mentioned above. The time of ICU stay considerably increased, if the peak pressure gradient across the band was less than 50 mmHg (P = 0.01).

Conclusion: In our experience excessive pulmonary blood flow was estimated as a risk factor of prolonged ICU stay. Postoperative Sat O2, even in patients with insufficient PA banding didn’t correlate with the time of ICU stay. We suppose that systemic saturation may not reflect the Qp/Qs ratio and the true amount of pulmonary blood flow. We assume that peak pressure gradient across the band in SV patients less than 50 mmHg is the index of excessive pulmonary flow. Patients with peak pressure gradient across the band more than 50 mmHg have more favorable early postoperative period compared to the patients with lower gradient.

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IMPORTANCE OF THE URINARY MEASUREMENT OF GLUTATHIONE S-TRANSFERASE LEVELS DIFFERENTIATING ON-PUMP AND OFF-PUMP CORONARY ARTERY BYPASS SURGERY
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Objective: Acute renal failure occurred after cardiac surgery has rather high levels of mortality and morbidity. The incidence of renal failure after on-pump and off-pump surgery was assessed by urinary alpha glutathione s-transferase (a-GST) measurement in patients with borderline renal function.

Methods: Between May 2004-April 2005 50 patients who underwent coronary artery bypass surgery and who have preoperative plasma creatinine levels ranged between 1.5 to 2.0 mg/dl, included in this study. On-pump coronary artery bypass was performed in 25 of them, and off-pump surgery in other 25 patients. Urinary a-GST levels, plasma creatinine levels, creatinine clearance and fractional excretion of sodium were measured.

Results: Urinary a-GST levels significantly raised in postoperative 24 h after the surgery (P<0.001) and lowered in postoperative 72nd hour (P=0.001). Urinary a-GST levels were revealed a statistically significant difference between groups in postoperative 24th h (P = 0.044). Weak correlation was detected between a-GST levels and plasma creatinine (r²=0.337, P=0.001), creatinine clearance (r²=0.467, P<0.001) and fractional excretion of sodium (r²=0.599, P=0.001). Preoperative and postoperative 24th h levels showed positive predictive value for the acute renal failure occurrence (91% for a-GST = 4.8 μg/l and 88% a-GST = 7.1 μg/l respectively), but not for the dialysis requirement. Acute renal failure occurrence, dialysis requirement and mortality rates were similar in the both groups.

Conclusion: Although it was shown that cardiopulmonary bypass has some detrimental effects on the renal tubular function revealed by elevated urinary a-GST levels, tubular damage produced by the cardiopulmonary bypass is not only factor associated with postoperative acute renal failure occurrence. Because of the factors independent from the pump usage remain to affect adversely the renal function, excluding the pump usage alone is not sufficient to certainly prevent postoperative acute renal failure occurrence in patients who have preoperative borderline renal function. But at least, cardiopulmonary bypass known as a damaging factor over renal function can be excluded from the surgery procedure to prevent more extending the damage, and off-pump surgery in patients with borderline renal function is advisable as a first step of kidney preservation.

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SURGERY OF PULMONARY EMBOLISM: IS THERE ANY INDICATION TODAY?
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Objective: Thromboembolic events are a major cause of morbi-mortality after different surgical procedures. Our objective is to present a patient, with a very important pulmonary thromboembolism complicating her recovery from coronary artery bypass grafting, whose treatment included surgical removal of the thrombotic material. We’d like to review the literature on this matter and discuss its present indications.

Methods: A 65-year-old female, with severe coronary artery disease, was operated on to achieve a complete myocardial revascularization. Five arterial and venous grafts were done under extracorporeal circulation. Surgery was carried on uneventfully. On her 3th postoperative day, after a sudden deterioration of his general condition, the patient was diagnosed of massive pulmonary thromboembolism. With severe haemodynamic failure, we decided to perform an emergent surgical thromboembolectomy under extracorporeal circulation.

Results: The patient did well and, the next day, she had an inferior vena cava filter also implanted. Following a good recovery, she was discharged from hospital 15 days later. Ten months after, she is asymptomatic and having a normal life.

Conclusion: Surgical pulmonary thromboembolectomy has, at present days, very few indications. Maybe the main one is a massive pulmonary embolism with a formal contraindication for fibrinolytic therapy. The majority of authors dealing with this life-threatening condition consider that the decision about surgical treatment should be made strictly based on the individual patient’s condition. Before surgery, maintenance of adequate oxygenation and cardiac output by the anesthesiology team is mandatory, thus resulting in an increased survival rate and improvement of surgical results. Placement of an inferior vena cava filter, over the first postoperative hours, is also mandatory. The availability of a cardiovascular surgery department may increase surgical indications to those situations of massive pulmonary embolism in which time is of paramount importance and the rest of therapeutic options have failed.
in a similar anatomical distribution (left atrium) to cardiac myxoma, the relationship between these two tumours is uncertain due largely to the limited studies available that characterise the morphological features of myxosarcoma.

Methods: The clinical and pathological features, including immunohistochemical studies of cardiac myxosarcoma, in a 73-year-old female who died after cardiac operation are reported.

Results: The patient presented with sudden onset of intermittent dyspnea and orthopnea for two months. Echocardiography showed a mobile, pedunculated tumor, 3.5 x 4 x 2.5 cm in size, at right ventricle and pulmonary artery. It also extended to left pulmonary artery. The tumor was also confirmed by cardiac MRI. Histologically, the excited tissue was composed of spindle and stellate cells within a myxoid stroma. Immunohistochemical staining for vimentin and myoglobin was positive, while there was negative expression of desmin, smooth muscle actin, factor VIIIa, CD34, CD68, S100 protein, bcl-2 and for epithelial markers. Tumor was resected from right ventricle and pulmonary artery followed by reconstruction of the pulmonary artery and pulmonary valve replacement with bioprosthesis. At the postoperative period the patient died because of right heart failure and hypoxia.

Conclusion: Cardiac myxosarcoma is exceptionally rare and a distinct disease entity. Our case had two right sided primary myxosarcomas with pulmonary hypertension exceptionally. The main postoperative problems are right heart failure and progressive hypoxia in such cases.

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PULMONARY VESSELS CHANGES AND RESULTS OF THE FONTAN-TYPE OPERATIONS

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Objective: Postinfarction VSD is a rare but life-threatening mechanical complication of MI. In the era after reperfusion therapy septal rupture incidence is thought to occur in 0.3% of acute MIs. Two separate and unusually located (midseptal and anterior-subpulmonic) VSDs were diagnosed in the same patient without ventriculare free wall involvement.

Methods: A 48-year-old man with a 15-day history of intermittent chest pain, nausea and vomiting without orthopnea or dyspnea was referred to our institution. Primary evaluation of the patient revealed 3/6 pansystolic murmur which was found to be caused by a postinfarction VSD by transthoracic echocardiography. Emergent angiocardiography confirmed the diagnosis of VSD due to totally occluded LAD and RCA. Patient underwent an emergent operation where the midseptal VSD was closed by a transatrial approach and the anterior-subpulmonic VSD was repaired by an infundibular pericardial patch to prevent RVOT obstruction. LIMA-LAD and Ao-RCA CABG were also added to the procedure.

Results: There were no difficulties in weaning the patient from the ECC. The postoperative course was uncomplicated and the early transthoracic echocardiography revealed no shunt. Thus the patient was discharged from the CVICU on the 3rd postoperative day.

