Can J Anesth/J Can Anesth (2010) 57:S1–S233
DOI 10.1007/s12630-010-9415-0

CONTROL ID: 743541

TITLE: DIFFICULT SEPARATION FROM CARDIOPULMONARY BYPASS

CONTACT (NAME ONLY): André Denault

CONTACT (INSTITUTION ONLY): Montreal Heart Institute/Université de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): Prediction of mortality in cardiac surgery is commonly based on pre-operative variables. However, intraoperative variables may play a significant role in post-operative outcome. Among these variables, the pharmacological and mechanical support required during separation from cardiopulmonary bypass (CPB) could represent the earliest manifestation of a reduced capacity to sustain cardiac surgery and could significantly impact survival after cardiac surgery. Our hypothesis is that the stratification of separation from CPB into 3 categories (easy, difficult and very difficult) will be independently associated with life-threatening complications and survival after cardiac surgery. Objectives: To document the prevalence of difficult and very difficult separation from CPB and their impact on post-operative outcome.

ABSTRACT BODY: Methods (Abstract Submission): The protocol was reviewed and approved by the Research and Ethic Committees of each institution. Written informed consent was obtained from all patients. Prospective study in 19 Canadian tertiary care hospitals of high-risk cardiac surgical patients involved in the Blood Conservation Using Antifibrinolytics in a Randomized Trial (BART). Separation from CPB was stratified as easy when only vasoactive agents or inotropes were required, difficult when both drugs were used and very difficult when the first weaning process failed or the patient required mechanical devices to be weaned from CPB. Backward logistic regression was performed to determine predictors of difficult, very difficult separation from CPB, life-threatening complications and mortality.

ABSTRACT BODY: Results (Abstract Submission): There were a total of 2331 patients in the BART study with a mean age of 66±11 and 71.8% were male. There were 1158 (49.7%), 835 (35.8%) and 338 (14.5%) patients in the easy, difficult and very difficult categories respectively. A total of 108 died (4.6%) from which 84 patients (77.8%) experienced difficulty in weaning from CPB. Very difficult separation from CPB was found to be an independent predictor of mortality (odds ratio 3.091; 95% confidence interval 1.706-5.601). Predictors of very difficult separation from CPB were age (10 units) (OR, 1.222; 95% CI, 1.071-1.4201), reduced left ventricular function (OR 1.718; 95%; CI, 1.098-2.689), previous myocardial infarction (OR, 1.491; 95% CI, 1.106-2.011), mitral valve regurgitation (OR, 1.535; 95% CI, 1.154-2.041), previous cardiac surgery (OR, 1.527; 95% CI, 1.108-2.105), higher pre-operative prothrombin time (10 units) (OR, 1.090; 95% CI, 1.027-1.170) and longer CPB duration (60 units)(OR, 2.150; 95% CI, 1.870-2.490). Both difficult and very difficult separation from CPB were independent predictors of myocardial infarction within 30 days (OR, 2.191, 95% CI, 1.244-3.857 and OR, 4.151, 95% CI, 2.210-7.795) cardiogenic shock (OR, 2.152, 95% CI, 1.599-2.895 and OR, 3.677, 95% CI, 2.587-5.226), respiratory failure (OR, 1.697, 95% CI, 1.246-2.313 and OR, 2.911, 95% CI, 2.026-4.181), new onset renal failure (OR, 1.691, 95% CI, 1.240-2.304 and OR, 2.946, 95% CI, 2.051-4.231) and massive bleeding (OR, 1.381, 95% CI, 1.018-1.873 and OR, 1.727, 95% CI, 1.190-2.507).

ABSTRACT BODY: Discussion (Abstract Submission): Difficulty in the process of separation from CPB is an independent predictor of mortality and adverse outcome after cardiac surgery.

ABSTRACT BODY: References (Abstract Submission): N/A

(No Table Selected)

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Cardiac surgery, Mortality, Morbidity.

CONTROL ID: 743542

TITLE: INHALED MILRINONE IN CARDIAC SURGERY

CONTACT (NAME ONLY): André Denault

CONTACT (INSTITUTION ONLY): Montreal Heart Institute/Université de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): Pulmonary hypertension is a major cause of mortality and morbidity in patients undergoing valvular and complex heart surgery. Inhaled milrinone has been used for the treatment of pulmonary hypertension, but its safety and effects compared with a placebo on hemodynamics and ventricular function have not been studied in patients undergoing high-risk valvular surgery.

ABSTRACT BODY: Methods (Abstract Submission): The protocol was reviewed and approved by the Research and Ethic Committees of our institution. Written informed consent was obtained from all patients. Twenty-one high-risk cardiac surgical patients with pre-operative pulmonary hypertension were randomized in a double-blind study to receive inhaled milrinone or placebo. The inhalation occurred after the induction of anesthesia and before the surgical incision and cardiopulmonary bypass. The effects on ventricular function were evaluated by means of pulmonary artery catheterization and transesophageal echocardiography. The primary outcome variable was the systemic mean arterial pressure.

ABSTRACT BODY: Results (Abstract Submission): There were 8 men and 13 women (mean age 71 ± 6 years) with a mean Parsonnet score of 32 ± 9 who underwent a total of 17 complex procedures and 6 reoperations. There were no significant changes in mean arterial pressure throughout the study. A reduction in pulmonary vascular resistance ($p = 0.0458$) was observed in the inhaled milrinone group, but the change in mean pulmonary artery pressure was not significant ($p = 0.1655$). Right ventricular end-diastolic area ($p = 0.0363$) and right atrial transverse diameter ($p < 0.0001$) increased in the control group, but not with inhaled milrinone. No significant side effects occurred in the inhaled milrinone group.

ABSTRACT BODY: Discussion (Abstract Submission): In this high-risk cardiac surgery cohort, the use of inhaled milrinone was not associated with systemic hypotension but with a reduced pulmonary vascular resistance and prevention of the increase in right-sided cavity dimensions.

ABSTRACT BODY: References (Abstract Submission): N/A

(No Table Selected)

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Cardiac surgery, Milrinone, Transesophageal echocardiography.

CONTROL ID: 791966

TITLE: STELLATE BLOCK IN CARDIAC SURGERY

CONTACT (NAME ONLY): André Denault

CONTACT (INSTITUTION ONLY): Montreal Heart Institute/Université de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): Pulmonary arterial vasoconstriction in cardiac surgery can originate from the action of combined humoral, endothelial and sympathetic tone changes. The consequence of pulmonary arterial vasoconstriction is pulmonary hypertension (PHT) and, when present after cardiopulmonary bypass (CPB), can predispose to right ventricular dysfunction. Right ventricular dysfunction after CPB is a serious complication with high mortality rates. The extent through which sympathetic blockade could reduce pulmonary arterial vasoconstriction and reduce PHT is unknown. Pharmacological blockade of the stellate ganglion block (SGB) has been associated with reduction in PHT but its role and mechanism in cardiac surgery have not been described. Thus, the goal of the study was to test the hypothesis that left SGB performed before induction of general anesthesia could prevent pulmonary artery pressure (PAP) increases at weaning of CPB and facilitate separation from CPB.

ABSTRACT BODY: Methods (Abstract Submission): The protocol was reviewed and approved by the Research and Ethic Committees of our institution. Written informed consent was obtained from all patients. Prospective pilot case control study in cardiac surgical patients. A left SGB was performed immediately before induction of general anesthesia in 20 patients under ultrasound guidance and was compared to 20 matched control patients. Standard hemodynamic and electrocardiographic monitoring was performed and blood gas samples were drawn at specific predetermined time points for analysis. Rhythms disorders, echocardiographic parameters that include wall motion abnormalities and biomedical parameters of myocardial ischemia were measured.

ABSTRACT BODY: Results (Abstract Submission): Twenty patients undergoing cardiac surgery were studied in each group. No technical complications occurred in the treatment group. Marked improvement in the PaO2/FiO2 ratio in the SGB group was observed (mean difference 77 mmHg, p=0.0001). There were no differences between the groups in any of the hemodynamic variables over time during the procedure except for central venous pressure who was higher in the SGB group (p=0.0184). Mild reduction of right ventricular fractional area change (p=0.0331) and tricuspid annulus displacement (p=0.0048) were observed. The MB fraction of the creatine kinase was 1.5 times higher in the SGB group (p=0.0211) but no patients developed myocardial infarction.

ABSTRACT BODY: Discussion (Abstract Submission): Left SGB was associated with improved oxygenation that could explain its mechanism in acute PHT. Further studies are necessary to evaluate the usefulness of this technique in patients with high risk of PHT at separation from CPB.

ABSTRACT BODY: References (Abstract Submission): N/A

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Stellate ganglion blockade, Cardiac surgery, Pulmonary hypertension.

CONTROL ID: 799622

TITLE: TOTAL SPINAL BLOCKADE AND SUS SCROFA BRAIN-DEAD HEART DONORS

CONTACT (NAME ONLY): Waiel Almoustadi

CONTACT (INSTITUTION ONLY): U of Manitoba

ABSTRACT BODY: Introduction (Abstract Submission): In transplantation from a brain dead donor, the donor heart is often subject to injury from the increased sympathetic activity that occurs as a physiologic consequence of brainstem-death(1,2). This study examined the effects of total spinal anesthesia (3,4) on the organ donor response to brainstem-death (BSD). It was hypothesized that total spinal anesthesia blocks this sympathetic response, minimizing myocardial damage, increasing the suitability of the donor heart for transplantation.

ABSTRACT BODY: Methods (Abstract Submission): Following ethics approval, twelve 40 kg anesthetized Yorkshire pigs were divided into 3 groups: saline control; bupivacaine/morphine spinal prior to BSD; and bupivacaine/morphine spinal 1 hour after BSD. Total spinal anesthesia was achieved by the injection of 45mg of 0.75% hyperbaric bupivacaine and 300 mcg of preservative-free morphine via intrathecal catheter. BSD was achieved by the Foley catheter inflation near the brain stem via burr hole. Hemodynamics were monitored. LV function was assessed using a pressure-volume loop conductance catheter and MR imaging. Endogenous catecholamines were measured by analyzing (HPLC) serum samples for epinephrine and norepinephrine levels. Paired t-tests were used to analyze the data with SPSS v13.0 (SPSS Inc, Chicago, Illinois, U.S.A.).

ABSTRACT BODY: Results (Abstract Submission): LV end-systolic pressure volume relationship (LVESPVR) declined in the BSD control group (3.9±1.2 to 1.9±0.9, p = 0.03) whereas it did not change with spinal blockade before BSD (2.7±0.5 to 3.4±0.6, p = ns) or after BSD (2.4±0.8 to 2.0±0.4, p = ns). Cardiac output (CO) measured by MRI in the BSD control group was 2.8±0.4 litres per minute (lpm) pre and 3.8 lpm post brain death. CO in the BSD following spinal blockade group was 3.2±1.1 lpm pre and 3.6±0.8 lpm post brain death. In the BSD control group, peak systolic blood pressure and heart rate showed a two-fold increase when compared to the BSD following spinal blockade group.

ABSTRACT BODY: Discussion (Abstract Submission): The data generated may add to our understanding of the response of the heart to brain death, and the contribution of spinal sympathetics to cardiac dysfunction in this setting. By showing an improvement in cardiac function with total spinal anesthesia, we hope to change the way organ donors are managed, potentially rescuing hearts that would otherwise be unsuitable for transplantation because of poor function.

ABSTRACT BODY: References (Abstract Submission): 1.Can J Cardiol 2001;17(12):1243-6.
2.J Heart Lung Transplant 1995 Jul;14(4):734-42.
3.Anesthesiology 2003 Feb;98(2):499-510.
4.Techniques in Regional Anesth and Pain Management 2008(12): 54-56.

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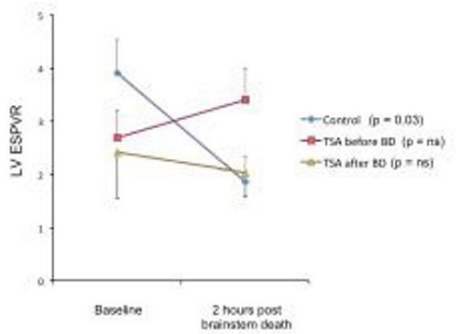

LVESPVR at baseline and post brain death.

IMAGE CAPTION:
LVESPVR at baseline and post brain death.

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical
KEYWORDS: Total Spinal Anesthesia, Cardiac protection, Brain death.

CONTROL ID: 800031

TITLE: CPAP VS PEEP FOR PAO2 OPTIMIZATION DURING 6ML/KG TV OLV

CONTACT (NAME ONLY): Camille Goure

CONTACT (INSTITUTION ONLY): University of Western Ontario

ABSTRACT BODY: Introduction (Abstract Submission): Recent research in multiple study populations suggests that larger tidal volumes (LTV - 10 ml/kg) have deleterious effects on lung function.1 The approach to hypoxemia during one-lung ventilation (OLV) is first the application of CPAP to the non-ventilated lung followed by application of PEEP to the ventilated lung.2 This is based on studies using LTV. To our knowledge the effectiveness of PEEP or CPAP on maintaining PaO2 with OLV has not been studied with smaller tidal volume (STV – 6ml/kg) ventilation. Our primary objective was therefore to determine which provides better oxygenation CPAP of 5 cm H2O (CPAP5) or PEEP of 5 cm H2O (PEEP5), during STV OLV, with secondary outcomes being the incidence of hypoxia (SpO2 < 90) or other complications.

ABSTRACT BODY: Methods (Abstract Submission): Following IRB approval and written informed consent, 30 ASA 1 – 4, patients age > 18, scheduled to undergo elective, open thoracotomy with OLV were consented to participate. Patients with known pulmonary hypertension, home O2, preoperative PaCO2 > 50, unstable ASHD, renal or liver failure were excluded. Patients were randomly assigned (random number generator and sealed envelopes) to receive CPAP5 or PEEP5 and then crossed over to the other modality after initiation of OLV. Following induction of general anesthesia an appropriately sized DLT was placed and correct placement confirmed in both the supine and lateral position with fiberoptic bronchoscopy. STV ventilation was commenced based on ideal body weight, and respiratory rate was titrated to a normal PaCO2. FiO2 was maintained between 0.6 – 0.7. Maintenance of anesthesia was achieved with up to one MAC volatile anaesthetic, opioids and muscle relaxants to ensure normal hemodynamic parameters (HR, MAP). Arterial blood gases (ABGs) were obtained after 20 min of two lung ventilation (TLV), OLV with 0 end-expiratory pressure (ZEEP), and then either PEEP of 5 cm H2O to the dependant lung or CPAP of 5 cm H2O to the operative lung, and then a final ABG with the other modality. Calculated alveolar arterial O2 gradient (A-a grad) was determined for all 4 times. Comparisons were made using paired student t-tests.

ABSTRACT BODY: Results (Abstract Submission): There were no differences in demographic data, FiO2, TLV PaO2, OLV PaO2, or PaCO2 between PEEP first and the CPAP first groups. The PaO2, A-a grad, ABG SaO2 and oximeter SaO2 values are shown in the Table. There was a statistically significant higher PaO2, bigger change from OLV with ZEEP and smaller A-a gradient with CPAP5 than PEEP5 while on OLV. Two pts desaturated requiring 100% O2 with both PEEP and CPAP. On two occasions the surgeon requested the CPAP be discontinued due to lung inflation.

ABSTRACT BODY: Discussion (Abstract Submission): The use of CPAP of 5 cm H2O while using STV for OLV improved PaO2 and decreased the A-a gradient similar to the effect seen with LTV. The use of PEEP of 5 cm H2O to the ventilated lung had a minimal effect. Based on these findings we recommend the use of CPAP for hypoxemia when using STV for OLV.

ABSTRACT BODY: References (Abstract Submission): 1. Anesthesiology 2007;106:1226-31. 2. Anesth Analg 1980;59:857-51.

	CPAP5	PEEP5	P value
PaO2	141.50 ± 81.6	111.8 ± 48.7	0.047
Change in PaO2 from OLV-ZEEP	29.6 ± 83.0	-3.8 ± 51.4	0.047
PO2 A-a gradient	298 ± 106	335 ± 83	0.032
ABG SaO2	96.8 ± 3.6	96.3 ± 3.6	0.336
Oximeter SaO2	96.4 ± 3.2	96.2 ± 3.3	0.608

Values are mean ± STD

TABLE TITLE:

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Values are mean ± STD

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical
KEYWORDS: thoracic surgery, one lung ventilation, oxygenation.

CONTROL ID: 801441

TITLE: EVALUATION OF TEE–DERIVED TRICUSPID ANNULAR SYSTOLIC PLANE EXCURSION (TAPSE) FOR ASSESSMENT OF RIGHT VENTRICULAR FUNCTION.

CONTACT (NAME ONLY): Claude Tousignant

CONTACT (INSTITUTION ONLY): St Michael's Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Tricuspid annular systolic plane excursion (TAPSE) is an echo-derived one dimensional measure of right ventricular (RV) function. TAPSE correlates well with RV fractional area of contraction in transthoracic echo (TTE). Its correlation to hemodynamic parameters in the perioperative period has not been examined. We assessed the correlation and agreement between transesophageal echo (TEE) derived measurements of TAPSE using M mode and a novel method using speckle tracking with hemodynamic parameters in the operative period.

ABSTRACT BODY: Methods (Abstract Submission): After IRB approval and informed consent, 49 patients undergoing coronary artery bypass graft surgery with preserved ventricular function were enrolled. After induction of anesthesia, a 4 chamber view focusing on the RV for at least 5 cardiac cycles was acquired on a GE Vivid 7 using a 5.0 MHz multiplane TEE probe. Simultaneous measurements of thermodilution cardiac output and echo images were acquired before and after one of 2 interventions: intravenous ephedrine (5mg; n=29) or volume-loading by lifting the legs (n=20). Each loop was analyzed offline. TAPSE measured by M-mode and speckle tracking was averaged over 3 cardiac cycles for each method both before and after intervention. A paired t-test was used to examine the effect of ephedrine or volume on echo and hemodynamic measurements. Linear regression and Bland and Altman plots were used to assess correlation and agreement between the two TAPSE methods.

ABSTRACT BODY: Results (Abstract Submission): TAPSE could not be measured in 5 out of 98 datasets using M mode and in 6 of 98 using speckle tracking. The correlation between M-mode and speckle tracking measurements of TAPSE was good ($r=0.63$), but agreement was weak (M-mode 4mm > speckle tracking). Correlation with stroke volume (SV) was good using both M-mode and speckle tracking ($r=0.54$ and 0.51 respectively). For all patients, there was a significant increase in SV (63±19 to 71±16 ml, $p<0.001$), M mode TAPSE (21±4.8 to 22±5.4mm, $p=0.022$) and speckle tracking TAPSE (16.78±3.26 to 18.30±3.20mm, $p<0.001$) following interventions.

ABSTRACT BODY: Discussion (Abstract Submission): TAPSE has been correlated with other echo measurements of RV function. M-mode measurement of TAPSE is user dependent. Speckle tracking, significantly reduces user input bias. We found both methods correlated well and tracked SV well, but differed by 4mm. SV and TAPSE increased significantly following interventions. The increase of TAPSE by 1mm using M mode was statistically significant however, it is not clinically relevant. Use of speckle tracking produced a larger increase in TAPSE, lower measurement variability and a higher level of significance. Although both TAPSE methods represented SV well, speckle tracking appeared more sensitive to SV changes. This suggests that speckle tracking may be the preferred method of measuring TAPSE with TEE for clinical evaluation of RV function.

ABSTRACT BODY: References (Abstract Submission): López-Candales A, Rajagopalan N, Saxena N, Gulyasy B, Edelman K, Bazaz R. Right ventricular systolic function is not the sole determinant of tricuspid annular motion. Am J Cardiol 2006,98:973–7.

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Right Ventricle, Systolic Function, Transeshophageal Echocardiography.

CONTROL ID: 801448

TITLE: SEX, AUTONOMIC DYSFUNCTION, COMPLEX CARDIAC SURGERY AND THE RISK OF PERIOPERATIVE DECREASES IN CEREBRAL SATURATION

CONTACT (NAME ONLY): Alain Deschamps

CONTACT (INSTITUTION ONLY): Montreal Heart Institute

ABSTRACT BODY: Introduction (Abstract Submission): Near-infrared reflectance spectroscopy (NIRS) is used as a non-invasive and continuous monitor of cerebral oxygen saturation (rSO2). The use of NIRS can lead to shorter recovery room and hospital stay in non-cardiac surgery (1), and in a decrease in major organ dysfunction and in the length of stay in the intensive care unit after coronary bypass surgery (2). Significant decreases in perioperative rSO2 values are associated with post operative neurocognitive dysfunction (3). Although the importance of monitoring rSO2 is becoming recognized, little is known about the predisposing factors for perioperative decreases in rSO2. Furthermore, most studies have focused on primary CABG surgery and the incidence of decreases in rSO2 in cardiac surgery in general is not described. We hypothesized that autonomic dysfunction would predispose patients to decreases in rSO2 and that the prevalence of cerebral desaturation would be greater in complex cardiac surgery than in primary CABG surgery only.

ABSTRACT BODY: Methods (Abstract Submission): Ethics approval and Informed consent was obtained for this study. Prospective NIRS values were collected on 90 patients scheduled for cardiac surgery with cardiopulmonary bypass (CPB). Autonomic dysfunction was assessed in 70 of these patients by an abnormal response to the Valsalva maneuver (VAL) and baseline heart rate variability (HRV). The anesthesia strategy was standardized. The anesthesiologist was blinded to the NIRS values and therefore no intervention was made to reverse decreases in rSO2. A significant decrease in rSO2 was defined as a fall >20% from baseline values for 1min or longer.

ABSTRACT BODY: Results (Abstract Submission): Ninety patients, 75 men and 15 women (42-82 years old) participated in the study. Baseline NIRS values ranged from 48 to 87%. Significant decreases in rSO2 occurred in 52 (57.8%) patients, 38 (51%) men and 14 (93%) women (RR=10.231, CI:1.41-74.52). Decreases in rSO2 were more common in complex surgeries (redo, valves or valves and CABG, 41/52, RR=1.665, CI:1.157-2.394) than with primary CABG (11/31). There was no relationship between decreases in rSO2 and age, duration of CPB or Parsonnet score. Of the 70 patients tested for autonomic dysfunction, 38 (54.3%) had a normal VAL response and 32 (45.7%) had an abnormal VAL response. Decreases in rSO2 occurred in 75% (24:32, 6 women) of patients with an abnormal VAL response compare to 47.4% (18:38, 6 women) in those with a normal VAL response (RR=2.0, CI:1.053-3.799).

ABSTRACT BODY: Discussion (Abstract Submission): The incidence of decreases in rSO2 appears to be higher when complex surgeries are included 58% vs 30%(3). Women have a significantly higher risk of intraoperative decrease in rSO2. Patients with autonomic dysfunction prior to surgery also have a higher risk of decreases in rSO2 intraoperatively. The reasons why women have a higher risk of decrease in rSO2 remains to be elucidated and whether interventions to correct autonomic dysfunction before surgery would decrease the incidence of cerebral desaturations deserves to be tested.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg 2005 101: 740-747
2. Anesth Analg 2007 104: 51-8
3. Ann Thor Surg 2009 87:36-44.

(No Table Selected)

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Cerebral Saturation, Autonomic Dysfunction, Heart Rate Variability.

CONTROL ID: 801688

TITLE: POSTOPERATIVE NEUROIMAGING AND ORGANIC BRAIN INJURY AFTER CARDIAC SURGERY

CONTACT (NAME ONLY): George Djaiani

CONTACT (INSTITUTION ONLY): Toronto General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Cumulative neuroimaging and clinical correlation evidence indicates that ischemic brain injury is responsible for the development of global neurological deficit after cardiac surgery. The objective of this study was to determine relationship between postoperative neuroimaging findings and organic brain injury in patients undergoing cardiac surgery.

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval we reviewed clinical and neuroimaging data collected prospectively from June 2008 to May 2009 of patients undergoing cardiac surgery with cardiopulmonary bypass (CPB). Patients underwent either brain diffusion weighted magnetic resonance imaging (DW-MRI) or computed tomography (CT) scanning. Indications for postoperative neuroimaging included presence of neurological deficit, delirium, clinical seizures, and decreased level of consciousness. Based on neuroimaging findings patients were classed into three groups; new brain infarcts, old brain infarcts, and controls (normal scan). All patients were assessed for delirium postoperatively daily for 5 days using the Confusion Assessment Method in Intensive Care Unit (CAM-ICU). Patients who were CAM-ICU 'positive' were examined by a psychiatrist to confirm the diagnosis of delirium. Neurological examination was conducted daily by the attending anesthesiologist. Data expressed either as mean ± SD, or number of patients (%).

ABSTRACT BODY: Results (Abstract Submission): A total of 17 (16%) and 89 (84%) patients underwent DW-MRI and CT scanning respectively. CT scanning was repeated within a 3-4days interval if the primary scan was negative for organic brain injury. 25 (23.5%) and 38 (36%) of patients were found to have new and old brain infarcts respectively.(Table) Delirium was present in 77 (72%), seizures in 36 (34%), and clinically manifested perioperative stroke in 18 (17%) patients. All seizures occurred within 10 hours of surgery. Seizures were more likely to occur in patients without brain infarcts. Delirium rates were similar in patients with or without brain infarcts.

ABSTRACT BODY: Discussion (Abstract Submission): Organic brain injury after cardiac surgery with CPB is relatively common. Delirium and seizures are not associated with either acute or chronic brain injury.

ABSTRACT BODY: References (Abstract Submission): Djaiani et al. Stroke. 2004 Sep;35(9):e356-8.
Murkin et al. Anesth Analg 2010, in press

Demographic data and clinical manifestations of neurological complications after cardiac surgery.

	New Brain Infarcts(n = 25)	Old Brain Infarcts(n = 38)	Controls(n = 43)	P value
Age (years)	71 ± 6	69 ± 4	70 ± 5	NS
Male gender (%)	79	78	80	NS
Weight (kg)	80 ± 18	83 ± 14	82 ± 16	NS
Baseline Pulse Pressure (mmHg)	64 ± 25	61 ± 16	60 ± 24	NS
Procedure (Valvular/ACB), n	18/7	24/14	29/14	NS
CPB time (minutes)	105 ± 16	102 ± 22	100 ± 18	NS
Seizures, n (%)	4 (16)	9 (24)	23 (53)	0.002
Delirium, n (%)	19 (76)	29 (76.3)	29 (67.4)	NS
Stroke, n (%)	18 (17%)	0	0	NA

TABLE TITLE:
Demographic data and clinical manifestations of neurological complications after cardiac surgery.

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical
KEYWORDS: neuroimaging, cardiac surgery, seizures delirium.

CONTROL ID: 801781

TITLE: COMPUTER ASSISTED TIGHT GLUCOSE CONTROL IN CARDIAC SURGERY

CONTACT (NAME ONLY): Tamaki Sato

CONTACT (INSTITUTION ONLY): Royal Victoria Hospical, McGill

ABSTRACT BODY: Introduction (Abstract Submission): In 2004 we introduced the GIN concept, i.e. Glucose and Insulin administration while maintaining Normoglycemia, to preserve normoglycemia during cardiac surgery. One disadvantage for GIN operators was the need of extensive experience to adjust the dextrose infusion rate as required to maintain blood glucose between 4-6 mmol/L. We therefore developed a computer software designed to calculate the dextrose infusion rate based on DeFronzo's original glucose clamp algorithm (1). The present study was to compare intraoperative blood glucose control in patients undergoing cardiac surgery receiving the new computer-assisted or the original manually-controlled GIN therapy.

ABSTRACT BODY: Methods (Abstract Submission): With the approval of the local Research Ethics Board, consenting patients undergoing elective cardiac surgery requiring cardiopulmonary bypass were randomly assigned to manually-controlled (MAN) or computerized-assisted (COM) GIN therapy. Both protocols were applied by physicians newly instructed into this technique. Prior to the induction of anesthesia, insulin was administered at 5 mU/kg/min followed by the infusion of dextrose 20%. Blood glucose was measured every 5-30 minutes, and dextrose was titrated to maintain blood glucose within 4.0-6.0 mmol/L.
Blood glucose, coefficient of variation (CV) of blood glucose, sampling interval, and episodes of severe hypoglycemia (blood glucose <2.2 mmol/L) were recorded.
Differences between the two groups were tested using a two-sample Student's t-test, chi-square test or Mann-Whitney test as appropriate.

ABSTRACT BODY: Results (Abstract Submission): We studied 20 non-diabetic patients. There were no significant differences in the surgical and demographic data between the two groups. Mean blood glucose was similar between two groups (COM: 5.0 ± 0.6 mmol/L vs. MAN: 5.0 ± 0.9 mmol/L, P = 0.821). The CV of blood glucose was smaller (COM: 12.5 ± 3.3% vs. MAN: 17.9 ± 4.3%, P < 0.05), and the mean sampling interval was longer in the COM group (COM: 21.5 ± 1.9 min vs. MAN: 14.2 ± 2.2 min, P < 0.05). The percentage of time within the target was also longer in COM group (COM: 94.0 ± 7.2% vs. MAN: 73.1 ± 11.6%, P < 0.05). No severe hypoglycemia was observed in either group

ABSTRACT BODY: Discussion (Abstract Submission): Compared with the manually-controlled group, glycemic control by computer-assisted algorithm was more effective, as reflected by a lower CV of blood glucose and a reduced requirement of blood sampling

ABSTRACT BODY: References (Abstract Submission): (1) Am J Physiol. 1979 237:E214-23

	Manual (N=10)	Conputer (N=10)	P
Blood glucose (mmol/L)	5.0 ± 0.9	5.0 ± 0.6	0.821
CV of blood glucose (%)	17.9 ± 4.3	12.5 ± 3.3	0.015
Time in target (min)	187 ± 21.3	231 ± 39.5	<0.001
Time in target (%)	73.1 ± 11.6	94.0 ± 7.2	<0.001
Time above target (min)	43.6 ± 37.3	5.0 ± 9.4	<0.001
Time under target (min)	27.4 ± 28.3	7.4 ± 7.4	<0.001

Hypoglycemic event (< 2.9 mmol/L)	0	0	
Sampling interval (min)	14.2 ± 2.2	21.5 ± 1.9	<0.001
Sampling interval within first one hour (min)	10.5 ± 2.9	16.3 ± 2.0	<0.001

Glucose control during cardiac surgery. CV: Coefficient of Variation. Values are mean ± SD.

TABLE TITLE:

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Glucose control during cardiac surgery. CV: Coefficient of Variation. Values are mean ± SD.

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical
KEYWORDS: Tight Glucose Control, Computer algorithm , Cardiac Surgery.

CONTROL ID: 802378

TITLE: ENHANCED GLUCOSE UPTAKE VIA GLUT4 FUELS FAST RECOVERY FROM CA2+ OVERLOAD AFTER ISCHEMIA/REPERFUSION INJURY IN SEVOFLURANE BUT NOT PROPOFOL TREATED SPRAGUE-DAWLEY RAT HEARTS

CONTACT (NAME ONLY): Michael Zaugg

CONTACT (INSTITUTION ONLY): University of Alberta

ABSTRACT BODY: Introduction (Abstract Submission): We previously showed differences in myocardial substrate metabolism between sevoflurane and propofol at the transcriptional level using high-density oligonucleotide microarrays [1]. Sevoflurane-mediated attenuation of transcripts involved in fatty acid oxidation was closely associated with improved postoperative cardiac function, as determined by transesophageal echocardiography and pulmonary artery catheter measurements, in patients undergoing off-pump coronary artery bypass graft surgery. In addition, isoflurane-induced downregulation of transcripts involved in fatty acid oxidation was observed in Langendorff perfused rat hearts, and the resulting metabolic remodeling triggered by brief ischemia or volatile anesthetics resembled “metabolic hibernation”, which is indeed a hallmark of the preconditioned protected state of the myocardium. So far, only a few studies have indirectly explored the effects of anesthetics on fuel preference and substrate shift in the heart. None of these studies directly measured and compared the effects of sevoflurane versus propofol on metabolic flux rates of fatty acids and glucose. We have recently determined the effects of sevoflurane and propofol on glucose (GOX) and fatty acid oxidation (FOX) under aerobic conditions using the working rat heart model. The current study was designed to evaluate GOX and FOX in sevoflurane- and propofol-treated hearts after ischemia-reperfusion injury.

ABSTRACT BODY: Methods (Abstract Submission): The experiments were approved by the local Animal Policy and Welfare Committee. Isolated paced (300 bpm) working rat hearts were exposed to 15 min of ischemia and 35 min of reperfusion. Periischemic sevoflurane (2 vol.-%) and propofol (10 μM, 100 μM) were compared for their effects on oxidative energy metabolism (GOX, FOX) and cardiac systolic and diastolic Ca2+ concentrations using indo-1AM. Intralipid served as control. Substrate flux was measured using [3H]palmitate and [14C]glucose. Lipid rafts were isolated and used for Western blotting of the plasma membrane transporters CD36 and GLUT4. Myocardial pyruvate dehyrogenase activity (PDH) was also determined.

ABSTRACT BODY: Results (Abstract Submission): Sevoflurane but not propofol preserved left ventricular work ($p=0.013$) and increased myocardial efficiency compare to untreated ischemic control ($p=0.006$). This hemodynamic improvement was accompanied by reduced increases in postischemic diastolic and systolic Ca2+ concentrations ($p=0.001$). Only in sevoflurane hearts, GOX was elevated compared to ischemic control ($p=0.02$). Consistent with this, GLUT4 expression was markedly increased in lipid raft fractions ($p=0.006$). FOX, PDH activity and glycogen contents were similar among ischemic groups. Also, there were no changes in CD36 expression in lipid rafts.

ABSTRACT BODY: Discussion (Abstract Submission): Enhanced glucose uptake via GLUT4 fuels fast recovery from Ca2+ overload after ischemia/reperfusion injury in sevoflurane but not propofol treated hearts.

ABSTRACT BODY: References (Abstract Submission): [1] Anesthesiology 2007 106: 444-457

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: ischemia/reperfusion injury, sevoflurane, propofol.

CONTROL ID: 803227

TITLE: LEUKOCYTES FROM PERIPHERAL BLOOD CANNOT SUBSTITUTE FOR TISSUE SAMPLES IN STUDIES EXPLORING MECHANISMS OF CARDIAC ISCHEMIA-REPERFUSION INJURY

CONTACT (NAME ONLY): Saeid Behmanesh

CONTACT (INSTITUTION ONLY): University of Alberta

ABSTRACT BODY: Introduction (Abstract Submission): On-pump coronary artery bypass grafting (CABG) provides well controlled surgical conditions. However, significant ischemia-reperfusion injury and inflammatory damage may occur. To systematically investigate the molecular mechanisms of cardiac ischemia-reperfusion injury, the determination of mRNA transcripts in cardiac tissue samples is warranted, but a less invasive approach based on gene expression from circulating leukocytes would be advantageous. In the present study, we sought to compare gene expression patterns from peripheral blood leukocytes (= easily accessible compartment) and cardiac biopsy samples (= relevant tissue) using microarrays and polymerase chain reaction (RT-PCR).

ABSTRACT BODY: Methods (Abstract Submission): The Institutional Ethical Board approved the study and written informed consent was obtained from all patients. Sixteen patients scheduled to undergo elective CABG surgery were enrolled. Two atrial myocardial biopsies were obtained before establishment of cardiopulmonary bypass and after weaning from bypass. Blood samples were collected before induction, before bypass, one hour after cross-clamp release, and 24 hours post-surgery. RNA was extracted from the myocardial tissue samples and from the buffy coat (blood samples) using the Qiagen RNeasy Plus Mini Kit (Qiagen, Ca, USA). Quantity and purity of the isolated RNA was tested employing spectrophotometric analysis of A260 and A260/280 ratio, respectively. RNA from tissue samples was processed for microarray analysis as previously described [1]. RNA from blood samples (0.5 μg) was reverse transcribed using TaqMan Reverse Transcription Reagents (Applied Biosystems, USA). Quantitative real-time polymerase chain reaction was performed by an ABI Prism 7900HT Sequence Detection System (Applied Biosystems). Five target genes (prostaglandin-endoperoxide synthase 2 (COX-2), arachidonate 15-lipoxygenase (ALOX15), isocitrate dehydrogenase 1 (IDH1), v-rel reticuloendotheliosis viral oncogene homolog A (RELA), and toll-like receptor 4 (TLR4)) were selected on the basis of microarray analysis results (four genes significantly altered, one gene unchanged). Primers were obtained from Applied Biosystems. The expression of the target genes was normalized to tubulin, alpha 4a.

