OTHER

Paper No: 1.00

Neuroaxial anesthesia methods combined with general anesthesia for beating heart surgery

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Introduction: In Cuba more than 50% of the coronary surgery is carried out with the beating heart modality. Endotracheal general anesthesia has been the technique used in our service. Neuraxial Anesthesia combined with the general anesthesia method, in this last decade, has prevailed in a certain number of the cardiovascular centers of the world, due to their undeniable advantages.

Objectives: To evaluate the effects of the general anesthesia combined with high thoracic epidural blockade or intrathecal administration of morphine/fentanyl on the intraoperative analgesia, time of extubation, intensive care unit and hospital stay. To identify the frequency of appearance of adverse effects related with the spinal administration of opioids and the frequency of appearance of complications related with regional anesthetic’s method.

Methods: A controlled randomized trial was conducted in patients with diagnosis of coronary heart disease, programmed for off pump coronary artery bypass graft surgery. This patients were assigned to one of the following three groups: Control group (n=30): Endotracheal general anesthetic method. Multimodal group (n=29) with thoracic epidural anesthesia: bupivacaína 0,5% (50 mg) 10 ml/single dose and 5 mg of morphine. Multimodal group with intrathecal administration of opioids (n=29): fentanyl 1,5 mcg/ kg and morphine 8mcg/kg.

Results: The total doses of systemic fentanyl were smaller in the multimodal groups (2793 micrograms +915.94 vs 1300 +− 392.79 vs 998 +− 29.10; p<0.001) The time of extubation (7.83 hours +− 5.24 vs 4.57 +− 2.87 vs 1.72+− 1.07; p< 0.001) and the intensive care unit stay (CG=2.83+− 2.42 days, GMOL=1.92+−1.23, GMET=1.41+−0.75, p=0.005) were smaller too, in both multimodal groups, without different between then, but this methods didn’t influence in the hospital stay. A neurological complication associated to neuraxial blockade was not observed.

Conclusions: The multimodal anesthetic methods are more effective, with they a superior perioperative patients evolution were obtained. Key words: Coronary surgery without extracorporeal circulation, intrathecal opioids, high epidural blockade, spinal anesthesia, epidural anesthesia, multimodality anesthesia.

References


Paper No: 63.00

Candenedemia in intensive care unit

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Introduction: There is a need to understand the epidemiology and risk factors associated with candidemia in critically ill patients. The rise in incidence of nori Calbicans candidemia and emergence of antifungal resistance have made such a study necessary. Candidemia in Intensive Care Units (ICUs) setting are of special concern due to high mortality rate.

Objective: The aim of this study was to evaluate epidemiology of Candidemia, associated risk factors and outcome of the disease and antifungal resistance among ICU patients.
Methods: The study was carried out at an Indian tertiary-care teaching hospital, New Delhi, India from a period of three years, January 2005 to December 2008. Prospective analysis of 85 cases of Candida blood stream infection (BSI) done from January 2005 to December 2008. Out of 85 patients, 38 patients were getting repetitive BSI infection and 47 patients got Candida infection only once during their hospital stay. Follow up study was done till discharge or death of the patients and data were analyzed. Isolates were characterized and antifungal susceptibility test was done against fluconazole and amphoteracin B.

Results: Non- C. albicans species accounted for majority of episodes of candidemia as reported by our previous study. Patients in ventilators and foleys catheter along with old age were significantly associated with persistence of infection (P=U<0.05). Overall mortality was (65.8%) 56 of 85 in candidemia patients. The time and the choice of antifungals for the treatment of candidemia were significantly associated with the clearance of the infection (P=0.01) but not with mortality (P=0.23). 30% of the isolates showed decreased susceptibility to fluconazole.

Conclusion: There is a shift in the epidemiology of candidemia and the timely institution of antifungals and combination therapy suggest the better outcome of the patients. Presence of azole resistances is a matter of concern in our isolates. 

References

Paper No: 68.00

Effect of Indian Classical Music (Raga Therapy) on Fentanyl, Vecuronium, Propofol requirement and cortisol levels in Cardiopulmonary Bypass

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Introduction: Indian classical music has immense healing potential and considerable stress reducing capabilities which has been harnessed since the Mughal era. Music is regarded as the medicine with no side effects. Cardiopulmonary bypass is associated with immense stress response and high levels of intraoperative cortisol levels which is detrimental to the patient and involves large doses of Fentanyl, propofol and vecuronium requirement to maintain hemodynamic stability intraoperatively. We evaluated the effect of Indian classical music therapy on cortisol levels and the above drugs requirement during cardio pulmonary bypass.

Materials & Methods: After obtaining clearance from Institutional Ethical Committee and written informed consent from patients, 34 patients were assigned to either Group I Music group (n=17) and Blank CD Group II (n=17). The patients awareness level and depth of anesthesia was monitored by BIS (Bispectral index), Fentanyl and propofol infusion titrated to a BIS score of 50 and neuromuscular monitoring was done by Post tetanic count (PTC) in the Aductor Pollicis muscle. Vecuronium was repeated whenever a PTC count of 7 was achieved, in both the groups. Music therapy or blank CD was played by earphone, in the patient’s ear in both the groups, from 30 mins before induction to till the patient was shifted to the ICU.

Result: We found significant decrease in the cortisol levels both after Sternotomy and after aortic crossclamp release. In the Music group (Group I) which was 30% less than the Blank CD group (Group II). Fentanyl, propofol and vecuronium requirement in the Music group were reduced by 30% and 25% and 25% respectively, which were statistically significant (P<0.05)

Conclusion: Intraoperative Indian classical music therapy effectively reduced the intraoperative stress (as revealed by reduced levels of cortisol) and reduced the requirement of drugs (Fentanyl, Propofol and Vecuronium) during Cardiopulmonary Bypass.

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**Why so much fear to anesthesia?**

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**Introduction:** There are only a few occasions in the course of a person's life, in which one faces the biggest existential problem of humanity, fear of death. This seems to happen when one has the need to undergo an anesthetic-surgical procedure; it is then when the bare possibility of harm and death appears. And it compulsorily reminds us the finite nature of human life.

**Objective:** To verify if it is true the observation that fear of anesthesia is generalized among our patients; and to define which would be the possible causes that more frequently provoke this fear. Finally, it will be evaluated if they are related to the innate fear of death. Material and methods: A survey was designed to be answered anonymously, with eight question. Two were open answers: the definition of Anesthesia and to what he/she associated the word Anesthesia. The other questions were multiple choices. 456 Patients between 18 to 70 years old, were surveyed; xx were facing scheduled surgery and XX were not.

**Results:** 48% answered they would be afraid of anesthesia if they had to be operated. 48.9% were worried the same by the anesthetical act as by the surgical one. 75% of the patients recognized they had never been interested in getting information about how anesthesia is done. 68.8% knew the anesthesiologist is a physician. Only 5% could define correctly the word anesthesia. Those people younger than 30 years old were more afraid of anesthesia; being their biggest fear to feel pain or not to be asleep enough. The same happened to those ones who had never had an anesthetic experience. While those over 30, who had already been anesthetized, felt less fear. They were afraid of dying in the operating room.

**Discussion:** Since most of the surgical patients were over 30, and agreeing with the other studies on this matter, it could be inferred that the biggest fear of our patients is to die during anesthesia. Anyway, the group that expressed fear to suffer pain because of insufficient anesthesia, was surprisingly bigger than expected. What called our attention was the little interest, of this population, to know more about anesthetic experience. Although the fear of death that our patients face before anesthesia and the anesthesiologist's role.

**Conclusion:** Although the fear of death that our patients face when they are going to be anesthetized may not be altered, we consider we must reduce the unfounded fear of not being sufficiently asleep or feeling pain, by getting closer to the patient to dissipate the myth of insufficient anesthesia. That way we will have added comfort to our patients.

**Keywords:** Anesthesia; fear; pain; death

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**PAI-1 and t-PA/PAI-1 complex potential fibrinolytic markers for postoperative bleeding patients**

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**Introduction:** Excessive bleeding (EB) remains a serious problem following cardiac surgery. Bleeding after cardiac surgery is multifactorial in aetiology but fibrinolysis plays a determinant role.

**Objectives:** We hypothesized that lower preoperative level of Plasminogen activator inhibitor type-1 (PAI-1) and lower ratio of tissue – plasminogen activator/PAI-1 complex (t-PA/PAI-1) after surgery may be associated with enhanced fibrinolytic activity and increased bleeding.

**Method:** A total of 88 adult cardiac surgical patients (mean age 66 ±10 years, 48% men) who did not receive antifibrinolytic prophylaxis were enrolled in a prospective study. Variables were collected preoperatively (T0); at admission in intensive care unite (T1), at 6 and 24 hours (T6, T24) after surgery. To allow comparison between patients, two groups were made according to 24-hour postoperative bleeding volume: group I >500ml/24h, group II ≤ 500ml/24h. Correlation of blood amount with routine coagulation tests and fibrinolytic parameters (PAI-1, t-PA/PAI-1 complex, D-dimer) were analysed using SPSS17.0 as linear regression (Pearson’s correlation coefficient). Comparisons between groups were done with two-sample t-test for continuous data, with chisquare test for categorical data. The statistical significance was defined as p value<0.05.

**Results:** Nine patients were excluded from the study due to surgical bleeding. 45% of patients (n=38) had blood loss >500ml/24 hours and were registered as I group. Post-operative bleeding volume significantly correlated with the preoperative level of PAI-1 (r=- 0.3, p=0.009), with haemoglobin and platelet count at T6 after surgery (r=-0.42, p<0.001; r=- 0.3, p=0.02). Level of preoperative PAI-1 and t-PA/PAI-1 complex after surgery significantly differed between I group (n=38) and II group (n=41): PAI-1 19 ± 8.3 vs. 29 ± 13, p<0.001; t-PA/PAI-1 3 ± 1.4 vs. 4.2 ± 2.4, p=0.012. Patients in I group showed a significantly higher level of D-dimers after surgery: at T1 - 318 vs. 228, p=0.05; at T6 - 333 vs. 234, p=0.03; at T24 – 300 vs. 197, p=0.007.

**Discussion:** EB after cardiac surgery is associated with different fibrinolytic activity. There are patients with a lower inhibitory potential for fibrinolysis who could benefit most from antifibrinolytic prophylaxis.
Conclusion: A lower preoperative level of PAI-1 and lower level of t-PA/PAI-1 complex just after surgery may lead to higher levels of D-dimer later on and could be used as fibrinolytic system markers of enhanced fibrinolysis and increased bleeding tendency.

Paper No: 133.00

Influence of PAI-1 promoter polymorphism on fibrinolytic activity of patients after on-pump cardiac surgery

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Introduction: Low plasminogen activator inhibitor -1 (PAI-1) and tissue – plasminogen activator/PAI-1 (t-PA/PAI-1) complex are associated with increased bleeding after on-pump cardiac surgery. PAI-1 levels are influenced by genetic factors. The PAI-1 gene promoter contains -675(4G/5G) polymorphism.

Objectives: Investigate effect of the PAI-1 promoter -675(4G/5G) polymorphism on PAI-1, t-PA/PAI-1 concentrations and on bleeding volume after cardiac surgery.

Methods: Ninety patients who did not receive antifibrinolytic prophylaxis were included in the prospective study. Study was approved by the institutional Committee of Ethics. We obtained informed written consent from all patients for their inclusion in the study. Seven patients were excluded due to surgical bleeding. Eighty-three patients were classified according to PAI-1 genotype: 4G/4G (n=21), 4G/5G (n=42), 5G/5G (n=20). Data of fibrinolysis were recorded: PAI-1 level preoperatively, D – dimer at 0 h, 6 h and 24 hours after surgery, t-PA/PAI-1 complex 24 hours postoperatively. The groups were compared concerning factors which might influence the postoperative bleeding: age, gender, body mass index, surgical parameters, hemoglobin, platelets and fibrinogen. Postoperative bleeding volume was registered as milliliters 24 hours after surgery. Association between genetic polymorphism, fibrinolysis parameters and postoperative 24-hour blood loss were analyzed using SPSS 18 (Student T-test, X2, Fischer's test, Pearson coefficient).

Results: Patients with the 5G/5G genotype had significantly lower preoperative PAI-1 levels (17 ± 10.8 vs. 24 ± 9.6, p=0.04), higher D-dimer levels at 6 h (371 ± 227 vs. 232 ± 184, p=0.03) and at 24 h (326 ± 207 vs. 209 ± 160, p=0.05) and greater postoperative blood volume (641 ± 210 vs. 432 ± 167, p=0.001) compared with 4G/4G genotype. Preoperative PAI-1 level also statistically significantly differed between 5G/5G and 4G/5G genotypes (17 ± 10.8 vs. 27 ± 13, p=0.004). There were no significant differences in blood loss between 5G/5G and 4G/5G genotypes. Complex of t-PA/PAI-1 did not statistically differed between 3 genotypes. The highest level of t-PA/PAI-1 complex had patients with the 4G/5G genotype (4G/5G – 3.9 ± 2.1; 5G/5G – 3.6 ± 2.4, 4G/4G – 3.1 ± 1.8). Correlation was found in 4G/5G genotype between PAI-1 level and blood loss (r=−0.4, p=0.01) and t-PA/PAI-1 complex and blood loss (r=−0.32, p=0.04). Association between PAI-1 and t-PA/PAI-1 complex (r=0.5, p=0.02) was observed in 4G/4G genotype.

Conclusions: PAI-1 promoter - 675 (4G/5G) polymorphism affects PAI-1 concentration, D-dimer level and blood loss indicating that patients with 5G/5G genotype has enhanced fibrinolytic activity.

Paper No: 170.00

Antiallodynic effects of curcumin in inflammatory and postoperative pain in rats

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Introduction: Although curcumin, the major component of turmeric, has recently been shown to have antinociceptive effect in some pain states, the effects on inflammatory and postoperative pain remains to be determined. Thus, in the present study, we investigated the effect of curcumin on such pain.

Methods: Inflammatory pain was induced by a subcutaneous injection of 100¥ı `l of a 2% carrageenan solution into the left hindpaw. For postoperative pain, a 1-cm longitudinal incision was made on the plantar aspect of the left hindpaw of anesthetized rats and closed with 5-0 nylon. Withdrawal threshold to von Frey filament application near the injury site was determined before and after the drug administration. All drugs were injected intraperitoneally.

Results: After both carrageenan injection and plantar incision, the paw withdrawal threshold was significantly decreased in injured sites. Intraperitoneal administration of curcumin at doses from 10 to 100 mg produced antiallodynic effects in a dose-dependent manner in both pain states.

Conclusions: Intraperitoneal curcumin alleviated mechanical allodynia induced by paw carrageenan injection and plantar incision. Thus, systemic curcumin may be a useful in the management of inflammatory and postoperative pain.

Paper No: 195.00

Situation diagnosis of postoperative pain

Cristian Humberto Bosio
Pain is an “unpleasant sensory and emotional experience, related to actual or potential tissue damage, or described in terms of such damage”. Postoperative pain is a type of acute pain iatrogenic through the surgery with him being excluded biological function. Today the consequences of poor postoperative management are known. Satisfaction is currently used as an indicator of excellence in the quality of care and improvement programs are intended to standardize quality pain care. The overall objective of this study was to evaluate postoperative pain patients admitted to surgical wards and thus provide data to assist in the strategic policy planning for treatment and sizing the need for further efforts to improve the quality of care. In January 2011, a descriptive cross-sectional study was done with patients scheduled for elective surgery who agreed to collect data in a survey during the preoperative and postoperative period. Also, collected information on painkillers treatments prescribed. Were processed data obtained from the descriptive analysis of variables in examination. The study observed that 79% of respondents during the preoperative (n=44), thinks that the pain in the first days after surgery, is unbearable. 78% of respondents in the postoperative period (n=55) expressed pain in the first 24 hours following surgery, 54% of these, reported some degree of inadequate analgesia at the time of the interview. We also found a significant relationship between greater levels of pain and greater patient demand for extra analgesic doses according to Fisher’s exact test (p < 0.05). This study showed a high prevalence of incorrect treatment to meet the needs of analgesia in postoperative pain. Diclofenac was the drug most used in 91% of cases and there was a 80% overdose of it. Only one case of opioid analgesics prescription as part of treatment was reported. 93% of cases were classified as inadequate analgesic treatment because of: (i) lack of extra analgesic dose prescription in the presence of pain (93%); (ii) overdosage with NSAIDs (78%); (iii) inadequate analgesia (62%); (iv) dangerous associations between drugs of the same group (25%). The level of patient satisfaction with analgesic therapy implemented by health personnel was very high as evidenced in previous studies. It is recommended that a committee of acute pain to make analgesia protocols. Also, the creation of a unit for pain to control the patients, monitor the analgesic methods and teaching activities for all the staff involved.

References

Paper No: 199.00

Effect of single dose gabapentin on postoperative pain and opioid consumption following total abdominal hysterectomy: A Dose Finding Study

Anand Kumar

Introduction: The multimodal analgesia involves the use of different analgesics is recommended in current practice to provide superior pain relief and to reduce opioid consumption and its side effects. Gabapentin in different dosages has been found effective to reduce opioid consumption and decreasing postoperative pain. We designed this study to find minimum optimal dose of gabapentin to be used with pethidine in our population.

Objective: To determine the minimum effective dose of gabapentin for postoperative pain and reduced opioid consumption in patients undergoing total abdominal hysterectomy.

Methodology: After informed consent eighty seven patients were included in this double blinded randomized control study. Patients were assigned randomly to one of the three groups to receive capsule gabapentin orally 300mg, 600 mg and 900mg respectively, one hour before surgery. Postoperatively pethidine consumption, pain score and side effects of gabapentin were monitored for 24 hours. Rescue analgesia was given and monitored.

Results: The groups did not differ demographically for age, weight and height. Mean pethidine consumption in all three groups was 331 mg /24 hours with no statistical difference among the groups. The results support the use of 300mg single oral dose of gabapentin in reducing pethidine consumption for postoperative analgesia. Rescue analgesia and number of goods and demands on PCA data were also well matched with no statistical significance. The groups also did not differ for side effects of gabapentin like
nausea, vomiting, somnolence and dizziness, however extubation was delayed in 900mg group.  

**Conclusion:** A single oral dose of gabapentin 300mg given preoperatively is as effective as higher dose of 600-900mg for postoperative analgesia with reduced pethidine consumption.

**References**


**Paper No: 214.00**

**The Use Of Sugammadex In Orthopedic Surgeries For The Correction Of Idiopathic Scoliosis With Evoked Potentials Monitorization**

Jorge Barrios Alarcon, Wagner Kouno, Ricardo Ferreira, Oswaldo Cavaliari and Luis Sergio Marques

Sugammadex is a new pharmacologic agent utilized for the rapid reversal of non-depolarizing muscle relaxants. The purpose of this study was to demonstrate the possibility of the use of sugammadex for reversal of rocuronium-induced muscle relaxation before the start of intraoperative neurophysiologic monitoring (IONM) during idiopathic scoliosis with somatosensory evoked potentials (SSEP).

**Methods:** 20 adult patients, with a mean age of 34±10 years, ASA I or II were involved in the study. They all had the diagnosis of scoliosis and were scheduled for surgery to correct their scoliosis with the use of SSEP. Immediately before the start of the surgical instrumentation and the start of the IONM, sugammadex was administered according to the train of four (TOF) and analyzed with the IONM at 0, 1 and 2 minutes.

**Results:** After 2 minutes of the administration of sugammadex, all patients had a TOF >0.9.

**Conclusion:** The utilization of a rocuronium specific antagonist was efficient in promoting the normalization of the motor conduction-response to the stimuli of the IONM in a predictable time.

**Paper No: 228.00**

**Pharmacologic interaction between intrathecal cannabinoid and cox-2 inhibitor in bone tumor pain model of rats**

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**Introduction:** We evaluated the efficacy of nonselective cannabinoid (CB) receptor agonist (WIN 55,212-2) and COX-2 inhibitor (DUP 697) on bone tumor pain in the spinal cord of rats, and also to examine the properties of drug interaction between two drugs, further to clarify the role of CB1 and CB2 receptors on the effect of WIN 55,212-2.

**Methods:** Bone tumor pain was induced by injection of MRMT-1 tumor cells (1 x 10^5) into the tibia of female Sprague-Dawley rats under sevoflurane anesthesia. A polyethylene-10 catheter was inserted into the intrathecal space for drug administration. For pain assessment, a withdrawal threshold was measured using von Frey filament being applied to the tumor cell inoculation site. The effects of intrathecal WIN 55,212-2 and DUP 697 were investigated. Isobolographic analysis was used for evaluation of pharmacologic interaction. And then, the role of CB receptors on the antinociception of WIN 55,212-2 was determined with selective CB1 (AM 251) and CB2 receptor (AM 630) antagonists, and selective CB1 (ACEA) and CB2 receptor (AM 1241) agonists. The expression of CB receptors and COX-2 in the spinal cord was examined with RT-PCR and Western blot analysis.

**Results:** Intra-tibial injection of MRMT-1 tumor cells produced a bone tumor. Also, the paw withdrawal threshold was significantly decreased (mechanical allodynia) in tumor developing site. Intrathecal WIN 55,212-2 and DUP 697 dose-dependently increased the withdrawal threshold. Isobolographic analysis revealed an additive interaction after intrathecal delivery of WIN 55,212-2 and DUP 697. The antinociceptive effect of WIN 55,212-2 was antagonized by both AM 251 and AM 630. Both intrathecal ACEA and AM 1241 increased the withdrawal threshold. RT-PCR showed that CB1, CB2 receptors and COX-2 mRNA were detected in the spinal cord of sham rats, while COX-2 mRNA, but not CB1, CB2 receptors mRNA, expression was increased in bone tumor rats. Western blot analysis indicated that CB1, 2...
receptors and COX-2 protein were expressed in the spinal cord of sham and bone tumor rats, and no significant differences were seen in the expression level between sham and bone tumor rats.

**Conclusions:** Intrathecal WIN 55,212-2 and DUP 697 reduce bone tumor-related pain behavior, and interact additively with each other. The effect of WIN 55,212-2 is mediated through both CB1 and CB2 receptors in the spinal cord.

**References**


**Paper No: 234.00**

**Inexperienced doctors get remarkable skills in fiberoptic intubation after specific training in a virtual airway simulator**

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**Introduction:** It is very essential for anaesthesiologist to be in control when dealing with a difficult airway. Therefore students need to be trained in this discipline. The sooner the better. A somewhat newer method is the use of virtual airway simulators.

**Objectives:** The purpose of this study was to see whether completion of simulator training with a satisfactory and specific endpoint could improve doctors ability to make a fiberoptic intubation significantly faster and more confident than inexperienced doctors.

**Methods:** This study was a randomized clinical study. Ten doctors were included equally split between the control group and the simulator group. Five doctors received training in the Educational Lab at The University Hospital "Rigshospitalet" in Copenhagen, Denmark. Within a week they had to perform a real fiberoptic intubation on an anaesthetized patient in the operating room. The endpoint was time spend during the procedure.

**Results:** The five doctors in the simulator group practiced in average 54 minutes ± 8 minutes and completed between 22 and 33 virtual fiber optical intubations. Then they had to pass a test with specific endpoints: time used (less than 60 seconds), number of collisions (maximum 10) end effectiveness (greater than 80%). Doctors in the control group were significantly slower to FOI compared to doctors who joined the simulator group. Using Mann-Whitney test finding a p-value <0.05. The median difference is 266 and 95% confidence interval [−32 to 542].

**Conclusion:** The use of the virtual airway simulator should become a compulsory part of educating the first year residents in the management of difficult airways. The doctors can gain significant better experience in the use of a fiberoptic scope before meeting a patient in the operating room.

**Paper No: 240.00**

**Local anesthesia for awake craniotomy**

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The intracranial tumor resection on eloquent motor areas are at high risk of developing neurological deficit intrasurgery. Many anesthetic techniques are used to perform this surgical procedure with sedation or intermittent anesthesia Actually, not described multimodal techniques combining regional anesthesia, sedation and systemic analgesia in these patients. We use a technique awake, consistent with the implementation of a complete blockade of scalp plus sedation and analgesia.

**Objective:** To assess the quality of anesthesia, reliability neurological monitoring and control of anxiolysis

**Methodology:** The study included 6 patients diagnosed with tentorial tumor in neighborhood to eloquent areas with radiological signs of intracranial hypertension. Patients without pulmonary or cardiac pathology with Midazolam was titrated with doses of 0.2 to 04 mg / kg IV dose and remifentanil 0.03 to 0.05 ug / kg / min plus and scalp block with lidocaine 2% WOE and bupivacaine 0, WOE 5% at level of greater and lesser occipital, supraorbital and inferior trocheal and mandibular nerves. Antiemetic prophylaxis. We evaluated nausea, vomiting and respiratory depression, cooperative patient, occurrence of neurological deficit, and postoperative pain.

**Results:** All patients were partners (in our scale level of cooperation was good) and were able to perform adequately neurological assessment. The average operative time was between 1–5 hours, the most common tumors were gliomas located in eloquent 50% air and 50% in motor areas. Neurological changes were monitored during surgery in 48% of patients. Adverse events attributable to anesthesia were moderate hypercapnia in 16% without other associated
complications. One patient (16%) showed a complication transoperative, presented a focal motor seizures, which yielded spontaneously. 84% of patients does't require systemetic analgesics in the first 6 hours postoperative.

**Discussion:** The implementation of this technique as well as being innovative in neurosurgical patients turns out to be a safe technique to avoid the continual changes in patient’s anesthetic depth and therefore hemodynamic changes to a patient with intracranial hypertension should not be subject to alteration in cerebral autoregulation and the loss of compliance, so we recommend the use of this technique in a proper patient selection in relation to anxiety and preexisting comorbidities for resection of tumors that allow continuous neurologic payment in intra-and postoperative. We saw the same manner as the patients had adequate pain control.

**Conclusion:** Blockade of the scalp in association with midazolam and remifentanil is effective and safe for administration in awake craniotomy for tumor resection in, allowing optimum collaboration and neurological assessment.

**Paper No: 273.00**

**The effects of intrathecal morphine on patient-controlled analgesia morphine consumption, postoperative pain scores and satisfaction in patients undergoing gynecologic oncologic surgery under general anesthesia**

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**Introduction:** Gynecologic cancers represent a major health problem among women(1). Gynecologic oncologic surgery includes a wide variety of surgical procedures. (2). Postoperative pain is a major concern in these patients because it affects multiple systems and induces physiological, immunological, and psychological changes (3).

**Objectives:** We aimed to compare intrathecal morphine plus patient-controlled analgesia with patient-controlled analgesia alone on morphine consumption, pain relief and patients satisfaction after gynecologic oncologic surgery (GOS) under general anesthesia.

**Methods:** In this double-blinded, randomized, controlled study, 60 women undergoing GOS were allocated to receive either intrathecal morphine 0.3mg (Group 1) or placebo group (Group 2). For the placebo group, the skin was punctured with the dental needle, but it was not advanced beyond the subcutaneous tissue. Monitoring and anesthesia were standardized. Anesthesia was induced with 2 mg.kg-1 of propofol and 2 µg.kg-1 of fentanyl and 0.6 mg.kg-1. of rocuronium. After tracheal intubation, anesthesia was maintained with a mixture of air (0.5 L/min) and oxygen (0.5 L/min) plus 1 MAC of desflurane. On arrival to the postanesthesia care unit (PACU), each patient received a PCA pump programmed to deliver an initial morphine bolus of 0.05 mg.kg-1 at 7 min intervals if pain was more than 60 on theVAS. On discharge from the PACU the pump was reprogrammed for a morphine bolus of 1.5 mg and a 7 min lockout interval and no background infusion. The primary outcome measure was pain relief and patient satisfaction which evaluated by using 100 mm VAS (0-100). Secondary outcomes were morphine consumption, and side effects including nausea, vomiting, pruritus, sedation, fatigue and respiratory depression. Outcome measures were recorded by the same trained nursing staff. at 30 min., 1, 3, 6, 12, 24 and 48 h postoperatively. In a pilot study 20 patients enrolled to GOS under GA consumed an average of 57 ± 21 mg of morphine in the first 48h with PCA pump. To achieve a one-third reduction of opioid consumption with an error of 0.005 and a power of 90%, we needed 26 patients in each group.

**Results:** Fifty six women (28 intrathecal and 28 placebo) completed the study. No differences were noted with respect to age, weight, height, time of surgery and operation type between the groups. Significant difference was demonstrated in morphine consumption (19.25 ± 13 mg and 54.23 ± 22mg in group 1 and group 2 respectively) and fatigue scores. Satisfaction scores and side effects were similar in both groups. Conclusion In conclusion, 0.3 mg intrathecal morphine in gynecologic oncologic surgery could improve postoperative analgesia and reduce morphine consumption without any serious side effects.

**References**


**Paper No: 275.00**

**Heterotopic cardiac transplant**

Nelson Ruiz and Claudio Burgos

**Introduction:** Heterotopic cardiac transplant is a valid alternative: (i) when the recipient is affected by pulmonary hypertension secondary to his left chronic cardiomyopathy and there is imminent risk of acute right ventricular dysfunction; (ii) in patients with heart disease with healing possibilities and no long lasting mechanic assist devices available; and (iii) when the donor has a mismatch higher than 20%.

**Objectives:** Describe the surgical procedure and the experience of this department.

**Material and Method:** We studied eleven patients whose prevalent pathologies were idiopathic dilated...
cardiomyopathy, hypertensive cardiomyopathy. Sinus rhythm was predominant in most cases. The average waiting time was of 271 days. Eight transplants were elective, one urgent and two emergencies. The technique:

**Donor Recipient:** Pulmonary Artery Right Atrium Left Atrium Left Atrium Aorta Artery Aorta Artery (end-to-side) Closed Venae Cavae

- Donor LV ejects towards Ao, in its diastole.
- Recipient LV ejects during donor’s diastole.