Conclusion: Although occurring rare, postinfarction VSD is a serious mechani- cal complication of MI. A thorough operative exploration is crucial for the surgical success in order to avoid ventricular damage caused by a ventricu- lotomy in an already traumatised myocardium as in cases of postinfarction VSDs.
injury during dissection; 3) Availability of conduit; 4) Management of patent vein grafts; 5) Myocardial protection; 6) Bleeding and blood products use.

Conclusion: With the increasing of patients who have undergone coronary artery bypass grafting the incidence of reoperative CABG is also increasing and experience with reoperative CABG has increased. We review our experience of Re-do CABG with different strategies, which have evolved our possibilities to minimize the risk of operation and postoperative complications.

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LEFT ATRIAL APPENDAGE ANEURYSM HUGE IN SIZE
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Objective: Left atrial appendage (LAA) aneurysms are extremely rare. They are caused by congenital dysplasia of the atrial muscle. LAA aneurysms also appear with some other associated cardiac and pericardial pathologies such as mitral valvular disease, partial agenesis of the pericardium, endocarditis and tuberculosis. Patients present with atrial tachyarrhythmias due to ectopic foci of atrial rhythm generation or systemic thromboembolism due to irregular blood flow in the recesses of the aneurysm. Surgical excision of the appendage alone has been reported as sufficient in eliminating the atrial tachyarrhythmias.

Methods: We present 58-year-old female suffered from aneurysm of the left atrial appendage and atrial arrhythmias. It is known that those cases most commonly present with atrial tachyarrhythmias and thromboembolism. Resection of the aneurysm is usually curative. We performed transesophageal echocardiogram that exposed a large left atrial appendage aneurysm with additional bi-atrial enlargement and also electrocardiography revealed atrial fibrillation. The case was successfully treated with resection of the aneurysm.

Results: The patient had an uneventful postoperative course and she returned to a stable sinus rhythm after surgery. However, she had recurring atrial tachyarrhythmias first week postoperatively and was treated with amiodarone. Four weeks postoperatively, she returned to normal sinus and amiodarone was discontinued. She continues to be in stable sinus rhythm at her one year follow-up with no antiarrhythmics. The pathological study revealed a mass with an area of 9 x 6 cm with epicardial and endocardial surfaces, without thrombi or the presence of any inflammatory signs.

Conclusion: If the aneurysms are surgically resected in patients with isolated LAA aneurysms, the outcome is good with a total disappearance of the symptoms. But it should be kept in mind that the focus of the arrhythmia may not always be the left atrial appendage aneurysm. Therefore electrophysiologic study should be done before operation and if there is another focus of arrhythmia determined then appropriate procedures such as Maze III or ablation of atrioventricular conduction for treatment of arrhythmia should be performed.

P - 148
REPORT OF A CASE OF COARCTATION OF AORTA ASSOCIATED WITH ESOPHAGEAL ATRESIA AND TRACHEOESOPHAGEAL FISTULA
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Objective: The esophageal atresia and tracheoesophageal fistula usually coexist with cardiac anomalies. However, coexistence of these anomalies is rarely seen with aortic coarctation. We in this study presented a case having aortic coarctation besides esophageal atresia and tracheoesophageal fistula, and its simultaneous surgical treatment.

Methods: A six-day infant of 2500 grams with the diagnosis of aortic coarctation and esophageal atresia was referred to our clinic for surgical treatment. The patient was intubated as the general status got worse and respiration and esophageal atresia was referred to our clinic for surgical treatment.

Conclusion: We think that early diagnosis, appropriate treatment for avoiding the aspiration, rapid referral to a cardiac surgery center would decrease the mortality and morbidity in such cases.

P - 149
OUR DIAGNOSTIC AND SURGICAL THERAPY MODALITIES IN CARDIAC MYXOMAS
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Objective: Long-term prognosis is good in adult who were operated for benign intracardiac tumor such as myxoma. In this study we aimed to evaluate our diagnostic methods, surgical therapy strategies and postoperative results of 16 cardiac myxoma patients whom we operated in the last 13 years.

Methods: We operated 16 patients with cardiac myxoma diagnosis, between January 1992 and December 2005. Nine were women (56%) and 7 were men (44%). Average age was 53 during operation. Thirteen myxomas were at left atrium (81%) and 3 were at right atrium (19%). Functional capacity of the patients were class II in 8, class III in 6 and class IV in 2 according to NYHA classification. In all patients accurate diagnosis was with echocardiography. Average period between the onset of symptoms and diagnosis was 8.7 months. Patients were operated under cardiopulmonary bypass and tumors were excised radically from their endocardial origins.

Results: In 11 of 13 patients (84%) LA myxoma was originated from interatrial septum and in 2 from posterior free wall of LA (16%). In 3 cases with RA myxoma, lesion was originating from interatrial septum and had a stem. Dimension of the myxomas were between 3.5 x 2.5 x 1 cm and 7 x 5 x 6 cm. After operation, patients were discharged after 6 days. In our series hospital mortality was 0.00% and average postoperative follow-up was 7 years 5 months. Also we didn’t determine any recurrence signs in long-term echocardiography follows.

Conclusion: Myxoma is the most frequent primary cardiac tumor. They can be emboli source due to their intracardiac localization and fragility. Selective therapy method for myxomas is surgical resection. We believe that biatrial surgical excision method is a sufficient and reliable method with long-term follow-up and that annual echocardiography examination beginning on the 6 postoperative month is necessary to evaluate the recurrences.

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WHY RADIOFREQUENCY ABLATION IN THE PRESENCE OF NUTRIENT ARTERY OF MYXOMA: CASE REPORT
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Objective: Three quarters of the primary cardiac tumors are benign and myxomas are the most frequent ones usually arise from the interatrial septum. Left atrial myxomas are seen in more than 75% of cases. Angiographically detectable tumor vascularization is thought to be rare. We in this study, present a patient with left atrial myxoma which has an angiographically detected tumor nutrient artery.

Methods: A 47-year-old female patient with 2 months history of dyspnea on exertion and fatigue had severe mitral regurgitation and a regular mass with the dimensions of 2.8 x 1.6 cm, located in the left atrium which was arising from the interatrial septum and protruding into the mitral valve orifice on diastole. Right coronary artery angiogram showed a large branch arising from SA node artery which was supplying the myxoma. The surgery was done under standard left atriotomy through the interatrial groove. Myxomas excision was done before the mitral valve surgery. Tumor attachment site to the interatrial septum was also excised. After valvular replacement, right atriotomy was done in order to determine the location of the nutrient artery. On exploration,
the cut end of the nutrient artery from which cardioplegic solution was leaking was ligated and interatrial septum was closed with primary sutures.

Results: Postoperatively, the patient had an uneventful recovery. On the postoperative sixth day, the control coronary angiography showed successful ligation of preoperatively detected tumor nutrient artery and a new RC artery to atrial fistula formation.

Conclusion: Primary tumors of the heart are rare with an incidence of approxi-mately 0.02% in pooled autopsy series. Coronary angiography usually is pre-scribed in patients over 40 years of age to rule out asymptomatic coronary artery disease. Coronary angiography may demonstrate the tumor nutrient artery as in the present case. The supplying arteries had to be ligated during tumor excision. Atypical angina and myocardia ischemia due to coronary steal from coronary artery to left atrium has been reported unless this tumor nutrient artery is ligated. Therefore, interatrial septum must be largely resected and pedicle base must be coagulated. However, diathermic coagulation will be arrhythmogenic. We are in the opinion that coagulation of the tumor vascularization by radiofrequency ablation of this region may be an appropriate solution. As a conclusion, we think that ligation of the tumor nutrient artery may not be enough for the surgical treatment but also radiofrequency ablation of the pedicle base should be added to the procedure.