ABSTRACT BODY: Results (Abstract Submission): RT-PCR measurements from blood samples showed a significant increase for COX-2 and TLR4 and a significant decrease for IDH1, ALOX15 and RELA. In accordance with blood samples, myocardial biopsies showed a significant increase in COX-2 and a significant decrease in IDH1 and ALOX15, but no change in RELA and a decrease in TLR4. Regression plots of heart versus blood values did not exhibit significant correlations.

ABSTRACT BODY: Discussion (Abstract Submission): In a complex biological system, gene expression from blood samples cannot be used for predicting transcriptional changes in hearts. Rather, gene expression patterns in the blood and the heart reflect responses of two distinct compartments to perioperative stress.

ABSTRACT BODY: References (Abstract Submission): [1] Anesthesiology 2007; 106: 444-57

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: CABG surgery, gene expression.

CONTROL ID: 803324

TITLE: MEDICAL CONSULTATION AND OUTCOMES AFTER MAJOR ELECTIVE SURGERY

CONTACT (NAME ONLY): Duminda Wijeysundera

CONTACT (INSTITUTION ONLY): University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Preoperative consultations by internal medicine physicians facilitate documentation of comorbid disease, optimization of medical conditions, preoperative risk-stratification, and initiation of interventions intended to reduce risk. Nonetheless, the impact of these consultations, which may be performed by either general internists or subspecialists, on outcomes is unclear.

ABSTRACT BODY: Methods (Abstract Submission): Following institutional Research Ethics Board approval, we used population-based linked administrative databases to conduct a cohort study of patients, aged 40 years or older, who underwent selected elective intermediate-to-high risk noncardiac surgical procedures between 1 April 1994 and 31 March 2004. Propensity-score methods were used to construct a matched-pairs cohort that reduced important differences between patients who did or did not undergo preoperative medical consultation by either general internists or subspecialists. We then determined the association of consultation with survival (30-days and 1-year) and hospital stay within the matched pairs. To evaluate an outcome where no difference would be expected, we also assessed its association with postoperative wound infection.

ABSTRACT BODY: Results (Abstract Submission): Of 269,866 patients in the cohort, 38.8% (n=104,695) underwent consultation. Within the matched-pairs (n=191,852), consultation was associated with increases in 30-day mortality [relative risk (RR) 1.16, 95% CI 1.07-1.25, number-needed-to-harm 516], 1-year mortality (RR 1.08, 95% CI 1.04-1.12, number-needed-to-harm 227), mean hospital stay (difference 0.67 days, 95% CI 0.59-0.76), preoperative testing (echocardiogram RR 2.36, 95% CI 2.30-2.42; cardiac stress test RR 2.40, 95% CI 2.33-2.47) and preoperative drug interventions (β-blocker RR 2.50, 95% CI 2.36-2.65; statin RR 1.43, 95% CI 1.34-1.54). Conversely, consultation was associated with reduced rates of epidural analgesia (RR 0.90, 95% CI 0.89-0.92) and postoperative coumadin use (RR 0.79, 95% CI 0.75-0.83). In a tracer analysis that tested for unmeasured confounding, consultation was not associated with any difference in postoperative wound infections (RR 0.98, 95% CI 0.95-1.02). These findings were stable across subgroups, as well as many sensitivity analyses that tested for unmeasured confounding. The association of consultation with 30-day mortality was increased in magnitude when only consultations performed by subspecialists (RR 1.27, 95% CI 1.12-1.44), or consultations performed within 1 to 7 days before surgery (RR 1.29, 95% CI 1.11-1.50) were considered.

ABSTRACT BODY: Discussion (Abstract Submission): Preoperative medical consultation before major elective noncardiac surgery is associated with increased mortality and hospital stay. These increases should be interpreted cautiously because of their relatively small magnitude. Nonetheless, the criterion by which consultation should be judged is whether it *reduces* mortality. Based on multiple sensitivity analyses, our results suggest that, even if some residual confounding was present, consultation was unlikely to have conferred a major benefit. Our study therefore highlights the need to better understand mechanisms by which consultation influences outcomes, and identify efficacious interventions to decrease perioperative risk.

ABSTRACT BODY: References (Abstract Submission): NA

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Preoperative medical consultation, Preoperative assessment, Outcome studies.

CONTROL ID: 803375

TITLE: ULTRA-FAST TRACK CARDIAC ANESTHESIA: THE IMPACT OF A 24-HOUR HYBRID STAFFING MODEL

CONTACT (NAME ONLY): Kanwal Kumar

CONTACT (INSTITUTION ONLY): University of Manitoba

ABSTRACT BODY: Introduction (Abstract Submission): Fast-track cardiac anesthesia has previously been associated with reductions in intensive care unit (ICU) and total hospital length of stay (LOS).[1] However, the definition of fast-track cardiac anesthesia has been inconsistently used in the literature. At our institution, we routinely plan on extubating patients in the operating room following their cardiac surgical procedure, thus defining ultra-fast track anesthesia. The impact of ICU care on outcomes in these ultra-fast track patients has not been explored. The objective of this study was to determine the impact of a dedicated 24-hour in-house intensivist/cardiac anesthesiologist hybrid ICU model of care on outcome after ultra-fast-track cardiac anesthesia.

ABSTRACT BODY: Methods (Abstract Submission): Local REB approval was obtained prior to initiation of this study. A retrospective cohort analysis of consecutive patients undergoing cardiac surgery at a single center from Jan. 2005 to Jan. 2008 was performed. Patients who were extubated in the operating room were identified and separated into two groups: a control cohort (SICU group), that consisted of patients admitted to a traditional mixed surgical intensive care unit (SICU) from Jan. 2005 to Jan. 2007, and an intervention cohort (CICU group) consisting of patients admitted after Jan 2007 to a newly created hybrid cardiac surgical ICU (CICU) staffed by a dedicated daytime cardiac anesthesiologist and a 24-hour in-house consultant intensivist. Using propensity analysis, the SICU and CICU ultra-fast track patients were compared for a number of perioperative outcomes.

ABSTRACT BODY: Results (Abstract Submission): In this study, 2548 consecutive patients underwent cardiac surgery, with 1465 being admitted to the SICU and 1083 to the hybrid CICU. Overall, 1062 (41.7%) of these patients were identified as having been extubated in the operating room at the conclusion of their procedure and were included in this subsequent analysis. 55.8% (604/1083) of CICU patients were extubated in the operating room compared to 31.3% (458/1465) of the SICU patients ($p<0.001$). Propensity matching of the two ultra-fast-track cohorts demonstrated that compared to the traditional SICU patients, the hybrid CICU model of care was associated with a lower red blood cell (RBC) transfusion rate (17.8% vs. 28.5%, $p<0.001$), lower fresh frozen plasma (FFP) use (5.0% v 14.9%, $p<001$), and a decrease in overall hospital LOS (5 [4-6] vs. 6 [5-7] days, $p<0.001$). There was no difference in the need for re-intubation (3.1% SICU vs. 1.6% ICU, $p = 0.15$) nor need for readmission to ICU (2.6% SICU vs. 1.3% CICU, $p=0.19$) Furthermore, the CICU cohort demonstrated significantly lower phenylephrine, milrinone, and colloid use following extubation.

ABSTRACT BODY: Discussion (Abstract Submission): The availability of a hybrid cardiac surgical ICU staffed by cardiac anesthesiologists during the day as well as an 24 hour in-house intensivist allowed for a higher operating room extubation rates along with significant reductions in both blood product usage and overall hospital LOS.

ABSTRACT BODY: References (Abstract Submission): [1] Crit Care Med. 2006. 34(6):1624-34

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: ultra-fast-track anesthesia, physician staffing model, cardiac surgery.

CONTROL ID: 803458

TITLE: IS METOPROL SUITABLE FOR PERIOPERATIVE BETA-BLOCKADE?

CONTACT (NAME ONLY): Craig Railton

CONTACT (INSTITUTION ONLY): University of Western Ontario

ABSTRACT BODY: Introduction (Abstract Submission): To examine if metoprolol is an appropriate beta-blocker for perioperative use.
Despite almost forty years of use, no study has measured plasma concentrations of beta-blockers to assess efficacy of beta-blockade. Metoprolol has a very short half life in a majority of patients (< 3 hours). We decided measure plasma metoprolol concentrations to assess the degree of beta-blockade achieved under current ACC/AHA management recommendations.(1) The therapeutic range for metoprolol is between 40 and 210 ng/mL with beta 2 effects at 300 ng/mL.(2)

ABSTRACT BODY: Methods (Abstract Submission): Following research ethics approval a series of 28 subjects chronically exposed to metoprolol were recruited into the study. Inclusion criteria: age over 40, chronic metoprolol exposure, surgery requiring an arterial line lasting at least 3 hours. Exclusion criteria: medications that induce or block Cytochrome 2D6. The patients were assessed by the preadmission clinic staff and advised to take metoprolol on the morning of surgery. Three blood samples were taken at induction, three and six hours later. The plasma was separated and analyzed by HPLC for metoprolol concentration. Heart rate and blood pressures were also taken at each time point.

ABSTRACT BODY: Results (Abstract Submission): The mean time from the last dose of metoprolol to induction was 268 minutes (16)The mean metoprolol concentrations measured at each time point were: induction (85 ng/mL (26)), 3 hours (63 ng/mL (22), and 6 hours (51 ng/mL (20)). However, the number of patients in the therapeutic range was: induction (13 (44%)), 3 hours (9 (31%), and 6 hours (7 (24%). Heart rate, systolic and diastolic blood pressures showed no linear correlation with metoprolol concentration (all $r2 < 0.010$). Preliminary results of Cytochrome 2D6 genotype will also be presented.

All data are reported as: mean (standard error).

ABSTRACT BODY: Discussion (Abstract Submission): No previous study has measured perioperative concentrations of beta-blockers. Despite following current treatment guidelines for the management of beta-blockers, we found that a majority of patients were inadequately beta-blocked at the time of surgery and during the first six hours following the induction of anesthesia. There was poor correlation of hemodynamic parameters heart rate and blood pressure with metoprolol concentration. Based on these results the majority of patients treated with metoprolol perioperatively are at risk of beta-blocker withdrawal syndrome even at the time of induction of anesthesia.

ABSTRACT BODY: References (Abstract Submission): (1) Anesth Analg 2008; 106:685-712.
(2) J Cardiovasc. Pharmacol 2005; 46:713-720.

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: metoprolol, perioperative, withdrawal syndrome.

CONTROL ID: 803628

TITLE: EXPLORATORY PK/PD STUDY AFTER INHALED MILRINONE IN CARDIAC PATIENTS

CONTACT (NAME ONLY): Anne Quynh Nhu Nguyen

CONTACT (INSTITUTION ONLY): Universoté de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): Milrinone is a vasoactive drug administered to cardiac surgical patients undergoing cardiopulmonary bypass (CPB) for the treatment of pulmonary hypertension (PH) associated with difficult separation from bypass. Administration of inhaled milrinone has been proposed as an alternative route for the treatment of PH and its main advantage compared to intravenous milrinone is the absence of systemic hypotension.{1,2,3} Recently was introduced the concept that inhaled milrinone would have a preventive effect in cardiac surgery when administered before CPB.{4,5} However, the concentration-effect relationship of inhaled milrinone has never been explored. Our objective was to investigate the concentration-effect relationship of inhaled milrinone in cardiac surgical patients with PH.

ABSTRACT BODY: Methods (Abstract Submission): After approval by Local Ethic Committee, informed consent was obtained in 14 patients having preoperative PH and scheduled for elective cardiac surgery where inhaled milrinone was indicated. Milrinone (5 mg) was nebulized before CPB using a simple jet or mesh nebulizer. Arterial blood samples were obtained from patients according to various sampling schedules: before inhalation and 2, 5, 10, 15 min thereafter, at the end of inhalation, and 5, 10, 15 min after the end of inhalation. Milrinone concentrations were determined by high performance liquid chromatography using ultraviolet detection.{6} Hemodynamic parameters including mean artery pressure (mAP) and mean pulmonary artery pressure (mPAP) were continuously monitored during surgery and reports obtained at fixed intervals, mostly corresponding to pharmacokinetic sampling times. The mAP/mPAP ratio was later calculated and the relative change from baseline in mAP/mPAP ratios (%), was chosen as the pharmacodynamic marker.{7}

ABSTRACT BODY: Results (Abstract Submission): The maximum increase in mAP/mPAP ratios (Emax) were observed at the end of inhalation with a maximum value less than 40%. At that time (Tmax), maximum plasma concentrations (Cmax) were less than 180 ng/ml. It was assumed that the concentrations leaving the pulmonary bed were similar to those in the biophase. Therefore, a sigmoid Emax model was directly applied to these data to describe the plasma concentration-effect relationship and yielded a good correlation coefficient ($r = 0.8395$; $p = 0.0022$). The estimated Emax and concentration corresponding to 50% of Emax (EC50) were 26% and 10 ng/ml, respectively.

ABSTRACT BODY: Discussion (Abstract Submission): For inhaled milrinone, a simple direct link model yielded a good correlation for PK/PD data gathered at the end of inhalation. These results suggest an instantaneous equilibrium between arterial and biophase concentrations.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg 2001; 93: 1439-45
2. Can J Anaesth 2005; 52: 1076-82
3. Adv Ther 2009; 26: 462-8
4. J Thorac Cardiovasc Surg 2005; 130: 83-92
5. Eur J Cardiothorac Surg 2007; 31: 1081-7
6. J Chromatogr B Analyt Technol Biomed Life Sci 2009; 877: 657-60
7. J Cardiothorac Vasc Anesth 2006; 20: 331-9

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: milrinone, inhaled, PK/PD.

CONTROL ID: 796258

TITLE: PSYCHOMETRICS OF A BEHAVIOURAL MARKING SYSTEM FOR OBSTETRICAL TEAMS

CONTACT (NAME ONLY): Pamela Morgan

CONTACT (INSTITUTION ONLY): Women's College Hospital, Sunnybrook Health Sciences Centre, University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Multidisciplinary team training has been suggested by educational and disciplinary bodies as a means to improve performance and ultimately patient safety. Realistic simulation is increasingly used to teach Crisis Management Skills, including communication and team training; however, to determine the effectiveness of high-fidelity simulation for obstetrical team training, a valid and reliable tool to measure team performance is required.
This study investigated the internal consistency and reliability of two newly developed tools to assess obstetrical team performance.

ABSTRACT BODY: Methods (Abstract Submission): After REB approval, obstetricians, anesthesiologists, family doctors and labour nurses from 6 hospitals were invited to participate. Each team participated in 3 sessions separated by 5-9 months where they managed 4 high-fidelity obstetric simulation scenarios involving critical events. An obstetrical model, developed by the research team and fitted over Laerdal SimMan™ allowed operative obstetrical intervention. All sessions were recorded. Two tools, developed in a previous study, the Assessment of Obstetric Team Performance (AOTP) and a Global Assessment of Obstetric Team Performance (GAOTP) were used.1 The AOTP consisted of 18 items assessing sub-themes of 6 thematic markers of teams' non-technical or behavioural skills. Eight trained reviewers watched the DVDs of all teams' performances and rated them using the AOTP and GAOTP.

ABSTRACT BODY: Results (Abstract Submission): Sixty-six obstetric personnel participated as 12 multidisciplinary teams. All teams completed 2 sessions and 10/12 completed all 3 sessions for a total of 34 complete sessions and a total of 136 videotaped team performances.

Across the 1088 completed evaluations (136 performances x 8 evaluators), the internal consistency (Cronbach's alpha) for the AOTP was .96, and .91 for the GAOTP. Correlation between the two scales was 0.97 and when the two scales were treated as a single 24-item rating scale, the alpha was 0.97 suggesting that they are collectively measuring a single dimension (overall performance). The 8-rater alpha for the GAOTP was .80 (single-rater intra-class correlation coefficient, .34) indicating acceptable inter-rater reliability with 8 raters. After averaging team scores across raters for each scenario, the "4-station" alpha for the 12 teams was .89 for session 1, and .89 for session 2, suggesting that performance is not being strongly affected by the "situation specificity" of the scenarios. Pearson's correlation of team performance scores from session 1 to session 2 for the four scenarios were: .29, .20, -.02, and -.13 and for the total score across scenarios .06 indicating poor test-retest reliability.

ABSTRACT BODY: Discussion (Abstract Submission): Results from this study indicate that the GAOTP would be a sufficient assessment tool for obstetrical team performance using simulation provided that it is used to assess teams on one given day with at least 8 raters to ensure a sufficiently stable score. This could allow the quantitative evaluation of an educational intervention (i.e. multidisciplinary team training) on obstetrical teams.

ABSTRACT BODY: References (Abstract Submission): 1. Qual Saf Health Care 2009; 18: 393-6

(No Table Selected)

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CATEGORY: Education

KEYWORDS: Medical Education, Simulation, Performance Assessment.

CONTROL ID: 800254

TITLE: TEACHING RESIDENTS OFFICE-BASED ANESTHESIA: WHAT ARE WE WAITING FOR?

CONTACT (NAME ONLY): Matt Kurrek

CONTACT (INSTITUTION ONLY): University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Office-Based Anesthesia (OBA) is a rapidly growing field with up to 55% of all ambulatory procedures currently being performed outside the hospital (1). OBA requires a different knowledge and practice set (2) and teaching in large tertiary care hospitals may not adequately prepare trainees for this type of a practice.
We sought to evaluate the exposure of Canadian anesthesia residents to training and their knowledge about OBA.

ABSTRACT BODY: Methods (Abstract Submission): The study received research ethics approval. In June 2009 we requested from the 16 Canadian anesthesia residency programs information on their educational activities and the exposure of their residents to OBA. In December 2009, a 10-item questionnaire was distributed to a random sample of 29 PGY-4 and PGY-5 residents at five regional residency programs. The questionnaire, validated via Delphi method, was designed to assess knowledge about relevant topics to OBA and required a written response to questions on fire and electrical safety; management of malignant hyperthermia; infection control; delegation of care; facility regulation, discharge criteria as well as considerations for various pertinent clinical scenarios (obesity, obstructive sleep apnea, pediatrics and thromboprophylaxis). Responses were scored by two independent raters who had not been involved in the questionnaire development. A scoring template listed the required element(s) for each question. The maximum score was 100. Inter-rater reliability was assessed via kappa statistic. Each resident's score was the average score from the two independent raters. Differences between PGY-4 and PGY-5 residents were evaluated with t-test.

ABSTRACT BODY: Results (Abstract Submission): The response rate for the residency program survey was 14/16 (87%). Six of the 14 programs (43%) provided some services outside of hospitals, but only four of the 14 departments (29%) occasionally provided OBA experience for their residents. Eleven of the 14 departments (79%) had no OBA educational activities and 12 (86%) have no formal OBA rotation. Inter-rater reliability for the OBA questionnaire was moderate/substantial with a kappa of 0.53 (3). Mean scores for all residents were 28.4±8.5 (SD, n=29). There was no statistically significant difference between the scores for PGY-4 (28.1±9.0, SD, n=20) and PGY-5 residents (29.1±7.9, SD, n=9).

ABSTRACT BODY: Discussion (Abstract Submission): Despite its rapid growth, OBA exposure for Canadian anesthesia residents is very limited and senior residents have a severe knowledge deficit regarding safe OBA practice. The Society of Ambulatory Anesthesia (SAMBA) is presently designing a curriculum for OBA training which may serve as a valuable basis to increase both educational activities and practical experience for OBA in Canada. Our OBA test questionnaire could be used in the future to further evaluate the impact of such a program.

ABSTRACT BODY: References (Abstract Submission):

1.http://www.aha.org/aha/trendwatch/chartbook/2007/07chapter2.ppt#8 (accessed Jan 10, 2010)
2.http://www2.asahq.org/publications/ps-319-2-office-based-anesthesia-considerations-for-anesthesiologists-in-setting-up-and-maintaining-a-safe-office-anesthesia-environment-2nd-edition-november-2008.aspx (accessed Jan 10, 2010)
3.Biometric. 1977;33(1):159-174

(No Table Selected)

(No Image Selected)

CATEGORY: Education

KEYWORDS: Ambulatory, Anesthesia, Office.

CONTROL ID: 800792

TITLE: AIRWAY PART-TASK TRAINER: HOW TO BE GREEN AND BUDGET LEAN

CONTACT (NAME ONLY): Agnes Ryzynski

CONTACT (INSTITUTION ONLY): Sunnybrook Health Sciences Centre

ABSTRACT BODY: Introduction (Abstract Submission): Airway part-task trainers educate a wide range of health care providers but are costly. Acquiring a sufficient number of trainers, presents a fiscal challenge. Because most teaching centres have high-fidelity simulators, the opportunity to incur a broken simulator head is high. Discarding these broken heads is wasteful and environmentally unfriendly. We describe here the conversion of a broken mannequin head into an airway part-task trainer for approximately $20 CDN.

ABSTRACT BODY: Methods (Abstract Submission): The following items, with the exception of the anesthesia bags were purchased (approximate cost of $12 CND) at a hardware store:
1 melamine shelf (12'x24')
2 clear braided tubes 6' in length with a one 1' diameter
2 pex coupling ¾'
2 female adaptors ½ ' (pex-B-hub)
2 zip-ties
All these items were assembled as a single component representing the stomach, main stem bronchi and lungs.

ABSTRACT BODY: Results (Abstract Submission): See image.

ABSTRACT BODY: Discussion (Abstract Submission): This airway trainer also has two additional features over some of the commercial trainers: it can be utilized for practicing emergency cricothyrotomy, and it can accommodate a variety of custom shaped (breakable) teeth to increase level of intubation difficulty.
Learners had the opportunity to train on both types of airway trainers; the commercial version and the echo-friendly version. The feedback from the learners and instructors was positive and they found it equal to or superior to commercial part task trainers.
While being environmentally conscious, this inexpensive, versatile, echo-friendly airway trainer is an excellent way to provide learners with additional training equipment.

ABSTRACT BODY: References (Abstract Submission): N/A

(No Table Selected)

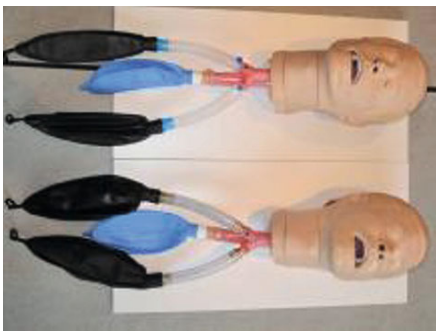

IMAGE CAPTION:

CATEGORY: Education

KEYWORDS: simulation.

CONTROL ID: 801472

TITLE: CRISIS RESOURCE MANAGEMENT IMPROVES TEAMWORK AND QUALITY OF CARE

CONTACT (NAME ONLY): Yizhen Ting

CONTACT (INSTITUTION ONLY): Memorial University Newfoundland

ABSTRACT BODY: Introduction (Abstract Submission): Simulation provides opportunity to practice high risk crisis management skills in a safe environment. Previous exposure to extensive Crisis Resource Management (CRM) training has shown to develop and improve team skills during crisis situations[1]. We hypothesized that exposing novice residents to a single CRM training session would improve team behaviour and performance during a high fidelity simulation.

ABSTRACT BODY: Methods (Abstract Submission): HIC approval obtained. During a multidisciplinary academic session, 25 residents were divided into 3 groups: Senior (Group1), junior without CRM training (Group2), and junior with CRM training (Group3). Group 3 residents were exposed to a CRM training session utilizing high fidelity Human Patient Simulator (HPS) emphasizing CANMEDs roles of communicator, collaborator, manager and medical expert. All groups were subjected to a high fidelity simulation of a decompensating patient with acute pancreatitis. Performances were recorded. Key competencies of CRM were assessed using a Behaviourly Anchored Team Rating Scale (BATS) for individuals and a Team Performance Observation Tool (TPOT) for group performance. A checklist evaluated whether assessment, investigations and procedures were done appropriately and in a timely manner. We compared the performances of the 3 groups.

ABSTRACT BODY: Results (Abstract Submission): There was a significant difference in the BATS score between the 3 groups (Kruskal-Wallis test, p=0.003). Group 3 (junior residents with CRM training) performed better than Group 2 (junior residents without CRM training) (Mann-Whitney test, p=0.001) and performed at the equivalent level to Group 1 (senior residents) (Mann-Whitney test p= 0.759). Group 3 residents outperformed Group 2 residents (Mann-Whitney p= 0.029) with respect to TPOT scores. There was a non-statistical trend towards improved performance in the checklist scores for Group 3, compared to Group 2.

ABSTRACT BODY: Discussion (Abstract Submission): BATS scores reflect individual performance within a team and we showed a statistically significant improvement in scores with CRM training. In addition, there was a trend towards statistical significance in the TPOT scores with CRM training. We conclude that CANMEDs competency can be augmented by exposing trainees to Crisis Resource Management education. This preliminary study suggests that CRM training with HPS is an effective and efficient modality to facilitate medical trainees performance improvement during a medical crisis, promoting patient safety and quality of care.

ABSTRACT BODY: References (Abstract Submission): Qual Saf Health Care 2005; 14:326-331

(No Table Selected)

(No Image Selected)

CATEGORY: Education

KEYWORDS: Simulation, Crisis Resource Management, Multidisciplinary Teamwork.

CONTROL ID: 802316

TITLE: VALIDATION OF THE CLINICAL ANESTHESIA INFORMATION SYSTEM (CAIS)

CONTACT (NAME ONLY): Jo Carroll

CONTACT (INSTITUTION ONLY): Toronto General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): The WHO estimates that over 200 million surgeries occur annually. Preoperative anesthesia assessment is an integral part of risk determination and the implementation of interventions. An electronic preoperative assessment system (Clinical Anesthesia Information System: CAIS), has been developed incorporating an evidence-based algorithm for evaluating patients, detecting risk, and suggesting additional tests based on best practice guidelines. This study seeks to validate the accuracy of data acquisition using CAIS against the hospital chart as the Gold Standard..

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval, we retrospectively reviewed a random selection of 100 charts selected from 5455 patients who underwent non-cardiac surgical procedures between April 2008 and April 2009. The data from the CAIS system was compared to the data in the EPR. A subset of 10 questions and 3 laboratory tests was selected for validation from the 990 variables in CAIS, based on factors which increase the risk of adverse cardiac outcomes. Age, gender, weight, hemoglobin, creatinine, glucose, and 'yes', 'no' or 'no information' in response to the 10 selected questions was collected first from the EPR and then from CAIS. The disagreements were analyzed using kappa statistics.

ABSTRACT BODY: Results (Abstract Submission): There were 51 men and 49 women in the data set with a mean age of 59.5 years. Questions 2 and 8 were eliminated from the analysis as there were no positive responses in either database. We found moderate agreement for Q1, substantial agreement for Q9 and Q10, almost perfect agreement for Q3 and perfect agreement for Q4, Q5, Q6 and Q7 with overall kappa agreement of 0.88 (Table 1). Two reviewers verified 19 discrepancies between CAIS and EPR out of 800 potential disagreements. Where EPR and CAIS reported laboratory values on the same date there was 100% agreement. Discrepancies in laboratory data occurred when CAIS was signed off before the current laboratory investigations were available.

ABSTRACT BODY: Discussion (Abstract Submission): Random selection provided a representative sample of the patient demographics and surgical procedures performed in the two institutions. We found CAIS accurately captures the health information required for preoperative assessment in a systematic, comprehensive and efficient manner.

ABSTRACT BODY: References (Abstract Submission): NA

Table 1 Individual question responses for EPR and CAIS, number of disagreements.

	CAIS Yes	EPR Yes	CAIS No	EPR No	Disagreement	% Agreement*	Kappa*
Q1	1	1	97	97	2	98	0.48
Q3	12	12	85	85	3	97	0.87
Q4	3	3	97	97	0	100	1
Q5	16	16	84	84	0	100	1
Q6	4	4	95	95	0	99	1
Q7	7	7	92	92	0	99	1
Q9	10	10	84	84	5	94	0.77
Q10	8	8	86	86	5	94	0.73
Total	61	61	720	720	15	98.1	0.88
*Overall observed percent agreement and observed kappa agreement							

Q1-Have you ever had congestive heart failure or water on your lungs?
Q3-Have you ever had angina or chest pain?
Q4-Do you suffer from chronic kidney failure?
Q5-Do you have diabetes?
Q6-Have you ever suffered a stroke?
Q7-Have you had a mini-stroke
Q9-Do you have asthma?
Q10-Have you ever been told that you have COPD, Emphysema or Chronic Bronchitis?

TABLE TITLE:
Table 1 Individual question responses for EPR and CAIS, number of disagreements.

TABLE FOOTER:
Q1-Have you ever had congestive heart failure or water on your lungs?
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Q6-Have you ever suffered a stroke?
Q7-Have you had a mini-stroke
Q9-Do you have asthma?
Q10-Have you ever been told that you have COPD, Emphysema or Chronic Bronchitis?

(No Image Selected)

CATEGORY: Health Management

KEYWORDS: Preoperative assessment, Validation.

CONTROL ID: 802764

TITLE: SELF DEBRIEFING VERSUS INSTRUCTOR DEBRIEFING: A PROSPECTIVE RANDOMIZED TRIAL.

CONTACT (NAME ONLY): Sylvain Boet

CONTACT (INSTITUTION ONLY): St Michael's Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Non-technical skills during crisis management in anesthesiology are acknowledged as important for patient safety [1]. Traditionally, when these skills are taught within a simulation curriculum, they are emphasized during a video-assisted debriefing with an instructor. Often, the rate-limiting step to a simulation curriculum is finding instructors with appropriate training and dedicated time. Formative self-assessment may address this barrier and would be more cost effective than instructor debriefing. This study examined the effectiveness of self-debriefing compared to instructor debriefing in improving the non-technical skills of anesthesiology residents.

ABSTRACT BODY: Methods (Abstract Submission): After IRB approval, 50 anesthesiology residents in postgraduate years 2-5 managed a simulated crisis scenario (pre-test). Randomization was then stratified based on postgraduate year to either a self-debriefing or an instructor debriefing. In the self-debriefing group, subjects reviewed their pre-test scenario by themselves, guided by the Anaesthetists' Non-Technical Skills (ANTS) scale [2]. The instructor debriefing group reviewed their pre-test scenario guided by an expert instructor. Immediately following their respective debriefings, subjects managed a second simulated crisis scenario (post-test). Pre-tests and post-tests were evaluated by two blinded independent assessors using the ANTS scale. Data was analyzed with two-way mixed design ANOVAs.

ABSTRACT BODY: Results (Abstract Submission): Inter-rater reliability was excellent (ICC=0.80). Non-technical skills significantly improved from pre-test in all four ANTS categories (task management, team working, situation awareness, decision making; all $p<.05$) regardless of the type of debriefing received. There was no significant difference in the degree of improvement between self-debriefing and instructor debriefing (all $p>.19$) (Figure).

ABSTRACT BODY: Discussion (Abstract Submission): Self-debriefing may be an effective and cost effective modality for simulation-based education that may be as efficacious as traditional instructor debriefing. These findings highlight the role of formative self-assessment during debriefing of simulation-based education and suggest that effective teaching of non-technical skills can be achieved even when instructors are not available.

ABSTRACT BODY: References (Abstract Submission): 1. Simulation & Gaming 2001 32: 175
2. Br J Anaesth 2003 90: 580-8

(No Table Selected)

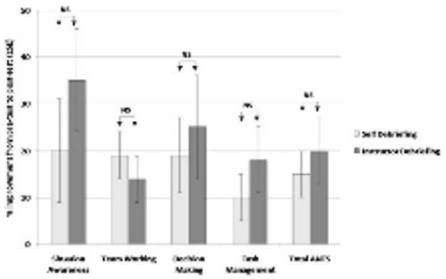

IMAGE CAPTION:

CATEGORY: Education

KEYWORDS: Simulation, Crisis Resource Management, Non-Technical Skills.

CONTROL ID: 802858

TITLE: DO TECHNICAL SKILLS CORRELATE WITH NON-TECHNICAL SKILLS IN ANESTHESIA CRISIS MANAGEMENT?

CONTACT (NAME ONLY): Nicole Riem

CONTACT (INSTITUTION ONLY): St.Michaels Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Both technical skills and non-technical skills are key to ensuring patient safety in anesthesia practice. Technical performance has been defined as the "adequacy of actions taken from a medical and technical perspective". 1 It has been differentiated from non-technical performance, which has been defined as "decision-making and team interaction processes".1 Effective crisis management depends on both technical skills and non-technical skills. These skills are often taught and assessed separately.2,3 We believe that technical skills and non technical skills are not independent of each other and aimed to evaluate the correlation between technical skills and non-technical skills during a simulated intraoperative crisis scenario.

ABSTRACT BODY: Methods (Abstract Submission): After IRB approval, anesthesia residents in postgraduate years 2 through 5 were invited to manage a simulated crisis scenario. The content of each scenario involved management of an intraoperative cardiac arrest secondary to a malignant arrhythmia.
We used an iterative modified Delphi approach to design a Technical Skills Checklist specifically for the management of a malignant arrhythmia requiring defibrillation. Ten experts ultimately agreed on criteria for a 15-point technical skills checklist. Non-technical skills were measured using the Anaesthetists' Non Technical Skills (ANTS) score.4 All simulation sessions were recorded for analysis by four independent raters. Two used the Technical Skills Checklist and two used ANTS. Spearman's rho was performed to assess the correlation between Checklist and ANTS (both at the level of categories and total score) and among ANTS categories.

ABSTRACT BODY: Results (Abstract Submission): Fifty Anesthesia Residents participated in the study. Technical skills and ANTS score (total ANTS and categories) were all moderately correlated to each other (all $p<0.05$) (Table).

ABSTRACT BODY: Discussion (Abstract Submission): This study shows a significant correlation between technical skills and non- technical skills. Specifically, residents who managed the crisis situation with good non-technical skills were also rated highly in technical skills. Poor technical performances were accompanied with lower non-technical skills performance. It is possible that non-technical skills such as communication deteriorate when subjects are technically challenged. This research provides the basis for future studies evaluating the influence of non-technical skills training on the performance of technical skills, to determine whether non-technical skills are generic and transferrable between crises that require different technical skills.

ABSTRACT BODY: References (Abstract Submission): 1. Anesthesiology 1998 89: 8–18
2. Br J Anaesth 2009 103: 472–83
3. Br J Anaesth 2002 88: 418-429
4. Br J Anaesth 2003 90: 580-589

Table 1

	Checklist score	
	Spearman's rho	p value
Situation Awareness	0.31	0.03
Team Working	0.31	0.03
Decision Making	0.45	0.001

Task Management	0.31	0.03
Total ANTS	0.45	0.001

TABLE TITLE:
Table 1

TABLE FOOTER:

(No Image Selected)
CATEGORY: Education
KEYWORDS: simulation training, skills, education.

CONTROL ID: 803405

TITLE: VIRTUAL WEANING: AN ON-LINE SIMULATION OF WEANING FROM CARDIOPULMONARY BYPASS

CONTACT (NAME ONLY): Massimiliano Meineri

CONTACT (INSTITUTION ONLY): Toronto General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): The successful completion of a cardiovascular surgical procedure requiring cardiopulmonary bypass (CPB) is followed by the challenging process of weaning the patient from the extracorporeal circulation. The knowledge and skills required by the team includes an understanding of the physiology and pathology of the cardiovascular system, and its interactions with a mechanical circulatory system such as the CPB. To date, no computer based simulations of CPB are available on the web.