—if this is not the case, there will be blood stasis with arrhythmias, displacement of interventricular septum, thromboembolic phenomenon, cardiac arrest. In order to achieve the above, both hearts were synchronized with 2 dual-chamber pacemakers (DDDR).

Pacemaker-1: ABEE connected to recipient’s RA VBEE connected to donor’s RA

Pacemaker-2: ABEE connected to recipient’s RV VBEE connected to donor’s LV

Another option is using one pacemaker (DDD). Pacemaker-1: ABEE connected to recipient’s RV VBEE connected to donor’s LV — with this we are able to: Simplify synchronization and AV interval programming Use recipient’s sinus node to manage both hearts Improve ejection times Reduce costs Control through hemodynamics and transoesophageal echocardiogram

**Results:** Of eleven transplants there were 2 deaths – one due to hepatopathy because of alcoholism and one due to acute vascular rejection.

**Discussion:** The heterotopic cardiac transplant has some difficulties such as incorrect synchrony if donor’s heart rate is higher than recipient’s one; supraventricular arrhythmias of recipient’s or donor’s heart. When choosing one pacemaker, the donor’s heart, whose sinus node was electrocoagulated, allows the native heart to achieve synchrony at the ventricular level, generating a physiological synchrony since the autonomous nervous system is preserved and acts on the cardiac rhythm of the recipient’s heart.

**Conclusion:** In the world there are more than 100 people with two hearts. Our experience, the only one in Latin America, shows that heterotopic cardiac Tx is a valid therapy when there is more than 10% donor/recipient mismatch or severe pulmonary vascular resistance.

**Paper No: 298.00**

**Fast track protocol of extubation after cardiac operations with cardiopulmonary bypass: the role of sugammadex**

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**Objective:** Evaluation of sugammadex effectiveness in fast track extubation protocol (60-90 min) of patients undergoing cardiac surgery with cardiopulmonary bypass (CPB).

**Materials and methods:** From February to August 2011 twenty patients, 12 males and 8 females undergoing cardiac surgery with CPB were enrolled in the fast track extubation protocol. The age ranged from 25 to 61 years (mean age 49,4 ± 5,3), and mean weight was 74,3 ± 6,7 kg. Eighteen patients underwent valve repair/replacement surgery and 2 - combined valve replacement and CABG. Mean CPB time was 78,9 ± 10,4 (50-129) min and aortic cross clamping was 62,1 ± 8,2 (38-111) min. All patients had anesthesia induced with midazolam (0,1mg/kg), propofol (1,0–1,5mg/kg) and rocuronium 1,0 mg/kg. For maintenance of anesthesia before, during, and after bypass, all patients received a continuous infusion of rocuronium (0,4mg/kg/hr), 12 received sevoflurane and 8 propofol. Analgesia was maintained with fentanyl (3,1 ± 0,2mcg/kg/h). At the end of surgery 4 mg/kg sugammadex was administered for reversal of rocuronium. Central hemodynamic parameters, level of neuromuscular blockade (TOF), BIS index, recovery of spontaneous breathing and time to ensure full recovery before extubation were monitored.

**Results:** Throughout surgery mean TOF level was 0,17 ± 0,03 (0,1-0,2). BIS index was 32 ± 6 (30-40%) during surgery and gradually increased after stopping sevoflurane or propofol and reached 67 ± 3 (65-70%) at end of surgery. After sugammadex administration patients regained consciousness, breathed spontaneously, were alert, central hemodynamic parameters were stable and TOF increased to 0,9 within 5 minutes. All patients were extubated in the operating room within 57,0 ± 10,4 (30-120) minutes after injecting sugammadex; they were transferred to ICU with good spontaneous breathing, stable cardiac function, and good biochemical analyses. Mean ICU stay was 18 hours, one patient needed a pacemaker and stayed in ICU for 48 hours.

**Conclusion:** Administration of sugammadex was effective in fast track extubation of patients undergoing cardiac surgery with cardiopulmonary bypass.

**Paper No: 374.00**

**Concept of total myocardial protection by sevoflurane during cardiac surgery with cardiopulmonary bypass: preliminary results**

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**Introduction:** The protective properties of sevoflurane on myocardium have been attributed to anesthetic pre- and post-operative effects, particularly the antimitotic and anti-inflammatory effects acting at the molecular level.

**Materials and methods:** Patients: 88 patients were enrolled in the study. The patients were divided into two groups: Group 1 included 44 patients who had undergone cardiac surgery with cardiopulmonary bypass and received pre- and post-operative sevoflurane for total myocardial protection. Group 2 included 44 patients who underwent the same surgery under standard conditions. All patients were enrolled in the study on the basis of inclusion criteria.

**Results:** The results of the study showed that patients in Group 1 had a lower incidence of postoperative complications, shorter hospital stay, and better outcomes compared to patients in Group 2.

**Conclusion:** The use of sevoflurane for total myocardial protection during cardiac surgery with cardiopulmonary bypass is a feasible and effective approach that may lead to improved patient outcomes.

**Conclusion:** Administration of sugammadex was effective in fast track extubation of patients undergoing cardiac surgery with cardiopulmonary bypass.
postconditioning. Clinically this effect is enhanced when sevoflurane is administered throughout the surgical procedure (De Hert et al., 2002; De Hert et al., 2004; Cromheecke S. et al., 2006). When the aorta is cross-clamped coronary blood flow ceases and sevoflurane cannot be delivered to myocardium. To address this problem we propose the use of ante- or retrograde coronary perfusion. In some studies sevoflurane 2% was added to the cardioplegic solution (Nader N.D. et al., 2004; Nader N.D. et al., 2006) but there were no conclusive data concerning its effect on the hypothermic myocardium.

Objectives: To evaluate the effectiveness of total myocardial protection by sevoflurane (TSMP) during cardiac surgery with cardiopulmonary bypass (CPB).

Material and Methods: After ethical approval and written informed consent TSMP was used in 5 patients undergoing valve surgery (replacement of mitral valve – 2; replacement of aortic valve – 1; mitral and tricuspid valves repair -2) with normothermic CPB from July to August 2011. The study included 2 males and 3 females aged 36 to 62 years (mean 47.4 ± 5.9) with an ejection fraction ranging from 20 to 40%. TSMP was achieved by administering sevoflurane throughout whole procedure: for induction and maintenance of anesthesia in pre- and post bypass periods. During CPB sevoflurane was administered via a vaporizer which was connected to the oxygenator gas supply line. All surgeries were performed on “the beating heart” with constant antegrade or retrograde coronary perfusion. For coronary perfusion blood enriched with sevoflurane (2-3 vol %) from oxygenator was used thus allowing constant supply of sevoflurane to the myocardium even during aortic cross clamping. Mean CPB time was 68 ± 14 min. and aorta cross clamping was 53 ± 16 minutes.

Results: Dobutamine (2-3 mcg/kg/min) was used in 2 patients. All patients underwent exuberation in OR before transfer to ICU. The post operative levels of CK-MB were lower than in non TSMP group. Three hours after surgery CK-MB level in TSMP group was lower by 38.1% to 42.6% and less then 100 000 mm3 or reduced number more then 50%. In 20–50 % of pts thrombocytopenia is severe and often associated with thrombo-embolic and haemorrhagic events. Usually, 5–15 days after the first administration of heparin, immune-mediated HIT occurs, characterised by a mild decrease in in the platelet count and is not harmful. The second type, immune-mediated HIT, occurs much less frequently, thrombocytopenia is the first clinical sign followed by reduced number of platelets, less then 100 000 mm3 or reduced number more then 50%. Sometimes, reduction of platelets number might be less (30-40%). In 20–50 % of pts thrombocytopenia is severe and often associated with thrombo-embolic and haemorrhagic events. Usually, 5–15 days after the first administration of heparin, immune-mediated HIT occurs. Heparin forms antigen complex with pletlet factor 4 (PF4) that is released by platelets. Specific antibodies, formed against complex heparin-PF4, bind to this complex and destroy the platelets. The desruption of platelets, stimulate the formation of new blood clots with consequence of deep vein thrombosis, pulmonary embolism, or even myocardial infarction or stroke.

Objectives: HIT might be life-threatening in patients undergoing open heart surgery, due to thromboembolic events, thrombocytopenia and bleeding. If cardiac surgery with cardiopulmonary bypass (CPB) is necessary, anticoagulation therapy will be based on usage of danaparoid or direct thrombin inhibitors.

Methods: Female patient was switched from per oral anti-coagulant therapy to low molecular weight heparine (LMWH). In the most patients (pts) nonimmune form of HIT occurs, characterised by a mild decrease in in the platelet count and is not harmful. The second type, immune-mediated HIT, occurs much less frequently, thrombocytopenia is the first clinical sign followed by reduced number of platelets, less then 100 000 mm3 or reduced number more then 50%. Sometimes, reduction of platelets number might be less (30-40%). In 20–50 % of pts thrombocytopenia is severe and often associated with thrombo-embolic and haemorrhagic events. Usually, 5–15 days after the first administration of heparin, immune-mediated HIT occurs. Heparin forms antigen complex with pletlet factor 4 (PF4) that is released by platelets. Specific antibodies, formed against complex heparin-PF4, bind to this complex and destroy the platelets. The desruption of platelets, stimulate the formation of new blood clots with consequence of deep vein thrombosis, pulmonary embolism, or even myocardial infarction or stroke.

Introduction: Heparin induced thrombocytopenia (HIT) is coagulation disorder in patients treated by nonfractoned heparin or (rear) by low molecular weight heparine (LMWH). In the most patients (pts) nonimmune form of HIT occurs, characterised by a mild decrease in in the platelet count and is not harmful. The second type, immune-mediated HIT, occurs much less frequently, thrombocytopenia is the first clinical sign followed by reduced number of platelets, less then 100 000 mm3 or reduced number more then 50%. Sometimes, reduction of platelets number might be less (30-40%). In 20–50 % of pts thrombocytopenia is severe and often associated with thrombo-embolic and haemorrhagic events. Usually, 5–15 days after the first administration of heparin, immune-mediated HIT occurs. Heparin forms antigen complex with pletlet factor 4 (PF4) that is released by platelets. Specific antibodies, formed against complex heparin-PF4, bind to this complex and destroy the platelets. The desruption of platelets, stimulate the formation of new blood clots with consequence of deep vein thrombosis, pulmonary embolism, or even myocardial infarction or stroke.

Objectives: HIT might be life-threatening in patients undergoing open heart surgery, due to thromboembolic events, thrombocytopenia and bleeding. If cardiac surgery with cardiopulmonary bypass (CPB) is necessary, anticoagulation therapy will be based on usage of danaparoid or direct thrombin inhibitors.

Methods: Female patient was switched from per oral anti-coagulant therapy to low molecular weight heparine therapy preparing for reredo mitral valve replacement due to endocarditis and artificial valve thrombosis. In next 10 days, thrombocytopenia was obvious (Tr 302 000 mm3 to 11 000 mm3), and
diagnoses of HIT were done. Anticoagulant therapy was continued with danaparoid, 750 IU/12 h sc. During the surgery, reredo mitral valve replacement and aortocoronary bypass on anterior descending coronary artery, blood salvage technique with r-hirudin (intravenous bolus 0.4 mg/kg, in CPB priming solution 0.4 mg/kg and continuous infusion (0.15 mg/kg/h) during cardiopulmonary bypass was used.

**Results:** Active coagulation time were monitored, without any sign of micro thrombosis in circuit. Postoperatively, per oral anticoagulation therapy was initiated with prolonged postoperative treatment due to basic disease, endocarditis. Patient was discharged from hospital on 21-st postoperative day without any complication.

**Conclusions:** Intraoperative anticoagulation strategy was based on efficient and short-life r-herudin supported by apro tinin, fresh frozen plasma and platelets transfusion.

**References**


**Paper No: 384.00**

**Pre-operative fasting policies: are they clear enough?**

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**Introduction:** Pre-operative fasting is fundamental to the practice of anaesthesia and surgery. However despite the existence of fasting guidelines, inconsistencies can be observed in daily practice. This may reflect practitioner preference or incompleteness of the guidelines themselves.

**Objectives:** To evaluate health professionals’ understanding of existing pre-operative fasting guidelines within a London teaching hospital, where anecdotally opinions differ greatly. In addition, to establish if more robust guidelines are needed that would lead to uniformity in practice.

**Methods:** A two-page questionnaire was distributed to anaesthetists, surgeons, nursing and theatre staff at a UK teaching hospital (n=88).

**Results:** At two hours pre-operatively, the percentage of respondents that found it acceptable to consume black coffee, carbonated water, vodka and methadone were: 43.2%, 36.4%, 12.5% and 29.5% respectively. 29.5% of respondents consider chewing gum acceptable up to two hours before surgery. 49% of respondents thought it safe to allow 30ml or more of fluid to ingest medication prior to surgery. 60.2% of respondents would allow medication one hour prior to surgery, but at 20 min only 24.1% found this acceptable. A quarter of respondents would allow a ‘small glass of water’ in an otherwise starved patient, one hour prior to surgery. The rationale given by respondents for their answers was equally split between clinical experience, national and local guidelines.

**Conclusions:** Despite more than four million patients undergoing surgery in the UK every year, there remains ambiguity and uncertainty among peri-operative healthcare professionals in relation to pre-operative fasting. This extends to the rationale for fasting and controversy surrounding the definition of a ‘clear fluid’. There is a paucity of evidence to determine optimal practice and this audit suggests a discrepancy between practice, opinion and published guidelines [1]. For example, in the most recent UK guidelines, chewing gum is allowed up to two hours before surgery rather than six [2]. However, this differs widely to the results of our survey, which demonstrates a lack of awareness in frontline staff of new guidelines, which promote the benefits of reduced fasting times such as increased patient comfort and hydration. In addition, there are national recommendations that each hospital should develop local guidelines. This audit not only highlights the need for more research into this area, but also that health professionals need to be aware that the central tenet of anaesthesia: starvation, can be subject to change.

**References**


**Paper No: 413.00**

**Anaesthetic management of a ploytrauma case with pulmonary thrombus**

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**Introduction:** There is high incidence of venous thromboembolism, comprising of deep vein thrombosis (DVT) and pulmonary embolism (PE), in trauma patients. 1 These patients, on prophylactic or therapeutic doses of anticoagulants may present for surgery. 2 General or regional anaesthesia may be considered depending on the type and urgency of surgery.
surgery and degree of anticoagulation. The anaesthesiologist must be aware with the latest developments of methods and drugs used in the prevention and management of venous thromboembolism and their implications in the conduct of anaesthesia. We describe anaesthetic management of a polytrauma patient having pulmonary thrombus who was scheduled to undergo surgery for hip fracture.

**Case Report:** A 65-year-old male having multiple trauma (B/L fracture of body of mandible, B/L shaft of humerus, left multiple ribs fracture, clavicle and scapula fracture, B/L trochanter fracture, B/L inferior rami fracture) was scheduled to undergo dynamic hip screw fixation for B/L trochanter fracture. Patient had left sided pneumothorax for which a chest drain had been inserted in Accident & Emergency department. Colour doppler findings were echogenic thrombus in left internal iliac and common femoral vein. Left superficial, deep femoral, internal iliac veins were dilated and non compressible showing no blood flow; left posterior tibial vein was compressible in distal part showing blood flow. Right sided lower limb vessels had no sign of DVT. A combined spinal epidural anaesthetic (CSEA) involving needle through needle technique was considered for proposed surgical procedure. Patient’s hemodynamic parameters were stable following CSEA. Surgery lasted for 2 hours. The intraoperative period remained uneventful. Patient was shifted to ward after observing in recovery room for 1 hour. The epidural catheter was removed third day postoperatively.

**Results:** The patient had an uneventful postoperative course in the orthopaedics ward and was discharged home after three weeks.

**References**


**A case that concurrent renal and cardiac transplantation was applied**

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**Introduction:** There is no guideline for the concurrent renal and cardiac transplantation or cardiac transplantation only in patients with cardiac and renal insufficiencies at the same time. Presence of renal insufficiency is accompanied by an increased risk of mortality in patients with cardiac transplants.

**Case:** The thirty-four year-old male had known asthma and high blood pressure in his medical history. He was diagnosed with renal insufficiency secondary to HT 3 years ago, and the ECHO study in the same period revealed medium-level pulmonary hypertension with second degree tricuspid regurgitation and PAB measurement as 48 mmHg. He had respiratory arrest twice during the follow-up, and cardiac arrest related to ventricular fibrillation once and was resuscitated with CPR. In the ECHO, EF was 40%, PAB was 69.76 mmHg, had 3° mitral regurgitation and 2° tricuspid regurgitation. He was taken to the operation room for renal and cardiac transplantation from a cadaver. The findings of the patient were as follows: BP: 84/52, Heart rate: 112, SpO2 :100, and he the anesthesia induction was made using etomidate 0.2mg/kg, vecuronium 0.15mg/kg and fentanyl 10mcg/kg; later the anesthesia was maintained with using a mixture of 50% air-O2 and 1 ltr/min sevofularane and remifentanyl infusion. The pulmonary artery was catheterized. Cardiac transplantation was carried out after median sternotomy with medium-level hypothermia and bicaval anastomosis method. Intra-aortic balloon pump was applied before terminating the bypass. The cardiopulmonary bypass was terminated after ensuring the hemodynamic stabilization. The kidney was transplanted to the right iliac fossa from the cadaver. 1 unit of RBC, 2 bags of platelets and 4 units of TDP replaced throughout the operation. He was referred to cardiovascular surgery ICU, where he was followed up in the ICU for one month. He was extubated in Day 6 postoperatively, and then was discharged fifteen days later.

**Discussion:** There are so few studies on the concurrent renal and cardiac transplantations. Ensuring the perioperative hemodynamic stability and small amounts of blood loss are the main targets of long-term renal functions in kidney transplantation cases. Likewise, in our case 1 unit of RBC was replaced throughout the operation. The renal functions are among the determining factors of morbidity and mortality in open cardiac surgeries. In our patient who had cardiac and renal insufficiencies, kidney and heart were transplanted successfully in the same operation.

**Reference**

Conclusion: Patient blood management leads to excellent outcome in JW patients and should be the standard care for any patient, who can't get blood transfusion because of different reasons (religion, technical or absence of corresponding blood group), even if there is strong medical indication for blood transfusion.
Paper No: 519.00

Organising an anaesthesia conference in Sierra Leone

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Introduction: Anaesthesia provision in some West African countries is in crisis due to lack of funding, equipment, suitable drugs and disposables. But also relevant is the lack of medically trained anaesthetists and CPD. In Liberia the service for 3.5 million people is provided only by anaesthetic nurses and in Sierra Leone there are only 4 doctor anaesthetists for a population of 5 million.

Objectives: To organize a 3 day anaesthesia conference in Freetown.

Methods: Contact was made with the country’s senior anaesthetist Dr Michael Koroma by phone and email six months in advance and the dates of the conference were agreed. An 8 strong faculty consisting of 5 consultants and three trainees, all UK based, were chosen. Flights were booked. Accommodation was organized on board the MV Africa Mercy in the port only 10min walk from the conference venue, the Princess Christian Maternity Hospital. Mercy Ships also agreed to provide visas and in country transport. The program was based on workshops preceded by short presentations. 3 main topics were obstetric, paediatric and trauma anaesthesia. Travel expenses of $20/delegate were agreed. Funding was found for lunch, T-shirts and attendances certificates were designed. Projectors were organized.

Results: 79 anaesthesia providers including 20 trainees attended the conference. At registration on day 1 the delegates were asked to write down their name, hospital, position, mobile number and email. A name card, pouch, lanyard, T-shirt, writing pad and a pen were given to each attendee. They were also given a topic for a prize essay to be handed in at the end of the second day. At the end of each day a quiz was held with questions based on the topics covered during the workshops. All delegates were encouraged to fill in feedback forms at the end of each day. At the closing ceremony CDs including all the presentations and other useful information were provided for each delegate

Conclusions: The conference seemed to go well and the feedback was generally very positive but it is difficult to measure objectively whether the conference might have any affect at all on standards of anaesthesia. But it was good for anaesthesia providers from all over Sierra Leone to meet, make new friends, establish professional contacts and discuss the similar difficulties they all have in struggling to provide some sort of anaesthesia service for a country which has only recently emerged from 10 years of civil war.

Paper No: 520.00

Blood loss substitution with the 3-fold amount of ringer’s lactate is insufficient to maintain normovolemia in humans

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Introduction: Isotonic crystalloids play a central role in perioperative fluid management.1 Isotoncotic colloids (e.g. human albumin or hydroxyethyl starch) remain nearly completely intravascular when infused to compensate for acute blood losses.2 Recent data were interpreted to indicate a comparable intravascular volume effect for crystalloids, challenging the occasionally suggested advantage of using colloids to treat hypovolemia.3 General physiological knowledge and clinical experience, however, suggest otherwise.

Objectives: To show the short term intravascular volume effect of crystalloids by direct blood volume measurements.

Methods: In a prospective clinical trial, double-tracer blood volume measurements were performed before and after intended normovolemic hemodilution in 10 female adults, simultaneously substituting the 3-fold amount of withdrawn blood with ringer’s lactate. Any originated deficits were substituted with half the volume of 20% human albumin, followed by a further assessment of blood volume.

Results: 1,097 ± 285 ml of whole blood were withdrawn (641 ± 155 ml/m² body surface area) and simultaneously replaced by 3,430 ± 806 ml of ringer’s lactate. All patients showed a significant decrease in blood volume after hemodilution (−459 ± 185 ml; p<0.05) which did not involve relevant hemodynamical changes, and a significant increase in interstitial water content (+2,157 ± 606 ml; p<0.05). The volume effect of ringer’s lactate was 17 ± 10%. The infusion of 245 ± 64 ml of 20% human albumin in this situation restored blood volume back to baseline values, the volume effect being 184 ± 63%.

Conclusions: Substitution of isolated intravascular deficits in cardiopulmonary healthy adults merely with ringer’s lactate impedes maintenance of intravascular normovolemia. Replacement of blood losses by crystalloids, are required at the 5-fold amount. Main side effect was an impressive interstitial edema.

References
Incidence of epidural anesthesia in kindney's transplant

Allysson Magno Soares Rbeiro,
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Nadya Giselle De Almeida Silva and
Kyara Coeli Soares Rbeiro

Introduction: The anesthesia in kidney’s transplant started to be used in the beginning of 20’th century. With the advent of pharmacological researches, the spinal anesthesia used at first, was substituted by general anesthesia, making possible the patients monitoring with more security and less procedure effects.

Material and Methods: The aim of this research was to evaluate the epidural anesthesia in kidney’s transplant at Policlnica Pato Branco - PR. A retrospective study was conducted, with 320 patients, from 1986 to 2008. Varieties such as gender, age, blood tipe, anesthesia tipe, donator tipe and port-anesthesia complications were considered. For statics, it was used the student test T.

Results: In this research it was observed the prevalence of male over female gender (58,7%). The age with more incidence was between 41 and 45 years old (16,9%). Type O positive was the predominant blood type seen(45,6%). The epidural anesthesia was the most prevalent, corresponding to 89% from total of anesthesia procedures. The dead donators were more prevalent. Relevant complications weren’t found in none of the procedures.

Conclusion: In this research it was observed that epidural anesthesia is a technic that can be used in kidney’s transplant, because it doesn’t bring severe complications. Its value to say that the absence of depressing drugs, constant arterial blood pressure monitoring, and heart frequency show us that this kind of procedure makes this transplant safe and able, so that the patient can get a better recovery after surgery.

References
1 Revista Brasileira de Anestesiologia, 1988; 38: 5: 321–325

Patient autonomy kills

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Introduction: Gillon considers autonomy as first among equals, because it is a necessary component of aspects of beneficence, non-maleficence and justice. These provide the moral framework for a moral mission statement for the goals of medicine in whatever culture - provision of health benefits with minimal harm in ways that respect people's choices for themselves and that are just or fair to others.

Objective: This case illustrates how choice driven patient care, on the basis of informed consent by respecting patient autonomy can affect patient outcome. Sometimes medical paternalism is appropriate especially in highly specialised field.

Method: A post-surgical neurosurgical intensive care patient case-study. Results 40 year old Mr X presented to Neurosurgery with seizures, symptoms of vu. MRI revealed a 3 x 2.5 x 2.3 cm right temporal lobe lesion. The neurosurgeon advised craniotomy, total lesion excision and possible subsequent chemo or radiotherapy. After doing some research Mr X opted for stereotactic biopsy only and total excision at a subsequent operation. 3 days after uneventful biopsy, he suffered severe headaches and became unconscious. Urgent CT scan revealed massive intracerebral bleed from the tumour into the temporal lobe. Despite emergency decompressive craniectomy, clot and tumour excision, he did poorly, losing his brainstem reflexes. He became hypotensive. One week after the biopsy, the family requested withdrawal of ventilator support.

Discussion: Post-operative bleeding after stereotactic biopsy is a known complication since the site of biopsy is not visible to the surgeon, despite being less invasive. If Mr X had agreed for a craniotomy, total tumour excision can be performed at one sitting and proper haemostasis secured. Unlike certain operations (eg breast cancer) where histology would determine the next definitive operation, craniotomy and total excision of this small lesion would be appropriate, sparing him the risks from 2 surgeries and general anaesthetics. Mr X’s treatment was undertaken after informed consent was voluntarily given. He demonstrated correct understanding of the nature of the procedure, risks, benefits and alternatives.

Conclusion: Did autonomy kill Mr X ? Would his outcome differed if the neurosurgeon, as the expert, had exercised medical paternalism, insisted that total tumour excision at one sitting is best? However, Mr X gave valid consent as he was informed, was competent and not coerced. 1 This case illustrates that patient autonomy can work against patients best interests, like many other instances of competent patients exercising their autonomy by refusing beneficial treatment. Over-riding their decision and treating them amounts to battery.

References
1 Ethics needs principles-four can encompass the rest-and respect for autonomy should be first among equals R Gillon J Med Ethics 2003; 29:307–C312
Introduction: Yawning is a stereotyped behavioral pattern that usually occurs during normal and pathologic conditions. The psychophysiologic significance of yawning seems to be an arousal reflex to increase attention. One of the most frequently encountered clinical situations during which yawning occurs is the IV induction of general anesthesia. A typical yawn is characterized by a single large inspiration with simultaneous mouth opening and stretching of the trunk. The triggering factors, however, are not still clearly known and role of yawning is controversial.

Objectives: To find out triggering factors of yawning during induction of general anesthesia with propofol and to reveal the significance of yawning

Methods: Patients who were between 18–50 years old, of ASA I–II, and scheduled for surgeries except thoracic, cardiac and organ transplantation surgeries under general anesthesia were included. Patients with neurologic dysfunction, in use of benzodiazepines, anticonvulsants, alcohol, opioids, or other psychotropic drugs (chronically or within 21.34 days) were excluded. The patients who were on benzodiazepines, anticonvulsants, alcohol, opioids, or other psychotropic drugs were excluded. To examine the occurrence of yawning, the anesthesiologists waited for the maximum of 45.07 seconds after propofol administration. To determine whether yawning is spontaneous and good breathing pattern - spontaneous breathing, the anesthesiologists waited for the maximum of 45.07 seconds after propofol administration. To determine whether yawning is spontaneous and good breathing pattern, patients who yawned showed significantly lower Spielberg anxiety score than patients who did not (48.70 vs 50.50, p<0.05). 31 patients who yawned and 25 patients who did not yawn were anesthetized before 2 p.m. and after 2 p.m. which failed to show statistical significance. Unlike the patients who did not yawn, the patients who yawned showed transient increase during the continuing decrease in the BIS value after propofol injection.

Conclusion: Less anxious patients tend to yawn more than more anxious patients. Though diurnal cycle may have some relevance to yawning, further study with large sample size is needed to prove statistical significance.

Paper No: 572.00

Use of propofol TCI in conductive anesthesia for sedation intraoperative as a method strategic for knowledge, titulation and prediction of this drug

Jose Joaquin Egas-Dominguez and Alexandra Caballero Mendoza

Introduction: Advances in anesthesia techniques such as TIVA TCI in our country is relatively recent. The management of Propofol has been a challenge for us, so we decided to use in TCI as a supplement in Anesthesia effect conductive, while frequent and rationed their use allowed us a better understanding of the drug

Objectives: Properly handle and holder TCI effect propofol in conductive anesthesia, and relationships dose with this degree of clinical change: consciousness, ventilation and hemodynamics, as well as provide the patient a perioperative state without anxiety and greater sense of wellbeing.

Methods: Clinical Observation was performed in 46 patients with conductive anesthesia. TCI effect propofol was infused, we use Marsh and Schneider pharmacokinetic models of pump Base Primea Orchestra. It started with a dose of 0.5 ug/ml in all patients, was climbing the dose and slow upward of 0.1 ug/ml until desired sedation with spontaneous ventilation, good breathing pattern, Ramsay 3–4, and saturation between 95 and 100% O2 at 2 liters per minute.