P - 151 INTIMAL SARCOMA OF THE PULMONARY ARTERY WITH RETROGRADE EXTENSION TO PULMONIC VALVE AND RIGHT VENTRICLE: CASE REPORT Özbek C., Enrecan B., Kestelli M., Lafi B., Gökcałp O.; Bayrak S., İlhan G., Gürbüz A.

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Objective: Primary intimal sarcoma of the pulmonary artery is an extremely rare tumor, which is highly lethal and is frequently mistaken for pulmonary thromboembolism.

Methods: A 42-year-old male patient with the symptoms of exertional dyspnea and chest pain. The transthoracic echocardiography showed a mobile thrombus like mass in the pulmonary artery with the dimensions of 60 x 20 mm which was protruding into the right ventricular outflow tract. The peak and mean gradient across the pulmonic valve was 71 and 42 mmHg respectively. The operation was performed under general anesthesia. The longitudinal pulmonary arteriography was done. A huge round mass extending distally to the main pulmonary artery branches most of which was adhered to the vessel wall was seen in the lumen. The mass within the lumen of the pulmonary artery was almost occluding the artery. It was severely adhered to the pulmonic valve. A longitudinal right ventriculotomy was also done to the infundibulum. A polyoid mass which was protruding to the ventricular cavity was resected. Some part of the pulmonary arterial wall and the pulmonic valve was also resected because of the adherent nature of the mass. The right ventriculotomy was closed primarily whereas the pulmonary arteriotomy was closed with a PTFE patch. He was discharged on the sixth day after the operation without any complication.

Results: The biopsy material showed severely atypical spindle and oval cells with varying degrees of atypia and nuclear polymorphism. The mitotic activity was extremely high. Pleomorphic tumor cells especially surrounded by the endothelium. Immunohistochemically, smooth muscle actin, myoglobin and factor VIII were positive whereas striated muscle actin, CD31 and CD34 were negative. The screening tests 1 and 6 months after the surgery were normal whereas factor VIII were positive whereas striated muscle actin, CD31 and CD34 were negative. The screening tests 1 and 6 months after the surgery showed a typical sick synus syndrome, with ventricular pauses longer than 4 seconds, and paroxistic AF. A bicameral pacemaker was indicated. Insertion of the electrodes was done through the right subclavian vein, then observing by fluoroscopy the abnormal way of the guidewire approaching the right atrium, via persistent left superior vena cava and coronary sinus (absent right SVC). Right ventricular pacing was achieved with a long electrode for coronary sinus, in order to reach an optimal, although not perfectly stable, position. Right atrium was reached with an active-fixation electrode through the same way. The entrance to the right ventricle from the coronary synus was achieved through tributary veins of the coronary synus.

P - 152 PACEMAKER IMPLANTATION WITH LEFT SUPERIOR VENA CAVA PERSISTENCE: A DIFFICULT SITUATION Ballester C., Matamala M., Vallejo J., Beltan J., Lopez C., Ibarra F.

Hospital Universitario “Miguel Servet”, Servicio De Cirugía Cardiovascular, Zaragoza, Spain

Objective: Left superior vena cava (SVC) persistence is a congenital defect that may adversely affect a pacemaker implantation. Our objective is to present one of this challenging cases and review the literature on this field.

Methods: A 72-year-old male, with multiple cardiovascular risk factors, dilled cardiomyopathy and paroxistic atrial fibrillation(AF) was admitted to the Cardiology ward of our institution complaining of syncopal crisis. ECG showed a typical sick synus syndrome, with ventricular pauses longer than 4 seconds, and paroxistic AF. A bicameral pacemaker was indicated. Insertion of the electrodes was done through the right subclavian vein, then observing by fluoroscopy the abnormal way of the guidewire approaching the right atrium, via persistent left superior vena cava and coronary sinus (absent right SVC). Right ventricular pacing was achieved with a long electrode for coronary sinus, in order to reach an optimal, although not perfectly stable, position. Right atrium was reached with an active-fixation electrode through the same way. The entrance to the right ventricle from the coronary synus was achieved through tributary veins of the coronary synus.

P - 153 ATRIAL FIBRILLATION AFTER CABG Khubulova G., Didenko M., Skhythin I., Shorochov C.

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Objective: We investigated the most appropriate surgical and medical treatment of brucella endocarditis. We present the cases of three patients who undertook aortic valve replacement in our hospital after brucella endocarditis.

Methods: We studied the clinical outcome of three patients infected with brucella endocarditis and who were treated with a combination of doxycycline, streptomycin and ciprofloxacin and afterwards undertook aortic valve replacement. The patients were studied by transthoracic echocardiography three months and one year after the operation while blood samples were cultured at the same time.

Results: After one year of follow-up no evidence of relapse of infection or prosthetic dysfunction has been detected.

Conclusion: Involvement of the cardiovascular system is an uncommon focal complication of brucellosis. The incidence of endocarditis is reported to be 1-2%. However, it is a life threatening and, often, under-diagnosed complication. Early diagnosis and management with combined medical and surgical treatment are the key points of a good outcome.

P - 154 SURGICAL AND MEDICAL TREATMENT OF BRUCELLA ENDOCARDITIS Koumalilos P N., Paschalis A., Hlapoutakis S., Leonidas D.

General Hospital of Athens “Hippokration”, Athens, Greece

Objective: We investigated the most appropriate surgical and medical treatment of brucella endocarditis. We present the cases of three patients who undertook aortic valve replacement in our hospital after brucella endocarditis.

Methods: We studied the clinical outcome of three patients infected with brucella endocarditis and who were treated with a combination of doxycycline, streptomycin and ciprofloxacin and afterwards undertook aortic valve replacement. The patients were studied by transthoracic echocardiography three months and one year after the operation while blood samples were cultured at the same time.

Results: After one year of follow-up no evidence of relapse of infection or prosthetic dysfunction has been detected.

Conclusion: Involvement of the cardiovascular system is an uncommon focal complication of brucellosis. The incidence of endocarditis is reported to be 1-2%. However, it is a life threatening and, often, under-diagnosed complication. Early diagnosis and management with combined medical and surgical treatment are the key points of a good outcome.

P - 155 A STUDY OF THE FREQUENCY OF PATHOLOGICAL AND PHYSIOLOGICAL CHANGES IN CARDIAC PATIENTS SURGERY WITHIN FORTY EIGHT HOURS OF POST OP PERIOD Saeidi M., Movahedi M.

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Objective: The first 48 h of post cardiac operative period during which the patient stays in ICU, can be crucial to be aware of physiological and pathological changes in different parts of the patient’s body, in a way that some of these changes may cause difference in the trend of the patient’s convalescence period. This research intends to gather information on the
frequency of the changes in physiological and pathological status of the patients in the first 48 h of post cardiac operative period.

Methods: A total of 250 patients underwent cardiac surgery including: CABG (152 patients), valve operation (74 patients), and congenital operation (23 patients) physiological and pathological changes were investigated with respect to nineteen different factors among 250 patients. The investigation took place within the first 48 h of post op period while they were in ICU.