ABSTRACT BODY: Methods (Abstract Submission): Follwing REB approval, we developed a web-based simulation of weaning from CPB called Visual Interactive Resource for Teaching Understanding and Learning Weaning (VIRTUAL Weaning) (Fig.1). VIRTUAL weaning uses a mathematical model of the left heart and circulation. It allow the user to control the output of the cardiopulmonary bypass pump, the venous return to the pump, administer fluids and drugs that are commonly used in weaning from CPB.
The user's interface includes the OR monitor (ECG, arterial and pulmonary blood pressure, temperature and central venous pressure), the CPB pump with the controls and the open chest with an animated beating heart.
VIRTUAL wean operates in an accelerated time frame, so that a typical case will take about 10 to 15 minutes to complete
A score will be calculated based on the degree and length of time physiological parameters are outside normal limits. A high score is indicative of poor performance.

ABSTRACT BODY: Results (Abstract Submission): The first version of the VIRTUAL Weaning has been developed and passed a face and content validity and usability assessment by a team of two cardiac anesthetists, two perfusionists and two cardiac surgeons.

ABSTRACT BODY: Discussion (Abstract Submission): VIRTUAL weaning will allow trainees around the world to interact with a realistic on-line simulation of the CPB. It will potentially provide a better understanding of the CPB physiology and allow a safer clinical practice. The impact of VIRTUAL weaning on cardiac surgical and cardiac anesthesia training will be tested in future studies.

ABSTRACT BODY: References (Abstract Submission): None

(No Table Selected)

IMAGE CAPTION:

CATEGORY: Education

KEYWORDS: Cardiopulmonary Bypass, On-line simulation, Cardiac anesthesia.

CONTROL ID: 803543

TITLE: CREATE A SIMULATION CENTER IN ANESTHESIOLOGY-REANIMATION IN 2009: A FRENCH EXPERIENCE.

CONTACT (NAME ONLY): Berton Jérôme

CONTACT (INSTITUTION ONLY): CHU ANGERS

ABSTRACT BODY: Introduction (Abstract Submission): The medical simulation is a recent concept in France, particularly in anaesthesiology-reanimation curriculum. We report an experience of setting up a simulation center in our department. Five aspects should be considered: formation of a reflexion team, structuring of educational objectives, analysis of experience of other centers and main references of the literature, design of specifications for equipment and management of staff resources.

ABSTRACT BODY: Methods (Abstract Submission): First a working group was convened to determine the educational objectives, drawing on the experiences of existing centers (teaching of Anesthesia Crisis Resource Management (ACRM)) [1,2]. Next, from a budget estimate (demand for resources and partnerships) we established a set of specifications for selection and acquisition of necessary equipment. Finally, staff time was evaluated for organization of sessions and establishment of a bank of scenarios.

ABSTRACT BODY: Results (Abstract Submission): Our working group had determined educational goals based on the literature (1) and experience of existing centers. The main donors were the Regional Agency of Hospitalisation, the General Council, the Regional Council and the Fire and Rescue Department (SDIS 49). The creation of a budget line has guided priorities in the purchase and maintenance of equipment. An agreement with the emergency department was established to use an adult manikin high fidelity (HF) and a pediatric HF model was purchased in partnership with the SDIS 49. Accordingly, the first courses have been effected for the Fire Department but the training of residents and nurses anaesthetists was our learning objectives priority. We proposed, in the first time, one day per month (four scenarios) with a small group of eight participants. An anonymous evaluation by participants showed very good acceptance. One of the most work has been to establish a bank of credible scenarios and based on specific educational objectives and medical reference.

ABSTRACT BODY: Discussion (Abstract Submission): With financial and staff limits, we had to establish quickly specifics educational objectives and priorities equipment. The first challenge was to find a room reserved for the simulation. We have installed our manikin and materials to create an operating room. Then we installed an audio video system to complete our installation. Currently, approach of ACRM is a major incentive for creation of a simulation center in anesthesiology department in France, because ACRM principles are not yet taught in French anesthesiology curriculum. After one year of operation we are familiar with material management and metting preparation. Now, our aim is to offer training to anesthesiologists outside the hospital, to offer more days of training and open our center has other medical and surgical specialties. Despite the distribution of fifty mannequin in France, we are currently the only center with a fixed installation in a hospital and regular training in adult and pediatric simulation.

ABSTRACT BODY: References (Abstract Submission): 1 - Aviat Space Environ Med. 1992;63: 763-70.
2 - Simulation and Gaming 2001;32: 175-193.

(No Table Selected)

(No Image Selected)

CATEGORY: Health Management

KEYWORDS: Medical Simulation, France.

CONTROL ID: 771853

TITLE: LIDOCAINE FOR LAPAROSCOPIC COLECTOMY–FUNCTIONAL OUTCOME

CONTACT (NAME ONLY): Mingkwan Wongyingsinn

CONTACT (INSTITUTION ONLY): McGill University

ABSTRACT BODY: Introduction (Abstract Submission): Both thoracic epidural analgesia (TEA) and intravenous lidocaine (IL) for colorectal surgery have been shown to decrease postoperative pain and improve the return of bowel function. The purpose of this study was to compare the impact of these two techniques on postoperative functional outcome in patients undergoing fast track laparoscopic colorectal surgery.

ABSTRACT BODY: Methods (Abstract Submission): The study was approved by the Research Ethics Board (06-023). Thirty-seven patients scheduled for laparoscopic colorectal surgery were randomized to receive either TEA (0.1% bupivacaine+morphine 0.02 mg/ml) or IL (continuous infusion of 1mg/kg/hr) and patient control analgesia morphine, for 48 h after surgery. All patients participated in the fast-track program.
Measures of functional recovery (2minute walk test (2MWT) and time spent out of bed), return of bowel function (time to first flatus and defecation), pain intensity (visual analog scale, VAS) at rest, on walking and on coughing during the first three postoperative days, and length of hospital stay (LOS) were recorded.
Data were analyzed using Mann-Whitney tests. $P < 0.05$ was considered statistically significant.

ABSTRACT BODY: Results (Abstract Submission): Demographic characteristics and the clinical data of the two groups were similar. Although not significant, there was a greater trend in distance walked and the time out of bed in the IL group ($P = 0.32$ and 0.15, respectively, figure 1). Time to return of bowel function (passage of stool) was similar between the two groups (TEA 46±21 h, IL 36±18 h, $P = 0.14$). Median 3-days cumulative VAS for TEA group were 1.7 (95%CI 1.0 to 2.3), 3.5 (CI 2.7 to 4.3), and 4.0 (CI 2.9 to 5.1) at rest, on walking and on coughing respectively, and, for the IL group, were 1.7 (CI 1.1 to 2.2), 2.7 (CI 2.0 to 3.4), and 3.0 (CI 2.1 to 3.9) at rest, on walking and on coughing respectively. Eight patients (47%) in the IL group compared with eight patients (40%) in the TEA group left the hospital on the third postoperative day.

ABSTRACT BODY: Discussion (Abstract Submission): These preliminary results indicate that, compared with epidural analgesia, patients receiving intravenous lidocaine infusion spent more time out of bed and walked a longer distance.

ABSTRACT BODY: References (Abstract Submission): Ann Surg 2000 232: 51-57
Dis Colon Rectum 2004 47: 271-278
Anesthesiology 2007 106(1): 11-18

(No Table Selected)

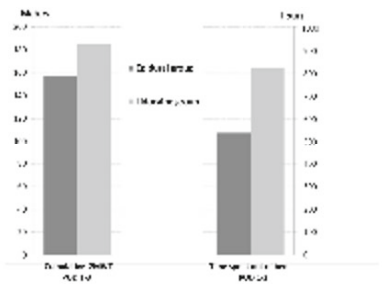

Figure 1. 3-days cumulative 2WMT and time spent out of bed.

IMAGE CAPTION:
Figure 1. 3-days cumulative 2WMT and time spent out of bed.

CATEGORY: Regional Anesthesia

KEYWORDS: Lidocaine, Laparoscopic, Functional recovery.

CONTROL ID: 803175

TITLE: PATIENT'S EXPERIENCES OF RA VS GA FOR ORTHOPEDIC SURGERY

CONTACT (NAME ONLY): Fiona Webster

CONTACT (INSTITUTION ONLY): Sunnybrook Health Sciences Centre

ABSTRACT BODY: Introduction (Abstract Submission): The practice of evidence-based medicine stipulates the need for physicians to take into account patient preferences. Empirical research as to how patients can be meaningful engaged in their care is scarce[1]. It is reported that patients continue to have misgivings and fears about regional anesthesia[2] (RA) despite strong evidence to support its use, compared to general anesthesia, for major orthopedic surgery. Patients who have regional anesthesia have reduced morbidity and mortality and improved pain control after surgery compared to those who have general anaesthesia[3]. However, variation in the use of RA continues. To date, no one has studied the experiences of patients who have undergone both types of anesthesia for hip or knee replacement as a means of understanding the patient preference implications for orthopaedic surgery.

ABSTRACT BODY: Methods (Abstract Submission): Local ethics committee approval was obtained for this study. Using descriptive qualitative methods, twelve patients were interviewed using purposeful sampling[4] until the team determined that saturation had been reached. Six participants had undergone knee arthroplasty, five had undergone hip arthroplasty, and one patient had both hip and knee replacements. Two patients had undergone general anesthesia for both surgeries as a control to see if they reported differences between first and second surgeries. Following transcription of each tape, a small study team, including an anesthesiologist and a qualitative researcher, met over the course of several months to read and discuss each transcript in detail. A coding template was developed and each transcript coded and emerging themes noted[4].

ABSTRACT BODY: Results (Abstract Submission): For the majority of patients we interviewed, the RA was either well tolerated or even preferred. Having a previous negative experience with general was more common than we expected, and was strongly associated with a patient's satisfaction with RA. Several patients reported that RA was "at least" better than having a general, for which they reported nausea, hallucinations or feeling as one patient put it, he had suffered "brain damage" from the general. Only one person reported having a problem with regional anesthesia. However, this patient's negative experience seemed linked to poor pain control after surgery rather than with the regional per se. Patients also described being highly influenced by the preference of their surgeon and/or anesthesiologist.

ABSTRACT BODY: Discussion (Abstract Submission): These findings have important implications. First, many patients were surprisingly neutral about the procedure and seemed more fearful of anesthesia in general rather than of RA specifically. This finding, combined with patient's influence by clinician preference, underscores the importance of both surgeon and anesthesiologist support for this procedure. Some participants identified one of their misgivings about RA as being fear of being awake, which is consistent with the medical literature. Our findings support the idea that from a patient perspective appropriate sedation while undergoing regional anesthesia may be important.

ABSTRACT BODY: References (Abstract Submission): 1. J Clin Nurs. 2009 Sep;18(18):2547-54. Epub 2009 Jan 8.
2. Reg Anesth Pain Med. 2004 Mar-Apr;29(2):96-101.
3. Anesth Analg. 2006 Oct;103(4):1018-25.
4. Qualitative evaluation and research method. 1990, 2nd ed. Newbury Park, CA: Sage.

(No Table Selected)

(No Image Selected)

CATEGORY: Regional Anesthesia

KEYWORDS: Regional anesthesia, qualitative research, patient preference.

CONTROL ID: 803409

TITLE: RISK FACTORS FOR URINARY RETENTION AFTER HIP OR KNEE REPLACEMENT

CONTACT (NAME ONLY): Peter Choi

CONTACT (INSTITUTION ONLY): University of British Columbia

ABSTRACT BODY: Introduction (Abstract Submission): Hip and knee replacements are two of the most commonly performed surgical procedures in developed countries. The rates of these procedures have increased with the aging of the Canadian population but wait times continue to be long. In 2006, our provincial government initiated a program to reduce wait times by referring elective patients to a single tertiary-care centre. This program provided an opportunity to identify risk factors for common perioperative complications as part of a continuing quality improvement project. We report the incidence rate of postoperative urinary retention after hip and knee replacements and the risk factors associated with this complication.

ABSTRACT BODY: Methods (Abstract Submission): After local Research Ethics Board approval, data were abstracted from a random sample of charts of patients who underwent elective primary unilateral total hip replacement (THR) or total knee replacement (TKR) surgery in the first 13 months of the program. When patients underwent more than one joint replacement during the study period, we collected data from the first procedure only. Variables included demographics, comorbid conditions, medications, anesthetic details, times, and postoperative complications in the first 24 h after surgery. We defined postoperative urinary retention as urinary catheterization due to inability to void or ultrasound evidence of bladder distention after unsuccessful attempts to void. Stata release 10 (StataCorp, Texas, USA) was used for data analysis. Normally distributed and skewed data were described by means (standard deviation [SD]) and median (interquartile range [IQR]) respectively. Risk factors were identified using multivariable logistic regression. Risks were expressed as odds ratios [OR] (95% confidence intervals [CI]). A p-value of <0.05 was considered to be significant.

ABSTRACT BODY: Results (Abstract Submission): From April 1, 2006 to May 31, 2007, 1440 patients underwent 1515 elective THR or TKR. We abstracted data from 1031 (71.3%) patients [age 62 y (IQR 55-70); 53.7% female; 605 THR, 426 TKR]. Procedures were performed under spinal anesthesia (n=844, 81.8%), general anesthesia (n=105, 10.2%), or combined spinal and general anesthesia (n=82, 8.0%). Patients spent 100 min (IQR 90-114 min) in the operating room and 3 days (IQR 3-4 days) in hospital. The 24-h incidence of postoperative urinary retention was 43.3% (446/1031). Male sex (OR 3.9, 95% CI 3.0-5.2) and intrathecal morphine [$\leq$100 mcg (OR 3.7, 95% CI 2.2-6.3); 101-150 mcg (OR 5.5, 95% CI 3.1-10.0); >150 mcg (OR 4.0, 95% CI 2.0-8.0)] were risk factors for urinary retention (all $p<0.001$).

ABSTRACT BODY: Discussion (Abstract Submission): Postoperative urinary retention is a common complication after THR or TKR, especially amongst men and patients receiving intrathecal morphine. Intraoperative urinary catheterization should be considered to prevent this complication.

ABSTRACT BODY: References (Abstract Submission): None

(No Table Selected)

(No Image Selected)

CATEGORY: Regional Anesthesia

KEYWORDS: hip arthroplasty, knee arthroplasty, risk.

CONTROL ID: 795167

TITLE: GENERAL ANESTHESIA FOR SPRAY CRYOTHERAPY

CONTACT (NAME ONLY): Saiyad Sarkar

CONTACT (INSTITUTION ONLY): Franklin Square Hospital Center

ABSTRACT BODY: Introduction (Abstract Submission): Low pressure liquid nitrogen spray cryotherapy has been used effectively to treat lesions throughout the body. Given that success, we evaluated the use of spray cryotherapy in the treatment of thoracic lesions. We summarize our experience on >150 cases where spray cryotherapy has been used and on the unique aspects of the anesthesia issues associated with its use.

ABSTRACT BODY: Methods (Abstract Submission): IRB approval was obtained and data were collected on all patients treated with spray cryotherapy. As a rule the patients treated were quite ill. All patients evaluated were ASA class III–IV and the majority were elderly with an average age of 68 yrs. Co-morbidities were common and included hypertension, coronary artery disease, diabetes and varying degrees of COPD. Appropriate pre-procedure testing was done, including CBC, Coags. Profile, BMP, CXR, and EKG. Anesthesia was typically done through an 8.5 ETT and the patient was hand-ventilated. During the spray, the cuff was deflated and vent circuit was disconnected. Once the spray was complete, rarely more than 10 seconds, the vent circuit was reconnected, the cuff reinflated, and the patient hand-ventilated.

ABSTRACT BODY: Results (Abstract Submission): Despite the nature and degree of illness in these patients, the procedure was well tolerated. Supplemental oxygen can be left at 100% with no risk of airway fire. The intact nature of the tissue after treatment also reduces the likelihood of transmural perforation.

ABSTRACT BODY: Discussion (Abstract Submission): While there is no risk of fire and there is a decreased risk of perforation relative to the heat-related thermal modalities such as laser therapy, argon plasma coagulation, and multipolar electrocautery, different challenges need to be managed for the procedure to be performed safely. The most common issues are transient hypoxemia and hypotension consistent with limited pulmonary reserve and the mixing of nitrogen gas with supplemental oxygen. In this cohort, this was managed easily by a combination of IV fluids and standard vasopressors such as ephedrine and phenylephrine and by hand ventilation. While the cryogen is in liquid form when it contacts the tissue, it converts quickly to a gas and the gas must be evacuated appropriately. The assurance of appropriate venting is critical to prevent volutrauma.

Spray cryotherapy is a unique modality and presents exciting alternatives to standard approaches in the treatment of various disease processes. There are unique aspects to this procedure and as long as the above issues are managed appropriately, it can be performed safely and effectively.

ABSTRACT BODY: References (Abstract Submission): None

(No Table Selected)

(No Image Selected)

CATEGORY: Airway Management

KEYWORDS: spray cryotherapy, open lung ventilation.

CONTROL ID: 795631

TITLE: CLEARING THE SMOKE: INSTITUTIONALIZING A PERIOPERATIVE SMOKING CESSATION PROGRAM

CONTACT (NAME ONLY): Barry Finegan

CONTACT (INSTITUTION ONLY): University of Alberta

ABSTRACT BODY: Introduction (Abstract Submission): Smokers undergo compulsory abstinence on admission to hospital. Preadmission Clinics (PACs) are ideal locations to provide patients who smoke advice and assistance on how to quit smoking. Five years ago, a smoking cessation program (SCP), was initiated in our PAC. We present the details of the current program, participation rates and outcome data on patients attending our PACs between June 2006 and July 2008 and quit data from our 2004-6 pilot group.

ABSTRACT BODY: Methods (Abstract Submission): The goal of the SCP is to institutionalize the provision of opportunistic brief advice (OBA), along with hospital nicotine replacement therapy (NRT) and discharge referral quit options to patients as part of routine care within PACs. PAC staff were provided with an OBA script (which incorporates a nicotine addiction assessment tool, a readiness to quit scale and study assessment instrument), a dedicated preprinted NRT order sheet and a standard Fax referral form to the provincial telephone quit line. Patients were offered the Canadian Cancer Society self-help manual, information on smoking and hospitalization, postoperative NRT, and referral on discharge to provincial telephone quit line service. Permission to collect data was obtained from each patient and documented. The pilot group of patients consented to two and six month telephone follow up. Data collection and the methods employed (script, chart audit and telephone follow-up) were approved by the institutional REB and adhered to local/national regulations.

ABSTRACT BODY: Results (Abstract Submission): At PAC entry, 20% of patients were self-identified smokers and were invited to participate in the SCP. A total of 80% of smoking patients agreed to participate in the SCP (N = 4,251; 55% female; M age = 50.7 yrs). The majority of patients were thinking of, or ready to quit smoking (M quit score > 5/10). Most participants accepted the self-help information material (>80%). However, less the 50% requested NRT and, of those who requested it, less than 50% actually received the treatment while in hospital due to physician refusal to sign orders, patient refusal or other factors. Over 900 patients requested follow up quit assistance on discharge via the provincial quit line program. The quit line program successfully contacted 50% of these individuals. The quit rate in the pilot group who completed six month follow up was ~11%.

ABSTRACT BODY: Discussion (Abstract Submission): These data indicate that a large majority of smoking patients attending PACs want to participate in a smoking cessation program if it is available. OBA is associated with a long term ~2.5% quit rate.[1] Hospital-based smoking cessation programs need to be simple, easy to introduce, use existing personnel and target every individual who smokes entering the facility, as dropout rates are relatively high. Our SCP is current being expanded to inpatient wards. Anesthesiologists can lead in this area and favorably influence the long term well being of patients.

ABSTRACT BODY: References (Abstract Submission): 1. BMJ 2004;328:397-99

(No Table Selected)

(No Image Selected)

CATEGORY: Ambulatory Anesthesia

KEYWORDS: Smoking Cessation , Surgery.

CONTROL ID: 800044

TITLE: EFFECT OF NASAL VS MOUTH BREATHING ON ASSESSMENT OF MALLAMPATI SCORE

CONTACT (NAME ONLY): Ambrose Ng

CONTACT (INSTITUTION ONLY): Dalhousie

ABSTRACT BODY: Introduction (Abstract Submission): During a Mallampati assessment, a patient may inherently breathe either through their mouth or their nose. Breathing pattern should be controlled if the Mallampati assessment is to be completely standardized. In general, the accuracy of any single test to predict a difficulty with laryngeal exposure during direct laryngoscopy is decreased by unaccounted variations of the test itself. Therefore, the question remains as to whether the limitations of the Mallampati Score (MPS) can be improved upon by identifying and addressing the stated variation. This study was undertaken to demonstrate a difference in pharyngeal exposure based on breathing pattern. A better correlation of laryngeal exposure with pharyngeal grading by use of a predetermined breathing pattern may improve the clinical usefulness of the MPS by improving the specificity with predicting difficult intubation.

ABSTRACT BODY: Methods (Abstract Submission): Approval for the study was obtained from the local REB. All data was collected in a prospective manner. For each patient, three Mallampati assessments were performed by a single examiner according to the description given by Samsoon and Young (1). A baseline MPS was obtained, subsequently a second and third assessment were performed, specifying the patient to breathe through the nose and then through the mouth, respectively. For each patient, a Modified Cormack and Lehane (2) laryngoscopy grade was obtained by a sole and blinded anesthesiologist.

ABSTRACT BODY: Results (Abstract Submission): We report on 28 patients. 22 patients had a lower MPS with mouth breathing versus nose breathing, while 1 had a higher score and 5 had no change. Application of the Wilcoxon's signed rank test to the paired data demonstrated a significant difference ($p<0.0001$) between the MP during mouth breathing compared to nose breathing. There was no significant difference between the MPS taken at baseline compared to mouth breathing ($p=0.488$). There was a significant difference between the MPS taken at baseline compared to nose breathing ($p<0.0001$).
Using spearman (non-parametric distribution) correlation coefficient, there were no significant correlations between the MPS, regardless of breathing pattern, and Laryngoscopy Grade.

ABSTRACT BODY: Discussion (Abstract Submission): It appears that when a MPS assessment is performed, the patient is likely mouth breathing. There is a significant increase in MPS when a patient is directed to breathe through their nose. A significant correlation with MPS and Laryngoscopy Grade will require much higher sample sizes given what is known about the rare occurrence of high laryngoscopy grades. Any future studies of such magnitude can also consider that a difference in MPS occurs depending on breathing pattern and may determine whether the occurrence of such a change adds any useful information to correlate with laryngoscopy grade prediction.

ABSTRACT BODY: References (Abstract Submission): 1. Samsoon G, Young J. Difficult tracheal intubation: a retrospective study. Anaesthesia 1987;42:487-90.
2. Yentis S, Lee D. Evaluation of an improved scoring system for the grading of direct laryngoscopy. Anaesthesia 1998;53:1041-4.

(No Table Selected)

(No Image Selected)

CATEGORY: Airway Management

KEYWORDS: Mallampati, Airway assessment.

CONTROL ID: 800104

TITLE: INCIDENCE OF ASPIRATION OF GASTRIC CONTENTS IN OUT-OF-HOSPITAL SUCESSFULLY REVIVED ADULT CARDIAC ARRESTS – A SERIES OF SIX CASES

CONTACT (NAME ONLY): Muhammad Ajmal

CONTACT (INSTITUTION ONLY): Sligo General Hospital

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): This case series is being presented with written informed consent of patients or their next of kin in case of deceased.
During a six month period from July to December 2009, we received six patients in the intensive care unit of our regional hospital who suffered from out-of-hospital witnessed cardiac arrest and were successfully revived in the field. Four (case # 1 – 4) out of those six patients recovered completely [Table 1]. Case # 5 expired due to multiorgan failure and case # 6 was declared brain dead [Table 1]. All those cases except case # 3 had aspiration of gastric contents before arriving the hospital [Table 1].

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): Incidence of aspiration of gastric contents is very high (5/6 or 83% at least in this series) in out of hospital cardiopulmonary resuscitations. This incidence should be reduced by emphasis on airway protection in future CPR guidelines.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): Successful revival in an event of cardiac arrest depends on victim characteristics and resuscitation measures. It requires immediate intervention through an organise and effective algorithm of airway (A), breathing (B) and circulation (C). In historic perspective, value of airway protection and ventilation of lungs during cardiopulmonary resuscitation (CPR) was well known as early as 1774 in victims of drowning[1,2]. Importance of effective and frequent chest compressions is obvious from "press hard and press fast" feature of 2008 guidelines[3].
Although A, B and C of CPR have equal importance, the degree of emphasis on these individual components varied in guidelines from time to time. Currently the emphasis on airway protection has relatively reduced[3]. This may increase the incidence of aspiration of gastric contents during a CPR. The objective of presenting this case series is to warn of the high incidence of aspiration of gastric contents in victims of out-of –hospital cardiac arrest who were successfully revived in the area of our regional hospital during a six month period from July to December 2009.

Table 1: Patient / Victim characteristics and resuscitation measures

Case #	Age	Gender	Previous known cardiac disease	Initial diagnosis	Availability of BLS† / ACLS‡	Initial treatment	In-hospital management
1	68	Male	Yes	Witnessed cardiac arrest / VFib*	Immediate	BLS† followed by ACLS‡	Ventilation Antiarrhythmic Ionotropes
2	58	Male	Yes	Witnessed cardiac arrest / VFib*	Immediate	BLS† followed by ACLS‡	Ventilation Thrombolytic Ionotropes
3	79	Male	Yes	Witnessed cardiac arrest / PEA**	Immediate	BLS† followed by ACLS‡	Ventilation Thrombolytic Ionotropes
4	64	Male	Yes	Witnessed cardiac arrest / VFib*	Immediate	BLS† followed by ACLS‡	Ventilation Antiarrhythmic
5	74	Male	Yes	Witnessed cardiac arrest /	Delayed	ACLS‡	Ventilation Antiarrhythmic

				VFib*			Hemofiltration
6	56	Female	Yes	Witnessed cardiac arrest / VFib*	Delayed	ACLS‡	Ventilation Antiarrhythmic Therapeutic hypothermia

* Ventricular fibrillation, ** Pulseless electrical activity †Basic life support,
‡ Advance cardiac life support

TABLE TITLE:
Table 1: Patient / Victim characteristics and resuscitation measures

TABLE FOOTER:
* Ventricular fibrillation, ** Pulseless electrical activity †Basic life support,
‡ Advance cardiac life support

(No Image Selected)

CATEGORY: Airway Management

KEYWORDS: cardiac arrest, Advanced Cardiac Life Support, Airway Management.

CONTROL ID: 800417

TITLE: NON-OPIOID ANESTHESIA FOR LAPAROSCOPIC CHOLECYSTECTOMY

CONTACT (NAME ONLY): Gabriele Baldini

CONTACT (INSTITUTION ONLY): McGill University Health Centre

ABSTRACT BODY: Introduction (Abstract Submission): Intravenous lidocaine has analgesic, antinflammmatory, anti-hyperalgesic and antinflammatory properties (1). When used as adjuvant together with intraoperative opioids it has been shown to decrease postoperative opioids consumption, side-effects, pain and decrease the length of hospital stay (2). We hypothesize that intravenous lidocaine alone without intraoperative opioids will reduce postoperative opioids consumption and will speed the recovery in patients undergoing ambulatory laparoscopic cholecystectomy.

ABSTRACT BODY: Methods (Abstract Submission): Local Ethics Committie approval was obtained (# GEN 08-022). Sixty patients were enrolled in this prospective, randomized, double-blinded study. Patients with medical conditions which contraindicate the use of intravenous lidocaine and patients with chronic pain and chronic use of opioids were also excluded. At induction of anesthesia the control group (C) (n = 30) received fentanyl 3 μg/kg followed by a continuous infusion of normal saline. The lidocaine group (L) (n=30) received a bolus of lidocaine 1.5 mg/kg followed by a continuous infusion of lidocaine 2 mg/kg/hr until the end of the surgery. General anesthesia included propofol, rocuronium, and desflurane titrated to maintain blood pressure and heart rate within set parameters, and the bispectral index between 35 and 50. No supplemental opioids were given during surgery in both groups. All patients received acetaminophen, ketorolac, dexamethasone, droperidol and local anesthetics in the skin incision. Fentanyl consumption (μg), postoperative pain measured by the Visual Analogue Scale (VAS, 0-10 cm), opioids side-effects, readiness to discharge (measured by the White-Song score) and duration of hospital stay were also assessed by one blinded investigator. Patients were discharged home according to the institutional standardized criteria used for all outpatient surgery. Pearson $\chi 2$ was used for categorical variables, Student's T test for parametric normally distributed variables and Kruskal-Wallis rank-sum test for parametric not-normally distributed variables.

ABSTRACT BODY: Results (Abstract Submission): Demographic data and duration of surgery were similar in both groups. Postoperative fentanyl consumption in the L group was not significantly different from the C group (96.2 μg ± 50.8 and 97.1 μg ± 59 respectively, p =0.99). Opioids side effects, static and dynamic VAS scores, readiness to discharge and length of hospital stay were also not different.

ABSTRACT BODY: Discussion (Abstract Submission): Avoiding intraoperative opioids by using intravenous lidocaine does not increase postoperative opiods consumption. Pain intensity, readiness to discharge and length of hospital stay were similar both groups.

ABSTRACT BODY: References (Abstract Submission): 1. Hollmann MW, Durieux ME. Local anesthetics and the inflammatory response: a new therapeutic indication? Anesthesiology 2000;93:858-75.
2. Marret E, Rolin M, Beaussier M, Bonnet F. Meta-analysis of intravenous lidocaine and postoperative recovery after abdominal surgery. Br J Surg 2008;95:1331-8.

(No Table Selected)

(No Image Selected)

CATEGORY: Ambulatory Anesthesia

KEYWORDS: intravenous lidocaine, opioids side-effcets , pain.

CONTROL ID: 801241

TITLE: INCIDENCE OF NAUSEA AND VOMITING AFTER LAPAROSCOPIC GYNECOLOGICAL SURGERY IS DECREASED IN LUTEAL PHASE OF THE MENSTRUAL CYCLE

CONTACT (NAME ONLY): Tatjana Simurina

CONTACT (INSTITUTION ONLY): General Hospital Zadar

ABSTRACT BODY: Introduction (Abstract Submission): Female sex is a well recognized risk factor for postoperative nausea and vomiting (PONV)(1). The data about influence of the phase of menstrual cycle on PONV after gynecological laparoscopy are sparse and controversial (2,3). We investigated whether the phase of menstrual cycle has influence on the incidence of PONV in women undergoing general anesthesia for gynecological laparoscopy in a prospective, double-blind, observation study.

ABSTRACT BODY: Methods (Abstract Submission): After obtaining ethical committee approval and informed consents, 111 fertile women, ASA PS I/ II, scheduled for laparoscopic gynecological surgery were assigned into three groups according to the phase of menstrual cycle at the time of anesthesia: F1 - follicular phase (days 1-8), O2 - ovulatory phase (days 9-15) and L3 - luteal phase (days 16 to the end). Standardized general anesthesia technique was used (sevoflurane 1MAC in air/ 40% oxygen) and no PONV prophylaxis. The incidence of nausea, vomiting, nausea/ pain visual analog scale (VAS) scores was measured for early (0-2h) and late (2-24h) postoperative period. Diclofenac and meperidine was used for postoperative pain and metoclopramide for PONV. Data were analyzed using $\chi 2$ and Kruskal Wallis test. $P<0.05$ was considered significant.

ABSTRACT BODY: Results (Abstract Submission): There were no significant differences among groups for age, weight, height, BMI, h/o smoking, h/o motion sickness and h/o PONV. The incidence of PONV was significantly lower in L3 for PONV at 0-24h, for early PONV and early nausea. Rescue antiemetic usage, nausea and pain VAS scores, and perioperative opioid consumption were not different among groups.

ABSTRACT BODY: Discussion (Abstract Submission): The incidence of PONV was lower in women in the luteal phase of menstrual cycle at 24h, as well as the incidence of early PONV and early nausea. Although early vomiting was decreased in luteal phase the study was not powered enough to show the difference. Further studies with larger groups and hormonal measurements are needed to confirm this finding. Scheduling patients in luteal phase of the menstrual cycle could decrease the risk for PONV in gynecologic laparoscopic surgery.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg 2007;105:1615-28.
2. Anesth Analg 1996;83:565-9.
3. Gynecol Obstet Invest 2005;59:49-53.

Table 1. Postoperative nausea and vomiting after laparoscopic gynecological surgery.

	F1 (n=34)	O2 (n=40)	L3 (n=37)	p
PONV (24h)	12 (35)	15 (38)	5 (14)	0.041*
PONV (0-2h)	7 (21)	10 (25)	1 (3)	0.021*
PONV (2-24h)	5 (15)	8 (20)	5 (14)	0.713
Nausea (24h)	11 (32)	13 (33)	5 (14)	0.102
Nausea (0-2h)	7 (21)	9 (23)	1 (3)	0.032*
Nausea (2-24h)	4 (12)	6 (15)	5 (14)	0.921
POV (24h)	9 (27)	11 (28)	5 (14)	0.274
POV (0-2h)	5 (15)	7 (18)	1 (3)	0.106
POV (2-24h)	4 (12)	5 (13)	5 (14)	0.975

*$p<0.05$, F1= follicular, O2= ovulatory, L3= luteal phase. Data presented as n(%).

TABLE TITLE:
Table 1. Postoperative nausea and vomiting after laparoscopic gynecological surgery.

TABLE FOOTER:
*$p<0.05$, F1= follicular, O2= ovulatory, L3= luteal phase. Data presented as n(%).

(No Image Selected)

CATEGORY: Ambulatory Anesthesia

KEYWORDS: postoperative nausea and vomiting, menstrual phase .

CONTROL ID: 801844

TITLE: OUTPATIENT MANAGEMENT OF THE PATIENT WITH OBSTRUCTIVE SLEEP APNEA

CONTACT (NAME ONLY): Gregory Bryson

CONTACT (INSTITUTION ONLY): The Ottawa Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Obstructive sleep apnea (OSA) may be present in approximately 3% of patients presenting for elective general surgery (1). Patients with OSA may be at increased risk of a variety of perioperative cardiovascular and respiratory complications (2). The ASA Practice Guideline suggests that patients with OSA "should not be discharged from the recovery area to an unmonitored setting (i.e., home or unmonitored hospital bed) until they are no longer at risk for postoperative respiratory depression (3)." In many centers this guidance has restricted access to ambulatory surgery for patients with OSA. In June 2003 our institution introduced a policy guiding the perioperative care of the patient with known OSA. Following an uneventful four-hour observation period patients treated with CPAP were discharge home. The purpose of this quality assurance project is to document the outcomes of patients managed under this policy.

ABSTRACT BODY: Methods (Abstract Submission): Following research ethics board approval analysts identified all patients undergoing a polysomnogram (PSG) from our electronic health record (EHR). All patients with a previously reported PSG who underwent day surgery from 2003.07.01 to 2009.03.30 were identidified. Records for ophthalomogical surgery and GI endoscopy were excluded. Patient characteristics, length of stay, mortality, unanticipated admission and readmission to hospital within seven days of discharge were abstracted from admission-discharge records. PSG reports in the EHR were reviewed. Physician grading of PSG defined OSA severity; if absent AASM grading criteria for apnea hypopnea index (AHI) were used (4). Operative reports in the EHR were reviewed to determine site of surgery and anesthetic technique. Data are described using median [IQR] and percentages (95% CI).

ABSTRACT BODY: Results (Abstract Submission): A total of 1590 records were identified. Forty-three records were exlcuded for incomplete records leaving 1547 eligible pairs of PSG and operative reports. Only 674 of 1547 PSGs reported a diagnosis of OSA (44 %; 41, 46). Characteristics and outcomes associated with varying degrees of OSA are shown in Table 1.

