358 Ventricular septal defect - not only congenital heart disease.
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Ventricular septal defect (VSD) is one of the most common congenital lesion. However in some situations damage of the interventricular septum (IVS) occurs and an acquired ventricular septal defect (aVSD) develops. Study group consisted of 67 pts, 36 male and 31 female, age from 22 to 84 years; 59 pts (88%) after myocardial infarction (MI), 2 pts (3%) with a knife chest trauma, 1 pt after post-surgical treatment of hypertrophic cardiomyopathy, 1 pt after valvulotomy in congenital aortic stenosis, 1 pt after aortic valve replacement and 3 with endocarditis.

Method: transthoracic echocardiogram and transesophageal examination in selected pts before or during surgical and invasive procedure were performed.

Results: TTE directly visualized the ruptured IVS in all pts with postinfarction and stab wound VSDs (91% of aVSD). It was necessary to perform diagnostic TEE to demonstrate iatrogenic and postinfectious VSDs (9%).

In group with VSD following MI (in 39 anterior – 66%, in 20 inferior – 34%) mortality was 27% (16pts); 5 pts were operated (died 13 – 37%); in 8 pts aVSD was closed with Amplatzer occluder, in 1pt with 2 devices.

In remaining pts with aVSD – 7 of them were successfully operated; 1 with HCM died.

Conclusions: 1. VSD could be an acquired lesion. 2. MI is the most common reason of aVSD. 3. Iatrogenic VSD is getting to be more frequent. 4. aVSD is associated with a significant mortality. 5. TEE is necessary only in exceptional cases for diagnosis and decision making or to control surgical or invasive intervention.

359 Automated measurement of pulmonary output using a new echocardiographic method.
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Background: The echocardiographic calculation of pulmonary output remains difficult because of the limited capability of assessment. A new automated echocardiographic technique for the measurement of cardiac output measurement (ACM) has been recently developed and validated for aortic output. The aim of this prospective study was to assess the feasibility and the accuracy of ACM method for the calculation of pulmonary output.

Methods: In a population of intracardiac shunt (n = 15, mean age 49 years (range 18-74), atrial septal defect (n = 8) or ventricular septal defect (n = 7)), we have measured the pulmonary output by 2 blinded observers using catheterisation and echocardiography. The pulmonary output was calculated using 1) Fick output principle with invasive oximetric method; 2) conventional pulsed-wave (PW) Doppler method; 3) ACM method with double integration of Doppler signals in space and in time.

Results: All measurements were available except one using ACM and two using PW Doppler. Mean values (±SD) of pulmonary output were 10.3 ± 4.2 l/min using catheterisation, 11.4 ± 8.2 l/min using PW Doppler method and 9.4 ± 5 l/min using ACM. Correlations of pulmonary output between catheterisation using oximetric method and echocardiography were 0.81 (for PW Doppler) and 0.88 (for ACM).

Using ACM, Bland-Altman analysis revealed a good agreement with invasive data (Figure).

Conclusion: These data suggest that automated cardiac output measurement is a feasible and accurate method for the calculation of pulmonary output.

360 Sensitivity and specificity of the colour-duplex ultrasound in functional assessment of the LIMA bypass patency.
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Purpose: With the extensive use of left internal mammary artery (LIMA) as a coronary bypass the non-invasive diagnostic method is gaining a prior necessity in the long-term postoperative LIMA follow-up. The aim of this study was to evaluate the non-invasive colour-duplex ultrasound technique in assessment of the LIMA graft functional status compare to the angiography as a reference method.

Methods: We examined 401 patients after myocardial revascularization with the internal mammary artery bypass using the Hewlett Packard 2500, 5500 ultrasound units. Using the 7.5 MHz linear transducer we detected the LIMA from the left supraclavicular approach at rest. We assessed the peak systolic velocity (PSV - cm/s), peak diastolic velocity (PVD - cm/s), end-diastolic velocity (EDV - cm/s) and we calculated the peak systolic/end-diastolic velocity ratio (SDVR) and resistance index (RI (PSV-EDV/PSV)). The ultrasound results of 108 patients we compared to angiographic results.

Results: We observed the low resistance biphasic Doppler waveform of the patent coronary artery grafts. In dysfunctional grafts we found decrease of diastolic flow velocity, which represents altered coronary perfusion through the LIMA graft, and an increase of RI and SDVR. Compared to angiography the ultrasound detection rate of the LIMA grafts was 92,59%. Unsuccessfully visualisation of 8 grafts, true negative results in 67 cases, truth positive 20, false negative 4, false positive 8. In one case we detected coronary subclavian steal syndrome. The sensitivity of the colour-duplex ultrasound was 83,33%, the specificity was 89,23%. The SDVR of functional grafts was 1,54±0,36, dysfunctional grafts 3,47±0,89. The SDVR of < 2,0 best showed the absence of LIMA bypass dysfunction.

Conclusion: The colour-duplex ultrasound is a useful non-invasive method for the postoperative follow-up of patients with the LIMA graft. It allows the assessment of the impaired LIMA perfusion caused by LIMA stenosis or by atherosclerosis of the coronary artery distal from LIMA Anastomosis. SDVR is the sensitive marker for exclusion of the bypass failure.

361 Applying ultrasound stethoscope in daily cardiologists practice: more advantages than disadvantages.
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Limited and/or focussed echocardiography (LF echo) together with the echocardiography of the other organs have been performed since 1987 by cardiologists. The aim of this study is to evaluate the advantages of the above mentioned consultation.

Methods: Approximately 20 000 pts were consulted from 1987 to 2000. LF echo has been performed after the interviews with pts and their physical examination (i.e., inspection, palpation, auscultation). Morphological data in standard cardiac views, basic linear measurements of structures and cavities as well as Doppler blood flow imaging have been obtained. In case of cardiac derangements, standard full echo with quantitative Doppler function has been performed. In case of clinical indications, LF echo of liver, kidney, pancreas, spleen, thyroid, carotid arteries, abdominal aorta has been performed as well.

Results: This methodology allowed to rapidly diagnose the following cardiac disorders: shunts 137 pts (2.9%), cavity dilatation 740pts (37%), hypertrophy 13000 pts (65%), pericardial effusion 60 pts (0.3%), emergency tamponada 6 pts (0.3%), wall motion abnormalities – 5 pts (0.025%). Cardiac abnormalities have been excluded with a high degree of certainty in 30% cases. The agreements between standard echo and goal-oriented echo was 95% (kappa value 0.871).

The ultrasound stethoscope screening allowed to rapidly identify unexpected non-cardiac disorders: liver diseases in 190 (0.9%) cases, aortic abdominal aeurism in 170 (0.9%) cases, coronary diseases in 95 (0.48%) cases, pancreas diseases in 23 (0.12%) cases, spleen enlargement in 16 (0.08%) cases, thyroid diseases in 180 (0.9%) cases. All pts with visualised abnormalities of these internal organs have been sent to see the appropriate specialist.

Conclusions: 1. To fully examine the patient applying echocardiosthethoscope is highly advantageous: 60% of consulted pts needed standard echo protocol. 2.Echo/ Doppler examination revealed the limitations of the physical examination in many clinical situations, particularly in the early stages of the disease. 3.Ultra- sound stethoscope helps to rapidly identify incidental non-cardiac disorders in 260% cases. 4. It is highly prestigious to apply echocardiosthethoscope in cardiologist’s daily practice. 5. The only disadvantage of the mentioned method is the prolonged duration of the consultation.