Results: The results indicate a decrease in average level of CVP and systolic and diastolic blood pressure in the Patients immediately after being moved to ICU in comparison with their last moments in the operative room. Most of the patients who had mediastinal bleeding which caused to have reoperation were placed in the second Patient list of their surgeons and subsequent to the reoperation, no mortality was witnessed. The frequency of atrial arrhythmia in valvular and ventricular arrhythmia in congenital surgery were higher in comparison with other cardiac surgery. In addition, a remarkable percentage of patient’s temporary epicardial pacemakers had no function. The post op heparin infusion in ICU don’t resulted in an increase in the frequency of leg hemotoma (saphenous vein harvest site). Additionally, a notable percentage of Patients Indicated to have skin back burn and also to have transfection of packed cell, platelet and FFP.

Conclusion: see the results paragraph.

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SCLEROTHERAPY AND AORTOCORONARY BYPASS GRAFTING
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Objective: Sclerotherapy is one of the most usable and safest method of treatment of varicose vein disease. In most cases the injections of sclerotic preparation are made in the veins of the shin which are tributaries of the big subcutaneous vein. However patients who underwent sclerotherapy as all people in the world have high risk of development coronary arteries atherosclerosis. Therefore aortocoronary bypass grafting may become the last salvage for them. Large subcutaneous vein is known to be often used as an autotransplantation during this operation.

Methods: One hundred and twenty-two histological specimens of the large subcutaneous vein wall in its orifice were investigated using light microscopy. Histologic specimens were prepared out of biopats obtained during the operation by Trojanov - Trendelenburg in 22 patients. Fifteen of these patients had undergone sclerotherapy in different time before the operation. We used Trombovar and Ethichosclerol as a sclerotic preparation. Seven patients did not pass sclerotherapy before the operation. They formed the control group.

Results: 2-3 days after the injections of sclerotic preparation we observed necrobiosis and degeneration of endothelium. In several cases even the desquamation of endothelium was revealed. In addition to changes of endothelium we also observed leukocytic infiltration in tunica media and sub endothelial layer. This picture was observed for 1 month. One year after the last injection necrobiotic and dystrophic changes of endothelium and leukocytic infiltration disappeared. However the sclerosis of tunica media and adventitia was present.

Conclusion: Sclerotherapy produced in the shin region causes serious alterations in the large subcutaneous vein wall on all its extent. Therefore large subcutaneous vein becomes unsuitable for aortocoronary bypass grafting.

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STENTLESS AORTIC BIOPROSTHESIS IN AORTIC VALVE DISEASE SURGERY
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Objective: This study was performed to assess hemodynamic efficiency of stentless bioprostheses in aortic valve disease surgery (in elderly patients).

Methods: Stentless bioprostheses were implanted in 25 patients with isolated aortic valve disease between 2002 and 2005 in clinic of cardiovascular surgery. All patients were retired (the mean age being 68±8.3 years). We implanted stentless xenografts Medtronic Freestyle in 14 patients, AB-Mono-Kemerovo in 4 patients, and in 6 cases we used AB-Composite-Kemerovo. The sizes of the valve implanted amounted to 23 mm (n = 10), and 25 mm (n = 12) and 27 mm (n = 2). Degenerative aortic stenosis was indication in 18 cases, whereas aortic insufficiency due to infective endocarditis in 6 patients. We used subcoronary technique with coronary sinuses excising in 21 patients and full root technique in 3 patients. Hemodynamics was assessed with transhormic and transesophageal echocardiography (Sequia Acuson XP - 128).

Results: The mean pressure gradient (Pmean) before discharging and in 1 year after Medtronic Freestyle bioprosthesis (23 mm) implantation was 13.6±1.8 mmHg; peak gradient (Pmax) was 27±1.8 mmHg. Bioprostheses 25 mm in size had Pmean 11±1.6 mmHg, Pmax - 21±1.8 mm. In patients with xenografts AB-Mono-Kemerovo the mean gradient amounted to 12±1.6 mmHg, peak gradient - 18±2.3 mmHg. Pmean, wereas Pmax in patients with AB-Composite-Kemerovo was 7 mmHg and 13 mm Hg respectively.

Conclusion: Initial experience in aortic valve replacement with the stentless bioprostheses shows that their good hemodynamic efficiency. However, only further follow-up for 7 years and over will determine valve durability and bacterial resistance of stentless bioprostheses. Nevertheless their usage seems to be perspective.

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RADIOFREQUENCY ABLATION TYPICAL ATRIAL FLUTTER ACCOMPANYED BY ATRIAL FIBRILLATION AFTER OPEN HEART SURGERY
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Objective: We investigate results radiofrequency ablation typical atrial flutter (AFI) with paroxysmal atrial fibrillation (AF) after open heart surgery.

Methods: Eighteen patients with typical AF (mean age 53.9±11.2 years, mean duration typical AF - 21.3 month, 2 patients with chronic AF), that had in history 2 or more paroxysms of AF, underwent radiofrequency ablation (RFA) of tricuspid isthmus. Drug therapy was ineffective with 2 or more medicines (including 1 class) in all patients. All patients underwent radiofrequency ablation right isthmus with registration bidirectional block. Tachycardia cycle length - 289±21 ms. Typical counterclockwise AFI registered in 12 patients, clockwise AFI - 6 pts. Radiofrequency ablation performed in 16 patients with a 8 mm tip catheter and in 2 - with an irrigated tip catheter. Mean quantity of impacts required was 19.2±1.5. Bidirectional block was registered in all patients in right isthmus. Intraoperative provoked AF was induced in 8 pts. One patients needed repeat procedure related to AFI recurrence.

Results: Sinus rhythm observed in all patients during follow-up from 1 to 34 months. In 16 patients antarrhythmic therapy was discontinued. One patient developed paroxysmal AF 6 month after procedure and sometimes these recurrent episodes occur but rare than before operation.

Conclusion: In patients with typical AFI accompanied by AF after open cardiac surgery catheter radiofrequency ablation has proved to be an affective procedure and decrease paroxysms of AF.

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SHOTGUN PELLET IN THE INTERVENTRICULAR SEPTUM: IS CONSERVATIVE MANAGEMENT AN OPTION?
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Objective: The management of shotgun pellet cardiac injuries remains still controversial because of the variety of clinical manifestations and limited experience. We present a case of an adult patient who suffered a shotgun cardiac injury with a pellet embedded into the interventricular septum that was managed successfully through a conservative approach.

Methods: A 37-year-old man suffered a shotgun injury from a 25 yards distance due to a hunting accident. The patient was conscious and hemodynamically stable and presented multiple 0.5-cm entrance wounds caused by several shotgun pellets located in both upper and lower limbs, abdominal wall and anterior and left anterolateral areas of chest wall. The chest X-ray showed multiple bilateral intrathoracic and subternal pellets as well as a left pneumothorax that required a percutaneous drainage insertion. The thoracic CT-scan revealed an intrapericardial bullet lodged into the muscular portion of the interventricular septum, next to the left ventricle outflow tract . A moderate pericardial effusion that measured 1 cm at its largest dimension was revealed by echocardiography; no interventricular shunts were detected and the left ventricle ejection fraction was of 60%.

An abdominal laparoscopic exploration discarded the presence of intraoperational visceral injuries.