ABSTRACT BODY: Discussion (Abstract Submission): Patients managed under our OSA protocol successfully underwent ambulatory surgery with same day discharge. Manual review of paper documentation will be undertaken to evaluate the occurrence of events not severe enough to prompt admission. It is interesting to note that the majority of patients undergoing PSG were found not to have OSA and that daytime somnolence as assessed by the Epworth Sleepiness Scale was a poor indicator of severity of OSA. Clinicians should not use a history of sleep studies or somnolence to diagnose OSA in patients unsure of their diagnosis.

ABSTRACT BODY: References (Abstract Submission): 1. Fidan H. Sleep Breath 2006;10:161–5
2. Chung SA. Anesth Analg 2008;107:1543–63
3. ASA Task Force. Anesthesiology 2006; 104:1081–93
4. Ruehland WR. Sleep 2009;32(2):150-157

Table 1. Patient Characteristics and Outcomes

	No OSA N = 873	Mild OSA N = 360	Moderate OSA N = 150	Severe OSA N = 164
Male	308 (35%; 32, 39)	211 (59%; 53, 64)	101 (64%; 59, 75)	116 (71%; 63, 78)
GA	620 (78%; 75, 81)	232 (70%; 64, 74)	88 (67%; 58,75)	82 (55%; 46, 63)
Epworth	10 [6, 13]	10 [6, 14]	10 [6, 14]	11 [6, 14]
AHI	0.4 [0.0, 2.0]	6.5 [4.0, 9.8]	17 [11, 23]	47 [32, 70]
RDI	3.0 [1.0, 5.9]	11 [7.3, 16]	25 [18, 30]	54 [40, 77]
Nadir SpO2	90 [89, 92]	87 [83, 90]	84 [80, 88]	80 [70, 85]

LOS	6 [5,8]	7 [5, 8]	7 [6, 8]	7 [5, 8]
Admit	49 (5.6%; 4.2, 7.4)	21 (5.8%; 3.7, 8.9)	12 (8.0%; 4.2, 13.6]	12 (7.3%; 3.8, 12.4)
Readmit	0	2 (0.6%; 0.0, 2.0)	0	0

TABLE TITLE:
Table 1. Patient Characteristics and Outcomes

TABLE FOOTER:

(No Image Selected)

CATEGORY: Ambulatory Anesthesia
KEYWORDS: Obstructive Sleep Apnea, Ambulatory Anesthesia, CPAP.

CONTROL ID: 802574

TITLE: PREVALENCE OF SMOKING AND STAGE OF READINESS FOR SMOKING CESSATION IN SURGICAL PATIENTS

CONTACT (NAME ONLY): Amir Abrishami

CONTACT (INSTITUTION ONLY): Toronto Western Hospital, University Health Network, University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Patients facing surgery are more likely to be receptive to advice regarding smoking cessation [1]. The objective of this study was to determine the prevalence of smoking among surgical patients and to evaluate their readiness for smoking cessation.

ABSTRACT BODY: Methods (Abstract Submission): This study is part of an on-going randomized controlled trial on a smoking cessation program which includes standard counseling and pharmacotherapy. The Hospital Research Ethics Board's approval was obtained. We screened all patients in the preoperative clinic at two hospitals. Patients with recent cardiovascular or psychiatric problems were not included. Consenting patients were interviewed regarding their nicotine dependence and their readiness to quit smoking using standard questionnaires, i.e. Fagerstrom Test [2] and Prochaska Model[3], respectively.

ABSTRACT BODY: Results (Abstract Submission): In 13 months, we screened 5039 consecutive patients in the preoperative clinic. Of them, 563 patients (11.2%) were smokers. After excluding non-eligible and those who did not consent, 145 patients were included in the study. The demographic data and smoking behavior of the patients are shown in Table 1. The most common type of surgery was orthopedic surgery followed by general, ophthalmic, plastic and urologic surgeries. As for smoking habits, 50.7% of the patients had medium to high nicotine dependence with a median (range) of 16 (3-30) cigarettes /day. In terms of readiness for smoking cessation, 2% of the patients were not currently considering cessation, whereas 35.7%, 56.4 % and 5.9% were at the "contemplation", "preparation " and "action" stage, respectively. Also, 35.6% had at least two previous attempts of smoking cessation.

ABSTRACT BODY: Discussion (Abstract Submission): A significant number of surgical patients are smokers who are willing to give up smoking. These findings show that surgical patients comprise a suitable target population for long-term smoking cessation programs in the preoperative clinic.

ABSTRACT BODY: References (Abstract Submission): 1- Canadian Journal of Anesthesia 2008; 55(1):11-21. 2- British Journal of Addiction 1991;86:1119-27. 3- Journal of consulting and clinical psychology 1983;51(3):390-5.

Demographic data and smoking behavior of the patients (n = 145)

	Frequency	%
Male/Female ratio	77/68	53%/47%
ASA I/II/II	0/113/32	0/77.8%/22.2%
Ambulatory surgery	48	33.1%
In-patient surgery	97	66.9%
	Mean ±SD	Median (range)
Age	53 ± 14	55 (25 - 87)
BMI (Kg.m-1)	27.8 ± 6	25.0 (17.2-43.0)
No. of cigarettes/day	18 ± 10	16 (3-30)
Fagerstrom Score	4.9 ± 1.5	5 (3-9)
Start age of smoking	18 ± 6.0	16 (10-48)
No of previous quit attempts	2 ± 2.3	2 (0-10)
Stage of change	2.6 ± 0.6	3 (1-4)
ECO level (ppm)	16.3 ± 6	15 (6-36)
Fagerstrom Score (nicotine dependency):		Stage of change:

0-2: Very low dependence 3-4: Low dependence 5: Medium dependence 6-7: High dependence 8-10: Very high dependence	1- Precontemplating 2- Contemplating 3- Preparation 4- Action stage 5- Maintenance 6- Termination

ECO: Exhaled carbon monoxide, ASA: American Society of Anethesiologists' status

TABLE TITLE:
Demographic data and smoking behavior of the patients (n = 145)

TABLE FOOTER:
ECO: Exhaled carbon monoxide, ASA: American Society of Anethesiologists' status

(No Image Selected)

CATEGORY: Ambulatory Anesthesia

KEYWORDS: smoking cessation, preoperative, stage of change.

CONTROL ID: 802829

TITLE: THE FLEX-TIP® ETT DOES NOT REDUCE POST-OPERATIVE SORE THROAT

CONTACT (NAME ONLY): Amanda Smitheram

CONTACT (INSTITUTION ONLY): University of Western Ontario

ABSTRACT BODY: Introduction (Abstract Submission): The post-operative complication of a sore throat after endotracheal intubation is not uncommon, with an incidence ranging from 15-50%1. The Parker Flex-Tip® endotracheal tube (ETT), also sold as the Verathon GlideRite®, is designed with a softer plastic at the distal tip as well as a laterally curved profile whose goal is to reduce trauma during ETT placement. This ETT has been shown to be faster during fibreoptic intubation, but the complication of sore throat has not been examined2. This prospective, randomized, single-blinded trial was designed to assess if Parker Flex-Tip ETT use could reduce the incidence of sore throat in patients undergoing orotracheal intubation.

ABSTRACT BODY: Methods (Abstract Submission): Local ethics committee approval was obtained for the trial and written, informed consent was obtained from all patients prior to enrollment. Patients (n=106) requiring orotracheal intubation for elective surgery were randomly allocated to intubation with a Parker Flex-Tip® ETT or our institutional standard (Mallinckrodt Hi-Lo®) cuffed ETT. A blinded observer assessed time to intubation. Operators were blinded until the start of laryngoscopy. The incidence and severity of postoperative sore throat and voice alteration were recorded on postoperative day two by a blinded assessor. Sore throat and vocal changes were each classified as absent, mild, moderate or severe. Secondary outcomes included time to intubation, ease of intubation as measured on a 10 cm Visual Analog Scale, number of intubation attempts, number of failures, and presence and amount of blood in the pharynx post intubation. Statistical analyses were performed using the student t-test, chi-squared, and Fisher's exact test, as appropriate. A p value <0.05 was considered significant.

ABSTRACT BODY: Results (Abstract Submission): Demographic data were similar between the two groups. Moderate or severe sore throat was observed in 11% of Flex-Tip® ETT patients vs. 7% with the standard ETT (p=0.52). The incidence of moderate or severe vocal change was 9% with Flex-Tip® vs. 3% in the control group (p=0.40). Time to intubation was 35 seconds in the Flex-Tip® group vs. 29 seconds with control (p=0.046). There was no significant difference between the groups for ease of intubation, number of intubation attempts/failures, and incidence of pharyngeal bleeding.

ABSTRACT BODY: Discussion (Abstract Submission): Post-operative sore throat following endotracheal intubation is a common occurrence. In this study, no significant difference was observed in the incidence of sore throat or vocal changes with the Parker Flex-Tip® vs. the Mallinckrodt Hi-Lo® cuffed endotracheal tube. The increased time to intubation seen with the Flex-Tip® may be reflective of relative operator inexperience with the Flex-Tip® ETT at our institution.

ABSTRACT BODY: References (Abstract Submission): 1. Anaesthesia 1999 54: 444-453
2. Anesthesiology 2003 98: 354-358

Table 1. Results

Outcome	Flex-Tip®	Control (Hi-Lo®)
Sore Throat (none / mild / moderate / severe)	29 / 12 / 3 / 2	33 / 23 / 3 / 1
Vocal Changes (none / mild / moderate / severe)	33 / 9 / 3 / 1	31 / 27 / 2 /0

TABLE TITLE:
Table 1. Results

TABLE FOOTER:

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: sore throat, vocal change, Flex-Tip.

CONTROL ID: 768020

TITLE: COMPARISON OF TWO TECHNIQUES OF US-GUIDED POPLITEAL BLOCK.

CONTACT (NAME ONLY): Geneviève Germain

CONTACT (INSTITUTION ONLY): Université Laval

ABSTRACT BODY: Introduction (Abstract Submission): With the introduction of ultrasound, the sciatic popliteal block can be performed above or below the sciatic nerve division. To assess the hypothesis that an injection below the division hastens the onset of anesthesia, we compared the success rate of ultrasound-guided sciatic popliteal block (USG-SPB) performed above or below the sciatic nerve division.

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval and informed consent, patients undergoing foot or ankle surgery were enrolled in this prospective randomized controlled study. In group A (above the division), 25mL of ropivacaine 0.75% were injected on the sciatic nerve before the division while in group B (below the division), 15mL of ropivacaine 0.75% were injected on the tibial nerve and another 10mL of ropivacaine 0.75% on the common peroneal nerve. Certified anesthesiologists performed the USG-SPB using an in-plane technique with a linear ultrasound probe (5-12 mHz) positioned in the popliteal crease. The sensory and motor blocks were evaluated every 5 minutes up to 30 minutes by an investigator unaware of the technique. The primary endpoint was the success rate of complete sensory block (anesthesia to cold in tibial, superficial peroneal, deep peroneal and sural nerves territories) and motor block (absence of plantar flexion and extension of the first toe) at 30 minutes. Secondary endpoints were the rate of sensory and motor blocks at each evaluation time, the need for complementary anesthesia, procedure time and incidence of complications at 24 hours and at 1 month. Based on data from a recent study (1), 51 patients per group were required to detect an increase in the success rate from 65% in group A to 90% in group B, accepting β error of 20% and α error of 5%. Statistical analyses were performed using the Student t test for continuous data, the Fisher exact test for success rate at a definite period and a hierarchical logistic regression modeling for the success rate on the entire observation period of 30 minutes (ProcGlimmix, SAS v9.2). A $p<0.05$ was considered significant.

ABSTRACT BODY: Results (Abstract Submission): Both groups of 51 patients were comparable. The rate of complete motor and sensory blocks at 30 min was higher in group B (24% [CI95%:14-37]) as compared to group A (8% [CI95%:3-19]), but not in a significant manner ($p=0.05$). Overall, the rate of complete motor block between 0 and 30 minutes also showed a non statistically significant difference favouring group B ($p=0.08$). In addition, the rate of complete sensory block at 15, 20, 25 and 30 min was significantly higher ($p<0.0001$) in Group B as compared to Group A. The number of patients who underwent surgery without the need for complementary anesthesia was significantly higher in Group B (96% [CI95%:87-99] vs. 51% [CI95%:38-64])($p<0.0001$). There was no statistically significant difference in the duration of procedures or the incidence of complications.

ABSTRACT BODY: Discussion (Abstract Submission): Our results did not confirm the hypothesis that the rate of complete block at 30 min is improved when performing USG-SPB below instead of above the division of the sciatic nerve. However, because we observed a clear trend toward a higher rate of motor block, an enhanced rate of complete sensory block and a decreased need for complementary anesthesia, injections below the division should be favoured in clinic when performing USG-SPB using a long acting local anesthetic.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg 2008;106:1553-8

(No Table Selected)

(No Image Selected)

CATEGORY: Regional Anesthesia

KEYWORDS: sciatic popliteal block , ultrasound.

CONTROL ID: 771544

TITLE: LIGAMENTUM FLAVUM DETECTION IN ULTRASOUND OF PORCINE THORACIC SPINE

CONTACT (NAME ONLY): Denis Tran

CONTACT (INSTITUTION ONLY): university of british columbia

ABSTRACT BODY: Introduction (Abstract Submission): Introduction: Ultrasound has proven beneficial for imaging of anatomic landmarks and neuronal structures, as well as real-time needle guidance in regional anesthesia [1]. Recently, ultrasound guidance for lumbar epidural anesthesia has been described [2][3] , a technique which may be extended to thoracic epidural needle insertion in the near future. The ligamentum flavum,which is immediately dorsal to dura and the epidural space, is the primary landmark used for placement. It can be challenging for an inexperienced anesthesiologist to identify the ligamentum flavum on the ultrasound image. Moreover, the manual placement of calipers to measure the depth of the ligamentum flavum is difficult for a single operator under sterile conditions. A new computer algorithm is developed and tested for automatically locating the depth of the ligamentum flavum.

ABSTRACT BODY: Methods (Abstract Submission): Methods: Slaughtered porcine subjects are obtained with the university animal care consent. The computer program extracts a map of the bones and ligamentum flavum from the ultrasound image using phase symmetry [4]. The lamina and ligamentum flavum are located and highlighted using a template matching method. The distance from the ligamentum flavum to the skin is calculated and displayed. The computer program is tested on 2 porcine subjects on 25 thoracic intervertebral spaces. The calculated depth is compared to the depth measured (1) by manual segmentation, (2) by the sonographer, and (3) the actual needle insertion depth from an anesthesiologist performing loss-of-resistance. Results are given as the average error, the RMS error and the Bland-Altman 95% limits of agreement.

ABSTRACT BODY: Results (Abstract Submission): Results: The ligamentum flavum is successfully identified on 25 out of 25 images. Because of the wide field of view, the ligamentum flavum may be identified at multiple vertebral levels in a single ultrasound image, with the ligamentum flavum of interest being measured and compared to the sonographer and anesthesiologist measurements. The lamina and ligamentum flavum are clearly identified by the algorithm in ~4 seconds. The error of the depth found by the automatic program vs manual segmentation is -0.2mm, with RMS error 0.8mm, and Bland-Altman -1.8mm to 1.4mm; vs the sonographer is 1.0mm, with RMS error 1.8mm, and Bland-Altman -2.0mm to 4.1mm; and vs the needle insertion depth is -4.2mm, with RMS error 5.5mm and Bland-Altman -12.2mm to 3.8mm. Additionally, the lamina and ligamentum flavum are properly emphasized in the bone map.

ABSTRACT BODY: Discussion (Abstract Submission): Discussion: Ligamentum flavum depth values as derived by a computer algorithm show good agreement with manually obtained ultrasound measurements and reasonable agreement with depth by loss of resistance technique. The bone map can also be used to help emphasize the structures in the ultrasound image and help the user navigate. The user can gain more confidence when measuring the depth and using the program as a surrogate to his own detection of the ligamentum flavum. Much of the average error is inherent to all ultrasound due to top vs bottom of the ligamentum flavum echo as the target and speed of sound errors. Work has recently started on extending this method to human subjects.

ABSTRACT BODY: References (Abstract Submission): 1.Best Pract Res Clin Anaesthesiol 2005;19:175–200.
2.Anesth Analg 2007; 104:1188-92.
3.Anesth Analg 2009; 109: 661-667.
4.Ultrasound in Medicine and Biology 2009; 35: 1475-1487.

(No Table Selected)

(No Image Selected)

CATEGORY: Regional Anesthesia

KEYWORDS: epidural anesthesia, ultrasound, image processing.

CONTROL ID: 793679

TITLE: CONTINUOUS TIBIAL NERVE BLOCK FOR HALLUX VALGUS SURGERY

CONTACT (NAME ONLY): Marie-Claude Paquet

CONTACT (INSTITUTION ONLY): Université Laval

ABSTRACT BODY: Introduction (Abstract Submission): Hallux valgus correction (HV) is a recognized cause of moderate to severe post-operative pain. A continuous posterior tibial block has been shown to be effective for pain control following foot surgery but no randomized study has yet proven its superiority over a simple ankle block. The objective of this study is to determine the sparing effect of a continuous posterior tibial block on post-operative narcotic consumption (0-24h)after HV surgery. Secondary objectives are post-operative pain intensity scores (VAS 0-100) and quality of life evaluation as determined by a validated questionnaire (SF-8).

ABSTRACT BODY: Methods (Abstract Submission): After obtaining institutional approval and informed consent, 43 consecutive patients scheduled to undergo HV osteotomy surgery were prospectively enrolled in this double-blind randomized controlled trial. Patients were excluded if they presented any of the following criteria: diabetes with or without neuropathy, peripheral neuropathy, narcodependancy, renal or hepatic insufficiency, local infection at puncture site or contraindication to any of the study medications. Under light sedation, a peripheral nerve catheter was inserted along the tibial nerve at the distal third of the leg. Five ml bupivacaine 0,5% and 5 ml lidocaine 2% with epinephrine 5µg/ml was injected through the catheter. The ankle block was completed using 8 ml of the same mixture without epinephrine on the saphenous nerve and the deep and superficial peroneal nerves. All patients were operated under regional anesthesia only. After surgery, an infusion pump administering either 5mL/h of 0,2% ropivacaine (study group) or 0,9% salin (control group) was assigned randomly by an independant investigational pharmacist. Post-operative analgesia was strictly controlled and consisted of regular doses of acetaminophen and naproxen. If patients scored higher than 40/100 on the VAS pain score they were advised to take 1mg hydromorphone p.o. Narcotic consumption and the VAS scores were evaluated at 24, 48 and 72h by a daily telephone questionnaire. Quality of life was evaluated by the SF-8 questionnaire. Based on a previous study, it was established that 42 patients were necessary to obtain 80% power with a 5% Type 1 error to detect a 40% reduction of narcotic consumption at 24h. Significance was established at $p \leq 0,05$. Statistical analyses were conducted with the Savage test and with the Student-t test.

ABSTRACT BODY: Results (Abstract Submission): Sixty-four patients were approached during the study period. Twenty patients presented at least one exclusion criteria and one refused to participate.
Demographic and anesthetic values were comparable in both groups.Median consumption of narcotics (hydromorphone mg) is detailed in the Table below. Pain scores at 24, 48 and 72h and quality of life at 24h and 4 weeks were comparable in both groups.

ABSTRACT BODY: Discussion (Abstract Submission): When combined with a regular regimen of acetaminophen and naproxen, a continuous posterior tibial block does not significantly reduce narcotics consumption after hallux valgus with osteotomy surgery.

ABSTRACT BODY: References (Abstract Submission): Anesth Analg 2006 102:248-257
Anesth Analg 1997 84:383-386
Can J Anesth 2005 52:276-280
Anesth Analg 2003 97:1303-1309

Narcotic consumption (mg) - Medians (IQ 25-75%)

Time (h)	Ropivacaine n=21	Placebo n=22	p Value
0-24	1(1-4)	2.5(0-5)	0.19
0-48	2(2-5)	3.5(0-8)	0.68
0-72	3(2-6)	3.5(0-9)	0.63

TABLE TITLE:
Narcotic consumption (mg) - Medians (IQ 25-75%)

TABLE FOOTER:

(No Image Selected)
CATEGORY: Regional Anesthesia
KEYWORDS: Hallux valgus, tibial nerve, analgesia.

CONTROL ID: 794387

TITLE: PORCINE THORACIC EPIDURAL DEPTH MEASUREMENT USING 3D ULTRASOUND RESLICED IMAGES

CONTACT (NAME ONLY): Abtin Rasoulian

CONTACT (INSTITUTION ONLY): The University of British Columbia

ABSTRACT BODY: Introduction (Abstract Submission): 2D Ultrasound has previously been proposed as a pre-insertion imaging technique to measure the epidural depth from the skin surface as an aid for needle insertion [1]. A new ultrasound technique is introduced for this task. The key innovation is the use of resliced image of 3D ultrasound to depict both the target anatomy and the anticipated midline needle path.

ABSTRACT BODY: Methods (Abstract Submission): Slaughtered porcine subjects are obtained with the university animal care consent. The custom-designed approach includes a 3D ultrasound probe and a needle guide placed on the probe. A paramedian sagittal plane is extracted from the acquired 3D volume and displayed (figure). This reslice plane is a virtual anterior-posterior view containing the needle path and the target epidural space. The target and path can be shown in ultrasound without having the transducer head obstruct the puncture site.
The transducer is calibrated in a way that the anticipated needle path is depicted by a color-coded centimetric line on 3D resliced images.
In experiments, the epidural space is found using the 3D resliced image. The epidural depth is measured using this image. The epidural depth is also measured using a standard 2D paramedian ultrasound technique [1]. The epidural needle is inserted with the guide while the 3D resliced image is updated as each new 3D volume is acquired. Insertion is stopped upon loss-of-resistance to saline. The actual depth of needle insertion is also measured.

ABSTRACT BODY: Results (Abstract Submission): Initial experiments were carried out on two recently slaughtered porcine subjects. The needle was inserted into all possible thoracic spaces (n=12 measurements). Comparing the 3D ultrasound reslice-measured depth and the actual needle depth, there is a bias of 5.4 mm and 95% limits of agreement of Bland-Altman -10.6mm to -0.2mm. Comparing the 2D paramedian ultrasound depth and the actual needle depth, there is a bias of 6.2 mm and 95% limits of agreement of Bland-Altman -11.7mm to -0.7mm.

ABSTRACT BODY: Discussion (Abstract Submission): The 3D ultrasound reslice gives comparable measurements to the traditional 2D paramedian ultrasound. the depth to the epidural space measured to the top of the echo from the ligamentum flavum is approximately 5mm [2], the thickness of the ligamentum flavum is a possible explanation for the bias. By adding the thickness of the ligamentum flavum, the limits of agreement for 3D reslice measurements becomes -5.6mm to 4.8mm.
In summary, the 3D approach provides an acceptable framework to show ultrasound images of the thoracic epidural space and needle path together.
Work is also progressing on providing a clear depiction of the needle in the 3D resliced image as it is inserted.

ABSTRACT BODY: References (Abstract Submission): [1] Anesth Analg 2009; 109:661-667
[2] Obst Anesth 2004; 171-189

(No Table Selected)

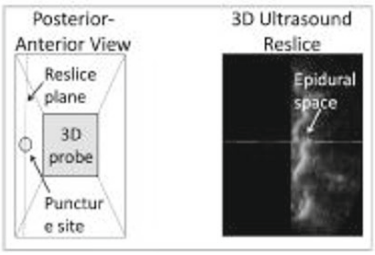

IMAGE CAPTION:

CATEGORY: Regional Anesthesia

KEYWORDS: Thoracic epidural, 3D ultrasound.

CONTROL ID: 801996

TITLE: INTERMEDIATE CERVICAL PLEXUS BLOCK IN CAROTID ENDARTERECTOMY

CONTACT (NAME ONLY): Marco Barone

CONTACT (INSTITUTION ONLY): Regional Hospital "U.Parini"

ABSTRACT BODY: Introduction (Abstract Submission): Local/regional anesthesia for carotid endarterectomy allows continuous evaluation of neurological function during carotid cross-clamping. We present a retrospective comparison between two techniques: T1, a combination of superficial and deep cervical block, according to Moore (1), and T2, an injection under the superficial cervical fascia, the intermediate cervical block, as a modified Winnie's one-puncture technique (2).

ABSTRACT BODY: Methods (Abstract Submission): According to local/national clinical research regulations, an informed consent to the planned procedures was obtained. T1 was used in our practice in the years 2004-2005, with 20 ml ropivacaine 0.75% in total. T2 is used since 2006 and is performed with a 1.5 cm 25 G needle inserted along the posterior border of the sternocleidomastoid muscle, midway between the mastoid and clavicle. The needle is inserted perpendicular to the skin for all its length, avoiding the muscular puncture, without looking for paresthesia or bony contact. Ropivacaine 0.75%, 10 ml, is injected over 3 min under clinical/instrumental monitoring. This block is systematically combined with subcutaneous infiltration of incision line (ropivacaine 0.75%, 10 ml) and supplemented with intraoperative topicalization (lidocaine 2%, 3 ml increments) if necessary. Data concerning demography, techniques' efficacy and complications were collected and compared using t-test or chi-square test.

ABSTRACT BODY: Results (Abstract Submission): see Table.

ABSTRACT BODY: Discussion (Abstract Submission): In our experience, T2 is very easy to perform. We observed no technique related complications and a significant reduction in total complications rate. In addition to block the superficial cervical plexus, ropivacaine injected under the fascia superficialis spreads through prevertebral fascia and blocks the deep cervical plexus (3).

ABSTRACT BODY: References (Abstract Submission): (1) Regional block. Springfield, IL. Charles C.Thomas, 1975:112-22. (2) Anesth Analg, 1975;54:370-5. (3) Br J Anaesth, 2003;91:733-5

RESULTS *p < 0.01	T1 n = 156	T2 n = 300
General Data		
Age, yrs (mean +/- SD)	72.5 +/- 7.0	74.2 +/- 9.7
Body Mass Index (mean +/- SD)	26.8 +/- 5.8	27.1 +/- 6.5
ASA physical status (mediane/range)	3 (2-4)	3 (2-4)
Intraoperative Efficacy		
Patients needed topical integration, n (%)	45 (28.8)	80 (26.6)
Patients needed analgesia/sedation, (%)	18 (11.5)	31 (10.3)
Patients needed conversion to general anesthesia, n (%)	3 (1.9)	4 (1.3)
Technique related Complications		
Vertebral artery puncture (with seazures), n (%)	1 (0.6)	0
Intrathecal injection (total spinal anesthesia), n (%)	1 (0.6)	0
Bradipnoea/apnoea, n (%)	2 (1.2)	0
Cardiac arrest, n (%)	1 (0.6)	0
Postoperative Complications (within 1 month)		
Stroke, n (%)	3 (1.9)	2 (0.6)

Myocardial infarction, n (%)	1 (0.6)	1 (0.3)
Others Intensive Care Unit admission, (%)	4 (2.6)	0
Death, n (%)	0	0
Total complications, n (%)	13 (8.3)	3 (1) *

TABLE TITLE:

TABLE FOOTER:

(No Image Selected)

CATEGORY: Regional Anesthesia

KEYWORDS: intermediate cervical plexus block, carotid endarterectomy.

CONTROL ID: 803288

TITLE: THE IMPACT OF POST-SURGICAL BRACHIAL PLEXUS BLOCK FOR 72 HOURS WITH BUPIVACAINE ON CHRONIC PAIN 6 MONTHS AFTER TRAPEZIECTOMY

CONTACT (NAME ONLY): Gilbert Blaise

CONTACT (INSTITUTION ONLY): Centre hospitalier de l'Université de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): Chronic post-surgical pain is now recognized as a common complication of surgery. Few reports have investigated, in a placebo-controlled study, the impact on chronic post-surgical pain of analgesia/anaesthesia administered in the perioperative/post-operative period.

ABSTRACT BODY: Methods (Abstract Submission): This prospective, double-blind, placebo-controlled, randomized clinical trial evaluated the effect of adding to the usual post-operative analgesic protocol after trapeziectomy a continuous infusion of the local anaesthetic bupivacaine, or saline, for 72hrs in a brachial plexus catheter. This study was approved by the local ethics committee and informed consent was obtained from all patients enrolled in the trial. Patients scheduled for trapeziectomy that met inclusion criteria were recruited into this research project. Prior to surgery and at various time points after surgery (up to 6 months), patients were assessed for (1) pain (spontaneous, worst and average) on a numerical rating scale, (2) the impact of pain on activities of daily living (Brief Pain Inventory), (3) drug usage, (4) psychological parameters (Spielberger's STATE/TRAIT Anxiety questionnaire and the Beck Depression Inventory) and (5) quality of life (Short-form 36 version 2).

ABSTRACT BODY: Results (Abstract Submission): Prior to surgery, 94% of patients had experienced pain for more than 1 year and 94% reported pain in the last 24 hours. Psychological parameters and quality of life scores were not significantly different between saline- and bupivacaine-infused patients at any of the studied time-points. At the end of the 72 hour infusion post-surgery, patients infused with bupivacaine had significantly lower average levels of pain, improved general activity, sleep and concentration when compared to saline-infused patients (acute post-surgical period). Six months after the trapeziectomy, fifty-eight percent of patients reported that in the last week they had experienced pain at the site of their surgery. Six months after trapeziectomy, patients in the bupivacaine group reported superior general activity and sleep, as well as reduced consumption of pain-relieving drugs (chronic post-surgical period).

ABSTRACT BODY: Discussion (Abstract Submission): Data from this study suggest that a brachial plexus block for 72 hours post-surgery with bupivacaine may have a beneficial impact on pain in both the acute and chronic post-surgical period.

ABSTRACT BODY: References (Abstract Submission): 1- Eur J Anaesthesiol, 2009

(No Table Selected)

(No Image Selected)

CATEGORY: Regional Anesthesia

KEYWORDS: bupivacaine.

CONTROL ID: 803295

TITLE: ROPIVACAINE INTRAVENOUS AND PERIPHERAL KINETICS IN RABBITS.

CONTACT (NAME ONLY): Fady Thomas

CONTACT (INSTITUTION ONLY): university of montreal

ABSTRACT BODY: Introduction (Abstract Submission): Peripheral nerve block offers a good balance between analgesia and side-effects as a choice of postoperative analgesic technique for major surgery. Unfortunately, current recommendations on the use of local anesthetics do not take into consideration factors such as the varying absorption at different sites of administration and are too general to suit specific clinical situation. Two approaches can be used for absorption rate estimation after peripheral nerve block. The first approach is by measuring the drug concentration reaching the systemic circulation and applying the deconvolution principle to evaluate the extent of absorption. This method requires that disposition parameters be determined accurately in another group of subjects after intravenous administration of the drug. The second approach is by direct measurement of the unbound concentration remaining in the site of injection using microdialysis technique.
The purpose of this animal study is to characterize the absorption kinetics of ropivacaine after a single injection femoral nerve block (FNB). Thereafter, an accurate estimation of the absorption disposition profile will be obtained which will be transpose when establishing a model for predicting the efficacy and toxicity of local anesthetics in patients.

ABSTRACT BODY: Methods (Abstract Submission): Disposition parameters after intravenous ropivacaine were determined in a first group (n=6) of New Zealand male rabbits (mean weight 3.33 ± 0.15kg), according to the protocol approved by our institutional Animal Care Committee. Also, two preliminary rabbits in a second group received 6mg of ropivacaine in 4 minutes for FNB. Ropiacaine concentrations were simultaneously determined at the site of injection (microdialysis) and in the systemic circulation using HPLC. Catethers for FNB and local microdyalisis were inserted using a neurostimulation technique developed at our institution. Catheters placement was confirmed by methylene blue injection at the end of the experiment.

ABSTRACT BODY: Results (Abstract Submission): Plasma concentration-time profile following IV administration was best described by a two compartment model. Mean (±SD) parameters included: total clearance: 22.8 (±3.2) ml/min.kg, steady-state volume of distribution: 4.9(±1.4) l/kg, terminal phase half-life: 196 (±38) min. After perineural administration, both fast and slow absorption rates having half-lives of 10.4 (±2.0) and 360 (±134) min, respectively, were characterized using microdialysis.

ABSTRACT BODY: Discussion (Abstract Submission): Accurate and reliable parameters estimated for ropivacaine disposition after intravenous administration were obtained in the first group. After FNB, a fast increase in plasma drug concentrations was observed until 30-60 min where a pseudosteady-state was noticed and explained by a very slow absorption rate. Microdialysis, by describing the regional kinetis of local anaesthetics, will enable us to characterize the biphasic absorption characteristic of perineural administration, as previously described after intrathecal administration in rabbits (1).

ABSTRACT BODY: References (Abstract Submission): International J of Pharmaceutics 2000 203: 227-34.

(No Table Selected)

(No Image Selected)

CATEGORY: Regional Anesthesia

KEYWORDS: Ropivacaine, Peripheral nerve block.

CONTROL ID: 753928

TITLE: SPINAL ANESTHESIA FOR CESAREAN DELIVERY: BUPIVACAINE WITH OR WITHOUT FENTANYL

CONTACT (NAME ONLY): Rachel Meyer

CONTACT (INSTITUTION ONLY): Mount Sinai Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Spinal anesthesia is the most popular form of anesthetic used for elective cesarean deliveries. The addition of fentanyl to spinal anesthetics allows a lower dose of local anesthetic to be used and reduces the incidence of maternal hypotension. The addition of fentanyl has several potential disadvantages including increased risk of nausea, vomiting and pruritus. The evaluation of whether fentanyl is necessary has not been completely studied. This study of equivalence tested the hypothesis that 15mg of intrathecal hyperbaric bupivacaine would produce equivalent spinal anesthesia for cesarean delivery as the combination of 12mg of intrathecal hyperbaric bupivacaine with 15mcg of fentanyl.

ABSTRACT BODY: Methods (Abstract Submission): This was a single centre, double-blind, randomized clinical trial of equivalence that was approved by the hospital's research and ethics committee. Written informed consent was obtained from non-labouring, healthy parturients scheduled for elective cesarean delivery. Patients were randomized to receive either 15mg of intrathecal hyperbaric bupivacaine (Group B) or 12mg of bupivacaine with 15mcg of fentanyl (Group BF). Parturients where asked to characterize their degree of sensation at 20 minutes after spinal injection by selecting 1 of 4 categories for the primary outcome. The categories were: 1=complete absence of sensation; 2=sensation of motion only; 3=mild discomfort but the patient declined offer for additional analgesia; 4=the patient expressed a wish for additional analgesia or exhibited an obvious need for additional analgesia. Secondary outcomes included block characteristics, side effects, maternal hemodynamics, the need for supplemental analgesia and maternal satisfaction.

ABSTRACT BODY: Results (Abstract Submission): One hundred thirty-eight women, enrolled between January and August 2009, were analyzed. There was no difference in the quality of anesthesia between the two groups as assessed by degree of sensation at 20 minutes. Sixty-eight of 69 and 69/69 patients in Group B and Group BF respectively had anesthesia classified as successful (categories 1-3). Approximately 25% of patients in each group had anesthesia classified as "complete absence of sensation" (category 1). The majority of patients in each group had "sensation of motion only" (category 2). One patient (in Group B) had a degree of sensation categorized as "failed analgesia". There were only two secondary outcomes found to be different between the two groups. These outcomes were change in MAP from baseline and incidence of nausea. Please refer to Table 1.

ABSTRACT BODY: Discussion (Abstract Submission): The important finding of this study is that 15mg of intrathecal hyperbaric bupivacaine alone produced spinal anesthesia for cesarean delivery equivalent to 12mg of intrathecal hyperbaric bupivacaine in combination with 15mcg of intrathecal fentanyl. The degree of sensation at 20 minutes was similar between the two groups. The larger decrease in MAP seen in Group B was likely due to inadequate vasopressor therapy.

ABSTRACT BODY: References (Abstract Submission): .