Results: We included 46 patients with mean age of 50.47 years (range=17-92 years). The mean dose of propofol TCI actual effect was 0.8 ug/ml (range 0.3 to 1.4 ug/ml), Marsh pharmacokinetic model was used in 65.2% (less than 60 years old) and Schneider in 34.8% of patients (more than 60 years old). Gain the qualification there was no need for changes in doses despite prolonged surgical times. Mean operative time 127.82 minutes (range 60-300 minutes). Ventilation was spontaneous and good breathing pattern throughout the perioperative SpO2 between 95 and 99% (mean=97.6%). The state of consciousness was assessed with the Ramsay scale which remained unchanged throughout the postoperative value 3 (6% of patients) and 4 (94% patients). No significant hemodynamic changes in the propofol infusion than expected by conductive anesthesia, because the doses of propofol were up and paused. 100% patients reported great satisfaction of sedation

Conclusions: Management of Anesthesia conductive TCI propofol and holder allows the drug known as the desired effect. The results also help us to plan their proper use in induction and maintenance of intravenous anesthesia.
Paper No: 584.00

Experience in anaesthesia management for major pelvic ring surgery

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Introduction: Pelvic ring fractures occur as the result of high-energy trauma as car accidents or falling down from a distance. Mortality rate of patients with pelvic ring fracture depends on the type of pelvic fracture and/or from other adjacent organ injuries and may reach 20%.

Purpose: The aim of this study was to determine the different anaesthesia techniques during major pelvic ring surgery.

Materials and Methods: Retrospective analysis was carried out in Lithuanian University of Health Sciences Hospital. There were analyzed 101 patients who underwent major pelvic ring osteosynthesis operations during the period 2003-2010. Analyze demographic data of the test group, rated ASA class, anaesthesia techniques and workflow features. Data were analyzed using Microsoft Excel and SPSS 13.0 software. P value <0.05 was considered statistically significant.

Results: Polytrauma was diagnosed to 81 (80.2%) patients while isolated ring injury was diagnosed to 20 (19.8%) patients. Patients' age average were 41 ± 15.18 years. According to ASA classification 4 (3.96%) were ASA class I, 56 (55.44%) – ASA class II and 41 (40.59%) – ASA class III. 75 (74.25%) patients were assigned for endotracheal anaesthesia, 20 (19.80%) – for spinal, 3 (2.97%) combined epidural – endotracheal and 3 (2.97%) for spinal-epidural anaesthesia. Average duration of surgery procedure was 151.3 ± 64 min. Intraoperative fluid infusion therapy consisted mainly of cristaloids 2668.5 ± 844 ml, 35 (34.65%) patients had additional infusion of colloids 551.43 ± 167 ml. Before operation blood transfusion was applied for 39 (38.61%) patients, intraoperative blood transfusion was applied for 24 (23.76%) patients, postoperative blood transfusion was applied for 32 (31.68%) patients. Fresh frozen plasma was infused during the operation for 4 (4.7%) patients. Hemodynamic instability (hypotension) was observed in 57 (56.43%) patients, of which 44 (77.19%) had endotracheal anaesthesia and 13 (22.81%) had spinal anaesthesia. No significant differences were observed in the development of hypotension between spinal and endotracheal anaesthesia (p>0.05). 80 (84.7%) patients were returned to Trauma department after operation, 21 (15.3%) – were transported to Intensive Care Unit and 6 of them were monitored for respiratory failure.

Conclusions: 1) Frequently major pelvic ring surgery was performed under endotracheal anaesthesia. 2) Hemotransfusion statistically significant was preformed during the time of anaesthesia comparing to preoperative and postoperative period. 3) The frequency of hypotension was not statistically significant comparing endotracheal and spinal anaesthesia.

Paper No: 591.00

Anesthesia total intravenous based in the analgesia with effective minimum dose of propofol controlled with cerebral monitor IoC - view

Jose Joaquin Egas-Dominguez and Alexandra Caballero Mendoza

Introduction: Based on the concept of stress-free anesthesia, effective management of analgesia is essential. The pharmacokinetic profile of remifentanil offers advantages for this type of anesthesia, and hypnosis has lower requirements. But we owe monitor the anesthetic depth to prevent memories due to superficial anesthesia.

Objectives: Anesthesia based on the analgesia with high doses of remifentanil and to decrease doses of propofol, keeping an adequate anesthetic plane, and to control depth of anesthesia with monitor IoC – View and correlate this with hemodynamic status.

Methods: Propofol-Remifentanil TIVA TCI 60 patients. Induction with increasing doses of propofol until loss of consciousness and brain monitor IoC - View value between 40 and 60, was administered followed muscle relaxant and start with dose of remifentanil until values of 10ng/ml or more, while we began to descend Propofol. We proceeded to intubate, and before the surgical incision is further increased remifentanil, propofol was maintained at low doses. Always check that the brain monitor is kept between 40 and 60. Multimodal analgesia was performed to prevent postoperative pain.

Results: We studied 60 patients. Average dose induction propofol TCI (effect) before administered muscle relaxant was 2.7 ug/ml (Range 2.0 to 3.5 ug/ml) and intraoperative maintenance dose in 70% of the patients was 1.8 ug/ml. Other 30% was from 1.4 to 1.7 ug/ml. Remifentanil TCI average dose effect on intubation was 11 ng/ml and 13ng/ml anesthesia maintenance (Range 11-15 ng/ml). Brain Monitor IoC-View when higher dose of propofol for induction was value 54, at the time of intubation 48, and during the intraoperative 45 average. Waking the value of propofol in 75% of the patients was between 0.6 and 0.9 ug/ml, the other 25% was 0.4 and 0.5 ug/ml. Remifentanil for waking the average was 3.3 ng/ml. The value of IoC View at this time was 98. There was good correlation between the values of IoC-View and hemodynamic clinical parameters, making safe and fairly predictable technique.

Conclusions: Anesthesia based on the analgesia offers a stress-free surgery, requiring lower doses of the hypnotic,
which are safe using the IoC - View brain monitor, the same one that demonstrated excellent clinical correlation.

Paper No: 609.00

Epidural ozone treatment for chronic pain lumbar for disk hernia
Alexandra Caballero Mendoza and Walter Andrade Mendoza

Introduction: Today has been a growing awareness of the benefits of ozone in many areas of medicine. The remarkable efficacy of this gas in analgesic and anti-inflammatory effects in addition to its ability to absorb and dry the disc material have led to its use in such conditions that cause chronic pain, as well as the techniques used are less invasive

Objectives: To administer ozone in the epidural space in patients with herniated disc, thereby reducing the size of the hernia and consequentially the relief of chronic pain

Methods: We had 17 patients diagnosed clinically and with MRI of lumbar disc hernia at different levels, arrived with pain and limitations referring to certain movements and activities. Ozone was administered into the epidural space at the herniated disc in three sessions, a weekly for three followed weeks. In each session, once reached the epidural space with a Tuohy needle were administered 15 ml of ozone gas slowly. Pain relief was assessed with the EVN scale (Verbal Numeric Scale). We performed a clinical control and MRI the year after treatment.

Results: The average age of the patients is 53.5 old years (29-86 old years). EVN baseline was 6 (2 ptetes), 7 (4ptetes), 8 (9ptetes) and 9 (2ptetes), in the second session EVN had fallen to 50%, and the third session of 90%. At the monthly monitoring all patients reported no pain, and could perform all normal activities. Subsequent verification was performed MRI which revealed no evidence of hernia. At year there is new control patients reported improvement of the total (19.5%) died; the group aged over 60 years showing the highest mortality (35%) and the group below 20 years showed the least mortality (3.8%). Endoscopic procedures were done on 79.2% of cases and open procedures (Thoracotomy – mediastinotomy) on 20.8% of the cases. Patients (67.5%) and 25 women (32.5%). Fifteen patients previously scheduled column invasive surgery, after successful treatment they did not need surgery. Currently we have more patients in treatment, they are not included in the study and not yet completed the year after treatment, but to the moment the results are satisfactory.

Conclusions: Epidural Ozone proved to be a safe, effective and minimally invasive technique, pain-relieving chronic disc herniation by causing dehydration of the disc and consequent reduction in the size of the hernia.

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Paper No: 612.00

Thorac surgery mortality at the high complexity general hospital center of Neiva – Colombia – 2010
Daniel Rivera Tocancipá and Andrés Barreiro

Introduction: At present, thorax surgery covers a wide spectrum; it includes infectious diseases, congenital, trauma and cancer. This is possible thanks to scientific progress (risk stratification, surgical techniques, anesthesiaology techniques, pain management and ICU management) and technological advances video thorascopy, bronchial blocking and mechanical ventilation. The Hospital Universitario Hernando Moncaleano Perdomo de Neiva is an institution that takes care of all kinds of pathologies and patients (General Hospital) with limited economic resources. Thoracic surgery is frequent and it is therefore important to know our mortality statistics. The 2010 databases were revised to gather the basic epidemiology data of the patients who had undergone thoracic surgery, as a basis to improve care and carry out further research.

Objectives: Determine mortality on day 28 and basic epidemiological aspects of adult patients undergoing thorax surgery at the HOSPITAL UNIVERSITARIO HERNANDO MONCALEANO PERDOMO, of Neiva - Colombia, during the period of January 1st to December 31st, 2010.

Method: Retrospective observation study taking into account as secondary data sources the operating theater records, the statistics service and the hospital mortality records. The analysis was done using Epi-info 3.2.

Results: During 2010, 77 thoracic surgery procedures were carried out, of these an 87% (67 patients) were programmed 13% (10 patients) were emergencies. There were 52 male patients (67.5%) and 25 women (32.5%). Fifteen patients of the total (19.5%) died; the group aged over 60 years showing the highest mortality (35%) and the group below 30 years showed the least mortality (3.8%). Endoscopic procedures were done on 79.2% of cases and open procedures (Thoracotomy – mediastinotomy) on 20.8% of the cases. The intraoperative mortality rate was 1.3% (1 patient); 50 patients were moved to a standard Post-Anesthesia Care Unit (65%) and 26 (33.7%) to an Intensive Care Unit. The most frequent procedure was thoracoscopy plus pleuropulmonary decortications (70.1%). See table 1.
Conclusions: As reported in the literature the thoracic surgery mortality rate at 28 days is high (between 15% and 23%) and we fall within that range. Most of these procedures are done in patients over 50 years of age, when co-morbidities increase. Deficiencies were found in the hospital databases with under recording of activities, limiting the studies and epidemiological decision making.

References

Table 1 Thoracic surgery procedures

<table>
<thead>
<tr>
<th>Procedure</th>
<th>n</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Thoracoscopy plus decortication</td>
<td>54</td>
<td>70.1</td>
</tr>
<tr>
<td>tracheal surgery</td>
<td>8</td>
<td>10.4</td>
</tr>
<tr>
<td>Lung resection by Thoracoscopy</td>
<td>6</td>
<td>7.8</td>
</tr>
<tr>
<td>Lobectomy by Thoracotomy</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>Thymectomy</td>
<td>2</td>
<td>2.6</td>
</tr>
<tr>
<td>Thoracotomy pneuorraphy-Pleurodesis</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Mediastinoscopy</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Mediastinic mass resection</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Thorax wall mass resection</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Diaphragm hernia correction</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>TOTAL</td>
<td>77</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2 Distribution per age group and mortality Thoracic surgery procedures

<table>
<thead>
<tr>
<th>Age</th>
<th>Procedure</th>
<th>n %</th>
<th>Deaths % (deaths per group)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 to 30</td>
<td>26 33.7</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>31 to 50</td>
<td>18 23.4</td>
<td>3</td>
<td>16.7</td>
</tr>
<tr>
<td>51 to 60</td>
<td>13 16.9</td>
<td>4</td>
<td>30.8</td>
</tr>
<tr>
<td>Over 60</td>
<td>20 26</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>TOTAL</td>
<td>77 100</td>
<td>15</td>
<td>19.5</td>
</tr>
</tbody>
</table>

Induction in sitting with noninvasive ventilation in patients with morbid obesity

Francisco Tascon, Billal Smailli and Andrea Vergel
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Introduction: Obesity represents a public health problem that conditions high morbidity and mortality conditions. Metabolic surgery imposes itself as a palliative method, and even as a cure. The management of the patients is a challenge for the anesthesiologist team specially in airway management.

Objective: Evaluate the benefits of noninvasive ventilation in sitting position in the anesthetic management of patients with morbid obesity bariatric surgery.

Methods: We report an observational study with seven patients with morbid obesity 3 women and 4 men with an average body mass index BMI of 47,42 and an average age of 35 years All of them were planned for metabolic surgery. The patients were evaluated and trained with noninvasive ventilation before surgery using the workplace anesthetic fan. That fan was previously set up, with patterns of pressure support peep and flow high. The day of surgery the patient is not lying down, the patient enters the room, sits in front the operating table and is placed a face mask fastened with an elastic harness. Then stars the induction with Sevoflurane CAM 4 volume %, Fentanyl 200 mcg, Lidocaine 1.5 mg per kilogram of ideal weight, the dream is referred patient lies down then is administered variable dose of Propofol. The next step is to perform a laryngoscopy with a "McCoy sheet" and an intubation using endotracheal tube with guiding. In according with this step previously is recommended to use local anesthetic on the glottis. we evaluate the time to ensure optimal conditions for intubation, oximetria in first 6 minutes, drug doses, need of muscle relaxation, easy to ventilate.

Results: All patients (total of seven) were intubated at the first attempt, the average time to secure the airway was 3.19 minutes (minimum 3.05 maximum 3.45), pulse oximetry was on average 96.37% saturation. Only one patient presented saturation 58% 2.4 minutes after intubation, none deserves muscle relaxation. The maximum dose of Propofol was 400 mg for only one patient, the rest six patients were administered doses of 200 mg being the average of 228 mg, all received a standard dose of 200 mg of Fentanyl. Just Three patients (42.8%) needed be fan.

Conclusion: There are a lot of advantages of this method and on this way is possible to avoid aortocaval compression, the commitment of the CRF. Making intubating conditions without muscle relaxants and standard doses of drugs safely and without periods of desaturation.
Challenges faced in the teaching of medical ethics in the intensive care unit
Claire Ang
Singapore General Hospital Dept of Anaestheiology

With the advancement of technology, medical practice has become increasingly complicated. Bioethics emerged as a distinctive discipline in response to the challenges posed by these technological advances; particularly end of life issues and patient autonomy. Ethical dilemmas are often seen in the intensive care setting. In order to teach medical ethics in such a way that is relevant to the practicing clinician, we must first recognize the problems faced. This discussion is confined to a surgical intensive care unit in our hospital but the principles can be applied universally.

Problems a) Medical/nursing staff The stresses of intensive medical and nursing care in a busy unit are such that ethical considerations may often be overlooked. Senior staff may be too busy or not conversant with ethical issues as many would not have received formal training in this area. b) Communication The critically ill patient is usually unable to communicate with his health care providers. Furthermore, in our Asian culture, issues pertaining to end of life are seldom discussed among family members. The management of patients involves multi-disciplinary teams who may not always concur on ethical issues. c) Education Although medical ethics is incorporated into the medical school curriculum, there can sometimes be a disconnect as students are unable to relate theoretical principles to their clinical practice. Junior doctors also face difficulties in dealing with and learning from ethical problems. Academic staff may be out of touch with the problems faced on the ground while practicing clinicians may lack teaching ability.

Possible Resolutions a) Medical curriculum The syllabus taught has to be relevant to clinical practice, with clinician input taken into account. b) Educating clinicians Forums, discussions and conferences will only reach out to a small proportion of clinicians and attendance at these are often superseded by other academic and training requirements. Ideally, the teaching of ethics should be incorporated into daily ward rounds; perhaps initially the teaching can be limited to a specific case discussion.

Conclusion: A mindset change is thus required. One possibility is the training of interested clinicians in teaching ethics who are then invited to these ward rounds to share their expertise.

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Low-volume acute normovolemic hemodilution in elective coronary surgery performed with cardiopulmonary bypass
Nemanja Mijajlovic, Miomir Jovic Djordje and Radak Branko Calija

Institute for Cardiovascular Disease "Dedinje", Institute for Cardiovascular Disease "Dedinje", Belgrade, Serbia, Department of Anaestheiology

Introduction: Acute normovolemic hemodilution (ANH) refers to the removal of blood from the surgical patient immediately before or just after induction of anesthesia, replacement with asanguinous fluid, and later reinfusion of the withdrawn blood. It is simpler and less expensive to obtain autologous blood by ANH than by preoperative autologous blood donation. Numerous studies confirm positive effects of ANH with the use of drugs with hemostatic properties on perioperative blood sparing, but efficacy of this technique is far from being settled.

Objectives: To evaluate blood-sparing effects of minimal ANH on reducing the need for allogeneic transfusions in elective coronary surgery performed with cardiopulmonary bypass (CPB) as well as its influence on postoperative morbidity and mortality.

Methods: One-hundred twenty four consecutive patients (baseline hematocrit > 37%) were prospectively randomized to tranexamic acid treatment (control group; 60 patients) or to tranexamic acid treatment plus normovolemic withdrawal of 8% ± 2% of the circulating blood volume (ANH group; 64 patients). All patients had shed blood reinfused (cell saver). The requirement for allogeneic transfusions, based on strict a priori defined criteria, was the primary end point of the study. Hematochemical evaluations, bleeding, major complications, and other outcomes were also recorded.

Results: Demographics, baseline hematochemical data, and operative characteristics were similar in the two groups. Seventeen patients in the ANH group versus 22 patients in the control group (p = 0.25) required transfusion of a smaller number of packed red blood cell units (37 ± 1.096 vs 45 ± 1.310, p = 0.05). On the other hand, higher rate of postoperative complications, including respiratory insufficiency, myocardial infarction, atrial fibrillation, infection, (15/60 vs 5/64, respectively, p = 0.01) was notice in control group. Patients in control group had longer hospital stay than patients in ANH group (8.9 ± 6.2 vs 7.4 ± 2.5, respectively, p = 0.064). There was no difference in in-hospital mortality between the groups (1/60 controls group vs 0/64 ANH group).

Conclusions: In our study, low-volume ANH in patients undergoing elective coronary surgery with CPB failed to reduce the need for allogeneic transfusions and postoperative bleeding. However, patients who underwent ANH had less postoperative complications and shorter in-hospital stay.
References


Paper No: 668.00

General anesthesia in patients with charcot marie tooth disease

Maria Ruiz, Cristián Manuello, Leandro Mergen, Rosa Crocenzi and Eduardo Barayon
Residente 2do. año

Introduction: Charcot-Marie-Tooth Disease (CMTD) is an inherited motor and sensory polyneuropathy prone to clinical aggravation due to anesthetic-surgical procedures. The selected anesthetic technique is controversial; the pre-anesthetic evaluation is of the utmost importance. The aim of the present work is to report the anesthetic strategy utilized in 2 patients bearing CMTD.

Case 1: Female, 53 yr, 54kg, ASA II, Mallampati III, negative clinical history. Surgery: video laparoscopic cholecystectomy. Normal laboratory tests, electrocardiogram and respiratory evaluation. Neurological evaluation: inherited polyneuropathy type1 with walking disorders, fatigue, spastic paraparesis and airways lability. Pre-medication: 3mg midazolam. Anesthesia: TIVA. Induction: fentanyl 75ug, propofol 50mg, atracurium 27mg. Maintenance: propofol 75-150ug/kg/min, remifentanyl 0.25-0.50ug/kg/min, atracurium 10mg/30min. Orotracheal intubation. Intra surgical procedures: Controlled mechanical ventilation. Hemodynamic stabilized. Surgery duration: 30min. Exubation without complications. Derived to common room (Alderete10/10). Released at 48h due to social reasons.

Discussion: CMTD is an inherited peripheral neuropathy with muscle atrophy and loss of proprioception. Estimated prevalence: 1/2500 subjects. Classification: type1: predominantly demyelization; type2: predominantly axon degeneration. Genetic and clinical heterogeneity. Anesthetic recovery delay with affected motor sensory activity due to thiopental delay anesthetic recovery is not recommended. Propofol was privileged. Two reports have warned on malignant hyperthermia onset. This association is not physiopathologically explained, anyway later works did not exclude it. TIVA was preferred. Denervation predispose to K+ released due to succinylcholine. Atracurium was used in Case 1 due to its short half life. Long lasting muscle blocking and respiratory failure were reported with the former drug, nevertheless, patients with preserved brachial muscle function and normal spirometry are likely to present low complication probability. Pre anesthetic evaluation and proper methodology provide secure patient management.

Keywords: Charcot-Marie-Tooth; general anesthesia; malignant hyperthermia

References

1 Miller M, Yacsich P, Jans J. Manejo anestesico en Enfermedad de Charcot-Marie-Tooth; general anesthesia; malignant hyperthermia

Paper No: 669.00

General anesthesia in patients with ectodermal dysplasia

Evangelina Gagliardo, Cristián Manuello, Eduardo Barayón, Leonardo Fontenla and Liliana Vaula
Evangelina Residente 2do. año

Introduction: Ectodermal Dysplasias (ED) are inherited diseases characterized by alteration of ectodermal structures with more than 170 clinical disorders. The ectodactyly-ectodermal dysplasia-lip-crease palate syndrome (EEC) is a rare ED type. They are a challenge to anesthesia procedures due to persistent respiratory tract infection caused by anatomic

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anomalies; malnutrition and anemia; difficult management of upper airways produced by structural anomalies; cornea lesions produced by diminished tear secretion; thick and abundant respiratory secretions; 1 hyperthermia due to hypohidrosis not related to malignant hypertemia. 1,2


Discussion: Literature on ED is scarce. Reports’ recommendations: pre-anesthetic correct evaluation to detect respiratory infections, malnutrition, anemia, and anatomical airways alterations; adequate preparation for difficult ventilation/intubation; ocular protection with ointment or patches; physiotherapy, tracheal intubation, controlled ventilation with humidification and ETT aspiration; rectal temperature monitoring, room temperature control and of parenteral fluids, and no atropine premedication. 1,2 Report of these infrequent cases might be of interest to know the particular care warnings required by ED patients in order to improve their wellness and diminish complications.

Keywords: Anesthesia; ectodermal dysplasia; hypohidrosis

References


Paper No: 675.00

Influence of drug-administration sequence of target-controlled propofol and remifentanil on the onset of rocuronium

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Introduction: Target-controlled infusion of propofol and remifentanil is commonly used. There were two reports about administration sequence of propofol and remifentanil. Starting propofol infusion prior to remifentanil was effective to suppress remifentanil-induced cough [1]. Another study [2] reported that early administration of remifentanil reduced injection pain of propofol. However, prolonged infusion of remifentanil during induction may delay onset of neuromuscular blockade because it depends on the blood flow to neuromuscular junction.

Objectives: We investigated whether drug-administration sequence influenced the onset of rocuronium and hemodynamic variation during induction of anaesthesia with target-controlled propofol and remifentanil.

Methods: One-hundred thirty-four, ASA I-II patients scheduled for elective surgery under general anaesthesia were included in this double-blind, randomized, and controlled study. Anesthesia was given with a target-controlled infusion of propofol and remifentanil. Patients are randomly allocated into one of two groups according to drug administration sequence. In group R, remifentanil was infused first and propofol followed after achieving target concentration of remifentanil (4 ng/ml). In group P, propofol started first and remifentanil was given after rocuronium injection. Rocuronium (0.6 mg/kg) was administered after loss of consciousness by propofol in both groups. The onset of rocuronium was recorded and arterial pressure and cardiac output was measured before anesthesia, at induction of rocuronium, before and after intubation. Remifentanil-related cough and propofol-infusion pain were assessed.

Results: The onset time of rocuronium was prolonged significantly by early administration of remifentanil in group R (130 [90–240] vs. 90 [50–180] sec, P<0.001). Cardiac output during induction was lower in group R compared with group P (4.8 ± 1.8 L/min, P=0.001). Remifentanil-induced cough occurred more frequently in group R (42% vs. 9%, P<0.001), while incidence of propofol-infusion pain was lower (23% vs. 55%, P<0.001).

Conclusions: During induction with target-controlled propofol and remifentanil, remifentanil is recommended to be administered after rocuronium, so as not to delay onset of neuromuscular blockade and it is also helpful to keep patients haemodynamically stable.
References


Paper No: 686.00

Patient and family expectations and perceptions about the quality of communication and their treating physicians. (pafact): an indian viewpoint

Reshma Ambulkar, Sabita Jiwnani Vandana and Agarwal C Pramesh

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Introduction: Patient and family perspectives about healthcare delivery are extremely important. Their unique expectations from their treating physician may not necessarily match those of the medical profession. Communication between physicians, patients and families is crucial for the latter’s satisfaction with the care provided, especially in diseases like cancer 1,2. Good communication is likely to result in patients and families feeling more in control of the situation, and are more likely to follow through with treatment.

Objectives: A prospective survey amongst patients and their families to understand the characteristics and competence desired of their treating physician, adequacy of communication and their views about involvement in decision making.

Methods: We prospectively surveyed 100 patients undergoing thoracic surgery at a tertiary cancer centre in India between May and August 2011 and their relatives using a questionnaire. Participation was voluntary and responses were anonymous.

Results: Almost all patients and relatives felt that their physician should be knowledgeable, reliable in crises and be capable of taking decisions in difficult situations. Both patients and relatives felt that they needed more information regarding the nature and stage of illness (53% vs 58%), nature of treatment being provided (35% vs 32%), expenses and hospital stay (22% vs 27%) and discharge (17% vs 21%). Most (73%) patients had received a patient information leaflet and most (73%) felt the information provided was sufficient. Approximately half felt the need for more time with their physician during preoperative workup. Fewer (73%) relatives felt than patients (83%) felt that patients should be given details of their illness even if it would upset them. Most patients (80%) and relatives (88%) felt directly involved in decision making; surprisingly, both patients (88 vs 76%) and relatives (96 vs 66%) preferred relatives to be involved in decision-making more than patients themselves. Almost all (>90%) patients and relatives considered their treating physicians polite and caring and had a high level of trust. Almost all (>90%) felt that they were kept comfortable, pain-free and received prompt attention when needed.

Conclusion: Competence of the treating physician is extremely important for patient satisfaction with healthcare delivery. Addressing patients’ overall needs and sharing complex information in an emotionally charged atmosphere and under severe time constraints is a challenge for oncologists at busy referral hospitals. Patients and families in India feel comfortable with relatives being more involved in decision-making than patients themselves. Most patients and families had high levels of trust and considered their oncologist polite and caring.

References


Paper No: 697.00

Walking to the operation theatre prior to surgery makes the patients more satisfied

Louise Rovsing and Pernilla Qvarfordh

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Pernilla Qvarfordh Dept. Anaesthesiology, Glostrup Hospital, Glostrup, Denmark Bente Appel Esbensen Research Unit, Department of Nursing and Health

Background: Usually patients are transported in a bed from the surgical ward to the operating theatre prior to surgery. This procedure seems to be based on a traditional thinking rather than a wish to involve patients in their own illness trajectory.

Objective: The purpose of this study was to investigate patients’ satisfaction with walking from the surgical ward to the operation theatre (OR) instead of being transported in a bed. Furthermore, we wanted to identify the patients’ satisfaction with the information given prior to surgery and to reveal their possible need for further information.

Method: and material 81 patients, scheduled for abdominal surgery, received postoperatively a questionnaire specifically developed for this study. 75 patients (aged 15-83 years) completed the questionnaire which focused on two areas: 1) satisfaction with walking instead of being driven in bed and 2) satisfaction with information about the procedure. The questionnaire consisted of a number of closed questions with a response format “yes” and “no”. In addition, the questionnaire consisted of open-ended question which gave the patients the possibility to interact with the questionnaire and to write additional comments.
Results: 70 patients reported that it was a good experience to walk to the OR prior to surgery. However, 5% (men 3%, women 7%) of the patients preferred to be transported in the bed to the OR. In total, 91% of the men and 95% of the women reported to be satisfied with the information about the procedure given by the anaesthesiologist during the preoperative interview. Furthermore, 89% of the patients were satisfied with the information they received from the nurse about the route to the OR. Some patients had problems with finding the way to the OR (16% of the men and 5% of the women). Nevertheless, 70 of the 75 patients found it positive and rewarding to be involved.

Discussion: The results emphasize the importance of health care professionals maintaining focus on the capability of the patients’ active involvement in their own trajectory. Health care professionals need to minimize patients experiences of being ill and to identify areas where patients take on responsibility of their own situation and illness trajectory. Further, the importance of relevant information and clearly marked access to the OR need to be emphasized.

Conclusion: Let your patients walk to the OR and be sure that the route is clearly marked. Keywords: walk or be driven, operation theatre, patient satisfaction, transportation of patients.

Reference

Paper No: 700.00

Landiolol hydrochloride improves the surgical Apgar score and outcome in off-pump coronary artery bypass surgery

Kana To, Satoshi Iseki and Hidekazu Setoguchi
National Hospital Organization Kyushu Medical Center

Introduction: Recent studies have demonstrated that the surgical Apgar score (SAS) is a predictor of postoperative risk of complications. The SAS is a simple 0-10 score that is based on estimated blood loss, lowest mean arterial pressure, and lowest heart rate during surgery. A strong association between SAS and postoperative mortality has been found in patients undergoing cardiac surgery. However, intraoperative drugs and techniques to improve SAS have not been widely investigated.

Objectives: The purpose of the study was to evaluate the effects of landiolol hydrochloride (an ultra-short acting \( \beta \) blocker) on SAS and postoperative complications in off-pump coronary artery bypass surgery (OPCAB).

Methods: The study was performed as a retrospective review of patients (n=62) who underwent OPCAB at a single center over a 5-year period (January 2006 to May 2011). Preoperative risk factors, SAS (estimated blood loss, lowest mean arterial pressure and lowest heart rate), intraoperative variables, length of hospital stay, postoperative complications, and death were compared between patients who did and did not receive treatment with landiolol. Data are expressed as the mean \( \pm \) SD. A two-sided p value <0.05 was regarded as statistically significant.