Results: Considering the lack of arrhythmias or signs of heart failure, a conservative management was decided. The patient remained hemodynamically stable and free of cardiovascular symptoms during in -hospital stay, so he...
was discharged 6 days after the accident. No increase of pericardial effusion was detected during a 6-month follow-up and a CT-scan showed a shotgun pellet encysted with fibrous tissue into myocardial wall of the interventricular septum three months after the accident. The patient remains asymptomatic 6 months after the injury.

Conclusion: Management of cardiac pellet injuries should be individualized but the success of the conservative therapy in this case support that pellets completely embedded in the interventricular septum may very well tolerated and only require observation if patient remains asymptomatic and hemodynamically stable.

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CORONARY ENDARTERECTOMY AND BYPASS GRAFTING WITHOUT CARDIOPULMONARY BYPASS

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Objective: In modern cardiac surgery, coronary endarterectomy is safer than previously and can be a tool for complete myocardial revascularization. In selected patients coronary endarterectomy is possible to perform with off-pump CABG. We review our experience in coronary artery endarterectomy performed without cardiopulmonary bypass.

Methods: Between January 2002 and July 2005 off-pump coronary endarterectomy and CABG were performed in 10 patients. Two of them (20%) had II functional class of angina, six (60%) had III and two had IV (20%) functional class by CCS. The mean EF was 48.3±4.4 and 8 (80%) patients had three vessels disease. The incidence of perioperative myocardial infarction, need for inotropic support, mortality, recovery and safety were evaluated.

Results: There were no deaths. All patients were completely revascularized. The left internal thoracic artery was bypassed to the LAD in 9 (90%) operations, the Cx arteries were bypassed with radial transplantates in 9 (90%), and all grafts on the RCA were of saphenous vein. Mean distal anastomoses amount per patient were 3.5. Perioperative myocardial infarction occurred in one (10%) patient and dopamine was used for him for 5 h. Nine (90%) patients were angina free and were in NYHA I class. One patient had CCS class I. All patients were discharged in routinely date.

Conclusion: Coronary endarterectomy without cardiopulmonary bypass can be performed in patients with diffusely diseased coronary arteries to achieve complete revascularization with an accepted outcome.

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SUDDEN VISUAL LOSS DUE TO ISCHEMIC OPTIC NEUROPATHY AFTER CARDIOPULMONARY BYPASS FOR ATRIAL SEPTAL DEFECT CLOSURE


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Objective: To analyze our experience in correction of heart hydatidosis in 12 patients.

Methods: Between 2000 and 2004, 14 patients with heart hydatidosis were observed. In 6 cases (42.8%) Hydatid cysts were incised and chitinous capsule was removed from the cavity. In 3 cases (21.4%) the cysts were encapsulated and in 5 cases (35.7%) a cystic nodule was completely embedded in the interventricular septum.

Results: Pulmonary pressure decreased to 36 mmHg in 11 patients. In all patients with mitral valve plasty there were no significant mitral regurgitation in postoperative period. 2 (14.3%) patients died in postoperative period.

Conclusion: Coronary artery bypass grafting in patients with severely complicated ischemic heart disease could be successfully performed with good results and acceptable mortality.

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HYDATID CYST OF THE HEART: EXPERIENCE IN 12 PATIENTS

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Objective: To analyze our experience in correction of heart hydatidosis in 14 patients.

Methods: Between 2000 and 2004, 14 patients with heart hydatidosis were operated on at our institute. Two were females and 12 were males. Mean age of these patients was 21.1±13.1 years and ranged from 7 to 47 years. Average weight was 46.8±18.2 kg. Localization of hydatid cysts was in five cases in the left ventricle, in three cases in the interventricular septum and in one case in the wall of right ventricle. Subendocardial and subepicardial localizations of the cyst were observed in 6 cases and in 3 cases respectively. Of all 9 cases, other organ’s anomalies were observed in 7 cases. Two patients were in the 4 NYHA class what required urgent surgical intervention. Echinococcectomy with cardiopulmonary bypass was performed in 11 cases. The rest patients underwent operations without cardiopulmonary bypass. We used standard crystalloid cardioplegic solution and moderate hypothermia in all cases. Surgical approach was individual to all patients.

Results: Hydatid cysts were incised and chitinous capsule was removed in all patients. The cavity was closed by purse-string suture in 5 patients.
with subendocardial localization. In 3 patients the cavities were remained without closing. In 2 patients the cavity was sutured by edges of fibrous capsule. One patient developed pulmonary thromboembolism at the operation that caused lethal outcome. There were no heart failure events in early postoperative period. All patients were administered heparin subcutaneously in the postoperative period. All patients were followed within mean period of 5.2±2.1 years. Seven patients with associated anomalies were operated on for these disorders. There were no complications and mortality related to cardiac procedures.

Conclusion: Hydatid cysts of the heart should be removed surgically in urgent order. Careful approach to surgical treatment of the condition relates to good results in long-term period. The cavity created after removal of subendocardial cyst should be closed in order to avoid thromboembolic complications.

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CONGENITAL HEART DISEASE ENDOCARDITIS CAUSED BY BARTONELLA
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Objective: Bartonella species are emerging pathogens that have been recognized as causative agents of blood culture-negative endocarditis. This case report documents the first description to our knowledge of Bartonella species endocarditis affecting a child with congenital heart disease.

Methods: A 17-year-old female was referred for treatment of aortic and mitral regurgitation, and subaortic fibromuscular tunnel. She had been operated at the age of 2 years for ostium primum atrial septal defect. In 2000, she underwent mitral valve repair and excision of a subaortic fibromuscular diaphragm in Moscow. Four years later the patient developed shortness of breath. Echocardiography showed left ventricular (LV) hypertrophy, grade II mitral regurgitation (MR) from a dilated annulus. The aortic valve had combined aortic stenosis and aortic regurgitation with vegetations on the cusps. Aortic annular diameter measured 12 mm and the mean LV/Aortic gradient was 60 mmHg. Blood cultures were negative.

Results: At operation, the LV outflow tract admitted only a 12 mm Hegar’s dilator. It was reconstructed by extended root replacement (the Ross-Konno Operation). A 23 mm pulmonary homograft was used to replace the right ventricular outflow tract. Mitral annuloplasty was performed with 27 mm Duran AnCore Ring. β- Lactam bacterial culture remained negative after 6 days incubation. Polymerase chain reaction analysis of aortic valve vegetations allowed diagnosis of Bartonella henselae infection. Postoperative recovery was smooth with no residual LV outflow tract gradient and no mitral regurgitation. ECG documented a permanent sinus rhythm.

Conclusion: The extended root replacement enabled simultaneous replacement of the destroyed aortic valve and achieved enlargement of the LV outflow tract. Alternative reconstruction techniques are discussed. We recommend that Bartonella infection be considered in the diagnostic work-up of patients with suspected endocarditis.

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SUBCLAVIAN CANNULATION IN SURGERY OF TYPE A AORTIC DISSECTION: SHOULD IT BE THE CHOICE?
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Objective: Extracorporeal circulation (ECC) in surgery of type A aortic dissection was classically established by femoral cannulation. Nevertheless, early antegrade flow, in addition to profound hypothermia and circulatory arrest, are widely accepted measures in these procedures. Our objective was to evaluate the alternative of subclavian cannulation and verify its supposed advantages (antegrade flow, good size, ease of arterial control, cerebral protection, etc.).

Methods: Between June 2000 and December 2005, 54 patients (44 males, 10 females, average age 67±10) with acute type A dissection have been operated on at our institution (35 replacement of ascending aorta, 12 ascending aorta + hemiarch, 4 Bentall procedures and 3 ascending aorta + arch + cerebral vessels + elephant trunk). ECC was established through the right subclavian artery. Average time of circulatory arrest: 32 min. Average time of ECC: 216 min.