(No Table Selected)

Variable mean (SD)	Group BF N=69	Group B N=69	Difference in means (95% CI)	P value
Change in MAP - mmHg	34 (13)	40 (14)	-6.6 (-11.0,-12.1)	0.004
Vasopressor used - ug	1035 (1582)	1078 (1389)	-43 (-346,460)	0.87
Time to pain- min	691.16 ± 872.30	553.62 ± 801.96	138 (-148,423)	0.34
Variable (n)			RR (95% CI)	
Nausea	24 (35%)	41 (59%)	1.7 (1.17, 2.49)	0.006
Pruritis	8 (12%)	3 (4%)	0.4 (0.10, 1.35)	0.21
Highest Sensory Block > T1	8 (12%)	14 (20%)	1.8 (0.78, 3.90)	0.25

IMAGE CAPTION:

CATEGORY: Obstetric Anesthesia
KEYWORDS: spinal anesthesia, cesarean delivery, bupivacaine.

CONTROL ID: 794289

TITLE: ASSESSMENT OF THE IMPLEMENTATION OF A NEW PATIENT-FOCUSED INTRADISCIPLINARY MODEL OF CARE FOR ELECTIVE CESAREAN BIRTH

CONTACT (NAME ONLY): David Campbell

CONTACT (INSTITUTION ONLY): University of Saskatchewan

ABSTRACT BODY: Introduction (Abstract Submission): Over the past 3 years, annual deliveries increased from 3700 to nearly 5000, with Cesarean Births (CB) increasing from 800 to >1100 and elective CB increasing from 350 to nearly 600. Historically, only 1 Anesthesiologist (24 x 7) is responsible for all procedures (24% CB, 70% epidural, >700 consults), including 3 elective CB slots per weekday (8am;10am;1pm). 17 Obstetricians deliver their own patients (Vaginal and CB) each weekday from 07:30 to 17:30. Consequently, unscheduled urgent or emergent CB consumed available Human Resources (HR) such that scheduled elective CB were often significantly delayed. The significant increase in workload, especially during weekdays, highlighted insufficient Anesthesiologist HR which is well below the norm for tertiary-care teaching Maternity Units in NA (1) and far below minimum HR standards in the UK (2), suggesting the environment unsafe. As part of a review of the entire model of delivery of maternity services, a new "patient-focused" model of care for elective CB delivery was to be introduced and evaluated between Oct 01, 2009 and Jan 31, 2010. In the Historic Model of Care (HMC) 3 elective CB were scheduled each weekday whereas the new Patient-Focused Intradisciplinary Model of Care (PFIMC) implemented a dedicated elective CB OR Team, including a dedicated Anesthesiologist, assigned 5 elective CB per day, 2 days per week. The purpose of this quality improvement (QI) impact investigation was to compare the timeliness of access to the OR for women scheduled for an elective CB under the HMC versus the PFIMC. The primary outcome was the percentage of women entering the OR "on time" defined as within 5 minutes of scheduled elective CB.

ABSTRACT BODY: Methods (Abstract Submission): Following IRB approval, prospective data pertaining to all consecutive elective CB between July and August 2009 (HMC) and then all consecutive elective CB in October and November 2009 (PFIMC) was collected. Data included indication for elective CB, Time into OR, Time to Incision, Time into PARR, Reason for Delay into OR, etc. Data was analyzed using unpaired T-test and Chi Square with a $P < 0.05$ considered significant.

ABSTRACT BODY: Results (Abstract Submission): Door to door OR time significantly decreased during the PFIMC (N=52) from 81.6 +/- 16.4 min to HMC (N=76) 71.1 +/- 13.3 min ($P<0.001$). During HMC, access to the OR was delayed 30 +/- 35 min (8am); 60 +/- 64 min (10am) and 84 +/- 62 min (1pm), with > 95% delays due to unscheduled (intrapartum urgent or emergent) CB. Access to the OR was significantly improved with 86.5% (45/52) PFIMC entering the OR "on time" compared to only 28.9% (22/76) HMC ($P<0.0001$). Of note, all 7 PFIMC delays were due to: (a) a lack of consent or (b) the Obstetrician was late or 3) both (a) and (b).

ABSTRACT BODY: Discussion (Abstract Submission): This QI impact study demonstrated that the implementation of PFIMC permitted the majority of women scheduled for elective CB to enter the OR "on time" and that significant OR efficiencies were gained. No elective CB were delayed due to a concurrent intrapartum or emergent CB. The PFIMC has also identified several issues (lack of consent, late surgeon) pertaining to the much needed cultural change from Obstetrician-focused to Patient-focused care.

ABSTRACT BODY: References (Abstract Submission): 1. Panni MK, et al IJOA 2006; 15: 284-9
2. Anaesthetic Staffing Levels in Safer Childbirth: 2007 www.rcog.org.uk

(No Table Selected)

(No Image Selected)

CATEGORY: Obstetric Anesthesia

KEYWORDS: Cesarean Birth, Cesarean Delivery, Pregnancy.

CONTROL ID: 799896

TITLE: EFFECT OF TEAM TRAINING ON MANAGEMENT OF OBSTETRICAL EMERGENCIES

CONTACT (NAME ONLY): Pamela Morgan

CONTACT (INSTITUTION ONLY): Women's College Hospital, Sunnybrook Health Sciences Centre, University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Data from the Confidential Enquiry (CEMACH) in the UK and the Joint Commission in the US indicate breakdowns in communication as a leading cause of maternal and perinatal morbidity/mortality. In a study by Nielsen, team training was associated with a decrease in decision to delivery time.1 High-fidelity simulation has been suggested as a venue for team training and may improve patient outcomes and patient safety.
The purpose of this study was to determine whether participation in high-fidelity simulation team training improved clinical outcomes of simulated obstetrical emergencies.

ABSTRACT BODY: Methods (Abstract Submission): Four obstetrical simulation scenarios were developed; 1) urgent Cesarean section, general anesthesia, “can’t intubate, can’t ventilate”, pulseless electrical activity; 2) severe pre-eclampsia, urgent Cesarean section, pulmonary edema; 3) prolapsed cord, amniotic fluid embolism, asystole; and 4) profound fetal bradycardia, emergency Cesarean section, postpartum hemorrhage. Eighteen clinical outcomes were defined and validated via the Delphi technique. After REB approval, 12 multidisciplinary teams managed the same 4 scenarios at each of 3 simulation sessions separated by 5-9 months. A trained observer, blinded to subjects and session number, watched the DVDs and recorded the time to resolution of the 18 outcomes. A repeated measures analysis of variance was performed for each of the outcome measures with session time (Time 1, 2, 3) as the repeated measure.

ABSTRACT BODY: Results (Abstract Submission): In total, 34 team encounters accounted for 136 taped performances. Of 34 team encounters who managed Scenario 1, 14 teams either did not recognize that the patient had arrested and/or did not start chest compressions. In the remaining 20 teams, the average time from maternal cardiac arrest to initiation of chest compressions was 2 minutes 55 seconds (range, 0.4-6.4 mins).

In Scenarios 1 & 3, there was a significant reduction in the time from cardiac arrest to initiation of compressions; in Scenario 2, there was a significant reduction in desaturation to intubation; in Scenarios 1&2, there was a significant decrease in decision to delivery time and in Scenario 3, a significant increase in decision to delivery time. (Figure 1) There were no statistically significant differences in the remaining 12 outcomes.

ABSTRACT BODY: Discussion (Abstract Submission): Although one finding of a prolonged decision to delivery time was seen, this result was not clinically significant. In 2 scenarios, team training resulted in clinically significant reductions in decision to delivery time similar to that demonstrated by Nielsen. This finding and the improvement in the management of cardiac arrest may result in a less compromised neonate at birth.

ABSTRACT BODY: References (Abstract Submission): 1. Obstet Gynecol 2007; 109: 48-55

(No Table Selected)

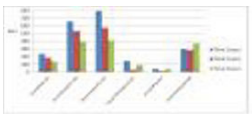

Figure 1

IMAGE CAPTION:
Figure 1

CATEGORY: Obstetric Anesthesia

KEYWORDS: obstetric emergencies, team training, high-fidelity simulation.

CONTROL ID: 800358

TITLE: LOW DOSE VS. HIGH DOSE BUPIVACAINE FOR CAESAREAN SECTION — A META-ANALYSIS.

CONTACT (NAME ONLY): Faraj Abdallah

CONTACT (INSTITUTION ONLY): University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Although spinal bupivacaine is commonly used for caesarean section (CS), there is controversy concerning the optimum dose. The purpose of this meta-analysis is to determine whether low dose bupivacaine is better than high dose bupivacaine for CS.

ABSTRACT BODY: Methods (Abstract Submission): We sought randomized controlled trials that compared low dose bupivacaine (<9mg) to high dose bupivacaine (>9 mg) in patients undergoing CS using a computerized search of MEDLINE, EMBASE, Science Citation Index, and the Cochrane Library with no language restriction. In addition, we searched abstracts of relevant scientific meetings, review articles and the Clinical Trials Registry. The relevant studies were assessed for quality of reporting using a validated 5 point scale and the data was extracted independently by all authors. A consensus data sheet was then constructed. The outcomes of interest included 1) patient comfort as measured by need for sedation/block augmentation or intraoperative general anaesthesia, 2) duration of analgesia and motor block, 3) the incidence of intraoperative side effects (hypotension, nausea and vomiting) and 4) neonatal outcome (Apgar scores). The data were combined using Revman 4.3. Random effects modelling was used to compute the odds ratio (OR) and 95% confidence interval CI) for dichotomous data and weighed mean differences (WMD) for continuous data. Statistical significance was achieved when the OR 95% CI did not contain 1.0 or the WMD 95% CI did not include 0.

ABSTRACT BODY: Results (Abstract Submission): There were 1122 patients in 16 manuscripts (2 contained 2 studies) and 1 abstract. The median quality score was 4 (range 1 to 5). Patients who received high dose bupivacaine had a higher incidence of "good or excellent" analgesia (OR 0.28, 95% CI 0.15 to 0.53--Figure) and a decreased incidence of need for intravenous (OR 3.68 95% CI 1.95 to 6.94), or epidural (OR 2.78 95% CI 1.0 to 7.9) supplementation. However, these patients had a higher incidence of nausea and vomiting (OR 0.32 95% CI 0.19 to 0.54), and hypotension (OR=0.24, 95% CI 0.13 to 0.44). In addition, the motor and sensory blocks was significantly prolonged (motor WMD=42.3min, 95% CI=20.3 to 64.3, sensory 37.3 min 95% CI 25.4 to 49.3). There were no differences in Apgar scores.

ABSTRACT BODY: Discussion (Abstract Submission): High dose bupivacaine (> 9 mg) provides superior intraoperative analgesia compared to low dose but increases the risk of hypotension. Prolongation of the block may be an advantage or disadvantage, depending on clinical circumstances.

ABSTRACT BODY: References (Abstract Submission): Available from the authors

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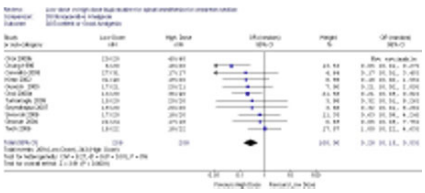

IMAGE CAPTION:

CATEGORY: Obstetric Anesthesia

KEYWORDS: Low Dose Spinal, Bupivacaine, Caesarean.

CONTROL ID: 801662

TITLE: CARE ASSESSMENT IN MATERNAL DEATHS DUE TO HAEMORRHAGE

CONTACT (NAME ONLY): Marie-Pierre Bonnet

CONTACT (INSTITUTION ONLY): INSERM, Tenon Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Post partum haemorrhage (PPH) remains the leading cause of maternal death worldwide (1). Because individual factors poorly predict the occurrence of PPH, interest has increasingly focused on care processes. However anaesthesia and critical care management has not been yet specifically evaluated in PPH. The main objective of this study was to assess anaesthesia and critical care management in maternal deaths due to PPH.

ABSTRACT BODY: Methods (Abstract Submission): Appropriate ethical approvals have been obtained. All 39 maternal deaths due to PPH identified in the French National Enquiry into Maternal Death during the years 2000 to 2003 were analyzed except one.

ABSTRACT BODY: Results (Abstract Submission): Maternal age was greater than 35 in 66% of women, 24% presenting comorbidities. A caesarean delivery was performed in 68%. Uterine atony was the most frequent aetiology of PPH (34%), followed by uterine rupture (26%) and placental abnormalities (21%). Median delay between birth and diagnosis of PPH was 25min (range 0-315). An anaesthesiologist was present in the health care structure at the time of PPH diagnosis in 92% and dedicated to the delivery room in 50%. Sulprostone was administered in 53% of all women and 69% of women with uterine atony, timing of administration being within 30min of PPH diagnosis in 25%. Among the 22 women who survived more than 6 hours after diagnosis of PPH, 7 had only one blood test. Four women did not receive any blood products. The others were transfused a median quantity of 9 (range 0-64) units of red blood cells (RBC) and of 6 (range 0-67) units of fresh frozen plasma (FFP). RBC transfusion showed a maximum quantity between the 2d and the 4th hour after PPH diagnosis. The median FFP:RBC ratio was 0.6 (range 0-2); this ratio increased gradually over the time. Women received fibrinogen concentrates and platelets respectively in 47 and 42%. Catecholamine drugs were used as hemodynamic support in 63%, a central venous access and an invasive blood pressure device being placed before hospitalisation in intensive care unit respectively in 29 and 5%. A general anaesthesia was provided in 97%, using ketamine or etomidate in 38%. Five patients were extubated whereas presenting active bleeding. A cardiac arrest at induction of anaesthesia occurred in 5 cases. No surgical or radiologic haemostatic intervention was performed in 8 women.

ABSTRACT BODY: Discussion (Abstract Submission): This precursor study shows that some aspects of anaesthesia and critical care management in PPH are inappropriate in maternal deaths, especially invasive monitoring and conditioning of the patients, transfusion procedures and general anaesthesia protocol. This could be partially explained by the absence of PPH severity recognition. This work allows the identification of the precise points the future guidelines on PPH management should focus on. Next steps will be to assess the same components of anaesthesia and critical care management in morbid cases of PPH. From now on, educational interventions focusing on these aspects of clinical practice should be introduced.

ABSTRACT BODY: References (Abstract Submission): 1: Lancet 2006;367:1066-1074
2: Gynecol Obstet Fertil 2005;33:268-274

(No Table Selected)

(No Image Selected)

CATEGORY: Obstetric Anesthesia

KEYWORDS: care assessment, post partum haemorrhage, maternal mortality.

CONTROL ID: 801665

TITLE: HOW USEFUL ARE CLINICAL CRITERIA FOR PDPH DIAGNOSIS AFTER EPIDURALS?

CONTACT (NAME ONLY): Pamela Angle

CONTACT (INSTITUTION ONLY): Women's College Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Postdural puncture headache(PDPH) is currently diagnosed using varying sets of clinical criteria in anesthesia studies. These include study-specific as well as formal criteria set out by the International Headache Society(IHS). This study prospectively compared the usefulness of IHS criteria versus a formal study definition for PDPH diagnosis in a large multi-centered randomized trial.

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval, 1,080 women requesting labor epidural analgesia were randomized to receive a 19 vs 17/18g Tuohy-type needle in 4 centers across Canada. The primary outcome was PDPH diagnosed using a formal study definition applied in a standardized fashion by an external blinded adjudicating body (1 headache specialist/neurologist, 3 obstetrical anesthesiologists). Interviews were conducted by trained staff using standardized data collection forms on days 1, 3 and 14 post epidural. Data collected for any woman reporting a headache with any suggestion of movement associated-worsening < 14 days of epidural placement was sent for adjudication. The headache specialist and a single matched anesthesiologist rated PDPH in a given patient. First pass and final agreement were obtained for both sets of diagnostic criteria. Items which caused inter-rater discordance were identified. All adjudicated patients were interviewed at least up to 6 weeks post-epidural. Those with adjudicated positive PDPH (study definition only) were followed for up to one year. Staff at study sites were blind to both needle and adjudicators' diagnoses and diagnosed/treated headaches at their discretion.

ABSTRACT BODY: Results (Abstract Submission): A total of 1080 women were randomized; 184 were sent for adjudication. Of these, 25 women received a final diagnosis of PDPH using the study definition, 16 were diagnosed using IHS criteria and 6 were diagnosed by blinded staff at study sites <14days. A test of correlated proportions showed that the PDPH study definition was more sensitive for diagnosis than IHS criteria (McNemar's test; p=0.02). First pass consensus for PDPH diagnosis using the study definition was better (22/25(kappa 0.93,95%CI 0.85, 1.0(very good)) than first pass consensus using IHS criteria (9/16(kappa 0.70,95%CI 0.49,0.92(good)). Inter-rater discordance using IHS criteria occurred in the following areas: length of time (<5days) allowed for diagnosis:2/7; dural puncture occurred:2/7; symptomatic criteria: 5/7. Inter-rater discordance using the study definition occurred in the following areas: Headache symptoms (posturality): worsening 15 min 2/3; improved in 15 min: 1/3; length of time for diagnosis(<14days):1/3; symptom persistence: 1/3. One patient ,adjudicated negative by both criteria, developed a postural headache on day 15 and responded to a single epidural blood patch.

ABSTRACT BODY: Discussion (Abstract Submission): Outcome assessment in PDPH research requires reliable and valid measurement. IHS criteria have issues with face and content validity in patients receiving epidural analgesia. PDPH diagnosis using our formal study definition proved to have greater sensitivity and inter-rater agreement amongst experts compared with IHS criteria.

ABSTRACT BODY: References (Abstract Submission): .

(No Table Selected)

(No Image Selected)

CATEGORY: Obstetric Anesthesia

KEYWORDS: Postdural puncture headache (PDPH), epidural, inter-rater agreement.

CONTROL ID: 802296

TITLE: ASEPTIC TECHNIQUES FOR LABOR EPIDURALS: A SURVEY OF OBSTETRIC ANESTHESIA PRACTICE IN ONTARIO.

CONTACT (NAME ONLY): Naveed Siddiqui

CONTACT (INSTITUTION ONLY): Mount Sinai Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Infections secondary to neuraxial anesthesia may lead to serious neurological complications(1, 2). Although the practice of aseptic technique is an important factor in regards to the prevention of infection, there are presently no accepted standards for asepsis during the insertion of a labor epidural catheter. Currently, clinical practice varies amongst institutions and often depends on the personal beliefs of the anesthesiologist rather than scientific evidence(3). Consequently, we felt the need to conduct a survey to determine what physicians believed to be essential aseptic precautions while performing labor epidural analgesia.

ABSTRACT BODY: Methods (Abstract Submission): After REB approval, a self administered questionnaire regarding commonly used aseptic techniques during epidural insertion was distributed via regular mail to 1047 practicing anesthesiologists in Ontario. Items in the questionnaire had been formulated with the assistance of both community and university based obstetrical anesthesiologists.The survey broadly focused physicians type of practice, methods of aspesis during preparation and aseptic technique during epidural insertion.

ABSTRACT BODY: Results (Abstract Submission): The response rate for this survey was 42%. The respondents included 40% community and 60% academic physicians. The major findings included a heterogeneous practice with respect to the wearing of sterile gowns, the type of antiseptic prep solution, and the use of a filter needle for drawing local anesthetic solutions. (Table-1)

ABSTRACT BODY: Discussion (Abstract Submission): Our results indicate that the aseptic technique for labor epidural insertion varies among institutions. Further research is needed regarding the essentials of aseptic practice in order to develop evidence based guidelines and standardize clinical practice

ABSTRACT BODY: References (Abstract Submission): 1.Anesth Analg 2007; 104: 965–74.
2.Anesthesiology 2006; 105: 381–93.
3.Anaesthesia 2002;57: 593-596

Table 1: Survey Results

Responses(n=439/1047)	(Percentages)
Practice	
Community/teaching/both	40/60/0
Work Experience(<5,5-10,>10years)	18/46/38
Frequencyof epidurals(<1000,1-4000,>4000)	32/54/14
Preparation -Hand Washing	
With soap,extending up to the elbow x3 and sterile towel	38
With soap,without extending up to elbows	60
With isopropyl Alcohol	21
Don’t consider hand wash at all	0
Removal of Jewelry	78
Wearing of a sterile gown	39
Wearing sterile gloves	100
Wearing a surgical hat and a fresh mask	91
short nails	69

Anti-septic solutions	
Chlorhexidine	68
Povidine Iodine	32
Use a filter needle	22
Use of sterile drapes/towels	98
Number of support persons in the room	
One support person	78
More than one support person	12
No support person	10
Patient to wear an operating room hat	46

TABLE TITLE:
Table 1: Survey Results

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(No Image Selected)

CATEGORY: Obstetric Anesthesia
KEYWORDS: Aseptic technique, Epidural Analgesia.

CONTROL ID: 802547

TITLE: ONTARIO SURVEY: REGIONAL ANESTHESIA & PARTURIENTS WITH SPINE TATTOOS

CONTACT (NAME ONLY): A. Banerjee

CONTACT (INSTITUTION ONLY): Sunnybrook and Womens College Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Use of central neuraxial blockade in the presence of a spine tattoo is controversial1 and may impact upon women's access to regional anesthesia during childbirth. This large Ontario cross-sectional survey examined attitudes, beliefs and practices of anesthesia providers related to use of spinals/epidurals in parturients with spine tattoos.

ABSTRACT BODY: Methods (Abstract Submission): Following IRB approval, departments of anesthesia in maternity hospitals were sampled across Ontario. Community hospitals were randomly sampled within strata based on level of neonatal care; all university-based obstetrical anesthesia teaching programs were sampled. Chiefs of Department were first contacted and asked to complete a survey detailing department characteristics and practices related to labor analgesia and elective c/section. Chiefs became the source through which surveys were distributed to staff and returned to the study coordinating center. Department eligibility criteria included provision of regional anesthesia for labor and/or cesarean section. The sample size chosen represented approximately ¾ of the 99 hospitals listed with designated maternity beds by the Ontario MOHLTC.
The staff survey included information related to practitioner beliefs, attitudes and practices surrounding use of spinal and epidural anesthesia in the presence of a lumbar spine tattoo. This included information related to the methods respondents would use for an elective c/section with a complete, old(responder's definition) uncomplicated complete lumbar spine tattoo. Responses for refusal were assessed by two raters for consistency of responses. Analyses took clustering of data into account.

ABSTRACT BODY: Results (Abstract Submission): Sixty four of 68 consenting departments participated with an overall response rate of 94%. Mean(SD) response rates within departments were: level 1) 72% (25); level 2) 56%(23); level 3) 47% (31). The Intraclass correlation coefficient was 0.07 suggesting evidence of a significant cluster effect for responses. Spinal anesthesia was the most commonly used method (>90%)for elective c/section. One large community hospital did not offer an epidural service. Refusals of epidural analgesia and/or spinal anesthesia for elective c/section due to the presence of an old (provider's own definition) uncomplicated ranged from 8-10% and 10-13% respectively. Most common fears related to medicolegal and neurologic complications. Approximately 20% of providers in community hospitals and 16% in university-based teaching hospitals reported they would use general anesthesia for elective cesarean section for an old uncomplicated complete lumbar spine tattoo. Rates of use of general anesthesia did not vary by level of training (specialist vs GP anesthetist).

ABSTRACT BODY: Discussion (Abstract Submission): Findings in this provincial survey suggest that presence of a complete uncomplicated spine tattoo will lead to a refusal to provide neuraxial labor analgesia by one in every 10 Ontario anesthesia providers and use of general anesthesia for elective c/section by one in every 5 providers. These results have significant implications for health services delivery, patient safety and research and education related to regional anesthesia and spine tattoos.

ABSTRACT BODY: References (Abstract Submission): 1.Douglas MJ, Swenerton JE. Epidural anesthesia in three parturients with lumbar tattoos: a review of
possible implications. Can J Anaesth. 2002 Dec; 49(10): 1057-60.

(No Table Selected)

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CATEGORY: Regional Anesthesia

KEYWORDS: regional anesthesia and spine tattoos.

CONTROL ID: 802793

TITLE: THE EPIDURAL ELECTRIC STIMULATION TEST DOES NOT PREDICT LABOR EPIDURAL ANALGESIA PATTERNS

CONTACT (NAME ONLY): Aleksandra Dlacic

CONTACT (INSTITUTION ONLY): St.Michael's Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Epidural electrical stimulation test (EEST) is very specific and sensitive in confirming epidural catheter presence in the epidural space. It's unknown whether EEST can predict abnormal patterns of epidural anesthesia and consumption of epidural drugs. We hypothesized EEST can predict epidural analgesia outcome in obstetric patients.

ABSTRACT BODY: Methods (Abstract Submission): Prospective observational study was conducted with REB approval and written informed consent. We included women >18 years with cervical dilation 5cm and pain VAS>6, requesting labor epidural. EEST was performed with nerve stimulator via adapter (Johans ECG Adapter,Arrow International Inc,Reading,PA). Current output was slowly increased until motor activity detected. EESC was repeated 5min after test dose of 2% lidocaine 3ml. Loading dose was 10ml of 0.125% bupivac+50µg fentanyl, followed by PCEA with 0.0625% bupivac+2µg/ml fentanyl: baseline 10ml/h, bolus 5ml, lockout 10min, max 20ml/h. In case of inadequate anesthesia at 20min, 5+5ml of bupivac. 0.25% was given. If still no improvement, epidural was considered a failure and managed at discretion of attending anesthesiologist. Study was completed 2 hours after epidural initiation. Primary outcome: consumption of bupivacaine in the first 2 hours. Secondary outcomes: incidence of inadequate (VAS>2, patchy, unilateral) and asymmetric blocks (≤2 dermatomes); minimum current (mA) to elicit motor response before and 5 min after test dose; muscle contraction pattern elicited at baseline and after test dose. Sample size calculation was done based on pilot study and it was estimated that sample size of 104 patients would be required to detect, in a multiple regression model with two test variables, a partial correlation of ±0.30 between bupivacaine consumption and either the initial or the delta current, with 80% power and a significance level of 0.05. Data were analyzed with SAS Version 9.1.3,SAS Institute,Cary NC.

ABSTRACT BODY: Results (Abstract Submission): We recruited 107 women. Average electric current to elicit muscle response at baseline was 4.6mA (range 1-12mA) and delta current (post test dose mA-baseline mA) was 1.3mA (range 0-9mA). No correlation was noted between baseline or delta current and total bupivacaine use at 2 hours (correlation coef. -0.087, 0.049 respectively). Incidence of asymmetric but otherwise effective blocks was 18%. Incidence of inadequate blocks at 2 hours was 18%(no catheter had to be replaced). Characteristics of EEST and of bupivacaine consumption in overall patients, and in symmetric/asymmetric and adequate blocks are shown in table (meanSD). No significant differences were noted. Overall muscle contraction pattern after baseline EEST was: R thigh 15%, L thigh 10%, R leg 29%, L leg 33%, bilateral thigh 0%, bilateral leg 4%, and 10% other (inconsistent 6% and L or R foot 4%).

ABSTRACT BODY: Discussion (Abstract Submission): EEST shows wide electrical current ranges and elicits variety of muscle twitch patterns in labor epidurals. EEST cannot be used to predict asymmetric blocks or local anesthetic consumption.

ABSTRACT BODY: References (Abstract Submission): Pan PH et al. Int J Obstet Anesth 2004; 13:227–233
Tsui BCH et al. Can J Anesth 1998; 45:640-4
Sutherland MA et al. Reg Anesth Pain Med 2009; 34:575-77

	All patients	Symmetric	Asymmetric	Adequate	Inadequate
n	107	86	19	87	19
Initial EEST(mA)	4.6±2.3	4.6±2.3	4.6±2.3	4.5±2.3	4.9±2.1
Delta EEST(mA)	1.7±1.6	1.2±1.5	2.4±2.7	1.7±1.6	1.4±1.8
Bupivacaine consumption (mg)	31.0±6.5	30.6±6.2	31.8±7.5	30.2±6.3	34.8±6.6

TABLE TITLE:

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CATEGORY: Obstetric Anesthesia

KEYWORDS: epidural, electric, stimulation.

CONTROL ID: 803384

TITLE: PERSISTENT HEADACHES IN PARTURIENTS AFTER EPIDURAL-RELATED PDPH

CONTACT (NAME ONLY): Pamela Angle

CONTACT (INSTITUTION ONLY): Women's College Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Few studies have examined persistence of headache symptoms in parturients following diagnosis of postdural puncture headache (PDPH). This prospective longitudinal study examined continued headache symptoms in women diagnosed with PDPH in the context of a large multicenter randomized controlled trial.

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval, labouring parturients were randomized to receive a 19g vs 17/18g Tuohy type needle for epidural placement. Women with recognized or suspected dural punctures were recorded. All women randomized (regardless of dural puncture status) were followed for the first 14 days post epidural and diagnosed with PDPH using a standardized definition by a blinded external adjudicating external body of experts (1 headache specialist/neurologist matched with 1 of 3 senior obstetric anesthesiologists). Assessors and treating staff at study sites were blinded to needle and adjudicator diagnoses of PDPH and diagnosed and managed patients at their discretion. Data related to headache symptoms were collected on days 1, 3 and 14 using standardized data collection forms by trained study staff. Women with any suggestion of a postural headache were referred for adjudication and followed for a minimum of 6 weeks. Information from women with adjudicated positive PDPH and persistent headaches at 12 weeks was reviewed by a neurologist to ascertain a diagnosis of chronic headache (standardized definition). Women with persisting headache symptoms were followed up to symptom resolution or 1 year. Women diagnosed with chronic headache at 3 months post epidural placement were matched with four controls (i.e. women without an adjudicated diagnosis of PDPH in the study) to permit calculation of the odds of chronic headache following PDPH.

ABSTRACT BODY: Results (Abstract Submission): A total of 1080 women were randomized; 25 were diagnosed with PDPH by adjudicators using a standardized study definition. Four of 25 women developed postural headaches within the first 24 hours of epidural placement. Six of 25 women developed postural headache symptoms at > 5 days after epidural placement. Six of 25 women developed only a postural neckache (no postural headache). A total of five of 25 women had at least one epidural blood patch. Five out of 25 women with adjudicated PDPH, using the formal study definition, reported continued headache symptoms at 6 weeks. Two women had headaches that persisted at least 6 months. One woman with a documented dural puncture and no prior history of headache met diagnostic criteria for chronic headache at 3 months. This patient reported continued symptoms at one year post epidural. None of the 4 controls (women in the study without PDPH) matched to this patient had chronic headache symptoms at 3 months.

ABSTRACT BODY: Discussion (Abstract Submission): This study provides additional insight into modifications required for PDPH diagnosis, the natural history of headache symptoms following diagnosis of PDPH following epidural analgesia in parturients and has significant implications for treatment, research and informed consent.

ABSTRACT BODY: References (Abstract Submission): .

(No Table Selected)

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CATEGORY: Obstetric Anesthesia

KEYWORDS: Postdural puncture headache (PDPH), epidural, persistent headache symptoms.

CONTROL ID: 743529

TITLE: IV AMIODARONE AND BI-VENTRICULAR ECHOCARDIOGRAPHIC FUNCTION

CONTACT (NAME ONLY): André Denault

CONTACT (INSTITUTION ONLY): Montreal Heart Institute/Université de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): Atrial fibrillation is a common complication after cardiac surgery. Postoperative atrial fibrillation is associated with increased risks of morbidity and mortality, and preventive strategies using amiodarone are commonly used during cardiac surgery. However the effect of intravenous amiodarone administered intraoperatively on hemodynamic and biventricular echocardiographic parameters assessed by transesophageal echocardiography (TEE) has not been described in patients undergoing valvular or complex surgery.

ABSTRACT BODY: Methods (Abstract Submission): The protocol was reviewed and approved by the Research and Ethic Committees of our institution. Written informed consent was obtained from all patients. Single-center double-blind, double-dummy, randomized controlled trial in patients undergoing valvular surgery. Patients received an intravenous (IV) loading dose of 300 mg of either amiodarone or placebo in the operating room, followed by a perfusion of 15 mg/kg per 24 hours for 2 days. A hemodynamic profile and bi-ventricular comprehensive TEE exam were performed and described before, after bolus and after cardiopulmonary bypass (CPB). Postoperative complications and mortality at 6 years were also documented.

ABSTRACT BODY: Results (Abstract Submission): One hundred and twenty patients (mean age 65±11 years) were randomized to receive either amiodarone or placebo. The placebo group included more patients with diabetes ($p=0.0244$) and showed a longer duration of CPB ($p=0.0426$), while the patients in the amiodarone group had more frequent isolated valvular procedures ($p=0.0497$). There was no difference in the use of inotropic agents after CPB between the two groups but the amiodarone group required temporary pacing for bradyarrhythmia for up to 24 hours ($p=0.0075$) more frequently. After the bolus, the amiodarone group showed an increase mean pulmonary artery pressure ($p =0.0450$) with an associated reduction in S/D ratio of the hepatic venous velocity ($p=0.0457$). A lower heart rate ($p<0.0001$) and lower cardiac index ($p = 0.0157$) were observed after CPB in the amiodarone group with higher diastolic pulmonary venous flow velocities ($p=0.0052$). There were no differences between groups in postoperative complications and survival at 6 years.

ABSTRACT BODY: Discussion (Abstract Submission): In patients undergoing cardiac valvular surgery, intravenous amiodarone is well tolerated hemodynamically and not associated after CPB with significant changes in systolic and diastolic function and does not increase inotropic requirement when compared to placebo despite a reduction in heart rate, cardiac index and increased pacemaker requirement for 24 hours.

ABSTRACT BODY: References (Abstract Submission): NONE

(No Table Selected)

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Cardiac surgery, Amiodarone, Transesophageal echocardiography.

CONTROL ID: 790246

TITLE: POST-THORACO SHOULDER PAIN… ETIOLOGIC FACTORS AND NATURAL HISTORY

CONTACT (NAME ONLY): Jean Bussières

CONTACT (INSTITUTION ONLY): IUCPQ

ABSTRACT BODY: Introduction (Abstract Submission): In recent literature, the incidence of post-thoracotomy/scopy shoulder pain (PTSP) varies between 31 to 97%.[1,2,3] The natural history and the true origin of PTSP are not clearly established. This study was designed to evaluate the relation between specific factors and PTSP prevalence. Furthermore, the length of PTSP during the postoperative period and its chronicity after one and two years were evaluated.

ABSTRACT BODY: Methods (Abstract Submission): After obtaining local IRB approval, 249 patients were enrolled in this two parts study. The first part consisted in a prospective observation of PTSP between September 2006 and November 2007 (presented in part at the CASM, Calgary, 2007). Every consecutive patient undergoing a thoracic surgical procedure (thoracotomy or video assisted thoracoscopic surgery (VATS), were evaluated in a standardize manner for PTSP during their stay at the recovery room, by recovery nurses trained to performed this evaluation. Demographic and surgical data were then recorded. The second part of this project, carried out in summer 2009, was a retrospective collection of medical records from the preoperative and postoperative period. Patients data were reviewed to assess the presence of pre-existent pathologies at the shoulder/cervical spine (physiotherapists' standardized evaluation), the length of PTSP during the postoperative period (nurses' standardized evaluation), and the chronicity of PTSP (surgeons' notes).

ABSTRACT BODY: Results (Abstract Submission): A total of 249 thoracic surgical procedures were included in the analysis. The mean age was 61 years old. Seventy procedures (28%) resulted in PTSP. Females were more likely to present PTSP (42% vs 29%, $p<0.04$), as well as patient having thoracotomy vs thoracoscopy (45% vs 25%, $p < 0.01$), patient having bronchial resection (46% Vs 22%, $p < 0.00001$), and patient having peridural analgesia (50% vs 18%, $p < 0.0001$). There is no relation between the age, the pre-existing pathology at the shoulder level, the arm position nor the presence of thoracic drainage and the presence of PTSP. The average length of PTSP in the postoperative period is 3 days. There was no chronic transformation in patients with PTSP.