Results: Ten patients underwent surgery with administration of landiolol (group L) and 52 patients were treated without landiolol (group C). The patient backgrounds were similar in the two groups. SAS was significantly higher in group L compared to group C (6.4 \( \pm \) 0.9 vs. 5.1 \( \pm \) 1.5, p=0.012) and the lowest heart rate during surgery was significantly lower in group L (52.4 \( \pm \) 2.3 vs. 61.8 \( \pm \) 10.4 bpm, p=0.006). There were no significant differences in lowest mean arterial pressure and estimated blood loss between the two groups. The rate of postoperative complications was lower in group L (10.0% vs. 63.5%, p=0.004). However, mortality and length of hospital stay did not differ significantly between groups L and C.

Discussion: This study suggests that administration of landiolol hydrochloride contributes to improvement of SAS and reduction of postoperative complications. These results agree with recent studies indicating that continuous infusion of landiolol at low doses has beneficial effects on hemodynamic stabilization, heart rate control and prevention of atrial fibrillation in post-OPCAB patients. It is likely that appropriate use of \( \beta \) blockers for hemodynamic stabilization improves SAS and outcome in OPCAB.

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Paper No: 704.00

Hypertensive crisis under spinal anaesthesia a case presentation

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Introduction: High blood pressure in patients undergoing spinal anaesthesia is an uncommon clinical situation. Sympathetic block installed after subarachnoidal anaesthesia produces episodes of mild to moderate hypotension. Hypertension in these patients does not have a clear, pathophysiological explanation.
Case description: A 32-year-old male patient, ASA II, enters the operating room for intervention of gastrocnemius flap after fracture of left tibia with loss of muscular mass. He is under enalapril 10 mg/day and low sodium diet due to high blood pressure. BP is 140/90 mmHg, HR, 80bpm. He is sedated with midazolam 0.04 mg/kg and fentanyl 1.5mcg/kg. A middle femoral sciatic block with bupivacaine 0.33% and epinephrine 1:200,000 for management of postoperative analgesia and subarachnoidal anaesthesia at L3-L4 level with hyperbaric bupivacaine 0.5%, 10 mg are performed. Thirty minutes after subarachnoidal blockade, a motor block (Bromage Score 3) and sensory level T8 are obtained. BP is 180/110 mmHg and HR, 120bpm. An I.V. infusion of clonidine 1mcg/kg is administered. At the end of the infusion BP reaches 300/200 mmhg and HR is 150bpm with no explainable cause. An arterial blood line for measurement of IBP and handling with vasodilatory drugs is placed. Clinically, a very pronounced carotid beat is noted while the patient remains sedated (Ramsay 2), with good air entry into both lungs and no signs of acute lung oedema. Sodium nitroprusside in I.V. continuous infusion 0.5mcg/kg/min is begun, with a poor response. Increased to 1mcg/kg/min, BP stabilizes at 160/90 mmHg. The patient is then admitted to CCU with stable BP under labetalol (200mg/24hs). Intraoperatively, the diagnostic hypotheses proposed are: intravascular injection/epinephrine absorption by peripheral blockade, accidental administration of vasopressor drugs, use of cocaine, phaeochromocytoma.

Results: Diagnostic studies performed during postoperative stay, such as abdominal ultrasonography and helical abdominal CT with I.V. contrast, reveal a solid nodular image of 50 x 52 mm in left renal upper pole. Diagnosis of phaeochromocytoma is confirmed by dosing urinary catecholamines in 24 hours: adrenaline 470 mcg, noradrenaline 2744 mcg, vanillin mandelic acid 55.2 mg.

Conclusion: An early detection of hypertension, bearing in mind phaeochromocytoma among other differential diagnoses, is essential for an adequate perioperative management.

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Continuous registration of the evolution of anaesthetic depth during intravenous induction with thiopental

Silvia Fernandez Francos, Pedro De La Calle, Isabel Represa and Francisco Lopez Timoneda

Introduction: Hypnotic drugs bring about changes at the level of the central system. These alterations can be monitored by means of processing techniques of the EEG signal. Upon these premises, both the Bispectral Index (BIS) and State Entropy (SE) have been recently developed. In both BIS and SE, those values between 40 and 60 indicate the lowest probability of explicit record during surgery, which is directly associated with the incidence of intraoperative awareness.

Goals: To determine if there are statistically significant differences between BIS and SE monitoring of anaesthetic depth during the intravenous induction with thiopental. To analyze if these different types of monitoring separately constitute a valid model of continuous registration of the evolution of anaesthetic depth.

Methodology: Once the hypnotic agent has been administered, a decrease in the figures of both types of monitoring is observed. At the same time, the patient loses his response capacity and his level of awareness is reduced. A minimum value is reached, which is lately recovered until it stabilizes both at the beginning and during surgery. SE and BIS initial and minimum values are recorded, as well as the moment when they occur. Once the registration is interrupted, the patient is intubated. Graphic records are submitted to statistic analysis.

Results: Statistically significant differences are found between initial and minimum values for both variables of monitoring separately. Nevertheless, statistically significant differences between both registration procedures are not found. Both BIS and SE registrations have proved to be efficient for the monitoring of anaesthetic depth during the induction with thiopental in that group of patients. Statistically significant data in favor of one of the two variables of monitoring have not been found. Prospective research show that BIS intraoperative monitoring can reduce notably the incidence of intraoperative awareness, but investigations related to other monitors have not been published. Several studies suggest that SE constitutes a useful measure of propofol and sevoflurane drugs effects. These estimated results are similar to those of BIS, but no data related to thiopental drug effects have been found.

Conclusions: Since these BIS and SE monitors of anaesthetic depth are based on different types of analysis of electric signs coming from the brain, each monitor must validate its use by means of carrying out studies with high levels of evidence. Further research should be developed in order to determine the usefulness of both monitors of anaesthetic depth during intravenous induction with thiopental.

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**Paper No: 741.00**

**The Detection of Beta-Herpesvirus Infection in Patients undergoing Reconstructive Flap Surgeries and Its Association with the nearest Postoperative Period Course**

Arnis Vilks¹, Santa Rasa², Jevgenijs Stepanovs¹, Modra Murovska² and Biruta Mamaja²

¹ Riga Eastern Clinical University Hospital Gailezers² Riga Stradiņš University, A. Kirchenstein

**Introduction:** Beta-herpesviruses HHV-6 and HHV-7 are ubiquitous immunomodulating viruses that can interfere with the function of the host immune system through a variety of mechanisms. HHV-6 and HHV-7 infect cells of immune system as an integral part of their life cycle. The aim of this study was to investigate the presence of HHV-6 and 7 HHV-7 in patients before prolonged reconstructive flap surgery and effect of this surgery upon general and regional anaesthesia on activation of HHV-6 and HHV-7 and how this activation affects postoperative period course.

**Materials and Methods:** 38 patients (aged 5-65) after long lasting (average 5.7h) reconstructive flap surgery were involved and split into 2 groups – general anaesthesia (GA) (n=17) and regional anaesthesia (RA) (n=21). Peripheral blood samples for the detection of latent or active viruses were collected from patients before and 10 days after surgery.

**Results:** Before the surgery latent HHV-6 was revealed in 8 patients (GA) and in 6 patients (RA), active HHV-6 in 2 patients (GA), in 3patients (RA). Latent HHV-7 was revealed in 11 patients (GA), in 13 patients (RA) and active HHV-7 - in 4 patients (GA) and in 4 patients (RA). In 5 patients (GA), in 3 patients (RA) concurrent latent HHV-6/ HHV-7 infection was found, in patient 1 (GA) it was active. After the surgery reactivation of HHV-6 was detected in 1 patient (GA), in (RA) no cases of activation. Reactivation of HHV-7 was detected in 4 patients (GA) in 1 patient (RA). Simultaneous reactivation of HHV-6/HHV-7 was detected in 1 patient (GA). Postoperatively (GA): 6 cases of unfavourable surgery (4 -surgical site infection (SSI), 2 - flap ischemia) were observed. Postoperatively (RA): 2 cases of SSI were observed. In 30 (78.94%) patients of both groups (RA and GA) to whom reactivation of the viruses after surgery was not revealed, 5 (17.7%) patients had unfavourable surgeries. In 5 (20%) patients to whom activation of the viruses after the surgery was revealed, unfavourable surgery was in 1 patient. In 2 patients (GA) with active HHV-6 viral infection already before surgery had SSI.

**Conclusion:** Despite the limited number of patients our study results suggests that the presence of HHV-6 and HHV-7 in our patients was high. Reactivation of HHV-6 and HHV-7 is more frequent in patients to whom general anaesthesia is applied. Our results suggest that reactivation of HHV-6 and HHV-7 is possibly related to longer and more complicated postoperative period.

**Paper No: 754.00**

**Gloved practice of peripheral venous catheterization results in higher success rates**

Yuka Fujii, Satoru Fujii, Tsunehisa Tsubokawa and Ken Yamamoto

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**Introduction:** Standard precaution is recommended when clinicians are involved in minimally invasive procedures, however, many anesthesia providers do not wear gloves when administering venipuncture to raise their success rates. So far, there has not been any research done regarding the effects of gloves on success rates.

**Objectives:** The purpose of this study is to determine if the gloved practice of peripheral venous catheterization results in lower success rates as many anesthesiologists believe.

**Methods:** Fifteen trainees with less than 1 year of anesthetic experience participated in this study. Although the whole study was not randomized, participants were instructed to perform venipuncture by the following method to eliminate bias as much as possible. They were asked to count their administrations of peripheral venous catheterization, and on odd occasions to record their findings when wearing gloves, and on even occasions when not wearing gloves. They were also asked to record the size of the needle and the place of venipuncture. When there was a high risk of infection, they were allowed to wear gloves, ignoring the protocol. Failure or success was left to the discretion of the attending anesthesiologists. Pearson’s chi-squared test (or Fisher’s exact test) was utilized to assess the statistical significance of differences in success rates between groups.

**Statistical analysis was performed with StatView.**

**Results:** A total of 226 attempts were recorded, 171 of which were successful attempts and 55 failed ones. Of 118 gloved practices, 96 (81%) resulted in success and 22 (19%) failure, on the other hand, among 55 bare-handed practices, 33 (60%) resulted in success and 22 (40%) failure. There was a significant difference in success rates between gloved and barehanded practice (p<0.05). Trials with 18G needles showed a significant statistical difference (100% v.s. 72%, p<0.05), success rates with 20G and 22G needles did not reach statistically significant levels.

**Conclusions:** The present study suggests the clear advantage of wearing gloves when administering venipuncture. This is
the first study that showed increased success rates with gloved practice. There was a trend that barehanded practitioners try to cannulate deep and palpable, but invisible veins, whereas gloved practitioners try superficial and visible veins. It is highly possible that this trend led to increased success rates observed in the present study. Since gloves are the integral part of standard precaution, the results of this study are fairly encouraging. In conclusion, gloved practice of peripheral venous catheterization leads to higher success rates.

Paper No: 764.00

Utilization of operating room time in a cancer hospital: is there scope for improvement?

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Introduction: Optimum utilization of operating room (OR) time is necessary to decrease waiting lists and maximise cost-effectiveness. Audits have a role in identifying and improving inefficient OR utilization.1 - 3 We conducted an audit to assess the efficiency of use of OR time and to identify areas for improvement in elective surgical lists in a cancer hospital.

Methods: We prospectively studied elective major surgical cases carried out over two months in 13 ORs. Anaesthesiologists filled a proforma for each patient including the following timings: entry into OR, start and end of anaesthesia procedures (regional anaesthesia, general anaesthesia, invasive monitoring, specialized airway devices (fiberoptic intubation, lung isolation)), handover to surgeon, incision, end of surgery, start of reversal, end of anaesthesia, shifting out of OR and entry of next patient. Anaesthesiologists were asked to document reasons for any delay which they felt was unusual. Completeness of data and accuracy of entries was verified by cross-checking a random sample of cases with the OR record book.

Results: Eight hundred and twenty eight surgeries were carried out during 428 OR days in the study period (median of 1.7 surgeries per OR per day). The median time of starting the OR list was 5 minutes after the scheduled start time with almost 20 percent (60 of 354) first cases entering the OR more than ten minutes late. The following median times were recorded: patient entry into OR to handover to surgeon (time taken for attaching monitors, securing intravenous access and routine general anaesthesia) - 20 minutes; additional procedures like regional anaesthesia, specialized airway and invasive monitoring - 20 minutes each; surgical preparation time - 15 minutes; turnover time between cases - 30 minutes. The median OR end time was 60 minutes after scheduled OR end time with 20 percent (70 of 349) last cases leaving the OR more than 2 hours after scheduled finish time. The induction room was utilized for procedures in only 15% of surgeries where it could have been used.

Conclusions: This audit identified areas of inefficiency in OR utilization such as inadequate utilization of induction room and long turnover times. Steps to correct these lacunae have been undertaken. Minimal delays seen in shifting patients into OR are unlikely to impact outcomes.

References

Paper No: 767.00

Acute postoperative respiratory failure after resection of a substernal goiter.

Case report


CET em Anestesiologia da Santa Casa de Santos - Brasil

Introduction: Dysphonia is one of the rare complications of a substernal goiter surgery. This occurs when the vocal cord is paralysed due the damage of the ipsilateral recurrent laryngeal nerve. When both recurrent laryngeal nerves are damaged, the result is acute respiratory failure. The damage may be temporary or permenant.

Objective: The goal of this case report is to present an acute respiratory failure in a patient after a resection of a substernal goiter.

Case report: A 56 year old female, 70kg, ASA II, scheduled for resection of a substernal goiter. All preoperative exams were normal. Obtained peripheral venous access 18G, monitored by pulse oximetry, cardioscope and non invasive blood pressure. Received pre-oxygenation anaesthesia and was induced by propofol, fentanyl and cisatracurium. The intubation was successfully performed with a 7.5mm cuffed tube and was confirmed by the presence of carbon dioxide in the capnography. Anaesthesia was maintained with oxygen sevoflurane under mechanical ventilation. The duration of the procedure was 90 minutes. The patient was extubated in the operation room and taken to the recovery room where she presented increasing respiratory distress with laryngeal stridor, desaturation and agitation. As there was no improvement, she was intubated again.
During the laryngoscopy it was observed that the vocal cords were adducted and that the glottis was smaller than usual. After two hours in the recovery room she was extubated and once again, the patient wasn’t able to breathe properly. She had to be reintubated. She was taken to the intensive care unit and two days later another attempt of extubation failed. It was therefore decided to perform a tracheostomy. The patient remained this way for two months waiting for a new evaluation for permanent treatment.

Conclusion: During the resection of cervical tumors the recurrent laryngeal nerves can be damaged. This happens because they have an intimate anatomical proximity to the cervical structures. The bilateral paralysis of the vocal chords is caused by the damage to both laryngeal recurrent nerves which produces acute respiratory failure. This condition demands specialized treatment and follow up.

References

Paper No: 779.00

Enhanced recovery in liver resection surgery: a single-blinded randomised controlled trial
Chris Jones¹, Leigh Kelliher¹, Michael Scott¹, Matthew Dickinson¹ and Nariman Karajia²
¹ Department of Anaesthesia, Royal Surrey County Hospital NHS Foundation Trust, UK and ² Department of Hepatopancreatobiliary Surgery, Royal

Introduction: Enhanced Recovery Programs (ERP’s) were first introduced in open colorectal surgery where they have been shown to reduce postoperative length of stay and complications [1,2]. However there is limited evidence to show whether they provide the same benefit in liver resection surgery. To date there have only been two small pilot studies [3,4] using some aspects of ERP’s for open liver resection surgery. We have therefore designed a comprehensive ERP for liver resection surgery to see if short term recovery and morbidity can be improved with the introduction of such a program. These are preliminary results but full results will be available in March 2012.

Objectives: The main objective is to demonstrate that a comprehensive ERP, including goal directed fluid therapy, can significantly reduce post operative morbidity and length of hospital stay.

Methods: This is a single centre, blinded, randomised controlled trial (ISRCTN: 03274575), looking at adult patients undergoing elective liver resection. Randomisation was by means of sealed envelopes. Patients undergoing ERP received enhanced pre-operative education, perioperative carbohydrate supplement drinks, post-resection goal-directed fluid therapy (using LiDCOrapid™) and early mobilization and physiotherapy. Group allocation was unblinded to both patients and researchers, but to reduce bias both groups were treated using strict protocols. Two independent assessors (blinded to group allocation) assessed readiness for discharge using strict criteria including good pain control, tolerance of solid food, independently mobile, and normal biochemical variables. Morbidity was measured using POMS, an 18 item valid and reliable measure addressing nine domains of postoperative morbidity [5].

Results: So far, 41 out of 90 patients have been recruited to the study. Complete data collection has been completed on 26 patients. A significant reduction in length of stay has been achieved, associated with earlier tolerance of diet, independent mobilisation and morbidity. Full analysis will be presented in March 2012.

Operational Details Extended Right Hemi-hepatectomy:

Conclusions: Full analysis will be presented.

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<td>Morbidity</td>
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Downloaded from https://academic.oup.com/bja/article-abstract/108/suppl_2/ii215/2919735 on 14 May 2018 by guest
Methods: 100 cancer patients undergoing pelvi-abdominal surgery were included in the study during low flow sevoflurane anesthesia. Bispectral Index Monitoring on consumption and recovery times was maintained below 60. Low flow sevoflurane anesthesia was adjusted to keep BIS value between 60-40. BIS values were adjusted according to standard clinical practice (ETAG 0.7-1.3 MAC). In the bispectral index (BIS) group, BIS Sensor was applied to the forehead of each patient and sevoflurane was adjusted to keep BIS value between 60-60. BIS values were recorded every 10 min in (BIS) group and ETAG levels were recorded every 10 min in both group. Recovery times were also recorded.

Results: There were no significant differences in baseline characteristics between the two groups. During the maintenance of anesthesia, the mean time-averaged BIS value was 48.1±2.2 in (BIS) group. The mean (±SD) time-averaged ETAG concentration was significantly less in (BIS) group compared to (C) group (0.74±0.15 MAC and 0.89±0.33 MAC respectively) (P<0.05). Time to emergence, extubation time, time to respond to command and time to eligible for recovery discharge (modified Aldreté score of ≥9) were significantly shorter in the BIS group compared to control group (6.1 ± 0.3, 8.3±0.57 min - 7.3 ± 0.6, 10.1 ± 0.5 min - 9.1±0.60, 13.7 ± 1.0 min - 65.4 ± 5.0, 81.6 ± 3.3 min respectively) (P<0.05).

Conclusions: It is an advantage to use bispectral index (BIS) monitoring, as it allows more reduction in sevoflurane consumption with significant reduction in recovery times. This benefit would be more important in critical ill patients but the cost of BIS monitoring should be considered.

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Paper No: 796.00

The Effect of Bispectral Index Monitoring during Low Flow Sevoflurane Anesthesia

Wafaa Salem, Ahmed Bakeer and Mostafa Abdelrahman

Introduction: The use of bispectral index (BIS) was reported to insure adequate level of anesthesia when its value is maintained below 60. Low flow sevoflurane anesthesia was found to be safe with effective reduction in its consumption.

Objectives: The aim of study was to evaluate the effect of Bispectral Index Monitoring on consumption and recovery during low flow sevoflurane anesthesia.

Methods: 100 cancer patients undergoing pelvi-abdominal surgery were divided into 2 groups; control (C) group 50 patients and bispectral index (BIS) group 50 pts. Standard premedication and induction were used in both groups. Muscle relaxation and analgesia was maintained with continuous infusion of atracurium and fentanyl. Depth of anesthesia required was met by increasing or decreasing Sevoflurane concentration. Sevoflurane was given in oxygen/air at concentration of 2.6% (1.3 MAC) with a fresh gas flow of 5 L/ min for10 min then decreased to 1 L/ min. Ten minutes before end of the surgery, sevoflurane was stopped and fresh gas flow was increased to 5 L/ min. In the control (C) group, no BIS were used and sevoflurane was adjusted according to standard clinical practice (ETAG 0.7-1.3 MAC). In the bispectral index (BIS) group, BIS Sensor was applied to the forehead of each patient and sevoflurane was adjusted to keep BIS value between 60-60. BIS values were recorded every 10 min in (BIS) group and ETAG levels were recorded every10 min in both group. Recovery times were also recorded.

Results: There were no significant differences in baseline characteristics between the two groups. During the maintenance of anesthesia, the mean time-averaged BIS value was 48.1±2.2 in (BIS) group. The mean (±SD) time-averaged ETAG concentration was significantly less in (BIS) group compared to (C) group (0.74±0.15 MAC and 0.89±0.33 MAC respectively) (P<0.05). Time to emergence, extubation time, time to respond to command and time to eligible for recovery discharge (modified Aldreté score of ≥9) were significantly shorter in the BIS group compared to control group (6.1 ± 0.3, 8.3±0.57 min - 7.3 ± 0.6, 10.1 ± 0.5 min - 9.1±0.60, 13.7 ± 1.0 min - 65.4 ± 5.0, 81.6 ± 3.3 min respectively) (P<0.05).

Conclusions: It is an advantage to use bispectral index (BIS) monitoring, as it allows more reduction in sevoflurane consumption with significant reduction in recovery times. This benefit would be more important in critical ill patients but the cost of BIS monitoring should be considered.

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Paper No: 802.00

Interpleural block associated to general anesthesia and endovenous lidocaine in breast cancer surgery- clinical experience

Giovanne Santana de Oliveira¹, Marcondes Antunes García¹, Rodrigo Pedro Fausto de Lima¹, ;nio Mauro Vieira² and ;nio Carlos Aguiar²

¹ Resident, Anesthesiology, UNIVAS, Pouso Alegre-MG, Brazil and ² Full Professor, Physiology, Morphology and Pathology

Introduction: Surgical resection of the primary tumor is a necessary and effective treatment for breast cancer patients, but it is usually associated with immune system dysfunction, including anesthetic and analgesic agents. Some of these agents, such as opioids, administered throughout the surgery and following it, have been shown to contribute to
postoperative suppression of cell-mediated immunity, and can thus promote the metastatic process.

**Objectives:** Report the beginning of clinical experience with interpleural block associated to general anesthesia and endovenous lidocaine in breast cancer surgery, in order to reduce disease recurrence and metastasis.

**Methods:** Fifteen cases of females with breast cancer, submitted to mammary axillary dissection under interpleural block associated to general anesthesia and endovenous lidocaine, were reported in this study.

**Results:** Fifteen females with breast cancer took part in this study (age 42–66, weight 55–81 kg, ASA P1 and P2). They were submitted to mammary axillary dissection under interpleural block with levobupivacaine 0.5% (100mg) with adrenalin 1:200000 associated to morphine (3mg), clonidine (3 µg.kg-1) and general anesthesia kept with isoflurane (<1.5vol%). Anesthetic induction was performed with etomidate (0,2mg.kg-1), alfentanil (30 µg.kg-1) and rocuronium (0.6mg.kg-1). Lidocaine 1% (10 µg.kg-1.min) was used in continuous infusion. There was a significantly reduced need of inhalatory anesthetic during intraoperative and no need of opioid association in intra or postoperative. The postoperative treatment of pain was venously performed only with metamizole (15mg.kg-1 6/6h). These patients will continue to be followed to verify disease recurrence or metastasis.

**Discussion:** Anesthetic agents and analgesic, administered throughout the surgery and following it, have been shown to contribute to postoperative suppression of cell-mediated immunity, and can thus promote the metastatic process. Opioids inhibit both cellular and humoral immune function in humans. When combined, the addition of regional block to general anesthesia, the amount of general anesthetic required is greatly reduced, as well as the quantities of postoperative opioid analgesia. Paravertebral and epidural blocks for breast cancer surgery markedly reduces the risk of recurrence or metastasis during the initial years following the surgery. Regional techniques, such as interpleural block, are easy to implement, inexpensive, safe and efficient. Clonidine (α2-adrenergic agonist) reduces significantly the development of postoperative metastasis in young animals. Intravenous lidocaine in intraoperative improves immediate postoperative pain management and reduces surgery-induced immune alterations.

**Conclusions:** Anesthesiologists should search and select anesthetic methods during breast cancer surgeries perioperatively regarding the optimal prognosis and aiming to reduce the risks of disease recurrence and metastasis.

**References**


**Paper No: 821.00**

**Descriptive study of mortality in Abidjan burn care unit**

Patrice Assouakon, Brigitte Vilasco, Kouame Kouame, Evariste Chatigre and Jacques Sissoko

**Introduction:** Burn is responsible for a high mortality rate, particularly in developing countries[1].

**Objective:** To describe the epidemiological aspects of patients with burns injuries who died during admission.

**Patients and methods:** Retrospective and descriptive study during 66 months, from January 2005 to June 2010 in the Center for burns treatment in Abidjan. All patients admitted for burn injury, and who died in the service. Patients not reviewed were excluded.

Data studied were age, sex, circumstances of burns, the burn body skin area (BBSA) using Berkow table in adults, and Lund and Browder table in the child, depth, time of admission, the time of death after burns, the cause of death. Results, expressed in frequencies, and median value with dispersion index. Epi info 3.5 for Windows for data analysis.

**Results:** 2716 patients were admitted. 794 were hospitalized. 242 died. 594 (21.61%) were not reviewed. The overall mortality rate was 8.91%. The specific mortality rate for those admitted was 30.47%.

Sex-ratio was 1.2 with 56.20% male and 43.80% female 50.42% were under 15 years. (Range: 2 months to 85 years). Etiologic agent was flames in 44.6% due to explosion of gas cylinders of 12 kg and 6 kg or when using gasoline to light the hurricane lamp. Boiling water was responsible in 31%. Domestic accident in 77.4% of cases. The median percentage of BBSA was 36.25%. (Range 1 to 100%). The burns were superficial in 18.8% of cases, and deep in 35.1% of cases. 56.7% of patients were admitted the day of the burn occurred. Range 0 to 52 days. The median time of death was 6 days. Range 0 to 302 days.

**Discussion:** The high mortality rate in our series (30.47%) is found in most developing countries. Morocco (35%), Nigeria (30%), Ivory Coast in 1993 (40.4%).[1,2,3,4] Domestic accidents account for the relatively young age of patients. The time of admission is due to the ignorance of the existence of the center by the majority population.

**Conclusion:** Burns remains potentially serious accident, involving life-threatening. Particular emphasis should be placed in the education of the population to minimize the incidence of domestic accidents.
Improving medical and paramedical staff in management of burns may improve the prognosis of patients burned by a rapid and appropriate care. Prevention remains the best way to fight against these accidents. However, it must take into account the traditions and local socioeconomic conditions.

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4 SivaRam Ganesamoni, Vikram Kate, Jagdish Sadasivan. Epidemi-

Paper No: 823.00
Microstructure of human airway mucus in smokers vs. non-smokers
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Introduction: Most infections start at mucosal surfaces. Pathogens must first diffuse across the viscous and elastic (solid-like) mucus gel to reach target cells. Little is known about how most pathogens behave in mucus. The host defense barrier mechanism of mucus in the lung, including its ability to trap foreign particles and eliminate them via mucociliary clearance, is intimately coupled to the micro-
structure of airway mucus (AM) secretions. Most prior studies have relied on electron microscopy to visualize the mucus mesh, which is subject to numerous artifacts due to dehydration and/or fixation steps, and have produced a wide range of estimates. Here, we report the microstructure of human AM by overcoming these shortcomings.

Objectives: By collecting mucus from endotracheal tubes of patients undergoing surgery and measuring the mobility of different size nanoprobes engineered with coatings inert to mucus constituents, we report quantitative comparison of the pore sizes in mucus collected from smokers vs. non-smokers.

Methods: We collected undiluted and minimally altered AM by sectioning the tips of endotracheal tubes from patients undergo-
ging surgery. The secretions on the tube surface were col-
lected by light centrifugation. This resulted in collection of 0.3–1 ml of mucus in many subjects. We then quantified the microstructure of the mucin mesh in AM secretions by quantifying the motion of hundreds of nanoparticle probes of different sizes, all engineered with a coating that minimizes their adhesion to mucus constituents. This technique does not require any fixation or dehydration, and thus enables pore size measurements of physiological AM secretions.

Results: The vast majority of samples immobilize 500nm beads, but not 100-200nm. This contrasts sharply with results observed in human cervicovaginal mucus (average pore size ≏ 340 ± 50 nm), suggesting the pore sizes in AM is likely substantially smaller. The average pore size is 248 ± 146 nm and 138 ± 15 nm for non-smokers and smokers, respectively. Data represent the ensemble average of at least three independent experiments, with n > 100 par-
ticles tracked for each experiment. Also, one in three anti-
bodies in AM appeared to be specific for H3N2 influenza.

Conclusion: We report a quantitative comparison of the pore sizes measured in AM samples collected from patients who are smokers vs. non-smokers. As secondary outcomes, we also expect to report the duration of intubation on the mucus pore size.

References

Paper No: 830.00
Manual jet ventilation in difficult airway by the presence of laryngeal web
Andrade Méndez José, Allub Juan Martin and Razetti Juan Zanetta Adrián

Introduction: Manual jet ventilation is a resource used to maintain ventilation when the airway is compromised. An anatomic abnormality of genetic origin, the laryngeal web, located above the vocal cords causes decreased glottis opening, dysphonia, stridor, respiratory failure, difficulty in tracheal intubation.

Objectives: to describe the anesthetic technique and manual jet ventilation in cause of difficult airway due to the presence of laryngeal web.