Results: Hospital mortality (30 days), 13 patients (4 ARDS-sepsis, 2 severe cerebral damage-stroke previous to surgery, 3 cardiogenic shock, 1 pneumonia, 2 uncontrollable bleeding, 1 stroke-previus to hospital discharge). The remaining 41 patients presented neither signs of neurological damage nor visceral malperfusion. Two patients, after circulatory arrest, required change of arterial return (1 female, dissection of cerebral and visceral vessels; 2-male, aberrant right subclavian artery). No morbidity was observed related to arterial access.

Conclusion: Cannulation of the subclavian artery is an excellent method of arterial return in these procedures. Visceral and cerebral perfusion are very well achieved, thus resulting in rapid cooling and good cerebral protection, due to flow through the true lumen. Risks of femoral cannulation can be avoided (retrograde flow, dissection or calcification of the artery, etc) So, in conclusion, the subclavian artery should be the site used for blood return in surgery of type A aortic dissection.

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MANAGEMENT OF CONCOMITANT CORONARY AND BILATERAL CAROTID ARTERY DISEASE: A CASE REPORT
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Objective: Patients with severe coexistent coronary and carotid artery stenosis represent a difficult and high-risk population. There is high incidence of myocardial infarction after carotid endarterectomy (CEA) and the neuro- logical injuries occur after coronary artery bypass surgery. In addition, a small number of patients who are undergoing coronary artery bypass grafting (CABG), present with symptomatic or significant bilateral carotid stenosis. Presence of bilateral carotid stenosis makes management of this subgroup of patients even more challenging. Hence we describe our management of a patient with coronary artery disease and bilateral severe carotid artery stenosis.

Methods: A 75-year-old male with the symptoms of unstable angina admitted to our institute. Results of the physical examination were normal with the exception of bilateral carotid bruits. Doppler duplex scanning and carotid angiography revealed greater than 70% stenosis in the both internal carotid arteries. The coronary angiography showed greater than 70% coronary artery stenosis in the left anterior descending coronary artery and in the first diagonal, first obtuse marginal and circumflex posterior diagonal branches. The patient was consulted to the department of invasive Radiology and a staged treatment in such a way that first staged bilateral carotid stenting and then CABG operation was initially planned. However, in Turkey, the costs of carotid stents are not paid by health insurance associations yet. Since the patient could afford the cost (nearly 3000 US dollars) of only one carotid stent, carotid stenting on the one side before CABG and carotid endarterectomy on the other side after CABG were then decided.

Results: Firstly, left carotid artery stenting was done using a self-expandable monorail stent and a neurological protective device. Post-stent angiogram revealed satisfactory dilatation in the left carotid artery. One week later, CABG to the four vessels was done. Two months later, right carotid endarterectomy was done under local anaesthesia using superficial and deep cervical plexus blockade. He had not any neurological complication during or after any of the operations and he remains in good health since his last operation.

Conclusion: We think the staged treatment, consisted of carotid artery stenting plus coronary artery bypass grafting plus carotid endarterectomy, in a patient with concomitant severe coronary artery and bilateral carotid artery disease is feasible, safe and may be an alternative to combined coronary artery bypass grafting plus carotid endarterectomy.

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ATHEROSCLEROTIC RISK FACTORS ARE ALSO RISK FACTORS FOR AORTIC VALVE CALCIFICATION?
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Objective: Traditional risk factors for coronary artery disease have been shown to be associated with aortic valve disease in various studies. The objective of this study was to determine whether risk factors for atherosclerosis were associated with aortic valve calcification.

Methods: The study included 701 patients who underwent AVR between 1985-2005 in our institution. Patients were separated in three groups based on the etiology of aortic valve disease (rheumatic, congenital bicuspid and degenerative). Congenital bicuspid aorta was present in 120 patients
Peripheral arteries in patients with CAD has not been determined yet. To predict early atherosclerosis in carotid and patients with coronary artery disease (CAD). However, the relation between adiponectin and atherosclerosis and hypoadiponectinemia has been observed in tissue. There is growing evidence that adiponectin has a protective effect against atherosclerosis and the measurement of plasma adiponectin level would indicate the importance of wnt signal transduction pathway in myocardial infarction. Serum adiponectin concentrations in patients with CAD. Adiponectin is one of the clinically important molecules associated with atherosclerosis and the measurement of plasma adiponectin level would be of predictive value to identify patients at high risk to develop severe carotid artery stenosis.

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MOLECULAR CHARACTERIZATION OF WNT/B-CATENIN SIGNALING PATHWAY AFTER MYOCARDIAL INFARCTION
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Objective: Myocardial infarction induces global changes in the ventricular architecture, a process called ventricular remodeling. Molecular mechanism behind this process still is not clearly identified. Since Wnt/β-catenin signaling pathway involves in a variety of modeling and remodeling processes including cell proliferation, differentiation, apoptosis and the control of cell orientation. We assume that alterations in this pathway may be one of the mechanisms explaining immediate response in infarct and remote zone after acute myocardial infarction.

Methods: Myocardial infarction was produced by coronary artery ligation of Wistar rats. Sham operation comprised surgical procedure without ligature placement. Following 30 min after operation, all animals were sacrificed, hearts were dissected and myocardial samples were obtained from remote and infarct zones. Tissue samples were immediately flash-frozen for RNA analysis. Total RNA was extracted and reverse transcribed. Aliquots of cDNA's were then amplified with oligonucleotide primers specific for the target genes by semi-quantitative RT-PCR. Histopathological analysis was established on tissue samples to verify presence of ischemia in infarct zone.

Results: Optimization of the RT-PCR amplifications from Wnt 1, Wnt3a, Wnt5a, Wnt7a, Wnt10a, axin, b-catenin, secreted Fizzled Related Protein (sFRP1), Disheveled, Fzr2, Fzr4 and Frz6 genes were performed. Transcriptional alterations in the expression of these genes on the infarct zone and remote zone after myocardial infarction analysed.

Conclusion: These studies were including several animal and human models indicated the importance of wnt signal transduction pathway in myocardial infarction. In near future developing treatment modalities targeting wnt signal transduction pathway will open new insight.

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SERUM ADIPONECTIN LEVELS PREDICT EARLY ATHEROSCLEROSIS IN CAROTID ARTERIES IN PATIENTS UNDERGOING CORONARY ARTERY BYPASS GRAFTING
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Objective: Adiponectin is a plasma protein produced specifically by adipose tissue. There is growing evidence that adiponectin has a protective effect against atherosclerosis and hypoadiponectinemia has been observed in patients with coronary artery disease (CAD). However, the relation between serum concentrations of adiponectin and early atherosclerosis in carotid and peripheral arteries in patients with CAD has not been determined yet. To determine this relation, we measured carotid artery intima-media thickness (IMT), ankle brachial index (ABI) and serum concentrations of adiponectin in the patients with CAD who underwent coronary artery bypass grafting (CABG).