ABSTRACT BODY: Discussion (Abstract Submission): In our study the incidence of PTSP (28%) was in the low range of the incidence generally reported in the literature (31-97%). The variation in surgical and anesthetic techniques from one institution to another could explain this range. While bronchial resection, peridural analgesia, and thoracotomy were associated with higher incidence of PTSP, for example pneumonectomy and lobectomy were almost exclusively performed through thoracotomy under peridural analgesia). These three elements are highly related, and only a multivariate analysis in a randomized and controlled trial could define more precisely the role of these parameters in PTSP occurrence.
This study allows us to define better the PTSP by eliminating some potential factors: the presence of pre-existing pathologies, the presence of thoracic drainage, and the arm position during the surgery. These results will direct our future research on the interaction between the presence of bronchial resection, the type of surgical approach and the type of postoperative analgesia.

ABSTRACT BODY: References (Abstract Submission): 1. JCVA 2004; 18:458-460 2. JCVA 2005; 19: 475-8 3. BJA 2005; 94:234-238. 4. COA 2008; 21(1):12-5

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Pain, Postthoracotomy, Shoulder.

CONTROL ID: 795691

TITLE: PERIOPERATIVE ACUTE KIDNEY INJURY IN PNEUMONECTOMY

CONTACT (NAME ONLY): Cara Reimer

CONTACT (INSTITUTION ONLY): Queen's

ABSTRACT BODY: Introduction (Abstract Submission): Perioperative acute kidney injury (AKI) is associated with poor postoperative outcomes [1]. Individuals undergoing pneumonectomy may be at increased risk of AKI due to perioperative fluid restriction, although little is known of the incidence of AKI in this population. We examined the incidence and risk factors for AKI in individuals who underwent pneumontomy procedures.

ABSTRACT BODY: Methods (Abstract Submission): After REB approval, we undertook a retrospective cohort study of pneumonectomy procedures performed at our institution between 2004 and 2008. We defined AKI using the RIFLE classification. We also recorded perioperative risk factors for AKI including HTN, DM, COPD, CAD, blood transfusions, intraoperative vasopressors and epidural analgesia. We also collected perioperative fluid data for all individuals. We then compared the characteristics of the individuals with and without AKI in a series of bivariate comparisons using t-tests for continuous variables and X2 test for categorical variables.

ABSTRACT BODY: Results (Abstract Submission): Our study sample included a total of 108 patients. The mean age of our sample was 59.7 years, and 73.15% were male. Overall in-hospital thirty-day mortality was 4.6%. The incidence of AKI according to the RIFLE classification was 23.15% (95% confidence interval: 15.19-31.11%). In RIFLE positive patients, the average time to peak creatinine was 1.84 days postoperatively. After peaking, creatinine levels returned to baseline or lower in 64% of these patients. There were no statistically significant differences in perioperative variables between individuals with and without AKI but there were trends for patients with AKI to have increased BMIs, hypertension, increased procedure complexity, a higher 24-hour fluid balance, increased blood loss and increased length of stay.

ABSTRACT BODY: Discussion (Abstract Submission): AKI is a relatively common postoperative complication in individuals undergoing pneumonectomy. Many individuals with AKI following pneumonectomy recover renal function. Larger studies are needed to further delineate the significance of and risk factors for AKI in pneumonectomy populations.

ABSTRACT BODY: References (Abstract Submission): 1. Int Anesthesiol Clin 2009 47: p. 89-105.

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Pneumonectomy, Renal Function.

CONTROL ID: 797463

TITLE: THE ENDOVASCULAR CORONARY SINUS CATHETER CAN BE USED SAFELY AND EFFICIENTLY DURING MINIMALLY INVASIVE MITRAL AND TRICUSPID SURGERY.

CONTACT (NAME ONLY): Jean-Sébastien Lebon

CONTACT (INSTITUTION ONLY): Montreal Heart Institute

ABSTRACT BODY: Introduction (Abstract Submission): An endovascular coronary sinus catheter is installed in our institution to enable the administration of retrograde cardioplegia during minimally invasive mitral and tricuspid procedures. This is not an absolute indication as cardioplegia can be administered by the distal port of the aortic balloon securely and with efficacy as attested by many series of patients(1). However, administration of retrograde cardioplegia remains interesting, if not necessary, in certain patients to obtain asystoly. Nevertheless, difficult positioning technique, coronary sinus perforation risks inherent to manipulation(2) and high rate of displacement during the surgery accounts for its lack of popularity. We reviewed our experience from the beginning of our minimally invasive cardiac surgery program to determine the safety and efficacy of a protocolized approach to the utilization of an endovascular coronary sinus catheter.

ABSTRACT BODY: Methods (Abstract Submission): After approval from the Institution Review Board, we revised the files for the patients admitted for a minimally invasive mitral or tricuspid surgery using a thoracoscopic approach from the beginning of our program in 2006. A protocol was rigorously followed for the insertion and positioning of the endovascular coronary sinus catheter. Ventricularization was confirmed by the anaesthesiologist after inflating the coronary sinus catheter balloon with less than 1cc of diluted contrast agent. Correct final position was accepted by the surgeon and the anaesthesiologist. Time was recorded during procedure by an assistant. Clinical success was defined jointly by the capacity of building a coronary sinus pressure greater than 30 mmHg during cardioplegia infusion (150cc /min or less) and asystoly.

ABSTRACT BODY: Results (Abstract Submission): Data was collected from 96 files. A total of 95 endovascular coronary sinus catheters were installed (99.0%). The mean time to insert the catheter in the sinus ostium was 6.3 ± 8.4 minutes minutes. Only 13 % of the insertions took more than 10 minutes. Confirmation of an adequate position with fluoroscopy took an average of 9.1 ± 10.6 minutes for a mean total procedure time of 16.1 ± 14.1 minutes. Clinical success was achieved in 87.5% of cases. Ventricularization of the coronary sinus pressure curve was observed in 88.6% of cases. The presence of ventricularization was associated with an increase in clinical success (OR 15.8; 95% CI 3.713 – 67.239). Time to insertion and total time were not associated with clinical success rate. No complications were documented following CS catheter placement.

ABSTRACT BODY: Discussion (Abstract Submission): Endovascular coronary sinus catheter installation can be done in an acceptable time frame with a high rate of clinical success and without complications. During positioning, obtaining ventricularization contrary to time is related to the success rate.

ABSTRACT BODY: References (Abstract Submission): References

1. Casselman FP, La MM, Jeanmart H, Mazzarro E, Coddens J, Van PF, Wellens F, Vermeulen Y, Vanermen H: Endoscopic mitral and tricuspid valve surgery after previous cardiac surgery. Circulation 2007; 116: I270-I275
2. Abramson DC, Giannoti AG: Perforation of the right ventricle with a coronary sinus catheter during preparation for minimally invasive cardiac surgery. Anesthesiology 1998; 89: 519-21

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: coronary sinus catheter, minimally invasive cardiac surgery, cardioplegia.

CONTROL ID: 800463

TITLE: EVALUATION OF TRICUSPID AND PULMONARY VALVES USING EPICARDIAL ECHOCARDIOGRAPHY - A COMPARATIVE STUDY

CONTACT (NAME ONLY): Ravi Kumbharathi

CONTACT (INSTITUTION ONLY): Burntwood Regional Health Authority

ABSTRACT BODY: Introduction (Abstract Submission): Intraoperative Echocardiography has a proven record in evaluation of heart function during cardiac surgery. Previous studies have demonstrated utility in epicardial imaging, particularly evaluating valve anatomy and function. We therefore sought to evaluate the utility of epicardial echocardiography of the tricuspid and pulmonic valves.

ABSTRACT BODY: Methods (Abstract Submission): After Institutional Review Board approval for this prospective observational study, 25 patients, >18 years old undergoing elective coronary arterial bypass grafting (CABG) +/- Aortic Valve Replacement (AVR) were recruited. Patients with atrial fibrillation, previous known tricuspid or pulmonic regurgitation or stenosis or pulmonary hypertension were excluded.

Transesophageal imaging including the basal transgastric view, 120° midesophageal long axis view, 4 chamber ME view(Doppler tricuspid) and 90° view of the arch(Doppler pulmonic) were acquired. Four epicardial views were obtained: tricuspid valve short axis, pulmonic valve short axis, pulse wave Doppler velocities across the tricuspid valve and continuous wave Doppler across the pulmonic valve. All views were taken in close temporal relationship with a HP-Sonos 5500 and an 8 MHz epicardial or 4-7 MHz transesophageal transducer. Images were read independently by two reviewers and results averaged for analysis. Bland Altman analysis was used for data analysis.

ABSTRACT BODY: Results (Abstract Submission): Of 25 patients enrolled, images could not be retrieved for 4 patients and data is available on 21 patients for interpretation. Three of these 21 patients developed atrial fibrillation and we were unable to complete the study as they became hemodynamically unstable requiring rapid commencement of cardiopulmonary bypass. Agreement between the observers was good with a bias of -0.4cm/sec(95% CI 10.63, -11.37) for E and A waves and 2.8cm/sec(95% CI 26.3, -20.7) for pulmonary velocity.

Bias with epicardial imaging versus TEE for E and A waves was 11.9cm/sec(95% CI 48.2, -24.4) and 6.8cm/sec(95% CI 28, -15) respectively and 0.08(95% CI 1.2, -1) for E/A ratio. Pulmonary velocity bias was 57.94(95% CI 192.9, -7698) with higher values with epicardial imaging than TEE.

ABSTRACT BODY: Discussion (Abstract Submission): There was a good agreement for Doppler measurements across the tricuspid valve; however the measurements across the pulmonary valve were significantly higher with epicardial echo versus TEE. Epicardial Doppler imaging was difficult through the tricuspid valve, and was further limited when minimal skin incisions were used.

ABSTRACT BODY: References (Abstract Submission): 1. IARS Vol 105, No 1, July 2007
2. JCVA 2003; 17: 422-429
3. Anesthesia Analgesia 1999; 89: 870-884

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: transesophageal, epicardial, tricuspid.

CONTROL ID: 801137

TITLE: PERIOPERATIVE TIGHT GLUCOSE CONTROL IN CARDIAC SURGERY

CONTACT (NAME ONLY): Tamaki Sato

CONTACT (INSTITUTION ONLY): Royal Victoria Hospical, McGill

ABSTRACT BODY: Introduction (Abstract Submission): Previous attempts to achieve tight glucose control during open heart surgery failed leading to the conclusion that normoglycemia is unobtainable in this patient population(1,2). The purpose of this study was to demonstrate the efficacy of G I N therapy, i.e. Glucose and Insulin administration while maintaining Normoglycemia, in cardiac surgery.

ABSTRACT BODY: Methods (Abstract Submission): With the approval of the local Research Ethics Board, consenting patients undergoing elective cardiac surgery requiring cardiopulmonary bypass (CPB) were studied. Prior to induction of anesthesia, insulin was administered at 5mU/Kg/min followed by the infusion of dextrose 20%. Blood glucose (BG) was measured every 5-15minutes, and dextrose was titrated to maintain BG within 3.5-6.1mmol/L. At the end of surgery, insulin infusion was decreased to 1mU/Kg/min and continued for 24 hours. The mean and SD of BG as well as the percentage of BG values within the target range were calculated. To evaluate relative variability, the coefficient of variability (CV) was calculated for each patient. Episodes of severe hypoglycemia, i.e. BG <2.2mmol/L, were recorded. Potassium levels in the ICU were measured every four hours.

ABSTRACT BODY: Results (Abstract Submission): We studied 70 non-diabetic and 40 diabetic patients. The mean BG value, which was lower in non-diabetic than in diabetic patients during and after surgery, always remained within the target range of 3.5 and 6.1mmol/L. Target glycemia in non-diabetic patients was achieved in 92.8% of measurements during and in 83.2% after surgery. In diabetic patients 87.4% of values were within target during surgery and 76.6% in the ICU. In non-diabetic patients the incidence of hypoglycemia was rare (intraoperative 0.2%: 2 patients, postoperative 0.1%: 1 patient). Diabetic patients showed no hypoglycemic event during surgery and only one episode of hypoglycemia in the ICU (0.1%). There were no neurological sequelae in any of these patients. The SD and CV of blood glucose were comparable in the non-diabetic and diabetic population. The mean plasma potassium level in the ICU was 4.0±0.5mmol/L (mean±SD) with a range of 2.5-6.3mmol/L. 75 percent of measurements were in the normal range of 3.5-4.5mmol/L.

ABSTRACT BODY: Discussion (Abstract Submission): In patients undergoing open heart surgery G I N therapy established and maintained perioperative normoglycemia in a reliable fashion with little risk of hypoglycemia.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg 1999;89:1091-5.
2. J Thorac Cardiovasc Surg 2005;130:1319.

(No Table Selected)

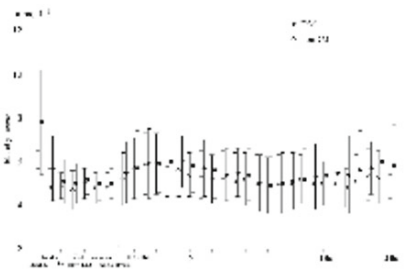

IMAGE CAPTION:

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Intensive Insulin Therapy, Hypoglycemia, Intensive Care Unit.

CONTROL ID: 801154

TITLE: METOPROLOL ATTENUATES β_1-ADRENERGIC MEDIATED VASODILATION IN ISOLATED MOUSE MESENTERIC AND CEREBRAL RESISTANCE ARTERIES

CONTACT (NAME ONLY): Mostafa El Beheiry

CONTACT (INSTITUTION ONLY): University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Clinical evidence has suggested that acute β-blockade increases the risk of organ ischemia (stroke, MI)[1,2] in surgical patients who experience acute blood loss. β-blockers have also been shown to increase stroke risk when compared to treatment with other anti-hypertensive medications (ACE inhibitors, Ca^{2+} channel blockers)[3]. The mechanism(s) of β-blocker-induced organ ischemia remains undefined; however previous studies have demonstrated that impaired cardiovascular responsiveness to hemodynamic stress (anemia) may contribute[4]. This study tested the hypothesis that the β_1 selective adrenergic antagonist metoprolol causes organ ischemia by impairing β-adrenergic mediated vasodilation in isolated mesenteric and cerebral resistance arteries *in vitro*.

ABSTRACT BODY: Methods (Abstract Submission): Animal protocols were approved by the University Animal Care Committee. Mice (C57BL/6J) were sacrificed by cervical dislocation and mesenteric and posterior cerebral resistance arteries (MRA and PCA, respectively) were dissected and cleaned. Arteries were mounted to a pressure myograph in physiologic salt solution and warmed to 37°C. A transmural pressure between 45-60mmHg was established. Acute changes in diameter were measured. Dose-response curves of the non-selective β-agonist isoproterenol (ISO; 0.3μM-300μM) and the selective β_2-agonist clenbuterol (CBL; 0.3 μM-300μM) were generated in arteries preconstricted with 1 (MRA) or 10μM (PCA) phenylephrine (PE) before (control) and after 30min incubation of 5, 10 or 50μM metoprolol. Dose-response curves were quantified by calculating the concentration that elicits half the maximal agonist response (EC_{50}). Data presented as mean±SD.

ABSTRACT BODY: Results (Abstract Submission): The degree of preconstriction was not different before or after incubation with all concentrations of metoprolol. Metoprolol caused a significant right shift in the ISO dose-response curve in MRAs following incubation at 50μM ($LogEC_{50}$= -4.0±0.2 vs -4.5±0.06, n=5, $p<0.01$) but not at 5 and 10μM (n=7). The maximal dilation induced by the highest dose of ISO in MRAs was significantly lower in 50μM metoprolol (41±5.9% vs 60±5.8%, n=5, $p<0.01$). This effect was not observed after 5 and 10μM incubations. At 50μM, metoprolol did not affect the CBL dose-response curve (n=4) in MRAs. Preliminary data in mouse posterior cerebral arteries suggest increased sensitivity to ISO ($LogEC_{50}$= -7.1±0.4, n=6) and inhibition of the ISO dose-response at 50μM metoprolol ($LogEC_{50}$=-6.4±1.2; n=3).

ABSTRACT BODY: Discussion (Abstract Submission): These results suggest that metoprolol inhibits β_1-adrenergic mediated vasodilation in the mesenteric and posterior cerebral vascular beds. This may contribute to a mechanism of organ ischemia with β-blockade observed in both animals and patients.

ABSTRACT BODY: References (Abstract Submission): 1. Lancet 2008 371: 1839-47
2. Anesthesiology 2010 112: 25-33
3. Cochrane Database Syst Rev 2007: CD002003
4. Anesthesiology 2009 111: 988-1000

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: beta-blocker, resistance artery, vasodilation.

CONTROL ID: 801395

TITLE: SCREENING FOR AUTONOMIC DYSFUNCTION USING HR AND BP VARIABILITY

CONTACT (NAME ONLY): Alain Deschamps

CONTACT (INSTITUTION ONLY): Montreal Heart Institute

ABSTRACT BODY: Introduction (Abstract Submission): Autonomic dysfunction is common in cardiac patients and may affect perioperative outcome of cardiac surgery with cardiopulmonary bypass. Identification of patients with baseline autonomic dysfunction or with an abnormal response to autonomic challenges could prevent complications of cardiac surgery. However, bedside testing of autonomic dysfunction and its relationship to perioperative outcome has not been described. To diagnose patients with baseline autonomic dysfunction we used analysis of heart rate (HRV) and blood pressure (BPV) variability at rest. To diagnose an abnormal response to autonomic challenges we used analysis of HRV and BPV while the patients performed the Valsalva maneuver to stimulate the autonomic nervous system (1).

ABSTRACT BODY: Methods (Abstract Submission): After Ethics approval and informed consent was obtained, an ECG, continuous non-invasive blood pressure (BP) and respiratory rate was measured at rest for 15 min. The patients were then asked to perform a Valsalva maneuver for 15 sec. and the measurements were repeated for another 15 min. The data was saved on a portable computer at a sampling rate of 1000 Hz. Extraction of the R-R intervals from the ECG and of the beat-to-beat values of BP was achieved with an automated commercial software with appropriate corrections for ectopic beats. The analysis of HRV and BPV was obtained using wavelet transformation, a technique that allows the extraction of non-stationary signals. Demographic data and perioperative risk estimation (Parsonnet score) were obtained from the charts. An abnormal Valsalva response was define from previously accepted criteria (1).

ABSTRACT BODY: Results (Abstract Submission): Of 67 patients studied, 38 (56.7%) had a normal response to the Valsalva maneuver and 29 (43%) had an abnormal response. Gender, age, Parsonnet scores, cardiac failure, diabetes and hypertension did not differ between the groups. Baseline HRV was different between the groups, 18,764 +/- 3,505 (SE) msec2 for the normal response versus 73,386 +/- 27,158 msec2 for the abnormal response (p=0.0116, Mann-Withney). In patients with a normal response, HRV values increased significantly after the Valsalva maneuver and returned to baseline thereafter. In patients with an abnormal response there was no increase HRV and the values remained significantly higher than in the other group. BPV values did not differ at baseline nor did they differ with the Valsalva maneuver.

ABSTRACT BODY: Discussion (Abstract Submission): Autonomic dysfunction is common in cardiac surgery patients. More then 40% of patients have an increase in baseline HRV (parasympathetic tone). These patients also have an abnormal response to the Valsalva maneuver and seem limited in their capacity to increase parasympathetic activity. Gender, age, Parsonnet scores, cardiac failure, diabetes, hypertension and BPV did help to differentiate the patients. HRV could therefore be used to identify cardiac surgery patients with autonomic dysfunction that could be confirmed by an abnormal response to the Valsalva maneuver. Whether these patients are more at risk for perioperative complications needs to be investigated.

ABSTRACT BODY: References (Abstract Submission): 1. Zema MJ, Masters AP, Margouleff D. Dyspnea: the heart or the lungs? Differentiation at bedside by use of the simple Valsalva maneuver. Chest 1984;85:59-64.

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Autonomic nervous system, Heart rate variability, valsalva maneuver.

CONTROL ID: 801426

TITLE: ABNORMAL RESPONSE TO SEDATION AND INDUCTION IN PATIENTS WITH DYSAUTONOMIA

CONTACT (NAME ONLY): Alain Deschamps

CONTACT (INSTITUTION ONLY): Montreal Heart Institute

ABSTRACT BODY: Introduction (Abstract Submission): Autonomic dysfunction is common in cardiac patients and can be measured by analysis of heart rate variability (HRV) using the Valsalva maneuver (VAL). Whether dysautonomia influences the patient's response to anesthesia for cardiac surgery is unknown. We therefore measured the autonomic response (AR) to sedation and to induction of anesthesia in cardiac surgery patients with and without dysautonomia.

ABSTRACT BODY: Methods (Abstract Submission): Ethics approval and Informed consent was obtained for this study. Preoperative sedation consisted of 0.1mg/kg of s/c morphine on the way to the operating room. Induction of anesthesia consisted of 1mcg/kg of sufentanil and rocuronium was used for endotracheal intubation. ECG and continuous BP was measured the day before surgery, with the patients sedated on the operating table for 5 min, during the induction of anesthesia, during intubation and for 10 min after intubation. VAL was performed the day before the surgery. The signals were saved on a portable computer for analysis of HRV and BP variability (BPV). Analysis of HRV and BPV was obtained using wavelet transformation.

ABSTRACT BODY: Results (Abstract Submission): 38/67 (56.7%) patients had a normal AR to VAL and 29/67 (43.3%) had an abnormal one. Sedation resulted in an increase in HRV (parasympathetic tone) in the normal AR group (18764±3504 vs 35272±6247, $p<0.001$) while HRV did not increase in the abnormal AR group. Sedation resulted in a decrease in BPV (sympathetic tone) in both groups. With induction of anesthesia HRV decreased in the normal AR group followed by a sharp increase during intubation and a decrease thereafter. In the abnormal AR group HRV did not decrease at induction, did not increase with intubation but gradually decreased thereafter. BPV decreased equally in both groups at induction and intubation. In the abnormal AR group there was significant hypotension at induction (Fig) and increased requirement for vasopressors to maintain BP (Phenylephrine, 0.6±0.3 vs 0.2±0.1 mg, $p<0.001$).

ABSTRACT BODY: Discussion (Abstract Submission): Patients with dysautonomia prior to cardiac surgery have more hypotensive episodes during induction of anesthesia and that could put them at risk for perioperative complications. Increased baseline parasympathetic activity appears to be an important factor in autonomic dysfunction of cardiac surgery patients.

ABSTRACT BODY: References (Abstract Submission): None

(No Table Selected)

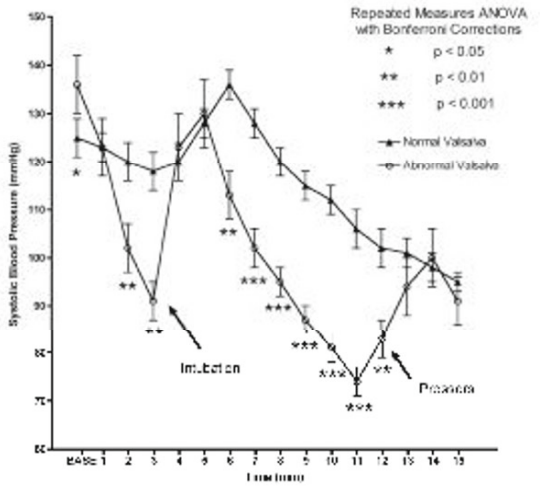

IMAGE CAPTION:

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical
KEYWORDS: Autonomic nervous system, Heart rate variability, hemodynamic instability.

CONTROL ID: 801502

TITLE: ASSOCIATION OF POSTOPERATIVE MYOCARDIAL ISCHEMIA IDENTIFIED BY CONTINUOUS ECG MONITORING WITH ISCHEMIC EVENTS

CONTACT (NAME ONLY): Hesham Talab

CONTACT (INSTITUTION ONLY): Ottawa civc hospital

ABSTRACT BODY: Introduction (Abstract Submission): Myocardial ischemia in the global perioperative period has been studied (1,2). The relationship between postoperative myocardial ischemia (POMI) and postoperative myocardial ischemic outcomes, however, remains controversial. We present the results of a meta-analysis to determine the relationship between the postoperative ST segment changes as detected by continuous ECG monitoring, and clinically apparent cardiac morbidity in patients undergoing non-cardiac surgery.

ABSTRACT BODY: Methods (Abstract Submission): Medline database between 1950 and 2008 was searched, using the terms Anesthesia; Anesthesia, general; Anesthesia, spinal; Anesthesiology, complications; intraoperative complications; postoperative complications; postoperative period; surgery; surgical; procedures; operative; electrocardiography; electrocardiography; ambulatory; ischemia; myocardial ischemia; and myocardial infarction. Studies with the following criteria were included: cohort studies or RCTs; adult patients undergoing non-cardiac surgery; ischemia monitoring by continuous electrocardiographic monitoring (minimum 2 lead) for at least 24 hours. Non-English publications were excluded. Ischemic outcomes analysed included MI, unstable angina, ischemic pulmonary edema, ischemic ventricular tachyarrhythmia and cardiac death. Studies were evaluated independently by two researchers. Mantel-Haenszel odds ratio and confidence interval were calculated using a random effects model using Review Manager (version 5).

ABSTRACT BODY: Results (Abstract Submission):
Twenty-six studies were included, with a total of 3143 patients. Of these, 1113 patients demonstrated postoperative ST segment changes on continuous Holter, while 2030 patients did not. The odds of having an ischemic event in the presence of post-operative ischemia was 10.26 with a 95% confidence interval of 6.38 - 16.49.

ABSTRACT BODY: Discussion (Abstract Submission): Previous studies examined the occurrence of myocardial ischemia at various time points during the perioperative continuum. The present meta-analysis shows that in patients undergoing non-cardiac surgery, early postoperative myocardial ischemia (ST segment changes) by itself is an important correlate of adverse cardiac outcomes.

ABSTRACT BODY: References (Abstract Submission): 1. Mangano DT, Browner WS, Hollenberg M, et al. N Engl J Med 1990;323:1781-8.
2. Raby KE, Barry J, Creager MA, et al. JAMA 1992;268:222-7.

(No Table Selected)

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Postoperative ischemia, Ischemic events.

CONTROL ID: 801657

TITLE: LEFT VENTRICULAR END DIASTOLIC VOLUME (LVEDV) AS A CARDIAC RISK FACTOR

CONTACT (NAME ONLY): Ashraf Fayad

CONTACT (INSTITUTION ONLY): Ottawa Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Abdominal aortic aneurysm (AAA) surgery still remains a high cardiac risk procedure. Co-morbid diseases are frequently seen in patients undergoing AAA repairs. Diastolic dysfunction (DD) may be present and may result in reduced LVEDV. We evaluated if reduced LVEDV is a preoperative predictor of postoperative heart failure (HF)/death after elective open AAA repair.

ABSTRACT BODY: Methods (Abstract Submission): After REB approval, elective AAA surgery charts (01/2005 – 07/2007) were reviewed. LVEDV were measured in Persantine nuclear studies. Low LVEDV was identified, in this study, as a reduction of ≤ 40% LVEDV. Normal LVEDV was 71 –139 ml and high LVEDV ≤ 140 ml. In addition, patients with low ejection fraction (EF) were analyzed separately. Patients' demography, pre-op co-morbid diseases were documented. Intra-op events and post-op outcomes were also reported. Post-op outcomes were identified as MI, heart failure and death.

ABSTRACT BODY: Results (Abstract Submission): Of the 230 patients, LVEDV were measured in 175: 87 (49.72%) normal; 69 (39.43%) low; and 19 (10.85%) high. Results from low and normal LVEDV patients were analyzed. There were 8 patients with EF < 50% (all normal LVEDV), one developed HF. Multiple regression analysis showed the OR for HF/death in low LVEDV was 4.75 [95% CI 2.73 – 8.17] and for age ≤ 70, 2.35 [95% CI 1.34 – 4.1] respectively. RCRI scores were not different between HF and death.

ABSTRACT BODY: Discussion (Abstract Submission): After pre-operative stratification, reduced LVEDV is a better predictor of postoperative HF/death than age or RCRI scores in patients undergoing elective AAA repair. Further data needs to be analyzed.

ABSTRACT BODY: References (Abstract Submission): 1. Vasan RS, Levy D. Defining diastolic heart failure: a call for standardized diagnostic criteria. Circulation. 2000;101:2118–21.
2. Mandinov L, Eberli FR, Seiler C, Hess OM. Diastolic heart failure. Cardiovasc Res. 2000;45:822.

Table 1

			Uneventful	CHF/ Death
LVEDV (Normal or Low)		Normal	59	28
		Low	25	44
Age (71.7 -8.1)	< 70		36	24
	> 70		48	48
RCRI	1		33	28
	2		34	35
	3		15	8
	4		2	0
	5		0	1
Total			84	72

TABLE TITLE:
Table 1

TABLE FOOTER:

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical
KEYWORDS: LVEDV, RCRI.

CONTROL ID: 801884

TITLE: INSULIN EFFECT ON PLASMA AMINO ACID CONCENTRATIONS IN CARDIAC SURGERY

CONTACT (NAME ONLY): Tamaki Sato

CONTACT (INSTITUTION ONLY): Royal Victoria Hospical, McGill

ABSTRACT BODY: Introduction (Abstract Submission): High doses of insulin are required to prevent the hyperglycemic response to open heart surgery(1,2), a typical feature of the catabolic changes induced by major surgical tissue trauma(3). Although the effects of insulin on glucose homeostasis are well recognized its effect on perioperative protein metabolism has received little attention. The purpose of this study was to examine the effect of high-dose-insulin therapy on the plasma concentrations of amino acids (AA) in patients undergoing coronary artery bypass (CABG) surgery.

ABSTRACT BODY: Methods (Abstract Submission): With the approval of the local research ethics board, we approached non-diabetic patients scheduled for elective CABG requiring cardiopulmonary bypass. Consenting patients were randomly allocated to a control and treatment group. Patients in the control group perioperatively received a standard intravenous insulin protocol with the aim of keeping glycemia of 6-10mmol/L. In the treatment group insulin was continuously administered at 5mU/kg/min starting with skin incision. Simultaneously dextrose 20% was infused at a variable rate adjusted to maintain the blood glucose between 4 and 6mmol/L. Plasma AA were measured using high performance liquid chromatography prior to surgery and at the end of the operation. All patients received standard anesthesia and surgical care. Results are reported as mean ± standard deviation of the mean. Differences in mean values were assessed by Student's t-test. All p-values presented are 2-tailed.

ABSTRACT BODY: Results (Abstract Submission): 20 patients were studied with 10 patients in each group. Baseline characteristics and surgical data were similar between the two groups. Plasma concentrations of all AAs intraoperatively decreased in the presence of high dose insulin therapy. Plasma concentrations of 14 out of 19 AAs including branched chain AAs (valine, leucine, isoleucine) were signifcantly lower than the control group.

ABSTRACT BODY: Discussion (Abstract Submission): High-dose-insulin therapy resulted in a significant reduction in plasma AA, particularly BCAA, during cardiac surgery. Future studies should determine if this hypoaminoacidemia is secondary to a suppression of endogenous protein breakdown, an increase in protein synthesis or a combination of both.

ABSTRACT BODY: References (Abstract Submission): (1) Anesth Analg 2004;99:319-24.
(2) Anesthesiology 2009;110:408-21.
(3) Clinical Intensive Care 1998;9:118-28.

(No Table Selected)

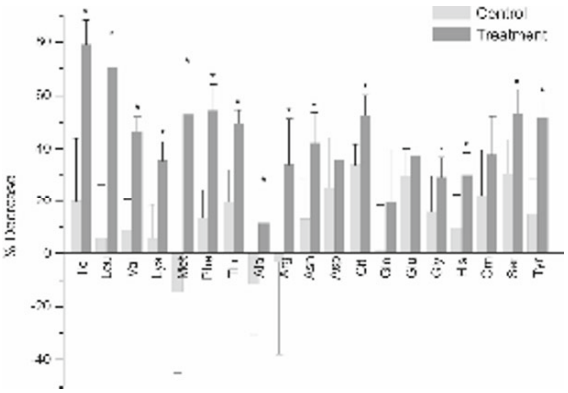

IMAGE CAPTION:

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical
KEYWORDS: Amino Acids, Insulin, Cardiac Surgery.

CONTROL ID: 802637

TITLE: USE OF ULTRASOUND FOR EARLY DETECTION OF RADIAL ARTERY PSEUDOANEURYSM

CONTACT (NAME ONLY): Angela Truong

CONTACT (INSTITUTION ONLY): MD Anderson Cancer Center

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): Patient consent was obtained in accordance with local institutional guidelines.

A 73-year-old male underwent right upper lobe resection for lung cancer. Medical history included chronic bronchitis, hypertension, coronary artery disease and previous deep vein thrombosis. Clopidogrel had been discontinued 5 days before surgery. A left radial arterial catheter was inserted for intraoperative monitoring. Postoperatively he was transferred to the intensive care unit. Two days later the arterial catheter was removed without apparent complications. On postoperative day 3 however, he was noted to have erythema and induration at the site of the arterial puncture. The area became progressively more inflamed and tender. Because of the marked swelling and induration of the involved area, the mass did not appear pulsatile and it was impossible to make a diagnosis of PA vs simple hematoma based on clinical examination alone. Therefore, an ultrasound was performed and a 1.5 x 2 cm PA was detected. A small abscess with severe inflammation was seen in the surrounding tissues. The patient was brought to the operating room for PA resection. Surgery was uneventful. Postoperatively, there was no vascular compromise of the involved hand and wrist.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): Arterial catheterization is commonly performed not only for blood pressure monitoring and blood sampling, but also for estimation of cardiac output. Pseudoaneurysm is a rare but potentially serious complication of arterial cannulation (1).

A PA or false aneurysm is a pulsatile hematoma due to continued bleeding from a puncture in the arterial wall. Blood flows into the PA cavity during systole and out of the PA to the artery during diastole. In contrast, in the case of a simple hematoma, the bleeding has completely ceased. A true aneurysm involves the collection of blood accumulated between the layers of the arterial wall.

Predisposing factors for PA formation include the use of large bore catheters, multiple attempts, transfixion techniques during cannulation, and inadequate manual compression after catheter removal. Patient risk factors include anticoagulation, hypertension, wide pulse pressure, and atherosclerosis (2). Compression ischemia and necrosis of the arterial wall and neighboring structures (nerves, veins, skin and subcutaneous tissue) can result from a PA, especially if the diagnosis is delayed. Classically, a PA presents as an inflamed, indurated, very tender pulsatile mass at the site of puncture with a palpable thrill and audible bruit. In clinical practice, these signs may not always be evident and a PA is often misdiagnosed as a simple hematoma.

It is crucial to have a high index of suspicion and use ultrasound to confirm the diagnosis as early as possible. On ultrasound a PA appears as a cystic structure with evidence of blood entering it during systole and exiting it during diastole, with swirling blood flow within the PA cavity. In this case, ultrasound proved invaluable for an early diagnosis, timely surgical intervention and ultimately a successful outcome.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): To describe a case in which ultrasound was used for the early detection of a radial artery pseudoaneurysm (PA) that resulted after arterial cannulation.

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: ultrasound, vascular, perioperative complications.

CONTROL ID: 802743

TITLE: THE USE OF INTRAOPERATIVE TRANSESOPHAGEAL ECHOCARDIOGRAPHY FOR LUNG TRANSPLANT: IMPACT ON SURGICAL MANAGEMENT

CONTACT (NAME ONLY): Massimiliano Meineri

CONTACT (INSTITUTION ONLY): Toronto General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Lung transplant surgery is a ASA category II indication for the intraoperative use of transesophageal echocadiography(1). TEE allows assessment of baseline cardiac anatomy and function, complete intraoperative hemodynamic monitoring and postoperative assessment of surgical anastomoses. The lack of certified echocardiographers, the cost of the equipment and unclear impact on surgical management make routine used of TEE in this clinical setting very variable among centers. At our Institution, the practice varies among anesthetists. With this study we wanted to review our current practice and assess the impact of TEE on surgical management.