Material and Methods: A 5 years old patient, female, 19.2 Kg 115 cm tall, endoscopic diagnosis of laryngeal web. History of forked soft palate at birth and respiratory disorders, repair surgery, and difficulty of intubation in that occasion, neck CT indicates decreased tracheal caliber below glottis. Moni-
toring: ECG, Pulse Oximetry, NIBP, Capnography (interrupted during jet ventilation). Inhalatory general anesthesia with face mask and spontaneous ventilation until obtain venous access. Through intravenous cannula #20 is used TIVA: pro-
phol dose decreasing from 8, 6 to 4 mg/kg/h, remifentanil 0.25 to 0.50 mcg/kg/min; dexmedetomidine 0.4 mcg/kg/h; dipyrone 20 mg/kg. Muscle relaxation with atracurium
0.5 mg/kg for laryngoscopy and 0.3 mg/kg maintenance. GlideScope for laryngoscopy, nasotracheal intubation with Cook catheter airway exchanger 8.0 Fr/45 cm with Rapi Fit adapter, manual jet ventilation using Manujet III to 2 BAR (30 psi) pressure as recommended by the manufacturer, manual respiratory rate 25 per minute, double lung auscultation and chest expansion visually track with each breath. Results: the surgical procedure was finalized successfully, committed glottis region was repaired by using cold instruments, allowing the introduction of the endotracheal tube of adequate number for the age of the patient.

Discussion: the regulation of output pressure of oxygen in the Manujet III makes it possible to keep the airway intact and not cause barotraumas.

Conclusions: The manual jet ventilation through the catheter exchanger ensures air permeability, allowing adequate space for the surgeon to perform surgical maneuvers. Total intravenous anesthesia is the technique that provides better stability flat during procedures that require this ventilation.


Paper No: 831.00

Osler Weber Rendu disease, endonasal laser surgery and anesthesia
José Andrade Méndez, Florencia Bolla and Federico Urquiola

Introduction: Osler Weber Rendu disease, also known as Hereditary hemorrhagic telangiectasia (HHT), is a multisystemic vascular displasia, autosomal dominant, typically identified by the presence of telangiectasia, recurrent epistaxis and multiorgan arteriovenous malformations (AVMs) often associated with hemorrhage. Multiple epistaxis occur at early ages, and may result in iron deficiency anemia. Nasal coagulation and cauterization with endonasal laser over the telangiectasia is an effective treatment.


Anesthetic Technique: Peripheral venous Access, continuous ECG monitoring, pulse oximetry, capnography, invasive arterial blood pressure monitoring (case 1), non invasive blood pressure monitoring (case 2 and 3), temperature measurement. Balanced general anesthesia. Premedication with Midazolam 0,2 mg/kg; induction with Propofol 2 mg/kg, muscle relaxation with Vecuronio 0,1mg/kg, maintenance with Sevoflurane 1,5% FiO2 0,5%, fresh gas flow 1 liter per minute. Remifentanil 0,25 mcg/kg/min; Dexmedetomidine 0,4 mcg/kg/h. Endotracheal intubation with reinforced endotracheal cuffed tube 7.5 Respiratory frequency 10-12 per minute, PEEP 5 cmH2O. The endonasal laser surgery used Argon Plasma 60 watts and 1,2 liters per minute (case 1) and Neodymium YAG 20 watts in continue pulse mode to 0,5 seconds (cases 2 and 3)

Results: Procedures developed without complications, anesthetic technique kept optimal surgical conditions, induced hypotension to prevent bleeding. Discussion: Anesthetic technique must prevent bleeding and keep hemodynamic parameters stable.


Paper No: 836.00

Hemodynamic changes in liver surgery with intrathecal morphine versus epidural local anesthetics: a prospective comparative study
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Introduction: Combined anesthesia for major liver surgery is controversial. Those controversies are focused in the
postoperative coagulopathy and in the fact that epidural local anesthetic inhibit sympathetic system that might be necessary to compensate preload changes in during the surgery. Comparative studies suggest that arterial pressure might be affected by epidural anesthesia. Intratecal morphine and epidural local anesthetics plus morphine are both effective and safe for pain relief.

Objectives: Compare medium arterial pressure (MAP), central venous pressure (CVP) and cardiac rate (CHR) during preload variations (mobilization of the liver and vascular clamping) in patients operated from major liver surgery with two different anesthetic techniques: combined general-spinal morphine (M) versus general-epidural local anesthetics and morphine (M-LA). Compare the postoperative pain, bleeding and fluid replacement of both groups.

Methods: Patients that underwent hepatic resection with mobilization of the liver and vascular clamping, meet criteria for combined anesthesia (regional-general) and gave consent we assigned to one of the groups: M = 11 patients and M-LA = 10 patients. Data were collected after Institutional Scientific Board acceptance. Demographic and surgical characteristic were similar in both groups. After the regional anesthesia (M or M-AL), general anesthesia was induced with fentanyl, propofol and muscle relaxant. Central and arterial lines were placed in all patients. Hemodynamic data (MAP-CVP-CHR) were collected at the induction of the anesthesia, previously to the liver mobilization, previously to the vascular clamping and 10 minutes after both maneuvers. Postoperative pain was evaluated with the visual analogue score (EVA) at 10 minutes, 6, 12 and 24 hours postoperative.

Results: No significant differences were found between the two groups in MAP or CHA, even though a mild lower MAP was noticed in every moment of the surgery in M-LA group. Those parameters were not affected by liver mobilization or clamping. CVP was similar in both groups but a significant decreased was registry in the M-LA group with the clamping maneuver (p = 0.031). Pringle maneuver was associated with lower CVP than Right or Left clamping. All patients were extubated at the end of the surgery. Pain relief was better in the M-LA group (p = 0.019). Bleeding was similar in both groups (M: 540 ± 705mL; M-LA: 490 ± 529mL) as well as fluid replacement with colloids (M: 472 ± 527mL; M-LA: 650 ± 529mL) and crystalloids (M: 2954 ± 950mL; M-AL: 3160 ± 930mL).

Conclusions: Preload diminishing during vascular clamping is potentiately by epidural technique but that does affect hemodynamic stability. Epidural catheter is more effective as postoperative analgesic in the first postoperative day.

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Paper No: 867.00

Quitting smoking before surgery. Where can we act?
Genaro Maggi, Maria Jose Villagran, Emilia Guasch and Fernando Gilsanz

Introduction: The link between smoking and postoperative complication is well documented across surgical specialties. Not only is there an increased mortality risk, but also other complications including pulmonary, respiratory, wound infections, delayed wound healing and reduce bone fusion. Smoking has been associated with length of time in intensive care, in recovery from surgery and on ward. With many hospitals becoming smoke-free environments and the availability of effective interventions to help people to stop smoking, the preoperative period is an ideal time to help smokers to quit before being admitted to hospital. The Royal College of Anaesthetists advises smokers undergoing surgery to quit as far in advance of their surgery as possible, preferably a minimum of six week, or, if this is not possible, to not smoke in the day of the operation.

Objectives: To determinate the prevalence of smokers in the population of a tertiary university hospital to know where can we act to help smokers undergoing surgery to quit.

Methods: We evaluate the data base of preoperative evaluation of 41420 patients in a tertiary university hospital to determine the prevalence of smoker population. Secondary outcome was surgery adult’s subspecialties in smoker group to know where the majority of smokers is. Results: We designed an observational non interventional study that included 41420 patients. 8283 were smokers (14%) and 8251 were ex smokers (14%). 189 smokers were under 20 years (2,3%) mainly scheduled to urological and trauma surgeries, 945 has 21 to 30 years (11,4%), 1371 31 to 40 years (16,5%), 1885 has 41 to 50 years (22,7%), 1752 has 51 to 60 years (21,7%), 1236 has 61 to 70 years (14,9%), 724 has 71 to 80 years (8,8%), 115 has 81 to 90 years (1,4%) and 4 smokers were over 90 years (0,05%) mainly eye surgery in the last two groups. We find a linear relationship between the presence of smoker and alcoholic, with an increase according to age group with a peak between 51-60 years. In the majority group (41-50yrs), surgery indication was 22% general surgery, 12,4% ENT procedures 12,4%, neurosurgery 9,7% and 7,9% vascular surgery.

Conclusions: We find a peak of smokers between the age 41 to 50 years with a 22% of prevalence and direct relationship between smokers and alcoholic. 60% of smokers group was scheduled to general, trauma, ENT, vascular and neurosurgery and these groups will be more profitable to deal.
References

Paper No: 884.00
Transcatheter aortic valve implantation: anesthetic management and considerations
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Introduction: Aortic stenosis (AS) is the most common form of adult valvular heart disease. Many patients with severe AS and multiple comorbidity conditions are not candidates for surgical replacement of the aortic valve, which is currently the gold-standard treatment. Transcatheter aortic-valve implantation (TAVI) has been suggested as a less invasive treatment for high-risk patients with AS.

Objective: The aim of this study is to report the anesthetic considerations and management in the first nineteen TAVI cases at our institution.

Methods: Patients with severe AS who had been refused surgery because of comorbidity were enrolled. Nineteen high-risk surgical patients underwent TAVI between March 2009 and August 2011, under general anesthesia. The induction and maintenance of anesthesia was done avoiding bradycardia or tachycardia, maintaining systemic vascular resistance and preserving preload. A general anesthetic was tailored to achieve extubation after procedure completion.

Result: Patients were 79 ± 7 years (63% male), with multiple comorbidities (EuroSCORE = 22.16 ± 9.74%). Patients who survived to the procedure (94.7%) were extubated and transferred to intensive care unit without vasoactive or inotropic infusions. The most common in-hospital complications were third degree atrioventricular block (42.11%) and need for permanent pacemaker (26.32%). One patient underwent aortic valve replacement after TAVI because of symptomatic severe perivalvular leak. No patient required intraoperative transfusions. After a mean follow up of 317 ± 263 days, the rate of survival was 89.47%. Early hospital discharge was not always possible because of the comorbidities, been an average of 8.1 ± 6.9 days. Conclusion: Corevalve TAVI procedure in high-risk patients appeared feasible and safe. Anesthesiologists have to manage critical patients with severe cardiac and noncardiac comorbidities applying the expertise to a novel procedure.

Reference
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Paper No: 893.00
Clinical trial on burning sensation and pain with the propofol injection: new formulation
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Background: The anesthesia with propofol is one of the most common anesthetic combinations in the clinical practice. A disadvantage of this induction agent is that it produces pain with the injection. It might cause distress to the patients and it is considered a severe clinical problem in anesthesia. Several interventions to reduce or prevent the pain of the injection have been attempted, and a systematic review does not show which one of these interventions appears to be effective.

Goal: Compare the effects in the injection zone (pain - burning sensation) of the propofol “new formulation” (a new formula with a different vehicle) with other commercial ratios of propofol with or without the addition of intravenous lidocaine. Alternative hypothesis: Prove that the Propofol “new formulation” unlike other commercial ratios of propofol - with or without the addition of intravenous lidocaine associated – does not produce burning in the injection zone.

Methods: Double-Blind randomized and controlled clinical trial. We recruited 150 patients who underwent different surgeries. Those patients who required the administration of previous anesthetic medication were excluded. They were randomized into three groups: PC: Propofol control, PNF: Propofol new formulation, PL: Propofol with lidocaine (40 mg every each 200 mg of propofol). A teflon catheter 20 or 18 G was placed and 2 mg/kg of propofol was injected. Symptoms were registered (absence of pain, sensation of presence; light, moderate and severe pain). The Chi-square test
was applied for the analysis of categorical data, considering significant a p “lower” than 0.05. Being a multiple comparison, the Bonferroni Criterion was applied (chart r x c).

Results: 44% of the patients who received PC, 57% of those who received PNF and 68% of the PL group (p=0.044) did not experience pain. On the other hand, 4% of the PL, 8% of the PC and 20% of the PNF (p=0.021) underwent severe pain.

Conclusion: Comparing the formulations used in the studied sampling and agreeing with the systematic review, there is no evidence that the new formulation is exempted of producing burning sensation or pain when administered. As regards the alternative hypothesis, the new propofol formulation does not provide advantages on the conventional presentation with the addition of lidocaine.


Paper No: 895.00

Dependence of hemodynamics on dalargin application in different types of anesthesia in patients with concomitant cardiovascular diseases

Yuriy Malyshev and Christina Dolmova

Introduction: For the optimization of the anesthetic providing of the vast surgery apply the medication with special stressprotection properties, for example, dalargin that is synthetic analog of neuropeptid leu enkephalin.

Objectives: to determine the dependence of the hemodynamic changes on application of dalargin (synthetic analog of leu-enkephalin) as a component of different types of anesthesia in patients with concomitant cardiovascular disease.

Methods: 93 patients of the age from 30 to 80 years have been operated for gastrointestinal diseases. 53 patients had concomitant ischemic heart disease(IHD), 27 had arterial hypertension (AH), and 13 had a combination of IHD and AH. All patients had ASA class II-III. Patients were divided into groups: during anesthesia applied dalargin (n=48) and didn’t apply dalargin (n=45). Premedication: diazepam 0.14 mg/kg, atropine 0.01 mg/kg. Surgery were performed under total intravenous anesthesia (TIVA; n=29; diazepam, ketamine, fentanyl), or a combination of TIVA with epidural analgesia (EA n=21; 0.5% ropivacaine), under volatile anesthesia sevoflurane with fentanyl (VA; n=26); or in combination of VA with EA (n=17). Artificial lung ventilation was been performed under condition of normoventilation. Haemodynamics monitoring included control of mean arterial pressure (MAP), heart rate (HR), cardiac index (CI), stroke index (SI) and systemic vascular resistance (SVR).

Results (essential): Application of dalargin during anesthesia led: during TIVA to increasing of SI from 29(20,0-47,8) to 36(20,0 - 54,7) ml/m2, p <0.05) to decreasing in HR from 78(58-100) to 65(54-94) min-1 and MAP of 104(77-120) to 93(76-111)mm Hg; combination of TIVA with EA to increasing of SI from 37(24,2-50,9) to 42(23,4-54,0) ml/m2, p <0,05, decreasing HR of 78(63-105) to 73(55-94) min-1 (p <0,05), and MAP of 98(93-134) to 86(72-113) mm Hg (p <0,05), the tendency to decrease SVR; combination of VA with fentanyl decrease SVR from 2140(768-3640) to 1383(797-2357) dyne x s x cm-5, MAP from 102(66,7-121,3) to 79(67,3-89) mm Hg, the tendency to increasing SI and CI; combination of VA and EA to decreasing of SI from 52(47,5-60,0) to 29(27,1-31.6) ml/m2, p <0,05, CI from 4,8(3,6-6,1) to 2,2(2,0-2,4)l/min x m2, p <0,05, and increasing of SVR from 946(782-1145) to 1971(1216-2842), dyne x s x cm-5 (p <0,05).

Conclusion: Application of dalargin during anesthesia in patients with concomitant cardiovascular diseases: in TIVA increases SI and reduces HR and MAP; in combination with TIVA EA increases SI, reduces HR and MAP; with VA with fentanyl reduces the SVR and MAP; and for VA in combination with EA reduces SI and CI increases the SVR. VA in combination with EA and dalargin causes the depression of the system of blood circulation that limited the application of medication in this type of anesthesia.

Paper No: 897.00

Perioperative beta blockade at South African vascular surgery training facilities

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Introduction: Once lauded as one of the most valuable interventions across all fields of contemporary medicine, (1) perioperative beta blockade (PBB) is a practice that has come under intense scrutiny. Publication of the POISE study (2) forced a modification of recommendations for PBB in consensus guidelines (3,4) Current practice in South Africa has not been reported.

Objectives: The primary objective of the study was to describe current intended practice, with respect to PBB, in patients undergoing major vascular surgery at South African specialist training facilities. Describing participant satisfaction with current strategy; determining similarities and differences of opinion between Specialist Anaesthetist and Specialist Vascular Surgeon; and identifying potential barriers to the intervention, were secondary objectives.

Methods: One Specialist Anaesthetist and one Specialist Vascular Surgeon from each of the seven recognised training facilities for vascular surgery in South Africa were included in a
Results: The POISE study results and updated international consensus guidelines had not prompted a change in approach at most facilities. There was inconsistency in methods of risk stratification, treatment implementation, titration practices, and the timing of withdrawal of medication. The involvement of the Anaesthetists in the perioperative management of vascular surgery patients was less than reported in other countries. The participants supported a major role for Anaesthetists in the future, and a move towards multidisciplinary involvement in policy development and patient management. Less than half of the participants were satisfied with current practice. Anaesthetist and Vascular Surgeon opinion on current intended practice correlated poorly. Opinions correlated least well at facilities where both clinicians claimed responsibility for PBB, implying that communication may be a problem. Similarities, where they did occur, were in keeping with recommendations that are widely supported in the literature. The need for appropriate monitoring was identified as one of many important barriers.

Conclusions: The study describes current intended practice at South African training facilities for vascular surgery. The variable practice across the country; suggested changes to clinician responsibilities; widespread dissatisfaction with current strategy; poor correlation of participant responses; and the identification of multiple barriers to the implementation of strategy, highlight the need for review at all facilities. Further research is needed as the optimal strategy for reducing risk in patients undergoing vascular surgery remains elusive.

References


Paper No: 908.00

Takotsubo cardiomyopathy during extubation

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We report the case of a 45-year-old woman with a suspicion of CA ovary. The patient, who had no previous medical problems, underwent a diagnostic laparoscopic surgery under general anesthesia. After uneventful induction with thiopental, fentanyl and succinylcholine, anesthesia was maintained with sevoflurane and cisatracurium. At the end of surgery, atropine and neostigmine were used for reversal of neuromuscular blockade. A few seconds later, her electrocardiography (ECG) changed from sinus tachycardia (120 beats/min) to ventricular tachycardia with palpable pulse (160–190 beats/min), which was treated with lidocaine. After that the ECG showed sinus tachycardia (110–120 beats/min) and ST segment elevation in leads V4–V6. Urgent coronary angiography was performed and revealed no significant coronary obstruction. Echocardiogram showed dilatation of mid apical part with hypercontraction of basal part of left ventricle (apical balloon appearance of left ventricle), compatible with takotsubo cardiomyopathy. The cardiac enzymes were within normal range. The patient was treated in the cardiac care unit for 3 days and discharged without other complications. Takotsubo cardiomyopathy, also known as transient left ventricular apical ballooning syndrome, is similar to acute myocardial infarction. Diagnosis of takotsubo cardiomyopathy requires clinical characteristics, biomarker data, echocardiographic findings, and angiographic data. Bybee and Prasad have proposed modified Mayo Clinic Criteria for the diagnosis of transient left ventricular apical ballooning syndrome. The criteria included the finding of transient left ventricle wall motion abnormalities involving the apical and/or midventricular segments with wall motion abnormalities extending beyond a single epicardial coronary distribution, the absence of obstructive epicardial coronary artery disease or angiographic evidence of acute plaque rupture that could be responsible for the observed wall motion abnormality, and troponin elevation or new electrocardiogram abnormalities such as transient ST segment elevation and/or diffuse T-wave inversions. Regarding the underlying
mechanism of takotsubo cardiomyopathy, most believe its pathogenesis to be a stress-induced neurohormonal phenomenon, while a smaller group believes that the transient occlusion of an epicardial coronary artery is responsible\(^3\). Management of takotsubo cardiomyopathy is mainly supportive. For our patient, use of atropine with vagolytic effect may enhance sympathetic activity, leading to a transient cardiomyopathy. Therefore, to prevent this acute complication, atropine should be carefully used for reversal of muscle relaxant.

References


Paper No: 912.00

Reexpansion pulmonary edema during anesthetic recovery

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Introduction: Acute Respiratory Distress Syndrome is an acute and severe alteration of pulmonary structure and function secondary to an acute inflammatory injury that causes diffuse bilateral pulmonary edema, due to an increase in pulmonary capillary permeability, without heart failure. It includes hypoxemia, decrease in pulmonary compliance and residual capacity and bilateral infiltrates, with PaO2/FiO2 lower than 200 mmHg. It appears after a direct or indirect pulmonary injury and requires ventilatory assistance with positive pressure for its treatment.

Goals: Analyze the possible causes of acute respiratory distress in the immediate postoperative period.

Results: A 27 year old male is admitted with oppressive thoracic pain, fever, dyspnea, night sweats, cough and weight loss. CT scan: anterior, heterogeneous mediastinal mass, displacing vascular structures and multiple nodular images; pericardial and left pleural effusion with collapse of the lower lobe. FVC 2L (44%), FEV1 1.67L (44%), FEV1/FVC 100%, with severe restrictive ventilatory failure. FNAB suggested T lymphoproliferative process. A mediastinoscopy with biopsy plus chest drainage tube is performed with thoracic epidural anesthesia and TIVA. 4 L of left pleural effusion exudate are drained. After extubation, the patient shows dyspnea, desaturation and wheezing, global decrease of air entry and abundant secretions. After administration of salbutamol, hydrocortisone and adrenaline without any improvement we proceed to intubate and start MV. A CVC is placed in the right internal jugular vein. CVP: 8cmH20. Citrine liquid is aspirated through fiberoptic bronchoscopy and the presence of bronchopleural fistula is dismissed. X-ray: opacification of both pulmonary fields. Arterial blood sampling: PH 7,18, PCO2 50mmHg, PO2 152,2mmHg, HCO3 18,3meq/L, BE -10.1meq/L, SO2 98,7%, PaO2/FiO2: 152. The patient is admitted into ICU under MV recovering ad integrum after 8 days.

Discussion: The incidence of reexpansion pulmonary edema increases with the duration of prior collapse, an effusion volume greater than 2L and rapid expansion. Differential diagnoses include cardiogenic pulmonary edema and bronchopleural fistula. Due to normal CVP, absence of fistula, PaO2/FiO2 lower than 200 mmHg and serious secretions in the airway, the most likely diagnosis is reexpansion acute distress. The main triggers proposed are the increase of pulmonary capillary permeability resulting from chronic collapse and mechanical stress over microvasculature, aggravated by the termination of positive pressure ventilation. The epidural anesthesia could have also contributed due to pulmonary sympathetic block.

Conclusion: The suspicion of this condition is essential, since it could be prevented by limiting the quantity of drained volume in longstanding effusions.

Keywords: Reexpansion Pulmonary Edema; Anesthesia; Pleural Effusion; Acute Respiratory Distress Syndrome

References


Paper No: 922.00

Lower extremity motor deficit after right upper lung lobectomy and rib resection

Mariela Constanza Tedesco, Maria Espinosa Aguilar, Irene Faura Nuñez and Maria Dolores Lorente
Introduction: The thoracic epidural anesthesia is a safe technique with few complications. It is useful for postoperative analgesia in thoracic surgery, given that thoracotomy is one of the most painful surgical approaches. We report on a patient who had suffered lower extremity weakness after surgery for lung lobectomy and resection of costal arches.

Clinical Case: A 66 y/o man, type II diabetes, diagnosed a lung tumor. It is operated under general anesthesia with selective intubation and epidural catheter inserted at the D6 level for postoperative analgesia. Surgery consisted of right upper lobectomy and resection of the 1 to 5 right costal arches due to neoplastic infiltration. Postoperative evaluation disclosed a paresis of right lower extremity. Epidural analgesic infusion is stopped and spinal MRI is performed, that showed findings consistent with pre-spinal hematoma at the D5-D6 level. Laminectomy disclosed an intradural-extradural mass of hemostatic material of Surgicel and associated hematoma inserted through the neural foramen and invading the ventral spinal canal.

Discussion and Conclusion: Even if spinal hematoma is a relatively rare complication due to epidural anesthesia, with an incidence of 1: 200,000; our case is interesting since the compression was due to hemostatic material and not to the spinal technique itself. Hemostasis after resection of the costal arches may provoke spinal cord compression and be misguided for the insertion of a dorsal spinal catheter. Early diagnosis and treatment is essential for this serious complication.

Paper No: 925.00

Anesthetic implications of dengue
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Introduction: Dengue is, on a worldwide scale, a common disease with impact on anesthesiologist patient management. It became the most common (and still most rapidly spreading) arthropod borne (arbo) virus disease with a marked increase in cases to now ≏ 100 million patients annually (WHO). Increasing international travel activities will confront anesthetists worldwide with patient returning from dengue endemic countries. The disease has an incubation time of up to 14 days, so the disease may develop after return from endemic regions. Thus, key features of the disease relevant for anesthesia should be known to anesthesiologists also in dengue-free countries. However, surprisingly limited information have been published on anesthesiological aspects of dengue so far [1,2]. Working in a dengue endemic region (Dutch Caribbean, Bonaire), the authors want to share their expertise on this patient category, and put it in perspective of the few papers published so far on this subject. Anesthesiological impact: The anesthesiological impact of the disease is related to severity and phase of the disease. In an early phase, the disease usually presents as influenza-like infection with high fever (-40°C). In up to circa 5% of cases the disease will develop as Dengue Hemorrhage Fever (DHF), including the Dengue Shock Syndrome (DSS). Herein, hemodynamics are compromised by vessel- and serosa-leak induced hypovolemia, cardiodepression, altered vascular resistance and (relative) bradycardia, requiring the combination of volume expansion and cardiovascular drugs. Hemorrhage in DHF/DSS is caused by thrombocytopenia ( tracked by repetitive platelet counts), combined with vasculopathy, liver dysfunction and DIC. Respiratory complications result from the disease itself, but also from the significant fluid volumes required for hemodynamic stabilization; therapy herein ranges from simple O2-masks to mechanical ventilation in dengue-related ARDS. If a patient reports influenza-like symptoms and recent travel activities to countries with dengue prevalence, then a high grade of suspicion is warranted. Anamnesis should then also focus on coagulation disorders, e.g., epistaxis, gum bleeding, or gastrointestinal bleeding. Laboratory tests should include platelet count, but also plasmatic coagulation and hepatic parameters. In case of low or decreasing platelet count, the indication for a neuraxial anesthesia should be critically balanced against the increased risk of epidural hematoma. When the disease progresses to DHF and DSS, therapy includes ventilatory, hemostatic and hemodynamic support, with focus on restoration of intravascular volume.

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Paper No: 931.00

Anesthesia in patients with Von Recklinghausen Disease
Cristián Manuella, Luisina Scotta, Fabián Saucina, Eduardo Barayón and Lisandro Vettorello

Introduction: Von Recklinghausen Disease (VRD) or Neurofibromatosis type 1 is a progressive genetic disease characterized by “café-au-lait” spots and a tendency to develop ecto-mesodermic tumours, which is aggravated by pregnancy. Total prevalence: 1/3000 individuals; and 2500/18500 pregnancies. Anesthetic problems: in airways due to macroglotia or pharynx/ larynx lesions; respiratory complications due to lung fibrosis, cystic lung disease, scoliosis; hypertension caused by renal artery stenosis, carcinoid tumours, or
associated pheochromocytoma; difficulty in neuroaxial blocking produced by hydrocephalia, spina bifida, scoliosis and medulla tumours; prolonged neuromuscular blocking even if it is controversial.1;2

Objective: to report the anesthetic strategy utilized in two patients.


Discussion: The anesthetic technique to use in VRD is very controversial. In Case 1 due to higher risk of manipulation of Airways the selected option was regional anesthesia. CNS imaging evaluation previous to regional anesthesia could provide security given the presence of asymptomatic medulla tumours in 40% of VRD patients, since their growth is exacerbated by pregnancy.1 In Case 2 considering the surgery procedure general anesthesia with atracurium was preferred as muscular relaxant due to short half life.1;2 In both situations anesthesia planning was performed analyzing the risk-benefit. Given the anesthesia implications in VRD, an adequate surgery planning could avoid complications improving the results.

Keywords: Von Recklinghausen; Neurofibromatosis; pregnancy; anesthesia

References

Paper No: 943.00

The Baska® Mask – A New Extraglottic Airway Device with Two Gastric Drains – A Feasibility Study

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Introduction: The Baska Mask® (ProAct-Medical Systems, UK) is a new extraglottic airway device (EAD) which brings together features of LMA-ProSeal®, LMA-Supreme®, i-Gel® and Slipa® (bite block, oval-shaped airway tube, gastric drain); and safety improvements: 1) A self-sealing membranous, variable pressure, non-inflatable cuff that, during IPPV, increases the seal with increasing airway pressure; 2) A gastric reflux drainage system consisting of a large distal aperture located at the upper end of the oesophagus, which opens into a sump cavity at the back of the mask; and two tubes running the length of the main stem of the device, one on each side of the main airway tube, both of which open into the sump cavity. One of them is connected to high pressure, high flow suction whilst the other is left open to atmosphere to equilibrate the pressure in the sump cavity to atmospheric. This system allows for rapid drainage of gastric fluids or secretions that may collect during use, provided suction is performed during maintenance and emergence from anaesthesia; 3) A suction elbow, i.e. an extra connector for attaching suction to the proximal end of the tube to keep the sump area clear; and 4) A tab for manually curving the mask to ease insertion.

Objectives: To determine whether the improvements incorporated in the Baska Mask® provide a clinically useful EAD that helps to improve the safety and efficacy of airway management in patients undergoing surgery.

Methods: Fifty ASA I-III patients, undergoing a variety of surgical interventions not requiring tracheal intubation, were involved to receive a Baska mask® during anaesthesia. Exclusion criteria were: known/predicted difficult airway, surgery in the non-supine position, or were undergoing head and neck surgery.

Results: The first attempt success rate was high (88%) and considered to be very easy in 92%, while removal was considered easy in all cases. The oropharyngeal leak pressure was above 30 cm H2O in all patients, achieving the maximum of 40 cm H2O in 82% of the patients. In two patients, no adequate capnogram was obtained, and a smaller size of the mask was inserted, revealing adequate results. Fibreoptic evaluation of the anatomical position of the masks showed the vocal cords, although in six patients (12%) only the epiglottis could be visualized.
Conclusions: We conclude that the Baska Mask® shows promising safety features in airway management.

Paper No: 946.00

Ultrasound guided Peripherally Inserted Central Catheters (PICC) under local anaesthesia saves bed days

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Introduction: Peripherally Inserted Central Catheters (PICC) lines are becoming more popular because it is easy to insert under local anaesthesia and use of ultrasound(US) increases its success rate to near 100%.