Methods: Patients: eighty-four consecutive patients (69 male, mean age 60.8 ± 10.39) with documented CAD who underwent CABG were included into the study. Laboratory analysis: the serum concentrations of adiponectin were measured in the venous blood samples by ELISA (Human Adiponectin ELisa Kit ACRP30®, Linco Research, Missouri, USA). Carotid artery ultrasound: carotid artery IMT of far wall was measured at the distal common carotid artery and the carotid bulb on both sides with a high-resolution ultrasound unit (ApioM80®, Toshiba, Tokyo, Japan) equipped with an 12-to-6-mHz broad-band linear transducer. Ankle brachial index: a sphygmomanometer cuff was placed around the ankle and inflated to a suprasystolic level, then deflated. The onsets of blood flow detected by doppler probe on the posterior tibial artery was accepted as the doppler ankle pressure. The ankle brachial index was calculated as a ratio of doppler ankle pressure to the brachial systolic pressure.

Results: The mean serum adiponectin concentration was 7.1 ± 3.4 µg/ml. The mean carotid artery IMT were 0.97 ± 0.13 mm and 1.01 ± 0.14 mm at the distal common carotid artery and the carotid bulb level, respectively. The mean ABI were 1.11 ± 0.17 and 1.10 ± 0.15 on the right and the left side, respectively. Serum adiponectin concentrations significantly and negatively correlated with carotid artery IMT both at the distal common carotid artery (r = -0.604, P < 0.01) and the carotid bulb level (r = -0.571, P < 0.01). There were no significant correlation between serum adiponectin concentrations and ABI on the either sides.

Conclusion: This study showed that serum adiponectin concentrations predict early atherosclerosis in carotid arteries in patients with CAD. Adiponectin is one of the clinically important molecules associated with atherosclerosis and the measurement of plasma adiponectin level would be of predictive value to identify patients at high risk to develop severe carotid artery stenosis.
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INTRAVASCULAR LEIOMYOMATOSIS: THE SURGICAL CHALLENGE OF TUMORS WITH CAVO-ATRIAL EXTENSION
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Objective: Infradiaphragmatic tumors with intracaudial extension, although uncommon, are a surgical challenge. Our objective is to present one of these cases, comment the best strategies to deal with them and review the literature on the field in order to achieve good results.

Methods: A 44-year-old female, under anticoagulant therapy due to a suggestive echo image of inferior vena cava (IVC) thrombosis, is presented here. This finding was unexpected on a routine medical examination. The subsequent CT-scan and MRI showed an intraluminal occupation of the IVC, extended to the right atrium. An enormous mass, that seems to begin at the entrance of IVC into the heart, appeared on a new echocardiography. All these findings, and a previous history of uterine myomatosed, led to the diagnosis of intravascular leiomyomatosis. Surgery was carried on in a single procedure through simultaneous median laparotomy and sternotomy: first, a hysterectomy was done (plus salpingo-ooforectomy); after this, extracorporeal circulation, profound hypothermia and circulatory arrest were achieved. Then, right atriotomy and intraaobdinal cavotomy were necessary to dissect and remove the tumor in one single piece.

Results: The patient had an uneventful recovery and was discharged from the hospital on the 13th postoperative day. One and a half year later, she is asymptomatic and in perfect condition.

Conclusion: Different techniques have been proposed to treat tumors with cavo-atrial extension. Some authors advocate surgery in two separate times, maintaining that surgical risk increases in single procedures, sometimes due to excessive bleeding in heparinized patients. We understand, but not share, this affirmation. The extracorporeal circulation, with profound hypothermia and circulatory arrest, allows removal of the whole tumor at the time, in a bloodless operative field, and with minimal manipulation of the inferior vena cava and the heart. Finally, we think that removal of the tumor through the right atrium should be avoided in order to assure complete removal of the mass.

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BLOOD COAGULATION CHANGES IN PATIENTS TREATED WITH STENT ENDOGRAFTING SURGERY. ARE THERE CLINICAL IMPLICATIONS?
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Objective: Changes in blood coagulation and fibrinolytic system after endovascular repair (EVAR) of aortic pathology are of great interest. We examine in a prospective study the risk for consumption coagulopathy and the clinical implications in a midterm follow-up.

Methods: From June 2002 to December 2003 31 patients for abdominal aortic aneurysm (AAA), 11 for thoracic aortic aneurysm (TAA) and 10 for cromatic aortic aneurysm. Surgical treatment of descending and thoracoabdominal aortic aneurysm and/or dissection. 11 of our patients were female(15.4%). Mean age of patients (20%) died at early phase. Respiratory problems were the most frequent cause of death (34%). One patient (6.6%) died of paraplegia and one patient (6.6%) died of paraparesis. Patients were followed about 18.9 months (7-45).

Results: Four patients (26.6%) died at early phase. Respiratory problems were the most frequent cause of death (34%). One patient (6.6%) died of paraplegia and one patient (6.6%) died of paraparesis. Patients were followed about 18.9 months (7-45).

Conclusion: EVAR leads to changes in coagulation and fibrinolysis, with characteristic development. They have no clinical relevance and no effect on long-term follow-up. It is our belief that EVAR is the most satisfactory option for patients with a favorable anatomy and who are at high risk of hemorrhage.
Objective: The purpose of this report is to present an adult patient with complex re-coarctation of the aorta successfully treated by extra-anatomic ascending-to-descending aortic bypass via right thoracotomy without cardiopulmonary bypass.

Methods: 24-year-old male patient presented to our clinic with complaints including hypertension in upper extremities, fatigue and headache. He was previously operated in 2001 due to aortic coarctation with patch aortoplasty. Physical examination revealed absent femoral pulses and weak left upper extremity pulses. Right arm-lower extremities systolic pressure gradient was 100 mmHg. Thoracic computerized tomography demonstrated the hypoplasia of the aortic arch between left carotid and left subclavian artery. The patient was operated on without cardiopulmonary bypass under normothermia. A wide lateral right thoracotomy was accomplished. Descending thoracic aorta was palpated along the side left posterior of esophagus. Mediastinal pleura at the right side of esophagus was dissected gently. Anterior and leftward retraction of esophagus revealed the descending thoracic aorta. A segment of descending thoracic aorta was exposed over a length of 7 cm. One pair of right intercostal arteries was ligated for exposure. Exposed descending aorta was side-clamped and incised. A 20 mm dacron tube graft was anastomosed to incision by 4/0 polypropylene suture. Pericardium was dissected and ascending aorta was exposed. Supracoronary ascending aorta was side clamped and incised. Proximal end of the graft was anastomosed to incision by 4/0 polypropylene suture. Pulsatile blood flow was palpatated on the descending thoracic aorta at the distal of anastomosis. Operation was completed by draining the pericardium and right pleural cavities. A right thoracic drainage tube was inserted before closure.

Results: Postoperative period of the patient was uneventful. Systolic blood pressure about 130 mmHg was maintained with oral atenolol therapy. Postoperative blood pressure gradient between right upper extremity and lower extremities decreased to 10 mmHg. All upper and lower extremity pulses were palpable postoperatively. The patient was discharged at the 8th postoperative day with oral atenolol therapy and without any complication. Thoracic computerized tomography at postoperative 8th day confirmed the patency of ascending-to-descending aortic bypass graft.

Conclusion: Our successful experience with this patient contributes at attracting the surgeons’ attention to extraanatomic ascending-to-descending aortic bypass via right thoracotomy which is a safer, less invasive and effective method for correction of the complicated forms of aortic coarctation and re-coarctations.