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval, we reviewed all lung (single and double) and heart-lung transplants performed at our institution from January 2007 to December 2009. Of all lung transplant recipients we identified the patients who had an intraoperative TEE. TEE reports were reviewed and confirmed against the stored loops by a certified echocardiographer. We selected the patients who had: incidental findings and presence of patent foramen ovale (PFO) at baseline or abnormal flow in the pulmonary veins and the pulmonary arteries (PA) anastomoses after reperfusion of the graft. We subsequently reviewed the surgical notes for each patient to assess if any additional surgical procedure was performed as a consequence of the intraoperative TEE findings.

ABSTRACT BODY: Results (Abstract Submission): In the study period 279 lung transplants we performed. 49 (18%) patients received an intraoperative TEE. Results are summarized in Tab. 1. At baseline: one patient had an incidental finding of a mobile mass on the mitral valve and 3 patients were found to have a PFO. None of these patients underwent any additional surgery. After reperfusion of the graft: in one patient turbulent flow was noticed at the level of the PA anastomosis but was not considered clinically significant. Finally, of six patients were with abnormal pulmonary venous flow, in only one case the anastomosis was redone without a significant improvement in flow velocity.

ABSTRACT BODY: Discussion (Abstract Submission): The results from this small retrospective study are in contrast with other Authors who reported a more significant impact of intraoperative TEE on surgical management (2, 3). A careful multidisciplinary preoperative assessment may have minimized incidental findings. As previously reported (3), the high volume of our center and its years of experience could justify a low incidence of significant iatrogenic stenosis. The correct clinical approach to turbulent flow in the pulmonary veins and its impact on long term outcome are unclear. These findings need to be confirmed by a larger prospective study.

ABSTRACT BODY: References (Abstract Submission): 1 Anesthesiology 1996; 84: 986-1006.
2 Ann Thorac Surg 1995; 59: 717-22.
3 Clin Transplant 2009.

		N (%)	Surgical Treatment
2007-2009	Lung transplants	279	
	Intraoperative TEE	49 (18)	
Baseline	Incidental Findings	1 (2)	None
	PFO	3 (6)	None
Graft Reperfusion	Abnormal PA flow	1 (2)	None
	Abnormal PV Flow	6 (12)	1

TEE: trasesophageal echocardiography, PFO: patent foramen ovale, PA: pulmonary arteries, PV: pulmonary veins.

TABLE TITLE:

TABLE FOOTER:
TEE: trasesophageal echocardiography, PFO: patent foramen ovale, PA: pulmonary arteries, PV: pulmonary veins.

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Lung translplant , Trasesophageal echocardiography, Surgical Management.

CONTROL ID: 803031

TITLE: HBA1C AS A PREDICTOR OF INSULIN SENSITIVITY DURING CARDIAC SURGERY

CONTACT (NAME ONLY): Tamaki Sato

CONTACT (INSTITUTION ONLY): Royal Victoria Hospical, McGill

ABSTRACT BODY: Introduction (Abstract Submission): Evidence suggests that perioperative impairment of insulin sensitivity, a marker of the intensity of surgical stress, is important for outcomes. This study investigated the association between the quality of preoperative glycemic control as reflected by plasma glycosylated hemoglobin A (HbA1c), intraoperative insulin sensitivity and adverse events after cardiac surgery.

ABSTRACT BODY: Methods (Abstract Submission): With the approval of the local Research Ethics Board, we assessed and consented non-diabetic and diabetic patients scheduled for elective cardiac surgery requiring extracorporal circulation. Based on their HbA1c levels diabetic patients were allocated to a group with good (HbA1c <6.5%) or poor (HbA1c >6.5%) preoperative glycemic control. Primary outcome was insulin sensitivity during cardiac surgery as assessed by the hyperinsulinemic-normoglycemic clamp technique. Secondary outcomes were major complications within 30 days after surgery including mortality, myocardial failure, stroke, dialysis and serious infection. Other outcomes including minor infections, blood product transfusions, the duration of intubation and the length of intensive care unit (ICU) and hospital stay were also recorded.

ABSTRACT BODY: Results (Abstract Submission): One-hundred and forty three non-diabetic and 130 diabetic patients were studied. In diabetic patients, a negative correlation ($r = -0.527$, $p<0.001$) was observed between HbA1c and insulin sensitivity. Diabetic patients with a HbA1c concentration >6.5%, had a greater incidence of major complications ($p=0.010$), severe ($p=0.035$) and minor infections ($p=0.006$), received more blood products, and spent more time in the ICU ($p=0.030$) and the hospital ($p<0.001$) than non-diabetic patients.

ABSTRACT BODY: Discussion (Abstract Submission): In diabetic patients preoperative HbA1c plasma levels predict insulin sensitivity during open heart surgery. Poor preoperative glycemic control is associated with an increased risk of complications after surgery.

ABSTRACT BODY: References (Abstract Submission): 1. Curr Opin Clin Nutr Metab Care. 1999;2:69-78.
2. Surgery. 2000;128:757-760.
3. Am J Physiol. 1999;276:E754-761.
4. Br J Surg. 1994;81:59-63.

(No Table Selected)

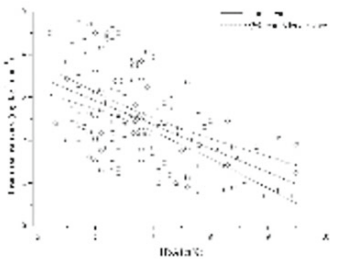

IMAGE CAPTION:

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: HbA1c, Outcome, Insulin Sensitivity .

CONTROL ID: 803340

TITLE: EFFECT OF SEVOFLURANE VS. PROPOFOL ON DIASTOLIC FUNCTION IN PATIENTS UNDERGOING AORTIC VALVE REPLACEMENT

CONTACT (NAME ONLY): Bernard McDonald

CONTACT (INSTITUTION ONLY): University of Ottawa Heart Institute

ABSTRACT BODY: Introduction (Abstract Submission): Diastolic dysfunction (DD) may contribute to morbidity post CPB(1) but may be mitigated by volatile anesthetic cardioprotection(2). While examination of the LV end diastolic PV relationship is not easily performed at the bedside (3) one may use PAOP and TEE estimation of end diastolic area (EDA) as surrogates. We sought to compare the effect of sevoflurane vs. propofol in patients undergoing AVR on the relationship between PAOP and EDA under varying loading conditions.

ABSTRACT BODY: Methods (Abstract Submission): Following research ethics board approval and written informed consent, patients with severe AS referred for AVR (+/-CABG) with normal LVEF and no contraindication to TEE were recruited. After anesthetic induction with midazolam & sufentanil, PAOP and TEE EDA were simultaneously obtained under two loading conditions: reverse trendelenburg and supine with legs elevated. Patients were then randomized to receive either 1 MAC sevoflurane vs. propofol-based anesthesia with the study echocardiographer blinded to treatment. The above measurements were repeated under these same loading conditions at time of chest closure and four hours post.

ABSTRACT BODY: Results (Abstract Submission): 27 patients were randomized to the two treatment arms with interim analysis results presented for 16 patients (9 sevoflurane vs. 7 propofol). The treatment groups did not differ with regard to biometrics, severity of AS (mean AV gradient), burden of CAD, and intraoperative ischemic arrest time. The LV pressure vs. area relationship as expressed by delta PCWP/delta LVEDA was not significantly different between the two treatment groups and did not change significantly over time (Fig).

ABSTRACT BODY: Discussion (Abstract Submission): This interim analysis failed to reveal any cardioprotective effect of sevoflurane on diastolic function which may indicate that any cardioprotective effect of sevoflurane on DD is clinically negligible or that our methodology in employing PAOP and TEE LVEDA as surrogates to examine the LVEDP/LVEDV relationship is insufficiently sensitive to reveal any true benefit

ABSTRACT BODY: References (Abstract Submission): 1)Eur J Cardiothoracic Surg 2009 35: 241 – 249
2)Anesthesiology 1995 83:1021-1035
3)Am J Physiol Heart Circ Physiol 2005 289:H501-H512
4)Anesth Analg 2009 108:48-66

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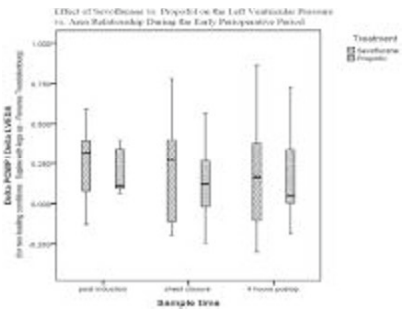

IMAGE CAPTION:

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: diastolic function, transesophageal echocardiography, anesthetic cardioprotection.

CONTROL ID: 803340

TITLE: EFFECT OF SEVOFLURANE VS. PROPOFOL ON DIASTOLIC FUNCTION IN PATIENTS UNDERGOING AORTIC VALVE REPLACEMENT

CONTACT (NAME ONLY): Bernard McDonald

CONTACT (INSTITUTION ONLY): University of Ottawa Heart Institute

ABSTRACT BODY: Introduction (Abstract Submission): Diastolic dysfunction (DD) may contribute to morbidity post CPB(1) but may be mitigated by volatile anesthetic cardioprotection(2). While examination of the LV end diastolic PV relationship is not easily performed at the bedside (3) one may use PAOP and TEE estimation of end diastolic area (EDA) as surrogates. We sought to compare the effect of sevoflurane vs. propofol in patients undergoing AVR on the relationship between PAOP and EDA under varying loading conditions.

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2)Anesthesiology 1995 83:1021-1035
3)Am J Physiol Heart Circ Physiol 2005 289:H501-H512
4)Anesth Analg 2009 108:48-66

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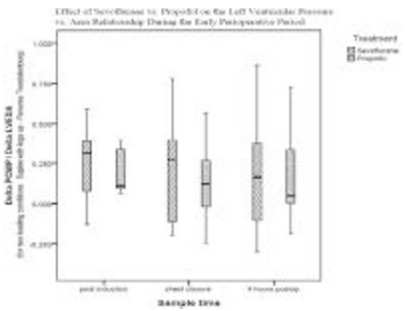

IMAGE CAPTION:

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: diastolic function, transesophageal echocardiography, anesthetic cardioprotection.

CONTROL ID: 795693

TITLE: DOES A MIDWIFE'S KNOWLEDGE AND OPINION AFFECT A LABOURING WOMAN'S CHOICE OF PAIN RELIEF?

CONTACT (NAME ONLY): Anand Shirgaonkar

CONTACT (INSTITUTION ONLY): Hull Royal Infirmary

ABSTRACT BODY: Introduction (Abstract Submission): Epidural rates vary greatly between different hospitals. There are no established reasons for this variation. Education, socio-economic status and race have been shown to effect the choice of analgesia in labour(1). Graninger et al in their study showed the negative attitude of midwives towards increased use of epidurals for labour analgesia (2) Statistics from national obstetric anaesthetic database (NOAD) 2006 data show epidural use in two hospitals in north eastern England varied widely (19.9% v/s 41.7%). We conducted a survey in these two hospitals to determine whether the midwives' attitudes to epidurals varied between the hospitals and what role this may play in womens' decision making.

ABSTRACT BODY: Methods (Abstract Submission): This survey was conducted in two hospitals in north east England, with approval from the clinical effectiveness department. Questionnaires were sent to all the midwives (email in hospital A, paper in hospital B). Responses were anonymised.

ABSTRACT BODY: Results (Abstract Submission): 45 out of 93 (48.3%) midwives responded in hospital A and 66 out of 95 (69.5%) in hospital B.

In our survey we found a significant number of midwives in hospital A preferred not to use an epidural if they were in labour (26.6%) compared to midwives in hopital B (45.4%) p=0.0451. 22.2% in hospital A would not recommend an epidural to their close friend or relative compared to 36.3% in hospital B (p=0.113). Significantly more midwives in hospital A agreed with the statements epidurals increase lower segment cesarean section (LSCS) rate (51.3% v/s 27.3% p=0.0106) and epidurals increase instrumental delivery rate (84.5% v/s 62.1% p=0.0108).

ABSTRACT BODY: Discussion (Abstract Submission): Midwives in hospital A were clearly less positive about using epidurals than those in hospital B and believe that they reduce the chance of vaginal delivery. We believe that this attitude helps to explain the different epdiural rates between the two hospitals.

We conclude from this study that the epidural rates in these two hospitals are affected by midwives attitudes and beliefs

ABSTRACT BODY: References (Abstract Submission): 1. Le Ray C; Goffinet F; Palot M et al. Factors associated with the choice of delivery without epidural analgesia in women at low risk in France. Birth: Issues in Perinatal Care (BIRTH), 2008 Sep; 35(3): 171-8 (31 ref)

2. Graninger EM, Mc Cool WP. Nurse - midwives' use of and attitudes toward epidural analgesia. Journal of Midwifery and women's health. 1998; 43: 250-26

	Epidural Rate	If I were in labour I would have an epidural	I would recommend an epidural to a close friend or relative	Epidurals increase LSCS rate	Epidurals increase instrumental delivery rate
Hospital A	19.9%	12/45(26.6%)	10/45 (22.2%)	23/45 (51.1%)	38/45 (84.5%)
Hospital B	41.7%	30/66 (45.4%)	24/66 (36.3%)	18/66 (27.3%)	41/66 (62.1%)

TABLE TITLE:

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CATEGORY: Obstetric Anesthesia
KEYWORDS: labour epidural, midwives attitude.

CONTROL ID: 800093

TITLE: PRE-EMPTIVE ANALGESIA USING INTRAVENOUS FENTANYL FOR ELECTIVE CEASAREAN SECTION UNDER GENERAL ANESTHESIA DOSE NOT HAVE SIDE EFFECTS ON NEWBORN APGAR

CONTACT (NAME ONLY): Khosrou Naghibi

CONTACT (INSTITUTION ONLY): Isfahan University of Medical Sciences

ABSTRACT BODY: Introduction (Abstract Submission): Maternal labour pain and stress are associated with progressive fetal metabolic acidosis. Opioid systemic analgesia is associated with a decrease in FHR-variability and worse acid-base and neonatal status compared to epidural or combined spinal epidural analgesia (1). Fentanyl is an effective preemptive analgesic but but considered to have depressant effects on newborn Apgar score. Maternal analgesia and sedation with fentanyl (1 microg x kg(-1)) and midazolam (0.02 mg x kg(-1)) immediately prior to spinal anesthesia is not associated with adverse neonatal effects(2).In an effort to obtain more information about preemptive analgesia of intravenous Fentanyl and its depressant effects on newborn apgar score, this study was done.

ABSTRACT BODY: Methods (Abstract Submission): After approval from our local ethics committee and obtaining written informed consent, in this randomized, double -blind , placebo- controlled, study, 64 , ASA physical status I and II, aged 20 - 35 yr, who were undergoing elective Caesarean Section under general anesthesia were randomly allocated into two groups. Group I (N= 32) received 2 mic/kg Fentanyl before induction of general anesthesia and Group II (N = 32) received 2 cc Normal Saline. In the recovery room pain was assessed using the Visual analog Scale (VAS).in addition, the newborn Apgar score and the time to first postoperative analgesics and additional analgesic requirement were assessed up to 24 h after operation.

ABSTRACT BODY: Results (Abstract Submission): There were no significant differences between the two groups with respect to age, weight, ASA class, surgical duration and Clinical characteristics. The pain score and analgesic requirements were significantly less in preemptive group compared with Placebo group ($P< 0.01$). No significant differences between the two groups were observed with regard to newborn Apgar score at 1 and 5 min after birth.

ABSTRACT BODY: Discussion (Abstract Submission): A single dose of Fentanyl(2 microg x kg-1) before induction of general anesthesia in elective Ceasarean section resulted superior analgesia in postoperative period and a reduction in postoperative morphine consumption without significant side effects on newborn Apgar.

ABSTRACT BODY: References (Abstract Submission): 1 – J Gynecol Obstet Biol Reported 2008 ,37: 46 -55.
2 – Can J Anesth 2006 , 53 : 79-85

(No Table Selected)

(No Image Selected)

CATEGORY: Obstetric Anesthesia

KEYWORDS: Cesarean section, Fentanyl, Apgar Score.

CONTROL ID: 800643

TITLE: ULTRASOUND GUIDED TAP BLOCKS FOR POST-CESAREAN SECTION PAIN RELIEF: A PILOT STUDY

CONTACT (NAME ONLY): Marcos Silva

CONTACT (INSTITUTION ONLY): University of Western Ontario

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): METHODS:
After obtaining the REB approval, we carried out an unblinded prospective study of two non-randomized cohorts of 10 patients each. Informed consent was obtained from each patient. Adult women with an ASA score of 1-2 that were at term gestation with singleton fetuses were included. These women were booked for elective CS under spinal anesthesia. Patients with BMI > 40, history of chronic pain, opioid dependency, substance abuse or allergy to local anesthetic were excluded. All women received spinal bupivacaine 0.75% (10-12 mg), fentanyl (10-15 mcg) and epidural morphine (100 – 150 mcg). They were also given standard postoperative multimodal analgesia in a PRN basis, which included NSAIDs, acetaminophen and codeine. The patients in the TAP block group received USG bilateral TAP blocks with ropivacaine 0.5%, 3 mg/kg, with a max. dose of 60 ml or 300 mg total at the end of the CS. Block levels were assessed 4 hours after spinal placement. Pain scores (with rest & movement) in both groups were recorded at 24h.

RESULTS:
Baseline characteristics including age, BMI, parity, and previous CS were similar between groups. The pain scores in the TAP block group vs. the control group at 24h at rest were 0.8 (1.03) vs. 3.3 (1.4) respectively (p value = 0.0003). The pain scores in the TAP block group vs. the control group at 24h with movement were 2.9(1.2) vs. 6.1 (0.9) respectively, (p value= 0.0001). The epidural morphine used was similar in both groups, 115 mg (SD 33.7) in the TAP block group and 140 mg (SD 45.9) in the control group (p value = 0.18). The total codeine consumption at 24h was less in the TAP block group compared to the control group: 102 mg (40.5) vs. 147 mg (45.7) respectively (p value = 0.031). The time for the first request of codeine was longer in the TAP block group compared with the control group: 17.8 h (1.5) vs.16.2h (1.9) respectively, (p value= 0.007). The TAP blocks were easily carried out with no complications and in an average time of 12 minutes. Average sensory block levels to ice at 4h were T10.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): In this pilot study, bilateral US guided TAP blocks were feasible and effective for post CS pain relief in term parturients.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): A pilot study was carried out to assess the feasibility and efficacy of bilateral USG TAP blocks for post cesarean section (CS) pain relief at 24h in term parturients.

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(No Image Selected)

CATEGORY: Obstetric Anesthesia

KEYWORDS: TAP Block, Pain relief, Cesarean section.

CONTROL ID: 800656

TITLE: THE ANESTHETIC MANAGEMENT OF A PARTURIENT WITH FONTAN CIRCULATION COMPLICATED BY PULMONARY EMBOLISM: CASE REPORT AND LITERATURE REVIEW

CONTACT (NAME ONLY): Marcos Silva

CONTACT (INSTITUTION ONLY): University of Western Ontario

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): The patient gave written informed consent for publication of this information. A 26-year-old woman with a known Fontan circulation presented at 26-weeks gestation with premature rupture of membranes and was admitted to our hospital for monitoring. At 30-weeks gestation, she developed shortness of breath and was diagnosed with pulmonary embolism. Anticoagulation therapy was then started. A multidisciplinary case conference was conducted and at 34-weeks gestation, the anticoagulation was stopped and an elective cesarean delivery using slowly titrated epidural anesthesia guided by invasive blood pressure monitoring was performed successfully. The patient remained comfortable and hemodynamically stable. At the end of surgery, preservative-free morphine was administered in the epidural catheter and ultrasound guided bilateral transversus abdominis plane blocks were carried out as part of a multimodal analgesia approach. She was monitored in the step up unit for 24 hours post delivery and discharged home 6 days later. Both patient and her baby did well. Anesthetic concerns included the challenges of her Fontan physiology, which was complicated by pulmonary embolism and anticoagulation therapy.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): With a multidisciplinary approach and careful monitoring, a cesarean delivery in a pregnant patient with Fontan circulation complicated by pulmonary embolism was performed successfully under carefully titrated epidural anesthesia.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): Anesthetic management of parturients with Fontan circulation can be challenging due to the unique physiology where venous blood flows passively into the pulmonary arteries. In these patients, cardiac output is dependent on pulmonary blood flow, therefore, prevention of hypovolemia and avoiding any increase in pulmonary vascular resistance are key factors in maintaining hemodynamic stability.

We describe the anesthetic management of a parturient with Fontan circulation complicated by pulmonary embolism having cesarean delivery.

We also describe a literature review of parturients with Fontan circulation who had cesarean deliveries. For this purpose, we performed a Pubmed search using the words Fontan cesarean section, cesarean delivery and anesthetic management, between 1980- 2008 in English. See table 1.

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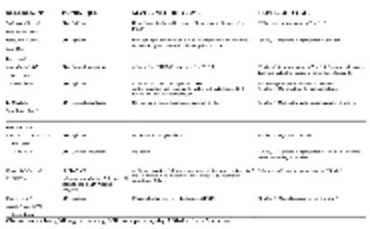


IMAGE CAPTION:

CATEGORY: Obstetric Anesthesia

KEYWORDS: Fontan circulation, Anesthetic management, Cesarean delivery.

CONTROL ID: 801537

TITLE: SUBCUTANEOUS TRAMADOL OR PETHIDINE ON POSTCESAREAN ANALGESIA

CONTACT (NAME ONLY): Mitra Jabalameli

CONTACT (INSTITUTION ONLY): Departement of Anesthesia , Isfahan University of Medical Sciences

ABSTRACT BODY: Introduction (Abstract Submission): The postoperative analgesic effects of subcutaneous wound infiltration with tramadol and pethidine have not been extensively studied and compared with the same routs of local anesthetics or opioids(1,2).The aim of this study was to compare the subcutaneous tramadol, pethidine and bupivacaine on postcearean pain relief.

ABSTRACT BODY: Methods (Abstract Submission): After institutional approval and obtaining informed patient consent, 120 ASA physical status I-II women scheduled for e cesarean section were included in the study.At the time of skin closure,patients allocated to 1 to 4 groups.Patients in group P:pethidine 50 mg SC,group T: tramadol 40 mg SC, group B:bupivacaine 0.25% , 0.7mg/kg SC and group C received 20ml normal saline SC.
Patients and staff involved in data collections were unaware of the patient group assignment. Pain intensity,frequency of nausea and vomiting and opioid consumption evaluated on arrival in recovery room and then 15, 30, 60 minutes and 2 , 6, 12 ,24 hours after arrival in the recovery.

ABSTRACT BODY: Results (Abstract Submission): VAS scores were significantly lower in groups T and P compared with groups B and C except for 24h (VAS arest) and 6h (VAS on coughing) post operatively. VAS scores at rest were significantly lower in group P compared with group T at 0,15, 30 minutes and 24 hours postoperatively. Also VAS scores, on coughing were significantly lower in group P comared with group T at 0, 15 minutes, 1, 2 and 24 hours postoperatively.The number of patients requiring morphine were significantly ($P<0.05$) different between the groups (105 doses VS 87, 56, 46, doses for group C, B, T and P Respectively) in all the times except for 2 and 6 hours postoperatively.The incidence of nausea and vomiting was not different between the four groups .

ABSTRACT BODY: Discussion (Abstract Submission): The administration of subcutaneous pethidine or tramadol after cesarean delivery improves analgesia and has a significant morhine sparing effect compared with bupivacaine and control groups.So, we conclude that pethidine or tramadol may be good choices for postcesarean pain relief.

ABSTRACT BODY: References (Abstract Submission): 1- T.N.Trotter, Gregson H, et al. Wound infiltration of local anesthetic after lower segment caesarean section. Anaesthesia, 1991,46:P 404-407.
2- Atunkaya H,Ozer Y,Kargi E, Babuccu O. Comparison of local anaesthetic effects of tramadol with prilocaine for minor surgical procedures. Br J Anaesth 2003;90:320-2.
1464.

(No Table Selected)

(No Image Selected)

CATEGORY: Pain: Acute - Basic and Clinical

KEYWORDS: Tramadol, Pethidine, postcesarean pain.

CONTROL ID: 801680

TITLE: A COMPARISON BETWEEN PROPOFOL AND THIOPENTAL SODIUM ON HEMODYNAMIC VARIABLES IN CESAREAN SECTION

CONTACT (NAME ONLY): Shekoufeh Behdad

CONTACT (INSTITUTION ONLY): Yazd university of medical sciences

ABSTRACT BODY: Introduction (Abstract Submission): In this prospective clinical trial the effects of propofol and thiopental sodium on hemodynamic variables were compared in parturients undergoing elective cesarean section.

ABSTRACT BODY: Methods (Abstract Submission): The study was approved by the Ethics Committee and the patients gave written informed consent.70 patients were randomly allocated into two groups. In the first group (P) anesthesia was induced with propofol and in the second group (T) with thiopental sodium.All women recieved atracurium before laryngoscopy and intubation of the trachea. Maintenance of anesthesia was the same in both groups:fentanyl(100 microgram)after birth of the neonate with 0.5 Mac isoflurane and O2-N2O(50%-50%).Hemodynamic variables including systolic ,diastolic , mean blood pressures, and heart rate were measured before induction of anesthesia (baseline), immediately after intubation, and after placental removal. Also APGAR score in the neonate 1 and 5 minutes after birth were recorded in both groups.

ABSTRACT BODY: Results (Abstract Submission): Systolic ,diastolic ,mean blood pressures and heart rates after laryngoscopy and intubation were significantly lower in women in group P in comparison with group T(table). APGAR scores in two groups were not significantly different(all of the neonates in both groups had APGAR scores 7 or greater).

ABSTRACT BODY: Discussion (Abstract Submission): Our findings confirm the other studies(1,2,3) that anesthesia induction in cesarean section with propofol is associated with better stability in hemodynamic variables in mothers, without any adverse effects on APGAR score in neonates.

ABSTRACT BODY: References (Abstract Submission): 1-CAN J ANESTH 2005 52(7):692–696
2-Br J Anaesth 1993 70(3):306-10
3-Vojnosanit Pregl. 1998 55(6):601-4.

Hemodynamic variables in two groups in different times

	Before Induction		After Intubation		After placental removal	
	Group P	Group T	Group P*	Group T*	Group P	Group T
SBP	128.00±10.19	122.69±14.91	126.13±12.18	138.77±19.28	122.33±11.28	121.77±19.07
DBP	83.16±7.32	81.44±11.38	79.66±12.38	93.38±13.83	73.94±12.60	79.05±14.52
MBP	97.77±9.39	94.55±11.40	94.52±12.11	108.91±12.25	89.83±10.54	94.25±12.61
HR	100.77±13.43	98.91±15.73	101.75±18.79	119.52±13.92	93.88±15.79	100.41±16.04

SBP ,DBP ,MBP ,and HR are shown as mean±standard deviation
SBP:Systolic Blood Pressure
DBP:Diastolic Blood Pressure
MAP:Mean Arterial Pressure
HR:Heart Rate
*: P.Value<0.05

TABLE TITLE:
Hemodynamic variables in two groups in different times

TABLE FOOTER:
SBP ,DBP ,MBP ,and HR are shown as mean±standard deviation

SBP:Systolic Blood Pressure
DBP:Diastolic Blood Pressure
MAP:Mean Arterial Pressure
HR:Heart Rate
*: P.Value<0.05

(No Image Selected)

CATEGORY: Obstetric Anesthesia
KEYWORDS: propofol, thiopental sodium, cesarean section.

CONTROL ID: 802327

TITLE: INFORMED CONSENT TO ANESTHESIA FOR CAESAREAN - SECTION : A CURRENT STANDARD OF PRACTICE

CONTACT (NAME ONLY): Muhammad Ajmal

CONTACT (INSTITUTION ONLY): Sligo General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Patients, regulatory authorities and training bodies expect good medical practice from practitioners[1]. Obtaining consent of patients is a basic component of good medical practice. Spirit of this process is to establish a partnership between patient and healthcare provider[2]. In this partnership, medical professionals apply their knowledge and clinical judgement. Patients provide an account of their medical history, preference and acceptability of a treatment.
Patients generally have limited information of available anesthetic modalities for their caesarean-deliveries (C-Sections). Anesthesiologists do deviate from practice guidelines due to various reasons[3]. The objective of this study is to determine the extent of patients' involvement in the consent process to choose spinal or general anesthesia (GA) for their C-Sections in the representative hospitals of the North-West region of our country.

ABSTRACT BODY: Methods (Abstract Submission): With ethical approval and consent of participants, a prospective observational cohort study of the extent of patients' involvement in deciding anesthesia for their C-Section is underway. Of the proposed 50 cases, 5 have been completed. Data was acquired through the application of a questionnaire. Questions were designed to assess patients' involvement in the consent process. First C-Section, fitness for spinal and GA and willingness to participate were criteria for patient inclusion. Patients not willing, associated with healthcare profession or who received both spinal and GA for their C-Section were excluded from the study. Data collection started in January 2010. A dedicated investigator approached eligible patients within 12-24 hours in postoperative period. After having formal informations about study, willing patients were recruited. Participants were instructed to fill up a questionnaire. An information pamphlet describing spinal and GA was also distributed to assist in answering the questions.

ABSTRACT BODY: Results (Abstract Submission): Results indicated that majority of patients were not involved in consent process and deciding anesthesia for their C-Sections. Four out of five (4/5) patients did not have information about spinal and GA to choose from either. Three out of five (3/5) expressed to choose the other one than what they had in case they would have had information about both anesthetics.

ABSTRACT BODY: Discussion (Abstract Submission): It is necessary to involve patients in deciding anesthesia to gain their trust. Anesthetists might have violated the spirit of "informed consent" by not adhering to the standards of this process in majority of anesthetics for C-Sections at least in the region described. This gap in practice can be improved by education and local audit. Though not the subject of this study, both spinal and GA has inherent advantages and disadvantages for C-Sections[4]. If patients are involved in the decision making process, they will be obligated to share responsibility in case of mishappening.

ABSTRACT BODY: References (Abstract Submission): 1.General Medical Council. Good Medical Practice. London, UK 2006.
2. General Medical Council. Consent: patients and doctors making decision. London, UK 2008.
3. Phipps DL, et al. Motivational influences on anaesthetists use of practice guidelines. *Br J Anaesth* 2009; **102**:768-74
4. Cook TM, Counsell D, Wildsmith JAW.Major complications of central neuraxial block: report on the Third National Audit Project of the Royal College of Anaesthetists. *Br J Anaesth* 2009;**102**:179-90.

(No Table Selected)

(No Image Selected)

CATEGORY: Education

KEYWORDS: Informed consent.

CONTROL ID: 802736

TITLE: AIRWAYS MANAGEMENT FOR GENERAL ANESTHESIA IN OBSTETRIC PATIENTS

CONTACT (NAME ONLY): Eugene Zoumenou

CONTACT (INSTITUTION ONLY): Hôpital de la Mère et de l'Enfant Lagune

ABSTRACT BODY: Introduction (Abstract Submission): Pregnant patients undergoing general anesthesia are at increased risk of aspiration because of several well-known factors. All standards strongly recommend systematic tracheal intubation if general anesthesia is required in obstetrics. However, recent data have shown contradictions between recommendations and practices [1]. The objective of this study was to describe the airways management and respiratory complications during general anesthesia in obstetric patients.

ABSTRACT BODY: Methods (Abstract Submission): After approval of local ethical committee, we conduct a retrospective study in our university maternity. All parturients who underwent general anesthesia for cesarean sections or obstetrical complications in year 2007 were included. Data were collected in the anesthesia registers. Ectopic pregnancies, cerclages and other parturients under 26 weeks of gestation were excluded. Demographic data, anesthesia management, indication and duration of anesthesia, respiratory complications were recorded.

ABSTRACT BODY: Results (Abstract Submission): We recorded 474 general anesthesia for cesarean and 270 for obstetrical complications. Emergency cesareans represent 79%. The Mean age of our patients was 26 ± 8,3 (13 to 45 years). Obstetrical complications requiring general anesthesia were composed of: repair of cervical or vaginal or perineal tears (30%), examination of the uterus for postpartum hemorrhage (46%), manual placental removal (19%) and internal rotation (5%). 598 interventions (80%) had duration of less than one hour. Thiopental (78%) and Ketamine (90%) were respectively the main narcotics used for cesarean sections and obstetrical complications. While tracheal intubation was systematic for cesarean sections the rate, only 15.5% of patients had tracheal intubation for obstetrical complications (Table 1). We observed two cases of fatal aspirations during cesareans (0.4%), results of one difficult intubation and one failed intubation. There were no severe respiratory complications during general anesthesia without tracheal intubation for obstetrical complications.

ABSTRACT BODY: Discussion (Abstract Submission): This study showed a high rate of fatal aspirations during cesarean sections in our hospital. Systematic tracheal intubation remains the normal policy to secure general anesthesia for cesarean sections. This recommendation does not seem to be justified for the practice of general anesthesia for obstetrical complications.

ABSTRACT BODY: References (Abstract Submission): 1- Zieleskiewicz L, Bellefleur J-P, Antonini F, Ortega D and Al. Airway management for anaesthesia performed at the end of labour: Survey of practices. Annales Françaises d'Anesthésie et de Réanimation 2009 ; 28 (2) : 119-123

Table 1: Anesthetics, airways management and complications

Characteristics	GA for cesarean n = 474	GA for obstetrical complications n = 270
thiopental	371 (78)	28 (10)
Ketamine	103 (22)	242 (90)
Intubated	468 (98.7)	42(15.5)
Non intubated	6 (1.3)	228(84.5)
Hypoxia	20 (4.2)	12(4.4)
Difficult and failed Intubations	10 (2)	1 (0.4)
Fatal aspirations	2 (0.4)	0

GA: general anesthesia; Values are given as number (percentage)

TABLE TITLE:

Table 1: Anesthetics, airways management and complications

TABLE FOOTER:
GA: general anesthesia; Values are given as number (percentage)

(No Image Selected)

CATEGORY: Obstetric Anesthesia
KEYWORDS: General anesthesia , obstetrics, airways management.

CONTROL ID: 803183

TITLE: US-GUIDED NEURAXIAL BLOCKS: LABOUR EPIDURAL EXPERIENCE

CONTACT (NAME ONLY): Marcello Toscano

CONTACT (INSTITUTION ONLY): Regional Hospital "U. Parini"

ABSTRACT BODY: Introduction (Abstract Submission): The ultrasonography (US) was integrated in anesthesia practice about 20 years ago, but only in 2002 Grau first demonstrated its efficacy in obstetric epidural analgesia (EA)(1,2). The pregnancy could be an optimal condition to apply the US-guided EA due to the frequent difficulties to find the correct anatomical landmarks. A cause of weight gain and other modifications of soft tissues in pregnancy, the epidural space appears deeper, the diameter of the intrathecal space is reduced and the epidural space is narrowed, with consequent shortening of the "safety zone" between the perforation of the ligamentum flavum (LF) and the puncture of the dura-arachnoidea mater spinalis (DAM). The aim of this report is to verify the usefulness of US in pregnancy, to overcome the pitfalls of the classic loss-of-resistance technique (LORT).

ABSTRACT BODY: Methods (Abstract Submission): According to national clinical research regulations, an informed consent to procedures was obtained. From Jan 2007 to Dec 2009, 75 parturients, consecutively scheduled for EA, were enrolled. The group included lumbar EA for pain relief during labour. US scan was performed, using the ultrasonograph (4.5 MHz pb) already present in our Delivery Room, in transverse plane (TP) and longitudinal plane (LP), measuring the distance between the skin and LF. The US distance in both scansions was correlated with the real distance found by LORT. All procedures were performed by the same staff anesthetist. Data were studied using the Pearson's analysis and results were reported as mean ± SD and correlation coefficient.