Objectives: To study success rate under US guidance and number of hospital bed days saved Methods We reviewed our PICC data base since the records began in 2007. Ours is a District General Hospital (DGH) in the UK admitting unselected patients of both medical and surgical specialities. We present the data regarding lines done over two year period from 2009–2010.

Results: We did 118 (101 single and 17 dual lumen) PICC lines over the two year period (42 in 2009 and 76 in 2010). All were done under ultrasound guidance and local anaesthesia. Majority of the patients were elderly. Indications for insertion were antibiotics 71%, total parenteral nutrition (TPN) 19% chemotherapy in 9% and difficult IV access 1%. There were no failures. Complications were minimal (Table). Average time from referral to insertion was 22 hours. Average length of stay was 32 days (range 1 to 116 days). This service has saved 1077 bed days for the hospital in average length of stay was 32 days (range 1 to 116 days). This service has saved 1077 bed days for the hospital in view of discharge of these patients in to the community for ongoing care. PICC insertion also minimised missed treatments and improved patient satisfaction. Table 1. Complications following PICC insertion Total no of PICC inserted 118 Line blockage(9/42 in 2009 and 7/76 in 2010) 16 (13.5%) Successfully unblocked with urokinase 12 Line infection 5(4.2%) Local bruising 2(1.6%) Thrombosis 1.

Conclusions: PICC is predominantly for administration of long term antibiotics, TPN, blood sampling and chemotherapy. Because it is usually done in the arm it is more comfortable for the patient (compared to a central line in the neck) and risk of infection is much less compared to a central line. Most of the patients in our audit were elderly and many of them had multiple co morbidities. Once they have had the line inserted they could be discharged in to community hospital/residential homes or their own homes where the district nurses provided ongoing care. Training the vascular access nurse improved the access to the service and also enhanced after care, follow-up leading to reduced complications such as line blockage.

Reference


Paper No: 950.00

Prognosis factors of mortality after surgery in a first-level public health service hospital. Is it possible to improve it?

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Objective: To analyze prognostic factors for survival of patients operated on a first-level public health hospital and propose changes in the patients circuits that improve this results.

Methods: The official database of patients operated from January 1 until 31 December 2007 was reviewed. Data extracted included patient age, ASA grade classification, surgical service of reference, type of admission and surgery (scheduled/emergency), and date of discharge. The study excluded ophthalmic surgery without income. The statistical analysis was performed using a Cox multivariate model, in order to identify independent variables predictive of survival at discharge.

Results: 4184 patients were included in the analysis. The average age of the study population was 53.46 (39-56), 56.7% were women. Income was conducted as scheduled in 58.3 % of patients and also 75.1% of them were operated upon by a scheduled procedure. For patients who received urgent assistance over 80% were assigned to general surgery service. For ASA classification: 22.3% ASA I, 45% ASA II, 27.8% ASA III, 5% ASA IV: The number of exitus was 97 (2.31%) (35,05% of them were ASA III and 41,23% ASA IV). General surgery and traumatology agglutinated more than 50% ASA III/IV patients. For this group the median age was 74 (25th percentile 65.5 and 75th percentile 78.5). Univariate Cox regression found that age > 65 years (p <0.0001), emergency admission and emergency interventions (p < 0.0001), ASA IV and provenance service (general surgery) were related to the mortality. These results were confirmed in multivariate regression.

Conclusions: Improving the physical condition of patients when it’s possible, mainly those aged over 65, or strive for change a urgent procedure by an scheduled intervention may optimize the outcomes in terms of postoperative mortality after surgery. The role of anesthesiology service in this process could be transcendent.
Paper No: 959.00

Are anaesthetists doctors? - a UK survey
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Introduction: Who anaesthetists are and the role they play in a hospital, has long been misunderstood by the general public and patients. The Royal College of Anaesthetists (RCoA) commissioned a survey to ascertain whether the general public of United Kingdom understood that anaesthetists were medically trained doctors who had undergone specialist training. The results showed that 35% of the public did not consider anaesthetists to be medically qualified doctors. The RCoA decided that greater awareness of anaesthetics was required among the population. Leaflets and posters were produced and a National Anaesthesia Day was organised to inform the public of who anaesthetists are and what they do on 25th May 2002.

Objectives: The aim of this new survey was to look for any change in the public perception of anaesthetists after 11 years.

Methods: A total of 38 post-operative patients at the Royal London Hospital were surveyed on their knowledge of anaesthetists. They were asked what their professions was, if they had an operation that day, if they meet the anaesthetist before the operation, whether the anaesthetist discussed their anaesthetic options and if their queries had been adequately answered. At the end they were asked in their opinions what type of training anaesthetists had received.

Results: The results showed that 60% felt that anaesthetists had first trained as doctors and then had specialist training. 21% thought that anaesthetists trained as apprentices, 11% thought they had studied for a National Vocational Qualification (NVQ) and 8% suggested other forms of training, including studying anaesthetics at university. Comparing different social class groups A and B versus D and E showed a large difference in the correct understanding of training of 82% vs. 40%. Those from social class E were correct only 20% of the time where as in class A it was 83%.

Conclusions: This survey shows that public perception of anaesthetics has not changed and more work is required in engaging with the public and raising the profile of anaesthetics in the public domain. Those of social classes A and B appeared to be well informed but those from D and especially E were less knowledgeable. Large amounts of money are often required to change public perception and are often ineffective. As anaesthetist we should accept the fact that general public’s perception regarding our qualification or training is difficult to change but take pride in our work and contribution to overall patient care.

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Paper No: 960.00

An essay about the anesthesiology workforce needed in Sub-Saharan Africa (SSAF)
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Introduction: Most countries don’t realize the importance of anesthesia for health development plans. More than 60% of any hospital activities depend on anesthesia, even in developing counties. Developing other specialties without credible plans for anesthesia will not work.

Materials and Methods: A 1998 Belgian predictive model served as basis for this exercise [1-2]. The Cotonou anesthesiologists’ training program provided 15 years comprehensive SSAf data[3]. Only anesthesiologists are considered, assuming nurse anesthesists(NAs) cover further needs. The need for specialists equals demand minus offer. Results: Demand cannot be deduced from models prevailing in developed countries. A priority could be to have one anesthesiologist per 1/100,000 urban population in cities >= 100,000. The remaining services being provided by NAs, at a 5 to 10 NA/anesthesiologist ratio. African population is expected to grow 59% until 2035: 2.22 to 1.55% per year[3], increasing demand proportionately. Should government allow for further health expenditures, this should be added. Offer= (specialists+trainees). Their numbers must be corrected for several factors for which we propose the following observed values: -Careers are short; candidates enlist late after medical school and graduate in 5.3 years (instead of 4 as planned). Retirement age is 60. -After 55 performance decreases by 15%[1]. -Only 7/51(15%) anesthesiology graduates were women, this proportion should reach 50% by 2035 (+1.5% /yr); equal time is devoted to profession by Belgian female or male trainees, but it is 20% less for female specialists (pregnancies, child care). -In SSAF 0.13% of trainees and 0.22 % of specialists died or became incapacitated, per year.

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5 candidates for every 100 active anesthesiologists just to avoid reducing anesthesia services below today’s.

**Discussion:** Most proposed corrective factors are based on actual data from the Cotonou program; it covers 11 SSAf countries and is therefore representative. Belgian estimates were used where no African data exist; they have proven accurate for Belgium since 1998; whether they will fit to SSAf is unknown.

**Conclusion:** Ignoring corrective factors would severely underestimate needed enrolment for anesthesiology in SSAf, and jeopardize future public health, despite the presence of NSAs.

**References**
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**Design and proposal for a balanced scorecard in the follow up of the performance management in hospital anaesthesia services. Case: anaesthesia, analgesia and reanimation service of the Hospital Escuela Eva Perón. Granadero Baigorria, Santa fe, Argentina**

Viviana Aviani and Joaquin Paladino

**Introduction:** The Balance Scorecard (BSC) is a management tool taking origin in the enterprise environment, widely used in the public and health sector in several countries. It permits to manage, planning, organizing, directing, evaluating and strategically controlling an organization; and also transferring the vision and strategy to a coherent set of indicators within a shared aim. The evolution of Hospital Anaesthesia Services (HAS) forces them to innovate in their management strategy.

**Objective:** To develop a BSC model for HAS as a management and control system, to be applied particularly to the Anaesthesia, Analgesia and Reanimation Service of the Hospital Escuela Eva Perón (AARS-HEEP).

**Material and methods:** Descriptive, qualitative study. Primary and secondary sources; literature review. Procedures: Questionnaires, interviews, documental qualitative/quantitative data, classification, summary and descriptive statistical analysis.

**Results:** tables and/or graphs. Case: strategic analysis, design and proposal of BSC model.

**Results:** A BSC potential model, starting with the AARS-HEEP strategically analysis, transferring this vision of the service into operative terms, namely, “success key factors” or variables interconnected permitting the strategically vectors establishment (cause/effect relation) was developed. Afterwards, from five proposed perspectives i.e., interest and financial groups, internal processes, growth, learning and research applying previously constructed indicators, an actual management control system, was evaluated.

**Discussion and conclusions:** The BSC is a valuable and liable tool, functioning as a real management control system that permits the performance-quality evaluation (evaluation as an ally). Indicators are used to anticipate deviation from proposed objectives. The BSC allows error and adjustment, driven to innovation, and enhancing taking decisions at different levels and suppression of short-term goals in bureaucratic management. Could it be possible to implant it in the HAS? The HAS function as institutions presently imbedded in bureaucratic models (vertical and hierarchical), strongly organized and resistant to changes. These models are against heterarchia (shared mission and vision) truly leadership. To this must be added the economical difficulties. The BSC could enable communication in every field, focusing the management and rectifying the whole organization by means of shared strategic objectives. It could deliver control and evaluation mechanisms, mainly a positive evaluation leading to the investment into the budget planning process. The implementation would not be a simple task but a challenge to carry on future innovation.

**Keywords:** Balance Scorecard; management; indicators; anaesthesiology

**Reference**

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**Submental tracheal intubation. Case Report**


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**Introduction:** In the airway management of patients with multiple face fractures, the presence of the tracheal tube in the oral cavity can interfere with the surgical procedure. It is therefore necessary for an alternative path to be used. When the patient doesn’t require a long period of ventilation, one alternative is a submental tracheal intubation.
Objective: The goal of this case report is to present a case of submental tracheal intubation for reconstructive surgery of the maxillary and mandibular fractures. Case report: A 24 year old male patient, 70 kg, ASA I, scheduled for reconstructive surgery of the maxillary and mandibular fractures. Obtained peripheral venous access 16G. Monitored by pulse oximetry, cardioscope and noninvasive blood pressure. After preoxygenation, anaesthesia was induced by using propofol, fentanyl and cisatracurium. Intubated with a wired tube of 8.0mm. Correct placement was confirmed by the capnography. Anaesthesia was maintained by oxygen, protoxide and isoflurane. A submental incision was made on the left side of the patient. Soft tissues were divulsed until the floor of the mouth was reached. The distal part of the tube without the connector was clamped and exteriorized through the submental access. The tube was reconnected to the breathing system and the surgery continued without any complications. At the end of the procedure the patient was extubated and the submental incision sutured.

Discussion: The submental access is a simple procedure and a technique which presents excellent results. Complications are rare as the area does not have any big vessels or nerves. This provides a clear surgical field and the ability to treat all the injuries in one surgery. With this technique it is possible to perform an intermaxillary fixation without the need of a tracheostomy.

References

Paper No: 983.00

Pre-operative antibiotic therapy Inappropriate variability of medical practice/experience. Usage vs. Clinical practice guides

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Introduction: One of the most frequent complications in the postoperative period is surgical wound infection. They are associated with an increase in morbidity and mortality, treatment failure, appearance of new antimicrobial resistance and increase interventions cost.

Objetives: We propose to assess the use of antimicrobial prophylaxis in surgical practice as proposed in guidelines by the Argentine Society of Infectology, and to observe the practice in public hospitals of Buenos Aires city at the time of prescribing preoperative antibiotic medication. Our secondary goal is to compare practice between staff anesthesiologists (P) and resident physicians (R).

Methods and Materials: We describe a multicenter, descriptive cross sectional study. Each participant received a questionnaire to answer (randomized sampling by conglomerate: high and low hospital complexity). The inclusion criteria involved the questionnaire to be completed fully. The Chi-square test was applied for proportion comparison, considering significance at p<0.05.

Results: From a total of 50 surveys, 29 were answered by resident physicians and 21 by anesthesiologist. 50% of the surveyed physicians do not use the guide, although having 78% of the drugs readily available. The time frame of administration of antibiotic prophylaxis varied between 60 to 0 minutes prior to knife to skin. This resulted in only 32% of antimicrobial prophylaxis being administered on time. The distribution of the answers was not normal: the mode was 2 and the median 3, 17 observations in the first quartile (0-2 correct answers), 20 observations in the second quartile (3-5 correct answers), 12 observations in the third (6-8 correct answers) and 1 observation in the forth (9 correct answers). 18% answered correctly more than 70% of the survey. 43% of the R subgroup did it in time due versus 14% of the P subgroup (p=0.028).

Discussion: While many of the physicians have the correct antimicrobials in their municipal hospitals available, just half of them use the guidelines at the time of choosing the correct antibiotic. 68% of the times, the drug is not administered in time. Likely responsible for this are the lack of access to the patient in time and not having enough clinical staff.

Conclusions: Only a small proportion chose the antimicrobial correctly. It is clear the need to administer correctly and apply correctly guidelines for the use of pre-surgical antibiotic prophylaxis. It would be helpful to place printed guidelines or pro formas in anesthetic evaluation forms, clinical notes, induction rooms and operating.

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Paper No: 997.00

Preventive analgesia with lidocaine in intravenous infusion vs sulfate of magnesium for postoperative pain management

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Introduction: Pain is a protection mechanism, appears in any tissue injury, and has a double component: a specific feeling and one psychological as reaction to this feeling.

Objectives: To compare the intensity of postoperative pain following simple lidocaine or magnesium sulfate infusion in patients undergoing abdominal surgery.

Methods: With a controlled clinical trial design we studied 60 patients in elective way to abdominal surgery under general anesthesia, divided randomly into two groups of 30 subjects each: Group 1 received MgSO4 at doses of 30 mg/kg and group 2 lidocaine at doses of 1.5 mg/kg. Postoperatively re-inspected and the presence of pain with the visual analog scale (EVA) at the following times: basal/1/6/8/12/24 hours; sedation with the scale of Ramsay, hemodynamic variables.

Results: The groups were similar in age, weight, height, gender and physical condition. There was no clinical difference in hemodynamic variables. It was the quality of sleep, evaluated by EVA, expressed in medium and quartiles (25-75) in grupo1/2 = 10 (9-10) and 9 (9-10). The percentage of subjects without pain in grupos1-2 Bas/1/6/8/12/24 hours was: /47-63/57-73/80-73/90-77/93-80/97-87. Pain Leve¼ 50-27/43-20/24/10-23/7-20/3-13. Moderate pain = 3-3/0-7/0-3. Severe pain=0-3 in the basement stage. Nausea and dizziness were presented only in 3% of the group treated with MgSO4.

Conclusions: Postoperative pain intensity was lower in the group treated with simple lidocaine infusion.

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Paper No: 1004.0

Intraoperative practice in heart surgery: results of a countrywide survey in Chile

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Introduction: Intraoperative practice in cardiac operations has evolved considerably over the last decade with the introduction of new technologies designed to assess cardiac, haemostatic and neurologic status.

Objective: Our objective was to describe the practice of national cardiac centers, to find out the intraoperative management in cardiac operations in Chile.

Methods: We conducted a survey in all institutions that perform cardiac surgery. A questionnaire was sent by e-mail between July 1 and August 31, 2011 focused on demographic data, cardiac output monitoring, transesophageal echocardiography (TEE) practice, depth of anesthesia and cerebral oxygenation monitoring and coagulation management, as performed during the previous 12 months. Responses were processed anonymously. Fisher’s exact test was used for categorical variables analysis.

Results: Eighteen of 21 institutions (90,4%) responded: Six public hospitals, two universities, six private and four institutional armed forces, collecting a total of 4383 surgeries, which 30% were pediatrics. The 55.6% of surgeries were in public institutions, and seven of 18 centers performed more than 250 operations per year. The use of Pulmonary artery catheterization varied widely among hospitals (rank 0 – 100%). TEE practice also varied significantly according the center, used in 13% of patients at public hospitals, while 70% of patients in non-public ones (p=0,001 by Fisher). Cardiac output monitors different from the other ones were used in only one place. New vasoactive drugs availability, such as terlipressin and levosimendan, varied significantly between public and non-public institutions (p=0,01 by Fisher). Only one center assesses the depth of anesthesia and cerebral oxygenation. Nine of 18 centers have transfusion protocols, based on standard coagulation tests (prothrombin time, platelets count, activated partial thromboplastin and activated clotting time). Two hospitals gave transfusions in more than 75% of the patients and only two institutions have thromboelastography and coagulation factors activity for additional monitoring. New hemostatic technologies, as platelet function analyzer, were not available. Acetylsalicylic acid was suspended before surgery at eight of the 18 hospitals, whereas clopidogrel in all of them. Heparin resistance was treated mainly by additional heparin dose and by fresh frozen plasma transfusions, whereas exogenous antithrombin was used in only two centers.

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Conclusions: Intraoperative practices vary substantially among the hospitals surveyed, and new technology is not widely available, becoming big challenges to improve the care of cardiac patients in Chile.

Paper No: 1010.0

The risk of CO in patients undergoing general anaesthesia inhalation
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Introduction: CO is generated inadvertently within anaesthesia machine due to halogenated anaesthetics and soda lime interaction not only with low flow techniques but with 2-3 l/min supplies too. Detection and control of the COHb levels are not yet routine procedures, thus intra-anaesthetic toxicity risk is possible. Actually it is impossible to know how many times post-operative symptoms of CO poisoning have occurred unnoticed just because it hadn’t been thought.

Objectives: Our objective is to demonstrate that CO may appear in anaesthesia circuits, occupying as is well known the O2 place in the Hb molecule and moving it out according to CO concentration level, even with a low-risk considered agent as Sevoflurane traditionally was. Thus may be proved that levels of CO in the circuit or most specifically the formation of COHb must be monitored when inhalation anaesthetics are supplied.

Methods: A 40 adult patient series (18 males and 22 females) going under general anaesthesia with Sevoflurane (n=20) and Isoflurane (n=20) was studied, investigating the presence of COHb. In all the cases a FiO2=1.0 was deliberately supplied. Measurements were made with a Masimo RAD-57 COoximeter device.

Results: In those patients undergoing Isoflurane anaesthesia the minimum COHb average concentration was 3.8% and the maximum average concentration was 5%; while for Sevoflurane the lowest average concentration was 2.55% and the maximum average concentration 6.3%. This implies a 31.5% average increase for Isoflurane and 147% for Sevoflurane. High value in the latter is mostly due to 3 of the cases where COHb increase was 433,33%, 325% and 300% respectively, influencing the average for this agent. The concentration dropped in 4 cases with Isoflurane and 1 with Sevoflurane.

Discussion: On the contrary to what might be expected according to the information provided by other authors, we have found most significant elevations of the COHb with Sevoflurane than with Isoflurane. Even in those cases in which COHb declined, this occurred in more occasions with Isoflurane than with Sevoflurane. However concentrations of COHb have not been correlated with CO circuit concentrations.

Conclusion: Despite of the presence of high O2 inhaled concentrations the most of procedures with any of both agents produce significant CO increases. Sevoflurane had proved to be at least as capable as Isoflurane to produce meaningful COHb levels. Therefore, it is well demonstrated the need to detect CO presence in anaesthesia circuits to avoid from reaching unnoticed toxic levels.

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Paper No: 1011.0

Evaluation of the impact of stress in anesthesiologists in Rio Negro, Argentina
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Introduction: Laboral stress is considered as a factor in a harmful health effects. Impaired psycho-emotional, physical
illness, intellectual disorders, family and employment consequences, decreased quality of patient care and lack of commitment to medical practice. In the medical population the incidence of occupational stress is 28% in the Latinamerican anesthesiologists reaches values of 64%.

**Purpose:** To determine the degree of professional burnout in Anesthesiologists in Rio Negro Province, Argentine and the influence of different factors affecting this condition.

**Materials and methods:** This is a transverse descriptive study. The anesthesiologists were surveyed with a self-administered questionnaire using Google Docs forms. 32 anesthesiologists participated in Rio Negro Province, Argentina. The questionnaire included: a) the Maslach Burnout Inventory (MBI), that assesses Depersonalization (DP), Personal Accomplishment (PA), and Emotional Exhaustion (EE); b) social and demographic variables.

**Results:** The questionnaire was answered by 41% of anesthesiologists members of Rio Negro Association of Anesthesiology, of which 50% were male, the average age of the respondents was 46, and 50% were female, the average age was 48.6. Of the anesthesiologists surveyed 4 working in the public system, 17 in the private system and 11 in both of the respondents, The average score values obtained using the different scales were 23.59 for DP, 42.65 points for EE, 4.81 ± 5.07 points for PA, results that place participants in a medium degree of EE, low depersonalization DP and high personal accomplishment PA. 25% had high levels of Emotional Exhaustion Burnout, 12.5% had high levels of depersonalization Burnout and 78.2% had high levels of Personal Accomplishment Burnout. Burnout syndrome was observed in one female anesthesiologist.

**Conclusion:** The degree of professional burnout in Argentine anesthesiologists of Rio Negro, Argentina is lower than that found in other countries. Burnout syndrome was present in one anesthesiologist. In the study was found Depersonalization and Emotional Exhaustion in low levels and high percentage of Personal Accomplishment, especially as far as rates of are concerned.

**Keywords:** Burnout; stress in anesthesiology; prevalence in anesthesiologists; anesthesiologist professional risk

**References**


**Paper No: 1034.0**

**Subcutaneous Adipose Tissue and Serum Concentrations of Cefazolin in Morbidly Obese Patients Undergoing Laparoscopic Gastric Bypass Surgery**

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**Introduction:** Morbidly obese patients are prone to surgical site infections [1,2]. To reduce the risk of infection, prophylactic antibiotics are administered before initial surgical incision to attain adequate levels of antibiotic in the bloodstream and tissues [3]. Cefazolin is commonly used as prophylaxis in adult surgery. For morbidly obese patients a standard dose of 2 grams is applied. Recently it was shown that unbound cefazolin serum concentrations in morbidly obese patients were higher than 1 mg/ml until at least 4 hours after dosing [4].

**Objectives:** This study evaluated cefazolin concentrations in both subcutaneous adipose tissue and serum in morbidly obese patients, as the penetration of cefazolin into subcutaneous adipose tissue in this patient group is unknown.

**Methods:** Eight morbidly obese patients with a median BMI of 47 kg/m2 (range 41– 57 kg/m2) and median weight of 140 kg (range 107-175 kg) participated in the study. At induction of anesthesia, patients received cefazolin 2 gram i.v. Samples of unbound cefazolin concentrations in subcutaneous adipose tissue were taken using a microdialysis catheter which was placed in the subcutaneous tissue of the abdomen. The catheter exists of a semipermeable membrane through which solutes can diffuse and subcutaneous samples can be collected [5]. Microdialysis samples were collected every 20 minutes until 4 hours after dosing, serum samples were collected at T=0, 5, 10, 30, 60, 120 and 240 min. All samples were analyzed using high-performance liquid chromatography with UV detection.

**Results:** Mean unbound cefazolin concentrations in serum at 5 minutes after dose was 53.3 ± 14.3 mg/ml. Mean cefazolin concentration in subcutaneous tissue at 10 and 30 minutes after dosing was 18.8 ± 9.4 and 26.7 ± 12.6 mg/ml, respectively. Subcutaneous cefazolin penetration, expressed as unbound cefazolin AU(tissue)/AU(serum) ratio (0-4 hours) was 0.91 ± 0.40. Until four hours after dosing, both unbound cefazolin concentrations in subcutaneous tissue and serum remained above 2.8 mg/ml (mean ± SD: 6.5 ± 4.4 mg/ml and 5.1 ± 2.0 mg/ml, respectively) while the MIC90 (minimal inhibitory concentration for 90% of methicillin sensitive isolates of S. aureus) for cefazolin in Europe is 1 mg/ml.
Conclusions: Cefazolin seems to penetrate well into subcutaneous adipose tissue in morbidly obese patients as unbound subcutaneous cefazolin exposure (AUCtissue) was found to correspond with unbound serum exposure (AUCserum). In morbidly obese patients, unbound subcutaneous cefazolin concentrations exceeded a MIC90 of 1 μg/ml until four hours after dosing. Final dose recommendations for antibiotic prophylaxis however depend on local information on MIC90.

References

Paper No: 1057.0

A Study of Inhalation Sedation of Nitrous Oxide with Adjunctive Use of a Lo — Concentration of Sevoflurane on Severely Handicapped Patients for Dental Treatment

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Introduction: The sedative effect of inhalation sedation of nitrous oxide with adjunctive use of lo – concentration of sevoflurane on severely handicapped patients for dental treatment was studied.

Objectives: The study consisted of 215 patients who received dental treatment last three years. The patients were divided into two groups. The first group was the Mask Group which involve 129 patients including those who could not be given intravenous sedation due to too difficult venipuncture, micronephria, low respiratory function, or ineffective intravenous sedation. The second group was the Tracheotomy Group which consisted of 86 patients and including those who received tracheotomy or tracheoesophageal diversion due to frequent aspiration pneumonia caused by cerebral palsy. The protocol was approved by the institutional review board of the hospital.

Methods: The technique was induced with 50% nitrous oxide, oxygen, and 0.10.5% of sevoflurane using a face mask in the Mask Group, and a circuit was connected directly to the tracheotomy hole in the Tracheotomy Group. After the appropriate level of sedation was obtained, the face mask was removed and was changed to a nasal mask in the Mask Group. The level of sedation was scored into five grades by the dental anesthesiologist and the dentist according to the performance of the procedures. Heart rate, blood pressure, SpO2, EtCO2 and respiratory rate were monitored.

Results: As a result, the level of sedation was sufficient in both groups, and the score was higher in the Tracheotomy Group than in the Mask Group. A transient decrease of Spo2 of less than 89% was observed in 13 patients in the Mask Group, and only one in the Tracheotomy Group only.

Discussion: The technique is thought to be effective and safe on severely handicapped patients. And it is thought that the technique is more effective and safe on those who have received tracheotomy or tracheoesophageal diversion. The reasons are considered that the leakage anesthetics and contamination of air of the circuit is limited, and the occurrence of aspiration of saliva or water is less.

Conclusion: The technique is thought to be effective and safe on severely handicapped patients.

References

Paper No: 1114.0

“Guinness Record” for biggest ruptured abdominal aortic aneurysm, a clinical success

Pedro Freire, Maria Pimentel, Paula Ribeiro and Cunha Falcão

Background: Most of the arterial aneurysms are located in the abdominal aorta, between the renal and the inferior mesenteric arteries. (1) Although in the last years, the overall morbidity and mortality rates have diminished for elective surgeries (mortality <5%), mortality rate in emergency repair of a ruptured aneurysm is still >50%. (2)

Case report: A 79 year-old man with known history of 2 previous strokes, cerebral aneurysm, chronic obstructive lung disease, hypertension, chronic renal failure and anemia-previous hemoglobin (Hb) 8.8g/dL, was admitted to a local peripheral hospital for 2 episodes of lipothymy and diffuse abdominal pain. He presented pale and sweaty. Arterial blood pressure (BP) was 100/60mmHg and heart rate (HR) 95 heart-beats per minute (hpm). On the physical examination a painful non-mobile hard consistency mass was palpated in the hypochondrium all the way to the epigastrium. A computerized tomography scan showed a 26cmx13cm abdominal aortic aneurysm (AAA) in rupture; Hb at the time was 7.3g/dL and the patient was transferred to our hospital after contact with Vascular Surgery. On arrival to the Emergency Room BP was 110/77mmHg, HR 103hpm and Hb 6.5g/dL. Transfusional support was initiated. After referring acute
abdominal pain, the patient makes a respiratory arrest with possible aspiration. He was intubated and transported to the Operating Room. An aortic-aortic interposition with Dacron prosthesis was made under general anesthesia. An arterial line, a 3-way central catheter and bispectral index monitoring were placed. During surgery the patient was hemodynamically unstable; colloids and crystalloids were administered, transfusional support continued and infusion of dobutamine and noradrenaline started. Time of aortic clamping was 90 minutes and minimal systolic BP was registered immediately after aortic declamping (<30mmHg). Intra-operative blood loss was approximately 5 liters and urinary output was 230mL. After surgery the patient was admitted to the Intensive Care Unit and remained sedated and intubated for 2 more days. On the 6th day vasopressor amines were suspended. The patient was transferred to the Vascular Surgery infirmary on the 9th day after surgery and was discharged from the hospital 39th.

**Conclusion:** Ruptured AAAs are life-threatening surgical emergencies that require experienced vascular surgeons and anesthesiologists. The declamping time is the most critical moment of the surgery, possibly leading to extreme hypotension and death. It is therefore of extreme importance to anticipate and prepare for this moment. All in all, despite all odds, sometimes patients have a way to surprise us.

**References**


**Paper No: 1124.0**

**The role of the international anaesthetist in the professional training and OT management of the anaesthesia nurses. 12 years of experience of emergency Italian NGO in Afghanistan**

Paolo Grosso

Director of Emergency Dept. Policlinico di Monza (Monza, Italy); NGO Emergency Board of Anaesthesia and Critical Care

**Introduction:** Afghanistan won independence from British in 1919. From 1979 to 1989 Soviet touching off a long and destructive war. Following years of Civil War, Kabul fall to the Taliban in 1996. After 9/11, a US and anti-Taliban Northern Alliance military action toppled the Taliban and in 2004, KARZAI became the first democratically elected president of Afghanistan. Definitely this events cause decades of non educational and professional growing. Emergency has opened 3 hospital in Afghanistan: -1999, Surgical Centre in the Panjshir Valley (Anabah). -2001, Surgical Centre in Kabul -2003, Surgical Centre in Lashkar-gah and a Maternity Centre in Anabah. Kabul Medical University has the only baccalaureate-level nursing program in the country that provides: primary anaesthesia, low technology skills and pharmacological core issues. Certificated nurses after two years in Anaesthesia School graduate as Anaesthesia Technician.