P - 178 ENDOTHELIAL STATUS FOLLOWING CORONARY ARTERY REVASCULARIZATION WITH CARDIOPULMONARY BYPASS IN THE EARLY POSTOPERATIVE PERIOD

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Objective: Vascular endothelium actively participates in maintaining normal cardiovascular homeostasis, regulating membrane permeability, vaso- motor tone, coagulation/fibrinolysis balance, and leukocyte mobilisation. Cardiopulmonary bypass (CPB) initiates a systemic inflammatory response, which may affect endothelial function. Monitoring, the levels of endothelial cell activation markers, including tetranectin (TN) a fibrinolytic regulator known to be negatively associated with coronary artery disease severity, the present study addresses to evaluate endothelial function, in the early post-CPB period.

Methods: The study was conducted in 31 consecutive patients, who underwent elective, standard coronary revascularization. Redo’s, patients with seriously impaired L.V. function, recent M.I. or PTCA, were excluded. Cold blood cardioplegia was used. Peripheral blood samples were collected on the morning of operation before induction of anaesthesia, the 1st and the 3rd day postoperatively. The plasma levels of von Willebrand factor (vWF), P- and E-selectin, and TN were measured using enzyme-linked immuno-absorbent assay while angiotensin converting enzyme (ACE) activity was measured spectrophotometrically. The data were analyzed in a two-way ANOVA mixed model. The results were corrected for hematocrit.

Results: A significant overall effect of time was observed for all the examined variables (vWF; F = 0.0005, P-selectin; P = 0.05, ACE; P = 0.015, E-selectin; P = 0.0005 and TN; F = 0.015). vWF was significantly increased on the 1st and decreased on the 3rd postoperative day compared with baseline levels (P = 0.05, P = 0.0005, respectively). Subsequent analyses revealed a trend towards higher P-selectin on the 1st and a significant decrease on the 3rd postoperative day compared with baseline levels (P = 0.048). Moreover, a significant decrease in ACE activity the 3rd postoperative day compared with baseline activity (P = 0.01) was found and a significant decrease in E-selectin levels the 3rd day compared with baseline and 1st day levels (P = 0.0005, P = 0.0005, respectively). A significant increase in TN levels on the 3rd day compared with baseline and 1st day levels (P = 0.04, P = 0.03, respectively) was also found.

Conclusion: We concluded that CPB with hypothermic cardiac arrest induces a transient and moderate endothelial injury and/or activation revealed by higher vWF and P-selectin levels. The later are accompanied by a concomitant increase of the fibrinolytic regulator tetranectin in an effort homeostasis between coagulation and fibrinolysis to be restored. The continuously elevated TN levels in conjunction with the significant lowering of vWF, P-selectin, E-selectins and ACE activity observed at the third postoperative day were indicative of a trend endothelium to re-gain its protective role.

P - 179 INTRA AORTIC BALLOON COUNTERPULSATION IN CARDIOMYOPATHY PATIENTS: BRIDGE TO TRANSPLANTATION OR VENTRICULAR ASSIST DEVICE

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Objective: Each year a number of patients with end stage heart failure exceed the available heart transplant supply. Ventricular assist devices (VAD) are extremely expensive and the operative procedure required for implantation has inherent risks of its own. Intra Aortic Balloon Pump (IABP) Counterpulsulation could be a simple and effective tool, for a support of failing adult heart until recovery, transplantation or implantation of ventricular assist device.
Methods: We analysed 10 patients with dilated cardiomyopathy, listed for heart transplantation or implantation of VAD, receiving pre-operative IABP and included in Benchmark counterpulsation registry, between September 2004 and December 2005. We reviewed demographic data, heart function prior IABP and evaluated hemodynamic changes after insertion of IABP, effects of IABP support on organ function (renal and hepatic), frequency of complications and clinical outcomes.

Results: The duration of IABP insertion ranged from 3 to 30 days (mean 9.67±8.02). Hemodynamic improvement was obvious in 30-60 min after IABP insertion. Mean systemic arterial pressure increased from 75.7±9.3 to 83.9±7.4 mmHg. Both the mean pulmonary artery and pulmonary arterial wedge pressures decreased from 54.0±10.0 to 42.6±7.7 mmHg, and from 30.2±17.7 to 16.6±5.6 mmHg respectively. There was a decrease of central venous pressure from 11.1±9.2 to 9.1±6.6 mmHg. Echoscopic examination showed an improvement of left ventricular ejection fraction from 14.5±6.4 to 18.5±8.9%.

After IABP insertion, there was a drop in daily need of diuretics, serum creatinin decreased from 146.7±53.0 to 121.8±48.3 mmol/l, during first 48 h. As well there was a decrease of urea level from 15.0±1.8 to 11.4±5.1 mmol/l.

Three patients showed significant hemodynamical improvement after insertion of IABP. They were successfully weaned off the balloon, recovered without additional interventions and were discharged from hospital. Two patients were successfully transplanted. Four patients were supported with IABP until implantation of Berlin Heart ventricular assist device. There was no incidence of infection, limb ischemia, thrombus, or embolic complications.

Conclusion: Our data, showed that intraaortic balloon pump support may be successfully and safely used in end-stage heart disease, as an urgent measure of cardiac support, ensuring the stable patient condition, improving organ perfusion and giving the necessary time for therapeutically decision making. Full evaluation of IABP support requires further studies and larger group of patients.

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ALTERNATIVE VENOUS GRAFT PREPARATION PROCEDURES FOR THE SURGICAL TREATMENT OF THE SUPERIOR VENA CAVA SYNDROME
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Objective: Alternative saphenous vein graft harvesting methods for surgical treatment of SVC syndrome were performed in the same patient and patency ratio’s were evaluated.

Methods: 34-years-old man referred to our hospital with SVC syndrome. Venography revealed occlusion of the SVC, innominate and right subclavian vein. At the operation proximal part of the SVC, innominate vein, left subclavian vein, distal part of the internal juguler vein were seen occluded. One of the saphenous vein harvested as a classical spiral graft with 8-10 cms long and 1.5-2 cms width. The other saphenous vein cutted longitudinally and sutured over forming a bit longer and narrow graft. This graft anastomosed to the right axillary vein and spiral graft anastomosed to the innominate vein.

Results: After an uneventful postoperative period he was discharged on the 7th day. At the first month, control venography revealed occlusion of the spiral graft and patent longitudinal graft. Endovascular recanalization attempt of the occluded graft was unsuccessful. At the 6th month, control CT venography revealed occlusion of the longitudinal graft. Conclusion: Superior vena cava syndrome occurs 80-90% from malignancies and 10-20% from benign etiologies. Mediastinal fibrosis is the most common benign etiology. Patients that are not suitable for endovascular therapy are treated with surgery. Although autolog saphenous vein grafts are diameterly most suitable graft material for innominate, jugular or subclavian vein systems, the long preparation time, restricted length and increased thrombogenicity due to possible endothelial disruption are disadvantages. Especially this effect is more prominent in the spiral grafts. Grafts that are prepared with longitudinal cutting may be occluded less frequently due to less endothelial disruption and shorter foreign body interaction time and longer grafts may be prepared shortly. These suggestions are in correlation with our case. Spiral graft usage is frequent so the results are reported as good in the literature. Longitudinal graft preparation is rare in the literature so the comparison will be meaningful when the numbers are adequate. Diameter of the spiral graft may be larger than the longitudinal grafts, but because of the narrower diameter the flow velocity may be higher in the longitudinal grafts. Spiral grafts mostly used between right atrium and innominate vein where external hematoma compression is common. Saphenous grafts patency may be improved if the graft is covered with prosthetic graft to protect it from external hematoma compression.