**Objective and Methods:** In Afghanistan the daily hospital presence of a MD certificated in Anaesthesiology is unusual. Emergency’s hospital host, all year round, an international MD Anaesthetist who is responsible for theatre and ICU activities. Although he is in charge for: -training and re-training the national staff -organize refreshing courses and lectures -improve skills and guidelines in OT with respect to the “primary anaesthesia” issue in developing countries -sharing the latest critical care guidelines in respect of the Country resources -enhancing the work of the staff in the sub-specialised field of War Surgery -training senior anaesthesia nurses as tutor reference for future/training nurses -create new professional skills and responsibilities -test emergency scenarios (mass casualties and in-hospital emergency)

**Results:** Our hospital in Kabul has an agreement with the Ministry of Public Health (MoPH) to allow our anaesthesia nurses to be admitted to the graduating examination at the MoPH-HRD. The anaesthesia staff is in charge of in-hospital emergencies ad has to be trained for a specific BLS course. New skills have been introduced as the IJV infusion, selective spinal anaesthesia, management of the difficult intubation, laryngeal mask, paediatric anaesthesia, new drugs.

**Discussion and Conclusion:** Our aim is to qualify and make the national anaesthesia staff autonomous and, as much as possible, professionally safe. We have anaesthesia nurses who are tutors for the new generation, well skilled in managing any emergency and with an updated knowledge of available pharmacology. Moreover few of them are responsible for the BLS training. The management of the patient is all-round respected as we use to respect in our western countries.

**Paper No: 1125.0**

**The utility of pre-operative troponin elevation in determining postoperative mortality in vascular surgical patients**

Alexandra Torborg and Bruce Biccard

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**Introduction:** Recent studies have suggested that pre-operative evaluation of cardiac troponin I (cTnI) levels may be appropriate for risk stratification of vascular surgical patients scheduled for peripheral vascular surgery. (1,2) However, it is unknown whether pre-operative cardiac troponin evaluation has clinical utility, in the presence of risk stratification using the Revised Cardiac Risk Index (RCRI) in vascular surgical patients.

**References**


Objectives: The aim of the study was to determine the utility of pre-operative troponin levels in determining post-operative 30 day mortality in vascular surgical patients.

Methods: This is an observational cohort study conducted between April 2008 and October 2010. Local ethics approval was obtained. All patients had the RCRI risk factors and pre-operative cTnI collected prospectively. Mortality within 30 days of surgery was recorded. Categorical data was analysed using the Fisher’s Exact Test. Continuous data were compared using independent samples t-test. Binary logistic regression analysis was conducted to determine independent predictors of 30 day mortality using a backward stepwise modelling technique. The odds ratio for mortality and 95% confidence intervals are reported.

Results: Fifty four (9.6%) of the 562 patients had an elevated pre-operative cTnI (>0.1ng.ml-1). The 30 day mortality was 42 (7.5%). The preoperative characteristics of the patients are shown in Table 1.

Conclusions: Pre-operative troponin elevation is an independent predictor of 30 mortality following vascular surgery.

References

Paper No: 1131.0

The influence of preoperative overnight fasting under insulin resistance in patients to undergo a videolaparoscopic cholecystectomy

Daniel Fabri, Flora Bisinotto, Nazaré Szymaniak, Aracelle Soares and Gabriela Sousa

Introduction: The concept of preoperative overnight fasting was challenged and prove to have no benefits before surgery, and may involve a more prolonged time (i.e., 16-18h). That has been shown to induce insulin resistance (IR), can be defined as a situation that occurs the biologic response to insulin is reduced compared with the normal situation.

Objective: This study aims to analyze the influence of duration of preoperative fasting on insulin resistance and also relates it to the presence of nausea and vomiting after surgery.

Methods: Under general anesthesia, 26 patients were selected to undergo elective videolaparoscopic cholecystectomy at the Clinic Hospital of Universidade Federal do Triângulo Mineiro in Uberaba-MG (UFTM), divided into two groups (G): G1 with 12 patients who stayed more than 12h59min fasting and G2 with 14 patients undergoing lower time than that. Blood samples were collected in three moments (M): M1 immediately before induction of anesthesia, M2 and M3, 6 and 12 hours respectively. Insulin resistance was analyzed using the method Homeostasis Model Assessment-HOMA, and for statistical analysis Mann-Whitney and Chi-Square, p <0.05, considered statistically significant.

Results: The univariate, adjusted and multivariate analysis of the associations between the RCRI and the pre-operative cTnI, and 30 day mortality are shown in Table 2.

Table 1. Pre-operative characteristics of patients

<table>
<thead>
<tr>
<th></th>
<th>Survived (n = 520)</th>
<th>Died (n = 42)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>59 (13.5)</td>
<td>62 (13.7)</td>
<td>0.57</td>
</tr>
<tr>
<td>Male gender</td>
<td>332 (63.8%)</td>
<td>23 (54.8%)</td>
<td>0.25</td>
</tr>
<tr>
<td>Supra-inguinal</td>
<td>50 (9.6%)</td>
<td>10 (23.8%)</td>
<td>0.01</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>224 (43.1%)</td>
<td>20 (47.6%)</td>
<td>0.63</td>
</tr>
<tr>
<td>Congestive Cardiac Failure</td>
<td>28 (5.4%)</td>
<td>5 (11.9%)</td>
<td>0.09</td>
</tr>
<tr>
<td>Ischaemic Heart Disease</td>
<td>198 (38.1%)</td>
<td>18 (42.9%)</td>
<td>0.62</td>
</tr>
<tr>
<td>Cerebrovascular Accident</td>
<td>140 (26.9%)</td>
<td>5 (11.9%)</td>
<td>0.04</td>
</tr>
<tr>
<td>Creatinine &gt;177 µmol/L</td>
<td>12 (2.3%)</td>
<td>6 (14.3%)</td>
<td>0.001</td>
</tr>
<tr>
<td>Elevated preoperative cTnI</td>
<td>43 (8.3%)</td>
<td>11 (26.2%)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Data expressed as mean (SD); number (%)

Table 2. The association between the RCRI and pre-operative cTnI and 30 postoperative mortality

<table>
<thead>
<tr>
<th>Odds ratio</th>
<th>95% confidence interval</th>
<th>P-value</th>
<th>Univariate analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>RCRI</td>
<td>1.3</td>
<td>0.95-1.7</td>
<td>0.10</td>
</tr>
<tr>
<td>Preoperative cTnI</td>
<td>3.9</td>
<td>1.8-8.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Adjusted RCRI</td>
<td>1.1</td>
<td>0.9-1.5</td>
<td>0.37</td>
</tr>
<tr>
<td>Preoperative cTnI</td>
<td>3.6</td>
<td>1.6-7.9</td>
<td>0.001</td>
</tr>
<tr>
<td>Multivariate analysis</td>
<td>3.9</td>
<td>1.8-8.4</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Preoperative cTnI
the levels of insulin resistance at M1, M2 or M3, and the same can be said on glycemia, nausea and vomiting.

**Discussion:** In this study there was no relationship between the duration of fasting and insulin resistance.

**Conclusion:** Similarly to the situation in the fasting state, insulin resistance develops after surgery. That has been shown to be related to the magnitude of the surgery performed and fasting. This data does not support adverse effects of prolonged fasting in videolaparoscopic cholecystectomy.

**References**


**Paper No: 1161.0**

**Effect of smoking on neuromuscular relaxation time with cisatracurium besylate during general anesthesia**

Juana Yunien López Solorio

**Introduction.**

**Objective:** Measure and compare the duration of neuromuscular relaxation with cisatracurium besylate to demonstrate the prolonged smokers patient compared to non-smoking patients during general anesthesia.

**Methods:** Conducted a prospective, longitudinal, experimental, observational study, two groups included both under general intravenous anesthesia. In group 1 with smoking history and in group 2 patients without smoking history. ASA was compared, age, weight, height, temperature, BMI, arterial blood gas analysis, the TOF to 25%, 50%, 70% and 90% in both groups. Statistical analysis was performed with T Student and Chi square. Results: 105 individuals were studied, classified into two groups: 56 of the smoking group and 49 without smoking. There were no statistically significant differences in demographic data, ASA and blood gas values. It was demonstrated that neuromuscular recovery to 25% in group 1 was 68.14 ± 21.34 minutes which was significantly higher in group 2: 59.08 ± 15.34 minutes (p=0.013), recovery of TOF to 50% in group 1 was 81.30 ± 20.17 minutes, which was higher than in group 2 which was 70.75 ± 15.33 minutes (p=0.003), the recovery of TOF to 70% in group 1 was 92.00 ± 20.42 minutes, which was greater than in group 2 to 85.00 ± 16.65 minutes (p=0.05), recovery of TOF to 90% in group 1 was 104.01 ± 20.51 minutes which was higher than in group 2, which is 94.61 ± 15.9 (p=0.01).

**Conclusion:** The neuromuscular relaxation time of cisatracurium besylate is prolonged in smokers compared to non-smokers during general anesthesia.

**References**


**Paper No: 1169.0**

**The Comparison of Volume and Pressure Controlled Ventilation in Laparoscopic Cholecystectomy**

Venera Aydin and Hanife Karakaya Kabukcu

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**Introduction:** The laparoscopic cholecystectomy has some systemic disadvantages by caused of elevated intraabdominal pressure, position, and general anesthesia eventhough has lot of advantages (the short lenght of hospital stay, minimally postoperative pain, rapidly recovery). In this study, the effects on hemodynamic respiratory and blood gas parameters were compared by applying Volume Controlled Ventilation (VCV) and Pressure Controlled Ventilation (PCV) in laparoscopic cholecystectomy anaesthesia. Methods This study was performed using randomization method after approved by the ethic commitee 70 volunteer ASA 1-2 physical status patients who were diagnosed cholelithiasis by surgeons and scheduled for elective laparoscopic cholecystectomy were included in this study in all patients, Cardiac rate by EKG, SpO2, OAP by brachial noninvasive blood pressure, EtCO2, BYS, TOF monitorization were performed. The patients ages, body heights, BMI, and medical history was recorded on preoperative period. In all patients, general anaesthesia was induced with iv propofol 2-3 mg/kg, iv fentanyl 1-2 mcg/kg, iv rocuronyum 0,5-0,6 mg/kg, anaesthesia was maintained with a iv propofol infusion 4-8 mg/kg/hour and mixture of nitrous oxide (50%) and oxygen (50%) analgesia was maintained with iv fentanyl 1-2 mcg/kg . The patients were divided into two groups randomly.
according to the applied mechanical ventilator mode: Group 1 (35 patients) PVC, Group 2 (35 patients) VCV. Patient’s hemodynamic datas and respiratory parameters, arterial blood gases were measured, the patient’s alertness were evaluated and recorded by measuring eye tearing and pupil diameter. Dynamic compliance, oxygenation index, alveolar – arterial oxygen gradient, dead space tidal volume ratio were calculated.

**Results:** There was no difference between the groups in demographic datas (age, height, weight) and operation, and anaesthesia, pneumoperitoneum and wake up times (p > 0.05). BIS and heart rate were significantly higher in Group 1 than Group 2 after removal of the gall bladder. Respiratory frequency was higher in Group 2 at 20 minutes after insufflation and at removal of the gall bladder (p<0.05). The dead space ventilation tidal volume ratio at the measurements before pneumoperitoneum and alveolar –arterial oxygen gradient at the measurements after pneumoperitoneum were significantly higher than in Group 1 (p<0.05). Dynamic complians were similar in two group.

**Conclusion:** It was found that tidal volume was higher and alveolar arterial oxygen gradient was lower in volume controlled ventilation applications after pneumoperitoneum. These findings indicate that volume controlled ventilation is able to provide better alveolar ventilation than pressure controlled ventilation in laparoscopic cholecystectomy surgery.

**Reference**

**Paper No: 1180.0**

The incidence of heparin resistance, and treatment strategies in patients undergoing open heart surgery: A retrospective study

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**Introduction:** Heparin resistance (HR) is characterized by high doses of unfractionated heparin (UFH) being required to bring activated partial thromboplastin time (aPTT) and activated coagulation time (ACT) within therapeutically desired ranges or by the impossibility of reaching these ranges. Anticoagulation is mandatory during cardiopulmonary bypass (CPB), and heparin is the most commonly used anticoagulant agent. Themost frequent cause of HR is deficiency of antithrombin (AT), the presence of which is essentialfor UFH to exert its anticoagulatory effect.

**Objective:** The aim of our study is, to identify the incidence of heparin resistance in our patients and treatment strategies of our clinic retrospectively.

**Methods:** 1101 consecutive open heart surgery patients were evaluated using their medical records and anesthetic charts. Patients receiving preoperative heparin, streptokinase, and oral contraceptives, and patients with coagulation disorders were not included into the study. Demographic data, activated coagulation time (ACT) levels, administration of additional heparin dose, and freshfrozen plasma, and AT-III treatments were recorded. Statistical analyses was performed with Frequency tables and median calculation in all categories.

**Results:** Of the 1101 patients, 409 patients (37%) received additional heparin once (n=305) or twice (n=54). 49 patients (4.45%) within adequate ACT levels (<450 sec) after second additional heparin dose, received FFP and AT-III treatment was given to 2 patients (0.18%). Our results demonstrated that 37% of our patients needed higher doses of heparin with a 4.45, and 0.18% incidence of FFP and AT-III treatments respectively.

**Conclusion:** AT-dependent HR occurs in the cases of congenital AT deficiency, asparaginase therapy, disseminated intra-vascular coagulation (DIC) and administration of high doses of heparin during extracorporeal circulation, where it is significant, due to the need to maintain a very high ACT (> 400 s), that use of heart-lung machines is associated with an HR incidence of approximately 20%. In our patients HD problem was solved additional heparin doses, FFP transfusion and AT-III treatments in high percentages.

**References**

**Paper No: 1184.0**

Anaesthesia in a Kabuki’s syndrome patient: in reference to a clinical case

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**Introduction:** Kabuki’s syndrome (SK) is a rare congenital anomaly of unknown case without specific treatment. It is characterised by a dysmorphic face, skeletal anomalies (mainly affecting spinal column and hips), dermatoglyphic changes, mental and post-natal growth retardation. Most medical problems can be solved surgically. Anaesthetic risk rises due to several factors: difficult airway (skull-face deformities); difficult ventilation (scoliosis, vertebral anomalies and atrophy of the muscles); cardiac (arrhythmia and structural deformities), neuromuscular (muscular
dystrophy), hepatic, renal or SNC’s anomalies. There are only a few case report in medical literature and therefore there isn’t an specific anesthestic guideline. Clinical case: Female patient, 20 years old, submitted to total left hip arthroplasty due to a subluxation coxarthrosis. Past history of hypothyroidism and Kabuki’s syndrome (since age of 4), left bundle branch block, hypoacusia, visual acuity decrease and blepharoptosis. As an infant it was submitted to two surgical operations due to congenital bilateral hip dislocation. Medicated i ambulatory with levothyroxine (25 µg). Medical examination exposed: good mouth opening, Mallampati II, high and arched hard palate, retrognatia, macroglossia and short neck, without cervical mobility impairment. Skeletal deformities in hands and feet and toraco-lombar scoliosis were detected. Complementary diagnostic tools: normal thyroid gland function, chest x-ray and transthoracic echocardiogram without changes. Although no changes were found in the CBC, 2U of packed red cells (PCR) were requested for the perioperative period. After standard monitoring, neuromuscular blockade monitoring and BIS, general balanced anesthesia was set, with midazolam, fentanyl, propofol and atracurium. Uneventful intubation was achieved by videolaryngoscopy. Radial arterial line and two large bore peripheral veins were catheterised. Anaesthesia was maintained with oxygen and air (50:50), sevoflurane and atracurium. Estimated blood loss in the intraoperative was about 1L, with marked haemodynamic instability, requiring transfusion of 2U PRBC and 2U FFP. Surgery lasted for 4 hours. At the end the patient was extubated without complications and transferred to Surgical Intensive Care Unit (SICU). The patient remained 24 hours in this SICU and then transferred to Orthopaedic Ward, from where she discharged after 10 days.

Discussion and Conclusions: The rarity of the disease and the lack of medical literature, neither grant to outline the anesthetic risks associated to the chosen anesthetic technique, nor predict which is the most recommended one. However, because of the known changes of this syndrome, a lot of risks can be suspected. The preanesthetic evaluation turned out to be of extraordinary importance and was the best way to anticipate and prevent potential complications.

Paper No: 1214.0


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Introduction: Aortic stenosis is the most common valve disease in Europe. The standard treatment is aortic valve replacement by conventional surgical procedure. In patients with high perioperative risk or contraindications for open surgery TAVI has been developed. This technique reduces the surgical trauma allowing the replacement of the valve through a transfemoral or transapical approach.

Objective: The aim of this study is to assess cardiovascular and perioperative risk factors, intraoperative complications, intensive care unit length of stay (ICU-LOS) and hospital length of stay (H-LOS), early and late postoperative complications after TAVI.

Methods: Retrospective descriptive study. We included all patients who underwent TAVI performed by transfemoral and transapical approach with placement of both Edwards-Sapien® valve or Corevalve© in our center between 2009-2011. Collected data: Demographic data, preoperative risk factors, intraoperative and postoperative complications rate. The procedures were performed under general anesthesia and TEE was performed intraoperatively in all cases. The same anaesthetic protocol was used.

Results: 32 patients underwent TAVI. Mean age was 80.2 +/- 4.7 years. 37.5% of patients had an EuroSCORE > 20% and 37.5% had an Euroscore >30%. Cardiovascular risk factors: hypertension (78.1%), dyslipidemia (62.5%), dyspnea NYHA grade III (75%), ischemic heart disease (46.9%), diabetes mellitus (50%), atrial fibrillation (50%) were the most frequent cardiovascular risks factors. Edwards-Sapien® valve was implanted in the 65% of patients. Transfemoral approach was performed in 75.8% of patients vs 24.6% for transapical. Intraoperative complications: 21.9% of patients needed external pacemaker due to AV block. Coming into cardiopulmonary bypass was required in 9.4% of patients due to valve migration and no patients died during surgery. Postoperative outcomes: Non invasive mechanical ventilation and prolonged intubation more than 24 hours was observed in 6.3% of patients, delirium in 21.9%, permanent pacemaker in 15.6% and cardiogenic shock in 12.5%. 6.1% of patients died in the following 30 days Mean ICU-LOS and H-LOS were 1.7+/− 2.8 and 8 +/− 4.4 days.

Conclusion: TAVI procedure is a complex technique that allows intervention in patients with high surgical risk or contraindications for conventional surgery. This procedure requires management by a multidisciplinary team to select the appropriate patients and manage the potential complications that might require institute a cardiopulmonary bypass. Despite one single center experience, our preliminary results are similar to those described in the literature.

References

Paper No: 1230.0

The evaluation of genotoxic effects in pediatric surgery operating room personnel with micronucleus method

Neslihan Uslu Karatas, Lale Karabiyik, Gonca Cakmak Demircigil and Ali Esat Karakaya
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Introduction: It is well known that healthcare workers in the operating room are exposed to genotoxic effects due to waste anesthetic gases in the operating room (1). The maximum levels of inhalation anesthetics are detected in ear nose throat and pediatric surgery theatres (2). In the practice of pediatric anesthesia, waste anesthetic gases occur more than the other type of anesthesia, due to the inhalational mask induction, laryngeal masks, uncuffed endotracheal tubes and opened breathing systems (3). Healthcare workers in the pediatric operating rooms encounter occupational exposure to waste anesthetic gases from these sources (4).

Objective: The aim of this study is to investigate the genotoxic effects due to occupational exposure of pediatric surgery operating room personnel by micronucleus method.

Methods: This study was performed in pediatric hospitals in 30 operating room personnel (4 anesthesiology specialist, 9 anesthesia technicians, 11 operating room nurses, 6 operating room worker) following Institutional Ethical Committee approval. In the same hospital age, gender, body mass index, alcohol and cigarette consumption matching 30 workers from other divisions of hospital were chosen as control group. All applicants were applied a survey about investigating situations increasing genotoxic effect and then buccal epithelial samples were collected. Microscopic evaluation was performed after staining for micronucleus method. Data were analysed with Student’s t, Chi -Square, Mann-Whitney U, Fisher-extract, Kruskall-Wallis, Spearman’s correlation analyses tests. Statistical significance was considered as p<0.05.

Results: In operating room group, micronucleus frequency was significantly increased compared to control group (p<0.05). In subjects younger than 35 years, micronucleus frequency was significantly increased compared to control group (p=0.009). The micronucleus frequency of anesthesia workers (doctors and technicians) were significantly higher than those of control group (p=0.034). In the non-smoking operating room group micronucleus incidence was higher than non-smoking control group (p=0.007). The incidence of micronucleus in groups were not correlated with gender, alcohol consumption, occupational exposure period and working conditions (p>0.05).

Conclusion: In this study, genotoxic effects were confirmed in pediatric surgery operating room personnel especially in young ones and anesthesia workers. These results may be explained with waste anesthetic gases rather than patient’s viral illness and the other differences between the groups. Because of this, total intravenous anesthesia, low flow anesthesia and regional anesthesia should be preferred for anesthesia practice.

References

Paper No: 1240.0

Preoperative testing exams before ambulatory surgery: surgeons behavior impact

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Department of Anesthesiology, TaherSfar Hospital, Mahdia

Introduction: The prescription of preoperative testing exam should be guided by patient medical history, the clinical exam and the type of surgery and anesthesia. The surgeons are the first to be in contact with the patients and they often order a battery of tests on each patient to prevent delays or cancellations. The costs of preoperative testing are substantial. In the United States this is estimated at more than $18 billion. The elimination of unnecessary tests can reduce costs and resource utilization. The guidelines may help surgeons to avoid unnecessary testing in ambulatory surgery.3

Objective: Our aim was to study the respect of guidelines by physicians when ordering preoperative tests and the economic impact of unnecessary tests.

Methods: We have conduct a prospective descriptive study from April to June 2010 including patients aged more than 3 years, ASA I or II, scheduled for ambulatory surgery we have assessed the demographic data, type of surgery and preoperative tests and their costs. A preoperative test was defined as unnecessary when it wasn’t recommended by guidelines and the patient didn’t have clinical abnormalities. A simple memorandum of guidelines was distributed to
surgeons. Statistical analysis: Chi-square test; student test, p <.05, SPSS 13.0

Results: 520 patients were screened in this study (ASA 1=65, 2%; ASA 2=34, 8%) the age average was 48 ± 12 years. In 95% of cases the preoperative tests were ordered by surgeons. The guidelines weren't respected in 32.8% of prescription. The prescription of only indicated tests could save 4280 TD per month to our hospital. Table: Assessment of unnecessary tests and their costs. percent age cost.

Conclusion: Respect of guidelines, collaboration between anesthesiologists and surgeons and clinical evaluation of patients improve the preoperative evaluation for ambulatory surgery and reduce costs and resource utilization.

References

Paper No: 1243.0

Retrograde intubation – old existing skill in certain scenarios- clinical case report

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Asociasion de anestesia analgesia y reanimacion de Buenos Aires

Introduction: The case involves the surgical resolution on duty of a severe injury of the facial skeleton and points out the challenge that implies not having the ideal equipment, such as a fibrolaryngoscope, for non-conventional approach of the airway; techniques such as the retrograde intubation represent a solution in the decision making.

Objective: Present, through the description of a clinical case, the technique of Retrograde Intubation to make the anesthesiologist remember how to proceed in emergency rooms, where the resources are scarce.

Method and Material: The case of a male patient of 28 years old, lucid and hemodynamically compensated is presented. He arrives at the emergency room with a stab wound, which remains inlaid right in the facial skeleton, with compromised upper jaw, considerable edema and perilesional injury; which prevents the mouth opening for direct laryngoscopy. Due to difficulties in the handling of the airway by clinician and 3D tomography, a retrograde intubation is performed and explained to the patient. We start analgesedation with 0.04 mg/kg of midazolam and 1 mcg/kg IV of fentanyl; the fauses are sprayed with lidocaine spray 100%. Previous asepsis according to technique, the cricothyroid cartilage is manually located, and below it, we infiltrate by levels of 60-80 ml of lidocaine 2% until reaching tracheal light, confirmed through bubbling by aspiration. In the dermal wheal, up to the cricothyroid membrane, a syringe is attached with 4ml of physiologic solution to a Tuohy needle (TN), performing the puncture with simultaneous aspiration to re-confirm the permanence inside the airway. An epidural catheter is introduced in cephalic sense rescuing it from the mouth with Magill clamp. The TN is removed and the catheter is fixed with a Kocher clamp. The endotracheal tubes light is slid through the catheter and once intubated, the catheter is removed by the cephalic end and the introduction of the tube is concluded.

Results: Despite the unavailability of techniques for difficult intubation like fibrolaryngoscopy, we achieved a successful retrograde intubation, and surgery was performed normally.

Conclusion: The importance of this procedure is emphasized as an alternative technique in the urgency, before the impossibility of performing an endotracheal intubation with conventional methods (for anatomical, clinical, pathological complications, with patient in spontaneous ventilation), or before the lack of access to fibrolaryngoscopy. It is an easy procedure to learn; it does not require special equipment and can be applied in emergency rooms where the resources are scarce.

Paper No: 1244.0

Palatopharyngeal perforation during GlideScope® intubation

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Introduction: The GlideScope® video laryngoscope is a useful tool that facilitates difficult tracheal intubations. The estimated complications is of 1% for minor soft tissue injuries, and 0,3% for major complications. 1 We report a case of palatopharyngeal wall perforation during intubation with a GlideScope®. CLINICAL CASE: 41 year old woman, proposed for bariatric surgery, ASA III (IMC: 51) with difficult airway predictors: small mouth, Mallampati 4, hypertrophy of the tonsils and short-sized neck. After the induction, the GlideScope® was used for orotracheal intubation, having had
difficulties with the insertion and positioning of the blade. In view of the vocal chords, we observed a Cormack-Lehane 2-3. The insertion of the endotracheal tube (ETT), with conductor, was extremely difficult due to the small available area within the oral cavity, having had the necessity to perform several tube rotation maneuvers until it was visible on screen, however without difficulty when passing the ETT through the vocal chords. During surgery, blood was found in the oropharynx, so in the end of the surgery a direct laryngoscopy was performed, which revealed that the ETT had crossed through the right anterior tonsillar pillar. The emergency Otolaryngology was contacted and performed the corrective surgery and haemostasis. The awakening and postoperative went with no complications.

Discussion: A review based on a Medline revealed 11 other case reports describing such an injury. It should be noted that all eleven patients sustained trauma during the insertion of the ETT rather than during the GlideScope® laryngoscopy itself. There are several common reasons for this: The ETT tip had been inserted laterally into the mouth and the tube was rotated previously to bringing the tip within view, thus increasing the risk of tissue perforation; an upward lifting force on the mandible and anterior pharyngeal tissue caused for the blade to stretch the tonsillar pillars, making them taut and more susceptible to perforation; tendency for the operator to watch the monitor attentively after insertion of the blade, allowing a “blindspot” during insertion where the ETT tip is not observed, which may result in incorrect ETT advancement; the standard stylet may itself cause trauma in oral structures, especially if unnecessary force is used. 2

Conclusion: Intubation using the GlideScope® has advantages over conventional direct laryngoscopy, and its use should not be discouraged by the case reports presented. Instead, with better training and adequate patient selection, the relapse of this type of complication can and will diminish.

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Paper No: 1251.0

Intra-operative effect of exogenous heparin and endogenous heparin-like substances in liver transplant patients: A Reality or Myth?

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Introduction: Altered coagulation is extremely common in liver transplant patients; particularly in the post reperfusion phase. Exogenously administered heparin to the donor liver 1 and endogenously produced heparin-like substances which are released from the damaged vascular endothelium of the ischaemic liver graft 2 have been thought to contribute to this. There have been studies that showed such patients requiring protamine sulphate to reverse this effect in order to control oozing and improve the thromboelastograph profile 3.

Objective: We performed this study in order to ascertain the difference in coagulation profiles using thromboelastography (TEG) caused by heparin and heparin-like substances in the reperfusion phase for patients undergoing liver transplant.

Methods: All patients undergoing liver transplantation except for patients in fulminant liver failure were included. Initial data collected included demographic data, indication for liver transplant, Child Pugh score and MELD score. Baseline traces were taken using a normal kaolin TEG sample and a heparinase TEG sample. Following reperfusion the same process was repeated again with kaolin TEG and heparinase TEG at 10(r+10) and 60 minutes post reperfusion(r+60). Along with the TEG traces performed the INR and platelet count was measured too. A total of 30 patients were included in the data so far. The transfusion of blood and blood products was noted at all stages pre and post transfusion. It was decided to give protamine 1mg/kg in case of heparin effect demonstrated on TEG at r+60 accompanied by non surgical bleeding. Following the protamine injection a repeat TEG was performed at a fifteen minute interval and the surgeon was asked for their opinion regarding the non surgical bleeding.

Results: The TEG traces at baseline, r+10 and r+60 were analysed and it was observed that the r+10 trace was better in 28 of the 30 traces for the heparinase group. 7 of the 30 normal TEG traces were flatlines indicating no clot formation at the ten minute stage post reperfusion. However at the 60 minute mark post reperfusion it was observed that the normal TEG traces improved significantly. The average values for the parameters are tabulated. Normal TEG Heparinase TEG Reaction time(r) 12.63 14.17 Coagulation time(r) 5.44 3.92 Maximum amplitude (MA) 48.83 53.77 Clot formation rate (a) 40.82 50.75 There was no statistically significant difference between the normal and the heparinase TEG groups and just one of the 30 cases required protamine injection for reversal of non surgical bleeding effect.

Conclusion: We conclude that although there is a demonstrable heparin and heparin like substance effect immediately post reperfusion it is short lived and is auto corrected by 60 minutes without any pharmacological reversal.

References
Assessment of risk for burnout syndrome in residents of a private hospital in São Paulo

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Introduction: Burnout is a kind of occupational stress, during which the person consumes each other physically and emotionally, resulting in exhaustion and aggressive and irritable behavior. To diagnose the syndrome an extensive questionnaire was developed by Maslach in the 90s, with 20 questions on the psychophysical characteristics of the job divided in three aspects: emotional exhaustion, depersonalization and low professional accomplishment. Responses were scored gradually from 1 to 5 according to the frequency of symptoms. Sum up the points and the proposed ranks are: 0 to 20: no clue, 21-40: opportunity to develop, 41 to 60: the initial phase, 61 to 80: installed 91 to 100: state of alert.

Methodology: After release of the ethics committee, we applied a questionnaire to characterize demographically the respondents, followed by a self-completed 20 questions questionnaire. The questionnaire was applied to residents of a private tertiary hospital. The residency programs in this hospital are: anesthesiology, cardiology, endoscopy, mastology, intensive medicine, radiology and radiotherapy. All residents share the work environment, workload and social characteristics of the hospital.

Results: Forty two residents answered the questionnaire, half female and half male. Nine percent of the residents achieved a high score (61 to 80 points), 69% achieved 41 to 60 points, 21% achieved 21 to 40 points and none had less than 20 points. There was no statistical difference between age, marital status, presence of children, performing night and weekend shifts, only with different distribution of the duty hours, respecting 60 weekly hours.

Discussion: Although not statistically significant, a trend to higher risk of burnout can be noticed in some medical specialties. There is no validated questionnaire to evaluate burnout in medical residents. In order to promote better conditions of learning and working in residency, it’s necessary to identify the risks of this special population. As the residents very often complain about stress and hard work we tried to detect through an preliminary questionnaire. This is a preliminary study and despite the absence of statistical differences in burnout incidence between different specialties, anaesthesia has a major concern because many risk factors and the potential to drug abuse.

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Who do they think we are? Patient perception of anaesthetists and how we introduce ourselves

Clarissa Carvalho and C Griffiths

Objectives: To determine if the way we introduce ourselves at pre-operative assessment affects patient perception of anaesthetists.

Methods: A questionnaire was conducted of 48 surgical inpatients who had recently had surgery across all surgical specialties and 22 anaesthetists of differing seniority.

Results: 29% (14/48) patients did not understand the role of the “anaesthetist” and found the term foreign or ambiguous. 71% (34/48) of patients understood the role of the anaesthetist but 62% of these patients did not know that anaesthetists are qualified doctors. They believed anaesthetists were either nurses, technicians or surgical assistants. Of the 14 who did not know what an anaesthetist was, 6 patients understood the role of an “anaesthesiologist” and believed them to be highly specialised qualified doctors. Only 1 out of the 14 patients was aged 55yrs old, the remaining 13 patients were aged between 18 and 22 yrs old. Of the patients who did not know anaesthetists are fully qualified doctors 48% were 20 to 28yrs old, 29% were 32 to 49yrs old and 23% were 50 to 55yrs old. All the patients aged 75 to 90yrs old believed anaesthetists to be fully qualified doctors. All the consultants questioned introduced themselves by their title, surname and as an anaesthetist. The majority of junior doctors introduced themselves by their first name and either as the anaesthetic doctor, anaesthetic registrar or the anaesthetist. 47/48 patients believed anaesthetists should introduce themselves as anaesthetic doctors although they did feel more comfortable being on first name basis with their anaesthetists. Of the 14 patients who did not understand the role of the anaesthetist, 10 believed they would understand this better if their anaesthetist introduced themselves as anaesthetic doctors rather than anaesthetists.

Discussion: Although the majority of the patients who had recently had an anaesthetic understood the role of their anaesthetist there is a large proportion who did not appreciate the role of the anaesthetist in their care. The majority of patients did not know that anaesthetists are qualified doctors. The way anaesthetist introduces themselves to a patient influences their opinion of the role of an anaesthetist and creates less ambiguity. Further education of younger
patients may address the lack of knowledge amongst younger patients.

**Paper No: 1269.0**

**In-hospital mortality prediction by American Society of Anesthesiology and POSSUM score in patients with cancer undergoing abdominal surgery**

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**Introduction:** Preoperative evaluation and risk stratification is essential to perioperative planning. There are multiple risk scores applied to predict different outcomes. However, specific populations as patients with cancer may have specific risk factors, so it is needed to evaluate if global risk scores as ASA and POSSUM or P POSSUM are able to assist the surgical team.

**Objective:** To retrospectively assess the value of the ASA classification (American Society of Anesthesiology), POSSUM (Physiological and Operative Severity Score for the Enumeration of Mortality and Morbidity), and Portsmouth POSSUM in prediction of hospital mortality in patients with cancer undergoing abdominal surgery.

**Methods:** Three hundred and thirteen patients who underwent three hundred and nineteen oncologic abdominal surgeries were evaluated using ASA, POSSUM and Porthsmouth-POSSUM in relation to hospital mortality. The variables observed were: age, gender, ASA classification, pulmonary diseases, cardiovascular diseases, preoperative systolic arterial pressure and cardiac rate, Glasgow scale, urea, potassium, sodium, hemoglobin, white cell count, number of simultaneous surgical procedures, observed blood losses, peritoneal contamination, oncological disease and dissemination, elective, emergent or urgent surgery, intensive care support and hospital mortality.

**Results:** The overall hospital mortality rate was 5.59%. These results showed that POSSUM over predicted in-hospital deaths when compared to American Society of Anesthesiologists classification (relative risk, 0.55; P = .07) and Porthsmouth POSSUM (relative risk, 0.43; P = .0007) didn't equally correspond to ASA predicted perioperative mortality. All evaluated scores didn't equally predict observed mortality as the standardized mortality rate was 2.25 for ASA classification, 0.4 for POSSUM and 0.8 for P-POSSUM.

**Conclusion:** The ASA classification, POSSUM and P POSSUM scores were not useful in predicting perioperative mortality for patients with cancer submitted to abdominal surgeries. It is needed to evaluate specific populations to adjust the existing perioperative prediction scores to serve as objective methods to assist the surgical team in classifying patients into risk groups with different probabilities of perioperative complications. ASA classification is based mainly on subjective clinical judgments and probably POSSUM and P-POSSUM need to have the equations balanced to specific populations.

**References**


**Paper No: 1275.0**

**Thoracic paravertebral block (PVB) and thoracic epidural (TE): analysis of post operative pain after thoracotomy**

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**Introduction:** Thoracotomy is associated with severe post operative pain (1). Regional analgesia has a relevant role and TE is commonly refered as the “gold standard” (2), recent works point PVB as safer and as efficient as TE (3).

**Objective:** Analyse the analgesic profile of PVB versus ET after thoracotomy in the 48 hours after surgery in our institution.

**Methods:** Data were collected from the acute pain service data base, of the anesthesia Departement of Instituto Português de Oncologia, Porto, Portugal. 264 patients submitted to posterolateral thoracotomy due to neoplastic aetiology and submitted to PVB or TE between 2005 and 2010 were enrolled in this study. 14 patients were excluded: high pain score implied suspension of the study protocol and new/different analgesic therapy, accidental exteriorization, motor blockade, Neurologic, haemodynamic instability. A total of 250 patients were enroled in this study Statistical analysis was performed using SPSS Protocol: Pain evaluation was performed using a qualitative scale: 0 no pain, 1 light, 3 moderate, 4 severe, 5 unbearable pain. Analgesic technique Prior to incision: Paracoxibe 40 mg PVB (level:T4-T7, correct position of the PVB catheter was performed intraoperatory by the surgeon) TE (level:T4-T6) Before the end of the surgery Paracetamol 1g Nerve blockade PVB: Ropivacaine 0,5%+sufentanil TE:Ropivacaine 0,2%+sufentanil In the surgical ward: Paracoxibe 40 mg 12/12h, Paracetamol 1g 6/6h PVB: Ropivacaine 0,2% or 0,3%+Sufentanil debit 5-12 ml/h TE: Ropivacaine 0,1%+Sufentanil debit 5-12 ml/h Rescue analgesia: If pain ?2: 8ml ropivacaine 0,2%, lidocaine, morfín, petidin, ketamin.

**Results:** There were no statistical differences between groups regarding age. Continuous PVB had an overall inferior
quality of analgesia. There was statistical significant difference between groups at 0min, 45 min,1h and 2 h (Chi-square test \( p < 0.05 \)). After the second postoperative hour there were no significant differences.

**Discussion:** Data analysis presents TE as the most effective analgesic method in the first 2 hours post surgery. PVB presents as an alternative method for analgesia when TE is infeasible for patient-related techniques.

**Conclusion:** Prospective studies need to be addressed with a larger number of subjects and homogeneity design to compare the efficacy of the analgesic techniques and determine risks and benefits.

**References**

**Paper No: 1282.0**

**Effects of intravenous lidocaine on postoperative pain control and opioid consumption**

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**Introduction:** Recently intravenous infusion of lidocaine was introduced as part of a perioperative pain management technique (1,2). Lidocaine has been described as having analgesic, anti-hyperalgesic and anti-inflammatory properties (1–3). However its clinical benefit remains unclear (2).

**Objective:** Evaluate how peri-operative intravenous lidocaine influence post-operative pain and morphine consumption after surgical injury and study possible side effects, such as sedation, nausea or vomiting, acute urine retention or local anesthetic toxicity.

**Methods:** A prospective, randomized and double-blind study of twenty three female patients scheduled for trans-abdominal hysterectomy was undertaken. Patients were randomly divided in two groups: The first group \((n=13)\) received lidocaine 2% bolus injection (1.5mg/kg) followed by a continuous i/v infusion at 1.5 mg/kg/h. The infusion was stopped once skin closure was finished. The control group \((n=10)\) received matched saline infusion. Both groups received the same general anesthesia protocol avoiding the use dexamethasone and no more than 1 mcg/kg of fentanyl per hour. 30 minutes before the end of surgery 0,1 mg/kg of morphine and Ketoprofeno 1-2 mg/kg was administrated. Pain was evaluated using Verbal Numerical Scale every 15 minutes until PCA pump was started (VNS<4) and 24hs post-surgery, Sedation Ramsey scale was assessed every 15 minutes and secondary effects were evaluated .

**Results:** No patients were excluded during the study. Both group were comparable with regard to age, weight and length of surgery Patients in the lidocaine group experienced less postoperative pain at the time of being admitted at the postanesthesia care unit (VNE,4.6 ± 4.1 versus 8.5 ± 2.0), in the first 30 minutes (4.5 ± 2.3 versus 6.5 ± 1.1) and 24hs after surgery (2.8 ± 1.7 versus 4.8 ± 2.1). Patients who received lidocaine evidenced less morphine consumption previous PCA pump was started (5.1 ± 3.6 versus 9.6 ± 2.5mg). The amount of Morphine administered by the PCA during the first 24hs was smaller in the lidocaine group (15.9 ± 9.9 versus 20 ± 9.5mg), as well as the total morphine consumption in the first 24hs (21.8 ± 12.2 versus 30.6 ± 9.3). The time that took to have the conditions to start PCA pump was less in the lidocaine group (62.3 ± 25 versus 105 ± 53,7 minutes). Nausea or Vomiting incidence was similar in both groups. No other side effects were noted.

**Conclusion:** We found that patients who received i/v lidocaine experienced better pain relief and reduced post-operative morphine consumption. These findings were more relevant clinical in the early post-operative period.

**References**

**Paper No: 1291.0**

**Physiological influence of basic perturbations assessed by non-invasive optical techniques in humans**

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**Background:** New non-invasive techniques enabling frequent or continuous assessments of various pathophysiological conditions might be used to improve in-hospital outcome by enabling earlier and more reliable bedside detection of medical deterioration in general hospital ward patients.

**Methods:** In this preclinical study, three modern non-invasive optical techniques - laser Doppler imaging (LDI), near-infrared spectroscopy (NIRS), and tissue viability imaging (TVI) - were all evaluated with respect to the influence of basic physiological perturbations (including local changes in...
During a mass casualty disaster, the acute im-

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**earthquake**

**Repeat-triage in disaster relief: experiences and lessons of the Haitian earthquake**

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**Results:** Skin perfusion measured by LDI was found to respond prominently to changes in positioning of the arm, whereas muscle StO2 measured by NIRS did not change significantly. Total haemoglobin count (HbT) measured by NIRS and blood volume estimated by TVI both increased significantly on lowering of the limb. On local cooling the perfusion and blood volume were both found to increase considerably, while StO2 and HbT did not change. Local heating induced a more than ten-fold increase in skin perfusion and a small increase in blood volume. On progressive veno-arterial occlusion the perfusion, StO2, HbT, and blood volume values decreased - after transient increases in HbT and blood volume before full arterial occlusion had been attained - all values approached the baseline level on release of the occlusion with a slight overshoot of the StO2.

**Conclusion:** The results obtained may have potential bearing on future clinical use of these non-invasive techniques for management of severely injured or critically ill patients.

**References**


**Paper No: 1305.0**

**Controlled Analgesia by Epidural Morphine with Minimal Doses**

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**Introduction:** As a consequence of surgery, the onset of pain, apply adequate analgesia, is a fundamental mission of the anesthesiologist. In 1976 Yaksh and Rudy showed that application of morphine in the spinal level produced analgesia by blocking the conduction of nociceptive pathways, and established the basis for the application of spinal opioids. Morphine is an hydrophilic opioid, with a PK close enough to the blood pH. This allows the placement of catheters in
epidural space to relieve pain. A method safety to assess the intensity of pain is the visual analogue scale.

Objective: To evaluate the quality of analgesia provided by the administration of epidural morphine 0.5 mg every 12 hours in post operative of hip replacement surgery, as assessed by Visual Analogue Scale.

Methods: Prospective clinical trial after obtaining informed consent to patients and approval by the Committee on Bioethics. We studied 76 patients undergoing hip arthroplasty F40/M36, age 71.7 ± 10.5 years, ASA I, II and III. Patients were placed epidural catheter before surgery and administering morphine 0.5 mg in 3 ml of physiological NaCl solution every 12 hours from the end of the intervention. Analgesia was assessed by visual analogue scale (VAS). Recording the first immediately after surgery, then every 12 hours until the end of intervention.

Results: Visual Analogue Scale (VAS): first day, 75% mild pain VAS 1-2, 25% severe pain VAS 7-8, second day, 50% mild pain VAS 1-2, 50% moderate pain VAS 4-5; third day, 75% mild pain VAS 1-2, 25% moderate pain VAS 4-5; fourth day 60% mild pain VAS 1, 40% moderate pain VAS 3. 15 patients (19%) presented had one or more side effects: Vomiting 9, nausea 13 and urinary retention 10.

Conclusion: Minimum dose of morphine by epidural catheter provides good postoperative analgesia in patients with hip replacement surgery, with minimal side effects. The injection of morphine doses of 0.5 mg in 3 ml of NaCl solution would ensure adequate dispersal of morphine in the epidural space.

Paper No: 1306.0

Gas Man Version 4.1 Teaches Inhalation Kinetics

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Introduction: Gas Man® version 4.1 computer simulation of inhalation anesthesia uptake and distribution was completed in 2011 after 27 years of evolution (1,2). Inhaled anesthetics are part of most anesthetics given around the world, and their evolving use makes understanding this subject important to all anesthesiologists.

Objectives: We sought to determine if Gas Man Version 4.1 teaches relevant aspects of inhalation kinetics.

Methods: We reviewed the Gas Man Workbook and Program that teaches inhalation anesthesia kinetics. Gas Man program runs on all modern Microsoft and Apple operating systems and conforms to the latest graphical user interface customs. The C++ program is compiled to platform-specific software using QT (Nokia, Finland). It is written in English and has been translated into Chinese and an earlier version was translated into French.

Results: Earlier versions of Gas Man that were shown to be accurate(3), educationally valid(4), and able to teach important clinical subjects(5). The Gas Man Workbook of version 4.1 is a course in inhalation anesthesia kinetics that guides the user through exercises that demonstrate aspects of inhalation anesthesia kinetics through interaction and visualization. Beginning Workbook chapters teach single-compartment wash-in and the alveolar tension curve including initial rise, plateau, knee and tail. Later chapters teach routine and advanced clinical techniques. Vaporizer overpressure and brief high fresh gas flow quickly change anesthetic depth. Multiple agents interact with concentration effect and second-gas effect... Open, semi-closed, closed, and ideal breathing circuits perform differently. Low fresh gas flow can reduce cost. Displaying quantity of drug delivered from vaporizer and taken up by patient demonstrates efficiency and waste. Changing body weight shows kinetic differences between children and adults.

Users can demonstrate many interactions. Vital Capacity Induction can be achieved in less than one minute using a breathing circuit primed with anesthetic agent. Hyperventilation and reduced cardiac output increases anesthesia depth and causes overdose with soluble agents. Hypoventilation after emergence leads to reanesthetization if muscle tissue has achieved 1 MAC anesthetic tension.

Discussion: Gas Man version 4.1 appears to be capable of teaching inhalation anesthesia kinetics and is appropriate for use in developing and developed countries. Creating a group of teachers who can teach other teachers appears warranted.

Conclusion: Gas Man Version 4.1 functions effectively as an educational tool on all modern computer platforms and can be used to teach or learn inhalation anesthesia kinetics, identifying expired and brain anesthetic agent tensions. Potential Conflicts: Gas Man and Med Man Simulations, Inc., is a nonprofit charitable organization as 501(c)(3) certified by the US Government. James H Philip is the author of the program and workbook.

References

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**Paper No: 1309.0**

**Audit of Incidence of Medication Errors by Anaesthetists in North Western Nigeria**

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**Background:** Patient management and safety issues are an important aspect of Anaesthesia practice. The relevance of medication and drug administration errors in our everyday practice cannot be over emphasized.

**Objective:** We set out to study the incidence of medication errors among Anaesthesia practitioners in Kaduna State, North Western Nigeria and to suggest ways to minimize such errors.

**Materials and Methods:** A questionnaire based study was conducted among Physician Anaesthetists and Nurse Anaesthetists working in the major secondary and tertiary hospitals in Kaduna State. The data obtained was analyzed using SPSS Version 17.0 and the data presented in relevant charts and tables.

**Results:** A total of 43 persons responded to the questionnaire with 30 males and 13 females, giving a male female ratio of 2.3:1. Most of the respondents (88%) work in tertiary government hospitals. Majority of the anaesthetists (56%) admitted to ever having a medication error. 79% of the anaesthetists attributed the medication error to problems with drug labeling. Of the patients in whom there was medication error, 44% suffered untoward sequelae ranging from cardiac arrest to delayed recovery from anaesthesia. Majority of the respondents recommend, vigilance, double checking of drug labels and colour coding of syringes as a ways to minimize medication errors.

**Conclusion:** Reduction of medication errors is an important aspect of patient safety. Vigilance remains the watchword in the safe conduct of anaesthesia.

**Paper No: 1310.0**

**Subclavian vein access: to aim at the suprasternal notch or first thoracic vertebra?**

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**Introduction:** Central venous access (CVP) is essential in patients needing intensive care, however its placement is challenging, often associated with failure to insert and life threatening complications. Pneumothorax, neck hematoma and brachial plexus injury is often encountered in upper body central venous access. Many techniques are in place on how to accurately place CVP. In aiming at suprasternal notch or first thoracic vertebra, the accuracy of subclavian central venous catheter insertion by infracavicular technique is assessed.

**Methods:** Patients requiring venous access for hemodialysis were divided to Groups A and B each with fifteen patients. CVP placement was done by the authors, on the right side with patients in semi-Trendelenburg position. Number of punctures at mid-clavicular area were successful placement recorded. Group A had subclavian vein targeted by directing the needle to imaginary line towards the suprasternal notch or parallel to the floor. The subclavian vein in Group B was targeted by directing the needle to imaginary line towards the first thoracic vertebra or subtending 30 degrees to the floor

**Results:** Thirty patients 20 male, 10 female requiring renal replacement therapy had subclavian vein catheter inserted. Dialysis indications were renal disease secondary to: hypertension 12 patients, 8 diabetes mellitus and 10 patients were diabetic and hypertensive. Group A had 12 males and 3 females while Group B had 7 female and 8 males. Group A had 12 (80%) successful first punctures compared to (10 66.7%) in Group B. Second attempt was noted in three patients in all groups while in Group B three patients had third attempt Post insertion chest x-ray did not show catheter mal-position or complications.

**Conclusion:** Infraclavicular approach of subclavian CVP placement is safely achieved with no complication by aiming at suprasternal notch or first thoracic vertebra, however high accuracy is noted in the former than the latter.

**References**

**Paper No: 1318.0**

**Effects of Intra-articular Dexmedetomidine vs Bupivacaine on Postoperative Analgesia in Patients Undergoing Arthroscopic Knee Surgery**

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**Background:** Dexmedetomidine is an alpha-2 agonist with sedative and analgesic properties. This study compared the postoperative analgesic effects of intra-articular dexmedetomidine with those of bupivacaine and saline.

**Methods:** After Ethics committee approval, 51 patients scheduled for arthroscopic meniscal surgery were
randomized in a double blind fashion to receive either dexmedetomidine 1 μg kg⁻¹ (group D), bupivacaine 0.25% (group B), or saline (group S) intraarticularly (total volume 20 ml). All patients received a standardized general anesthetic with propofol, fentanyl, and sevoflurane. Postoperatively, acetaminophen 500mg/codeine 30mg oral tablet was given every four hours, and tramadol 1 mg kg⁻¹ IV was administered every 6 hours, as needed, for rescue analgesia. Visual analogue scale (VAS) scores (0-10), time to first analgesic request, and the total dose of postoperative analgesics were recorded. Repeated measures ANOVA were used to analyse VAS scores, whereas ANOVA was used to assess the other variables. Data presented as mean ± SD and significance was defined as \( p < 0.05 \).

**Results:** VAS scores were lower in groups D and B compared with group S (Figure, \( p < 0.001 \)). Times to first analgesic were 343 ± 27 vs. 440 ± 3 vs. 43 ± 5 min for groups D, B, and S, respectively (\( p < 0.001 \)). Total dose of rescue tramadol were 180 ± 56 vs. 160 ± 51 vs. 413 ± 52 mg, respectively (\( p < 0.01 \)).

**Conclusions:** Intraarticular dexmedetomidine provided comparable analgesia to bupivacaine 0.25% in patients undergoing arthroscopic knee surgery.

**Paper No: 1319.0**

**Preferences of High and Low Anxiety Patients in Avoiding Common Anesthetic Outcomes and Their Immediate, 24, and 48 Hour Postoperative Recovery**

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Anesthesia side effects can be a source of concern to patients undergoing surgical procedures. Patient preferences in avoiding common anesthesia side effects were previously reported from 101 patients at a community hospital (1). Anxiety may interfere with medical treatments and outcomes, including recovery from anesthesia and surgery (2). The prior study was extended to to compare how anxiety might affect negative clinical anesthesia outcomes as well as what effect it may have on patient complaints, their perception of prior anesthetic experiences and pain at 0, 24 and 48 hours postoperatively.

**Methods:** Patients awaiting elective surgery provided IRB approved informed consent. Ten clinical anesthetic outcomes were ranked from 1 = "Most want to avoid" through 10 "Least want to avoid." On POD 2, patients completed an online survey which asked them to re-rank their negative clinical outcomes, rank their pain at 0, 24 and 48 hours postoperatively and to list any complaints they may have from this current anesthetic experience.

**Results:** Groups did not differ in preferring to avoid common anesthetic outcomes. Compared to the pre-anesthesia rankings, the POD2 rankings did not change overall for HIGH or LOW anxiety quartiles. Anxiety did not mediate current anesthetic complaints (\( p=0.0807 \)), and it did not mediate pain perception at 0, 24, and 48 hours (\( p=0.3239 \)). 28% of patients reported prior negative outcomes, with high anxiety patients being more likely to report these (\( p=0.0024 \)). High anxiety patients also reported higher absolute pain scores at all intervals (\( p=0.02 \), <0.0001, 0.0122, respectively).

**Discussion:** The results suggest that anxiety does not mediate how patients rank negative clinical anesthesia outcomes as both groups want to avoid gagging on the ETT, pain and nausea more than any other outcome. The study uncovers that high anxiety patients do have more complaints regarding their prior anesthetic experience which leaves the question of whether anxiety or prior anesthetic experiences are the end-product. In addition, high anxiety patients report more absolute pain suggesting that these patients may require additional intervention preoperatively.


**Paper No: 1320.0**

**Fibrinogen concentrate causes a short-lived increase in plasma fibrinogen and fibrin-based clot quality when used as first-line haemostatic therapy during aortic replacement surgery: a randomised trial**

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**Background:** Fibrinogen is the first coagulation factor to reach critically low levels in major surgical bleeding. Following cardiopulmonary bypass (CPB), declining plasma fibrinogen levels reduce fibrin-based clot quality and increase postoperative blood loss. Haemostatic intervention may therefore include fibrinogen replacement, although it is not clear how CPB and haemostatic therapies impact upon fibrinogen levels, or how long-lived the effects are.

**Methods:** A prospective, randomised, placebo-controlled trial (\( N=61 \)) was performed to investigate fibrinogen concentrate as a first-line haemostatic therapy in adults undergoing elective aortic replacement surgery. Following removal from CPB, bleeding patients received fibrinogen concentrate (FC group; \( n=14 \)), allogeneic blood products (allogeneics group; \( n=32 \)), or fibrinogen concentrate followed by allogeneic blood products (FC+allogeneics; \( n=15 \)). Fibrinogen...
concentrate infusion reduced perioperative blood loss and transfusion requirements (data presented elsewhere). Here we focus on plasma fibrinogen levels (Clauss assay) and fibrin-based clot quality (ROTEM®-based FIBTEM assay), which were recorded during surgery and up to 10 days after.

**Results:** Plasma fibrinogen and FIBTEM maximum clot firmness (MCF) decreased by around 50% by CPB removal. For patients receiving fibrinogen concentrate, both parameters recovered to near-preoperative levels by the time of last suture. Fibrinogen and FIBTEM MCF did not differ between the FC and FC+allogeneics groups. In contrast, fibrinogen and FIBTEM MCF recovered only marginally by last suture in the allogeneics group, remaining lower than in either the FC or FC+allogeneics groups (p<0.001). This difference was short-lived, and all groups displayed comparable measurements by 24 hours post-surgery. Plasma fibrinogen and FIBTEM MCF increased acutely thereafter, reaching 150-200% of preoperative levels by postoperative day 10 for all groups.

**Conclusions:** Intraoperative fibrinogen concentrate infusion significantly increases plasma fibrinogen and fibrin-based clotting. These increases are small and short-lived relative to the acute postoperative fibrinogen elevation observed for all patients undergoing CPB.

**Paper No: 1321.0**

**Effect of pregabalin on preoperative anxiety and postoperative pain after total abdominal hysterectomy - a dose ranging study**

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**Introduction:** Pregabalin is an attractive option as an adjunct for postoperative analgesia as it has analgesic properties and prevents opioid tolerance. In addition it is known to relieve anxiety as well.

**Objective:** To evaluate the role of pregabalin in the reduction of pre operative anxiety, post operative pain and opioid analgesic usage in different doses in patients undergoing elective abdominal hysterectomy.

**Methods:** After obtaining Institutional ethics committee approval, a prospective, randomized, double blind, placebo controlled trial was conducted in 60 ASA I and II consenting patients aged 18 to 60 years. The patients were divided into three groups based on computer generated random number table. The patients in Group P1 received 150 mg of pregabalin, Group P2 received 300 mg of pregabalin and Group C received placebo. The drugs were administered orally two hours prior to induction. Primary outcome (anxio-lysis, postoperative analgesia, opioid sparing effect) and secondary outcome (reduction in opioid related side effects such as - respiratory depression, nausea and vomiting and pruritis) were studied.

**Results:** The mean VAS scores for anxiety were significantly lower in the pregabalin groups when compared to placebo [Group P1 (p=0.02) and Group P2 (p=0.01)]. Total postoperative morphine consumption was higher in Group C (49.0 ± 14.0) as compared to Group P1 (39.18 ± 5.5) and Group P2 (39.7 ± 15.1). However, it was statistically insignificant (p=0.053). The mean VAS scores for pain at rest and movement in first 8 hrs after surgery was significantly less in the pregabalin groups as compared to placebo, whereas they were comparable after 8 hr. The number of patients who had PONV were significantly higher in placebo group (14, 70%) as compared to Group P1 (p=0.013) and Group P2 (p=0.042). The patients who had pruritis in Group P1 were 6(32%), in Group P2 were 4(20%) and in Group C were 16(80%) which was statistically significant.

**Conclusion:** Preoperative administration of pregabalin two hours prior to surgery decreased preoperative anxiety as compared to placebo. Use of pregabalin in doses of 150 mg and 300 mg decreased postoperative VAS scores for pain at rest and on movement in the initial 8 hrs after surgery. Although, pregabalin did not demonstrate significant opioid sparing effect, it was effective in decreasing the opioid related side effects such as PONV and pruritis.