ABSTRACT BODY: Results (Abstract Submission): 52 women were nulliparous (69.3%), 23 primiparous (30.7%). The median age was 32 yrs (19-43), mean pre-pregnancy weight 61.2 (±8.9) Kg, mean gestational weight gain 14.4(±5.0) Kg. The average US distance skin-LF was 41.4 (±4.8) mm in TP and 41.7 (±4.8) mm in LP. The same average distance measured by LORT was 41.9 (±4.8) mm. The correlation coefficient was 0.99 ($p<0.01$) for LORT vs TP and 0.99 ($p<0.01$) for LORT vs LP measurements. Only in one case the needle angulation was modified due to bony contact. No cases of paresthesias or accidental perforation of the DAM occurred.

ABSTRACT BODY: Discussion (Abstract Submission): There is an excellent correlation between the US measurements in both scansions and the distance detected with the LORT. These data are preliminary. However, as demonstrated, the routinary use of US for EA may be interesting especially in pregnancy, whereas the particular status of the patients remains a challenge also for expert anesthesists in order to avoid patient discomfort and technique-related complications.

ABSTRACT BODY: References (Abstract Submission): [1] Cork RC. Anesthesiology 1980;52:513-6.
[2] Grau T. J Clin Anesth 2002;15:169-175

(No Table Selected)

(No Image Selected)

CATEGORY: Obstetric Anesthesia

KEYWORDS: ultrasound guided epidural.

CONTROL ID: 803394

TITLE: PREEMPTIVE EFFECT OF KETAMINE IN CESAREAN SECTION

CONTACT (NAME ONLY): Parviz Kashefi

CONTACT (INSTITUTION ONLY): Isfahan University of Medical Sciences

ABSTRACT BODY: Introduction (Abstract Submission): In spite of a sound theoretical base and encouraging animal studies, the clinical value of preemptive analgesia remains to be fully evaluated. Ketamine can prevent the induction of central sensitization caused by peripheral nociception stimulation and blocks the wind-up phenomenon(1,2). This study was established to examine the value of preemptive and preventive effect of ketamine in patients undergoing cesarean section under general anesthesia.

ABSTRACT BODY: Methods (Abstract Submission): After local ethical committee approved and written informed consent, in this prospective; randomized, double-blind study 75ASA physical status I and II patients between 16 -45 years of age who were scheduled for elective cesarean were assigned randomly to receive either a single dose of Ketamine (15mg) after the induction of anesthesia and normal saline at the end of surgery (G1group) , normal saline after the induction of anesthesia and ketamine at the end of surgery (G2 group),or normal saline after the induction of anesthesia and at the end of surgery (G3 group) intravenously (n = 25 in each group). The anesthesia protocol was the same for all patients. . The analgesic requirement and pain score was assessed (using a visual analogue scale;VAS) during first 24 hours(every 6 h) in the postoperative period. If the patient had a VAS more than 4, 0.1mg /kg morphine administrated intravenously.

ABSTRACT BODY: Results (Abstract Submission): Seventy five patients were enrolled in the study .The groups were similar in age,weight, gender, ASA physical status class, and Clinical characteristics.In observing pain score no clinically or statistically differences were found between group G1 and group G2 ($P>0.005$for G1withG2) but found with group G3 ($P<0.005$forG1&G2with G3). Morphine consumption and side effects had no differences within 3 groups.

ABSTRACT BODY: Discussion (Abstract Submission): Ketamine, an N-methyl-d-aspartate receptor antagonist, may reduce postoperative opioid demand and improve postoperative analgesia but mechanism still unclear. The ability to demonstrate a preemptive analgesic effect depends on the interaction of multiple factors. These include the extent and nature of the tissue damage, the duration of surgery, agents used preemptively, their route and timing of administration and their duration of action, the ability of other agents given during surgery to preempt postoperative pain, and the time course of central sensitization, all of which interact with the emotional, physiological, and psychological state of the patient. A small dose of ketamine may be effective for postoperative pain relief but it is not a significant difference between preemptive or preventive methods.

ABSTRACT BODY: References (Abstract Submission): 1.BJA, 2004 93(3):356-361

2.EJA, (2005), 22:7:518-523

(No Table Selected)

(No Image Selected)

CATEGORY: Pain: Acute - Basic and Clinical

KEYWORDS: preemptive, ketamine, cesarean.

CONTROL ID: 803461

TITLE: TROPICAL SPASTIC PARAPARESIS IN LABOR AND DELIVERY: CASE REPORT

CONTACT (NAME ONLY): Suzanne Lilker

CONTACT (INSTITUTION ONLY): St. Joseph's Health Centre

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): A 36 year old primip from Ethiopia was seen in consult by anesthesia at 37 weeks pregnant because she had an undiagnosed spastic syndrome. She worried that she could not push. She had increasing weakness and painful spasms mostly in the right leg. Her symptoms started as a teenager in Ethiopia. At 17 years old she had right hip spasms and it was becoming difficult to walk without pain. Her right arm started to hurt and felt slightly weaker at 25 years old. She had low back pain off and on. She was seen by a neurologist when she came to Toronto a few years ago and was tested to rule out hereditary spastic paraparesis. She had a normal brain MRI. She had a lumbar spine MRI which showed mild disc bulging at L45 and L5S1. On neurological exam she had increased reflexes and positive Babinski, mild weakness in the right leg and abnormal gait.
She was referred by anesthesia to a neurologist who diagnosed possible TSP. Blood work was sent for HTLV1and 2 and HIV with the patient's approval. She had a baseline neurological exam. After discussing the case with colleagues and comparing TSP to similar disorders, it was decided that epidural was not contraindicated. She was told that due to the progressive nature of her spasticity, her symptoms may worsen postpartum with or without epidural. Options for pain management in labor were discussed. She was reassured that she could likely deliver vaginally based on case reports.2
The patient came in a couple of weeks later in labor and requested an epidural which she received with no complications and delivered the baby vaginally with vacuum assistance. Blood work came back negative for viruses. On follow up with the neurologist a couple of months postpartum she had some mild low back pain and pain on the soles of her feet. She felt that the rate of worsening of her spasticity did not increase.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): We described the first case report of successful use of epidural analgesia for labor and delivery in a patient with possible seronegative TSP. It was decided that epidural was not contraindicated by comparing TSP to similar disorders such as MS.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): Tropical spastic paraparesis (TSP) is a viral immune mediated disorder of the spinal cord that occurs mostly in patients from countries near the equator.
It presents as slowly progressive spasticity, weakness and pain of the legs. Patients may have paresthesias, bladder dysfunction, and it rarely involves the arms. It is also known as HTLV1 associated myelopathy but can be seronegative.1 There was nothing in the literature on how to manage a pregnant patient with TSP who wants an epidural, thus REB approval and patient consent for a case report was obtained.

(No Table Selected)

(No Image Selected)

CATEGORY: Obstetric Anesthesia

KEYWORDS: tropical spastic paraparesis, epidural.

CONTROL ID: 798853

TITLE: ****** ACUTE PAIN SAFETY STUDY – THE IMPACT OF ROOT CAUSE ANALYSIS

CONTACT (NAME ONLY): James Paul

CONTACT (INSTITUTION ONLY): McMaster University

ABSTRACT BODY: Introduction (Abstract Submission): Despite the advantages of IV PCA opioids and epidural analgesia for postoperative patients treated on acute pain services (APS), these analgesia modalities expose patients to some risk of serious morbidity and even mortality. Root cause analysis (RCA), a process for identifying the causal factor(s) that underlie an adverse event (AE), has the potential to identify and address system issues and thereby increase the safety of APS patients. This prospective cohort study was designed to compare the incidence of AEs on an APS before and after the introduction of a formal RCA process in three tertiary care hospitals.

ABSTRACT BODY: Methods (Abstract Submission): The internal REB approved this study. The before cohort included 23, 198 APS patients from February 2002 to July 2007. AEs were identified and documented by APS nurses during their daily rounds. The RCA intervention was targeted at 10 AEs between August 2007 and December 2008. The process followed the Canadian Patient Safety Institutes (CPSI) framework on RCA and used an online AE reporting system that had email notifications for the follow up designates that were assigned recommendations (1). The 10 AE types targeted with RCA included respiratory depression, severe hypotension, cardiac arrest, inappropriate anticoagulation, severe sedation and prolonged motor block. The after cohort included 4352 APS patients from January 2009 to December 2009.

ABSTRACT BODY: Results (Abstract Submission): A total of 35, 384 APS patients were tracked over the 7 years of this study. The after (the RCA intervention process) cohort showed significant reductions in the overall AE rate (2.2% versus 2.84%), the rate of respiratory depression (0.41% versus 0.71%), the rate of severe hypotension (0.78% versus 1.34%), and the rate of pain pump programming errors (0.0% versus 0.08%). The rate of death, cardiac arrest, severe sedation, delirium, severe pain, inappropriate anticoagulation and prolonged motor block was not reduced. To achieve these results, 26 unique recommendations were made a total of 75 times with 16 of the recommendations being completed, 8 slated to be completed and 2 not to be completed after one year of follow up after the last RCA.

ABSTRACT BODY: Discussion (Abstract Submission): Our study found that the introduction of a formal RCA process with comprehensive follow up of the recommendations to be effective in improving the overall safety of the acute pain service, and it specifically lowered the incidence of respiratory depression, severe hypotension and pain pump programming errors. It did not reduce the incidence of the other AEs that were tracked. The biggest barrier to implementing the recommendations from the RCAs was the lack of resources.

ABSTRACT BODY: References (Abstract Submission): 1. Hoffman C, Beard P, Greenali J, U D, White J. Canadian root cause analysis framework. Edmonton: Canadian Patient Safety Institute, 2006.

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: acute pain, patient safety, root cause analysis.

CONTROL ID: 799787

TITLE: INTRACAMERAL LIDOCAINE (1%) CAN IMPROVE PAIN RELIEF AND PATIENTS SATISFACTION WITHOUT EFFECT ON CORNEAL THICKNESS DURING PHACOEMULSIFICATION UNDER TOPICAL ANESTHESIA AND SYSTEMIC SEDATION

CONTACT (NAME ONLY): Hassanali Soltani

CONTACT (INSTITUTION ONLY): Isfahan University of medical sciences

ABSTRACT BODY: Introduction (Abstract Submission): There are controversies between results of previous studies on benefits and side effects of intracameral anesthesia(1,2,3). This study was performed to evaluate safety and efficacy of intracameral lidocaine during phacoemulsification under topical anesthesia plus systemic sedation.

ABSTRACT BODY: Methods (Abstract Submission): After institutional approval and patients written informed consent, 100 patients, aged 40-80 years, ASA I and II undergoing clear corneal phacoemulsification with topical anesthesia (tetracaine 0.5% eye drop) plus intravenous sedation (fentanyl, 1.5µg/kg) were enrolled in this clinical trial. Patients were randomized into two groups, receiving either 0.1ml intracameral lidocaine 1% (L=51) or placebo (P=49). Patients intraoperative blood pressure (BP) and pulse rate (PR), pain (Visual Analog Scale: VAS, 0to10), sedation (Ramsay sedation scale, 1to6), cooperation (1to5) and satisfaction (1to4) scores and surgeons satisfaction score were assessed. Pre and postoperative central corneal thickness (µm) were measured. Data were analyzed using T-student and non parametric Mann-Whitney tests.

ABSTRACT BODY: Results (Abstract Submission): There was no statistically difference in BP, PR, sedation score, corneal thickness , patients cooperation and surgeons satisfaction between two groups. Patients in the group L had significantly less pain score than group P (0.6±1.0 vs 1.5±1.7, p=0.03). Mean patients satisfaction score in group L and group P was 3.4±0.5 and 3.1±0.7 respectively (p=0.008). Corneal thickness changes in group L and group P were +11.2±8.1 and +9.8±19.8 µm respectively (p=0.65)

ABSTRACT BODY: Discussion (Abstract Submission): Intracameral lidocaine(1% , o.1 mL) can reduce intraoperative pain and improve patients' satisfaction without deleterious effect on corneal thickness in patients undergoing phacoemulcification with topical anesthesia plus systemic sedation

ABSTRACT BODY: References (Abstract Submission): 1)Ophthalmology. 2008 ;115(3):455-87. 2)Cochrane Database Syst Rev. 2007 18;(3):CD00527. 3)J Cataract Refract Surg. 2001 ;27(10):1643-50.

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: lidocaine, phacoemulcification, intracameral.

CONTROL ID: 800980

TITLE: OPIOID MEDICATION ERRORS IN PEDIATRIC PRACTICE: FOUR YEAR'S EXPERIENCE OF VOLUNTARY SAFETY REPORTING

CONTACT (NAME ONLY): Conor Mc Donnell

CONTACT (INSTITUTION ONLY): Hospital for Sick Children

ABSTRACT BODY: Introduction (Abstract Submission): Opioids are the most common source of drug error leading to harm in pediatric practice[1]. Recent data reported that morphine and fentanyl are amongst the most harmful medications in pediatric practice[2]. Many regional and national initiatives have been implemented to address such problems, however, opioid error remains a common problem in pediatric hospital practice. One of the reasons such initiatives fail may be that they do not address local and institution-specific problems. We postulated that a comprehensive review of our institution's voluntary incident reporting database would provide information describing opioid medication errors that could be used to refine and improve the safety of opioids in this institution.

ABSTRACT BODY: Methods (Abstract Submission): We examined all safety reports submitted to an anonymous, voluntary, electronic safety-reporting database in a university-affiliated pediatric hospital for four years. We created a database of opioid-related error reports for further analysis and extracted data describing circumstances, characteristics, location and severity of such errors. Institutional ethical approval was sought and secured.

ABSTRACT BODY: Results (Abstract Submission): We collected 5935 medication related safety reports, 507 of which described opioid errors. Morphine was the most frequently reported opioid and surgical wards were the most frequently reported location. 192 administration errors were observed. Almost half of all safety reports describing morphine identified an administration error.
162 reports described issues with inappropriate opioid disposal, missing or incorrect opioid counts and checks. Twenty-two reports described patient harm requiring urgent treatment and intervention. Errors with codeine or hydromorphone resulted in the most significant harm observed. Three of the four most severe safety reports occurred between 7pm and midnight.

ABSTRACT BODY: Discussion (Abstract Submission): Administration errors continue to be a problem, we have therefore initiated a qualitative research project examining the root causes of nursing medication administration errors. The 7pm to midnight work period represents a time of risk for narcotic medication errors in our hospital and should be considered when allocating staff numbers relative to budget requirements. Physicians also surpass twelve hours of continuous work within the time period of 7pm to midnight.
In contradiction to national data reports, fentanyl was not associated with harm in this institution. However, a unique finding of this project was that unfamiliarity with pediatric dosing guidelines for codeine and hydromorphone led to significant harm.

ABSTRACT BODY: References (Abstract Submission): 1. Holdsworth MT, Fichtl RE, Behta M, et al. Incidence and impact of adverse drug events in pediatric inpatients. Arch Pediatr Adolesc Med. 2003;157:60-5.
2. Institute for Safe Medication Practices Canada (ISMP) Safety Bulletin: National collaborative: Top 5 drugs reported as causing harm through medication error in paediatrics. August 31st 2009, Volume 9, Number 6.

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: Drug error, Opioids, Pediatrics.

CONTROL ID: 801807

TITLE: PERIOERPATIVE CARE OF CARDIAC RHYTHM MANAGEMENT DEVICES

CONTACT (NAME ONLY): Gregory Bryson

CONTACT (INSTITUTION ONLY): The Ottawa Hospital

ABSTRACT BODY: Introduction (Abstract Submission): The ACC/AHA Guidelines (1) state "If a patient is pacemaker dependent, the device should be reprogrammed to an asynchronous mode during surgery...implantable cardioverter defibrillator devices (ICD) should have their tachyarrhythmia treatment algorithms programmed off." An ASA Practice Advisory makes a similar recommendation (2). In November 2007, our hospital implemented a fax referral system to streamline communication with our rhythm device clinic and decrease unnecessary referrals. The purpose of this quality assurance review was to document the volume of cardiac rhythm managment device (CRMD) referrals, the resulting management, and the outcomes of surgical patients with a CRMD.

ABSTRACT BODY: Methods (Abstract Submission): Following Research Ethics Board approval a retrospective chart review was conducted on all patients referred to the Rhythm Device Clinic in preparation for elective surgery. All records from 2007.11.07 to 2009.09.01 were eligible. Subjects were identified from a clinic log of consultation requests. A single reviewer (OSD) reviewed consultation reports and perioperative records to determine management of the CRMD and perioperative outcomes. Data are described as median (IQR) and number (%).

ABSTRACT BODY: Results (Abstract Submission): A total of 58 referals to the Rhythm Device Clinic were made over the 22 month study period. During this interval a total of 13,887 elctive surgeries were performed for a referral rate of 0.4%. Five charts could not be located in health records leaving records fo 32 pacemakers and 19 ICD for review. The leading indication for CRMD therapy was complete heart block (11, 33%) and ischemic cardiomyopathy (13, 62%) for pacemakers and ICDs, respectively. Referral intervals and outcomes are described in Table 1. It is interesting to note that four of nine pacemaker-dependent patients did not have their devices reprogrammed to an asynchronous mode. The only complication noted, electrocautery-related interference leading to bradycardia, occurred in a patient stated to be pacemaker independent. A magnet was placed over this patient's CRMD and surgery proceded without complication. A single myocardial infarction and one episode of ventricular tachycardia were noted among ICD patients following surgery. In both cases the ICD's antitachycardia functions had been reset prior to the event.

ABSTRACT BODY: Discussion (Abstract Submission): The results of this quality assurance evaluation suggest that the majority of pacemaker patients do not require reprogramming of their CRMDs prior to surgery. Intraoperative conplications were infrequent even among those considered pacemaker dependent. Postoperative complications were relatively frequent among patients with ICDs highlighting the severity of their underlying cardiac condition. A larger multicenter study to determine the neccessity of reprogramming pacemakers prior to elective surgery should be considered.

ABSTRACT BODY: References (Abstract Submission): 1. Fleischmann KE. Circulation. 2009 Nov 24;120(21):2123-51

2. ASA Task Force. Anesthesiology. 2005 Jul;103(1):186-98.

Table 1.

	Pacemaker N=32	ICD N=21
Referral to OR (days)	14 [14]	14 [12]
Referral to response (days)	3 [5]	4 [4]
CRMD-dependent	9 (28)	21 (100)
CRMD reprogrammed	9 (28)	21 (100)
Intraoperative complication	1 (3)	0 (0)
Postoperative complication	0 (0)	2 (10)

Data described as median [IQR] and N(%)

TABLE TITLE:
Table 1.

TABLE FOOTER:
Data described as median [IQR] and N(%)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: Pacemaker, Defibrillator, Perioperative.

CONTROL ID: 802417

TITLE: INCIDENCE AND PREDICTORS OF DESATURATION IN PACU

CONTACT (NAME ONLY): Naveed Siddiqui

CONTACT (INSTITUTION ONLY): Mount Sinai Hospital

ABSTRACT BODY: Introduction (Abstract Submission): In post operative care unit, quality of care is mostly judged by patient-oriented outcomes that include post operative desaturation(1). There are conflicting reports and no established guidelines in literature regarding the use of supplemental oxygen during transport from operating room to the PACU (2,3). Paucity of data on this issue has leaded us to develop this single blinded observational quality assurance study. Our primary outcome was to identify the practice patterns for patient transport following general anesthesia at our institution. As secondary outcome we wanted to evaluate predictors of desaturation with patient characteristics and transport patterns

ABSTRACT BODY: Methods (Abstract Submission): After REB approval, we conducted a quality assurance study in the PACU for a period of 3 months. All consecutive adults who received general anesthesia were included. Fourteen patient-related, surgical-related and anesthesia-related variables were investigated for predictive power. Other recorded information included baseline value of oxygen saturation and the mode by which patients were transported to the PACU.

ABSTRACT BODY: Results (Abstract Submission): A total of 502 transfers were recorded. The practice pattern showed 57% of the patients were transferred without oxygen supplementation and 19% of the total had an initial oxygen desaturation (SpO2 < 90%) on arrival to the PACU. Only 0.8% patients experienced oxygen desaturation when they were transferred with oxygen supplementation. After logistic regression analysis the most significant predictor of hypoxia was transport without oxygen. Other predictors include sedation score and respiratory rate.(Table- 1)

ABSTRACT BODY: Discussion (Abstract Submission): Our study clearly demonstrates that majority of anesthesiologist in our institution do not use supplemental oxygen for patient transfer. The most important predictor of hypoxia is the transport without oxygen. Clear guidelines and strict institutional polices should be formulated to avoid adverse outcomes.

ABSTRACT BODY: References (Abstract Submission): 1.Can J Anaesth 2001; 48:6–11
2.Anesth Intens Care 1998;16:182-6
3.Anesth Intens Care 1987;15:147-50

Table 1. Descriptive and Univariable analysis.

Variables	N = 502	p - value
Age(≤ 65yrs/<65 yrs)	20.12 / 79.88	0.135
Sex male/female)	36.82 / 63.18	0.481
BMI(≤ 30/<30)	92.23 / 7.77	0.297
ASA (I / II / III / IV)	17.03 / 59.32 / 20.84 / 2.81	n.s*
ASA (III-IV / I-II)	23.65 / 76.35	0.273
Smoking (yes/no)	20.32 / 79.68	0.123
Surgery #(a/b/c/d/e)	10.76 / 25.1/ 34.06/ 15.94 / 14.14	n.s *
Duration of anesthesia (<60 /60-119/120-179/>180 min)	0.11/ 0.34/ 0.27/ 0.28	n.s. *
Duration of anesthesia(≤120/<120 min)	0.55 / 0.45	0.757
Transport Time (1-2 / < 1min)	0.39 / 0.61	0.697
Transport on O2 (yes/no)	43.43 / 56.57	< 0.0001
Sedation (0/1/2/3)	43.49 / 41.68 / 10.02/ 4.81	< 0.0001 †

Sedation (2-3 / 0-1)	0.05 / 0.95	0.001
Respiratory Rate/min (<10/ ≤10)	0.03 / 0.97	0.005
Pain VAS (0-3/4-7/8-10)	58.44/ 27.2/ 14.36	n.s *
Pain VAS (≤5 / <5)	42.83/ 57.17	0.475
Temperature(<36/≤360C)	33.07 / 66.93	0.951
Shivering (yes/no)	1.59 / 98.41	0.166

Relative frequencies; p-value for simple logistic regression; *: non significant p-value for all groups in multiple logistic regression; †: Sedation group 3 significant p-value

TABLE TITLE:
Table 1. Descriptive and Univariable analysis.

TABLE FOOTER:
Relative frequencies; p-value for simple logistic regression; *: non significant p-value for all groups in multiple logistic regression; †: Sedation group 3 significant p-value

(No Image Selected)

CATEGORY: Patient Safety
KEYWORDS: desaturation.

CONTROL ID: 802488

TITLE: HYPERCHLOREMIA AND PATIENT OUTCOME AFTER NON-CARDIAC SURGERY

CONTACT (NAME ONLY): Stuart McCluskey

CONTACT (INSTITUTION ONLY): Toronto General Hospital, University Health Network, University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): The perioperative use of normal saline in major surgery may lead to a hyperchloremic metabolic acidosis. However, this electrolyte disturbance has not previously been associated with poor postoperative outcome. The objective of this study was to determine the incidence of prolonged hyperchloremia (chloride > 110 mEq/L on post operative days 1 to 3) and whether this hyperchloremia is associated with an increase in length of hospital stay or 30-day postoperative mortality following non-cardiac surgery.

ABSTRACT BODY: Methods (Abstract Submission): Following institutional Research Ethics Board approval, a retrospective chart review was conducted on all non-cardiac surgical patients requiring admission to hospital from January 2003 to December 2008 at a single tertiary care institution. Perioperative variables extracted from the patient's record in the Enterprise Data Warehouse included: patient demographics, co-morbidities identified from ICD10 coding, perioperative laboratory parameters (hemoglobin, chloride, glucose and creatinine), medications, and surgical variables (type of surgery and duration of the surgery). The outcome variables were length of hospital stay and in-hospital 30-day mortality. Statistical analyses were performed using SAS version 9.1. A propensity-matched cohort of patients was identified using logistic regression analysis of perioperative variables for those patients with hyperchloremia over the first 3 days after surgery and greedy match using a caliper of 0.2 times the standard deviation of the propensity score. Balancing of the pairs was measured using standardized differences (d), where absolute values smaller than 10 indicate good balancing. Paired statistical tests were used to compare the incidence of 30-day mortality (Conditional Logistic Regression) and the length of hospital stay (Wilcoxon) in the 2 groups.

ABSTRACT BODY: Results (Abstract Submission): The entire population consisted of 47,426 patients, and after removing patients with preoperative hyperchloremia, 1820 (4.8%) had prolonged postoperative hyperchloremia. Following propensity matching for gender, preoperative hemoglobin, co-morbidities, Charlson Score, medication use and surgical service, 1,777 matched pairs were identified. These 1,777 propensity-matched pairs were well balanced for age, sex, surgical service, preoperative comorbidities, serum creatinine, anemia (Hb < 130 gm/L) and medication (calcium channel blocker, beta blockers, angiotensin converting enzyme inhibitor, angiotensin II receptor blockers and statins). The length of hospital stay was greater in the prolonged hyperchloremia group (23.5 ± 31.2 vs. 19.0 ± 28.7 days; $p < 0.001$). The median difference in the length of stay was 1.78 (IQR = –5.8, 12.9). There were 207 deaths in the prolonged hyperchloremic group and 98 deaths in the matched pairs ($p = 0.001$). Patient with prolonged hyperchloremia after major non-cardiac surgery were 2.27 times more likely to die 30 days after surgery (95% Confidence interval = 1.76 – 2.92).

ABSTRACT BODY: Discussion (Abstract Submission): Prolonged postoperative hyperchloremia is associated with an increased length of hospital stay and mortality after surgery. The nature of this association will require further and more detailed investigation.

ABSTRACT BODY: References (Abstract Submission): None

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: Hyperchloremia, Outcome, non-cardiac surgery.

CONTROL ID: 802661

TITLE: THE SEVERITY OF PREOPERATIVE OSA IS THE MAJOR FACTOR PREDICTING THE POSTOPERATIVE INCREASE IN APNEA –HYPOPNEA INDEX

CONTACT (NAME ONLY): Peter Liao

CONTACT (INSTITUTION ONLY): University Health Network

ABSTRACT BODY: Introduction (Abstract Submission): After surgery, there is a significant exacerbation of the sleep breathing disorders in OSA
patients.[1,2,3] The objective of this study is to investigate the factors affecting postoperative change in apnea-hypopnea index (AHI).

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval, the preoperative patients giving consent were invited to undergo
polysomnography (PSG) with a portable device (Embletta x100) preoperative at home, first, and third postoperative night in the hospital or at home. The PSG recordings were scored by a certified sleep technologist. Then the AHI on different perioperative nights were treated as repeated measurements and analyzed with mixed model.

ABSTRACT BODY: Results (Abstract Submission): A total of 202 patients completed all 3 nights of sleep study, 93 males and 109 females. Age was 59 ± 11, and BMI 31 ± 7 . Of them, 161 patients had major surgery, 23 intermediate surgery and 18 minor surgery, with 94 under general and 108 under regional anesthesia. ASA physical status: I-3 (1.5%), II-98(48.5%), III-100 (49.5%) and IV-1 (0.5%).The opioids used in first 3 days after surgery was equivalent to 140 ± 110 mg morphine. AHI on preoperative, postoperative night 1, and night 3 was 19 ± 20, 29±30, and 37 ± 35 respectively. The AHI increase was significant on postoperative night 3 and night 5. The severity of preoperative OSA was the only significant factor predicting postoperative AHI increase ($p<0.001$).Compared to no OSA, the effect size of mild OSA , moderate OSA and severe OSA on postoperative AHI increase was 7.7 (1.5), 20.5 (1.5) and 48.8 (1.8) [beta estimate (standard error)]. Age, gender, BMI>35, ASA classification, opioids used, type of anesthesia or surgery were not significant.

ABSTRACT BODY: Discussion (Abstract Submission): Compared to preoperative value, AHI was significantly increased on night 1 and night 3 after surgery. The severity of preoperative OSA was the significant factor predicting the increase of postoperative AHI.

ABSTRACT BODY: References (Abstract Submission): none

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: obstructive sleep apnea, perioperative, polysomnography.

CONTROL ID: 803213

TITLE: MCSLEEPY – A NOVEL COMPLETELY AUTOMATIC ANESTHESIA DELIVERY SYSTEM: PERFORMANCE EVALUATION IN COMPARISON TO MANUAL CONTROL

CONTACT (NAME ONLY): Thomas Hemmerling

CONTACT (INSTITUTION ONLY): McGill University

ABSTRACT BODY: Introduction (Abstract Submission): The aim of this project was to compare the performance of a completely automatic anesthesia delivery system (i.e. McSleepy) with manually administered total intravenous anesthesia (TIVA).

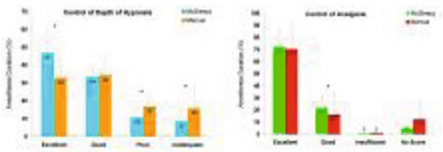
ABSTRACT BODY: Methods (Abstract Submission): After Ethics approval and written consent, 60 patients undergoing TIVA were randomized into automatic anesthesia delivery (McSleepy group) or manually administered TIVA consisting of continuous propofol, remifentanil and rocuronium infusion (Manual group). Vital signs and bispectral index monitoring (BIS) was standard for all patients. The performance of the hypnosis controller was defined as excellent, good, poor or inadequate, when the BIS was respectively within 10%, between 10 and 20%, between 20 and 30% or outside 30% of the target BIS of 45. Pain was assessed using Analgoscore(1) and with a score ranging between ±9. Three control areas of pain were defined: ±3 representing excellent pain control, from -3 to -6 and from 3 to 6 good pain control, and between -6 to -9 as well as 6 to 9 inadequate pain control. Data were analyzed using XLstat software and non-parametric tests. Data presented as mean (SD); $P<0.05$ indicating significant difference.

ABSTRACT BODY: Results (Abstract Submission): Age, weight, gender distribution, anesthesia duration, propofol doses and remifentanil doses were similar in both groups (McSleepy group: age, 58 (15) years; weight, 83 (18) Kg; male / female, 17/3; anesthesia duration, 195 (75) min; propofol, 124 (24) µg kg-1 min-1; remifentanil, 0.15 (0.05) µg kg-1 min-1; Manual group: McSleepy group: age, 56 (9) years; weight, 80 (17) Kg; male / female 18/2; anesthesia duration, 203 (85); propofol doses, 125 (28) µg kg-1 min-1; remifentanil doses, 0.17 (0.07) µg kg-1 min-1). The number of modifications of propofol doses/h and remifentanil doses/h was significantly bigger in the McSleepy group than with manual control at 55 (10) and 38 (8) versus 10 (7) and 8 (3), respectively. The preliminary results of the performance of both groups are shown in Fig.1 for 40 patients. In the McSleepy group, significantly more time of excellent control, significantly less time of poor or inadequate control of hypnosis and significantly more time of good control of analgesia was obtained as compared with the Manual group.

ABSTRACT BODY: Discussion (Abstract Submission): McSleepy is a novel automatic anesthesia delivery system which offers better performance than manual administration of anesthetic drugs.

ABSTRACT BODY: References (Abstract Submission): 1 Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics, (SMC 2007), Montreal 2007, 1494-1499.

(No Table Selected)



Performance of McSleepy vs Manual control; control of hypnosis left, control of analgesia right; * $P<0.05$.

IMAGE CAPTION:
Performance of McSleepy vs Manual control; control of hypnosis left, control of analgesia right; * $P<0.05$.

CATEGORY: Patient Safety

KEYWORDS: automatic anesthesia, closed loop.

CONTROL ID: 803240

TITLE: MCSLEEPY-LIGHT – A NOVEL HYBRID SYSTEM FOR CONTROLLED SEDATION

CONTACT (NAME ONLY): Thomas Hemmerling

CONTACT (INSTITUTION ONLY): McGill University

ABSTRACT BODY: Introduction (Abstract Submission): The aim of this project was to determine the performance of an HYBRID closed loop system (McSleepy-LIGHT) which integrates a decision support system (DSS) for controlled sedation of patients undergoing spinal anesthesia.

ABSTRACT BODY: Methods (Abstract Submission): Ethics approval was obtained as well as written consent of 40 patients, who underwent hip or knee arthroplasty with spinal anesthesia and controlled propofol sedation. Patients were randomized to receive either automatic sedation delivery (McSleepy-LIGHT-group) or manually administered propofol (Manual group). Vital signs, bispectral index (BIS) monitoring was standard for all patients. The performance of the sedation controller was defined as excellent, good, poor or inadequate, when the BIS was within 10%, between 10 and 20%, between 20 and 30% or outside 30% of a target BIS of 65,(1) respectively. In addition, a DSS which indicated critical events of respiration or hemodynamics and offered decisional aid was evaluated. Critical respiratory events were defined as SatO2 <92% and respiratory rate < 7/min. Critical hemodynamic event was defined as MAP < 60 mmHg. The incidence of critical events detected by the DSS system was compared with the incidence of events in the control group, detected by the anesthesiologist in charge. Data were analyzed using XLstat software and non-parametric tests (data presented as mean, ±SD, $p<0.05$).

ABSTRACT BODY: Results (Abstract Submission): Age, weight, gender distribution, type of surgery, anesthesia duration propofol doses and the performance of the sedation controller were similar in both groups (McSleepy-LIGHT group: age, 60 (15) years; weight, 85 (15) kg; male / female, 6/4; type of surgery knee/ hip, 7/3; anesthesia duration, 155 (55) min; propofol doses, 105 (31) mcg kg-1 min-1; control of the sedation, Excellent=32%, good:=28%, inadequate=20%, poor=20%; Manual group: age, 67 (10) years; weight, 82 (16) kg; male /female 4/6; type of surgery knee/ hip, 7/3; anesthesia duration, 151 (53) min; propofol doses, 123 (16) mcg kg-1 min-1; control of the sedation, Excellent=31%, good=29%, inadequate=20%, poor=20%).
The number of modifications of propofol doses per hour was significantly more in the McSleepy-LIGHT-group at 52 (8) than in the Manual group at 23 (16), respectively.
There were significantly more critical events detected in the McSleepy-LIGHT- group (Figure 1).

ABSTRACT BODY: Discussion (Abstract Submission): McSleepy-LIGHT, a hybrid closed loop –DSS - system can control sedation as well as manually delivered propofol sedation but detects more critical events.

ABSTRACT BODY: References (Abstract Submission): 1 J Can Dent Assoc. 2009 Dec;75(10):709.

(No Table Selected)

Total incidence of critical events - % of false positive; Mean critical events per hour, detected by either DSS or human

IMAGE CAPTION:
Total incidence of critical events - % of false positive; Mean critical events per hour, detected by either DSS or human

CATEGORY: Patient Safety

KEYWORDS: closed loop anesthesia, automated anesthesia.

CONTROL ID: 803511

TITLE: PREOPERATIVE ANTIDEPRESSANT THERAPY AND OUTCOMES AFTER NON-CARDIAC SURGERY

CONTACT (NAME ONLY): Jo Carroll

CONTACT (INSTITUTION ONLY): Toronto General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Antidepressant medications are used for treatment of depression, anxiety, chronic pain, personality disorders and chronic pain. They interfere with serotonin and norepinephrine metabolism and can have important effects on the cardiovascular and central nervous system functioning in the perioperative period. The objective of this study was to evaluate effect of preoperative antidepressant therapy on postoperative myocardial infarction (MI), hospital length of stay (LOS), and 30-day postoperative mortality in patients undergoing non-cardiac surgery.

ABSTRACT BODY: Methods (Abstract Submission): After REB approval, prospectively collected data was analysed on all patients undergoing non-cardiac surgery at an acute care centre from June 2008 to March 2009 using the Enterprise Data Warehouse and the Department of Anesthesia Electronic Preoperative Assessment Database. Based on presence or absence of antidepressant therapy, patients were classified into 2 groups. Preoperative antidepressant therapy was tested for association of the incidence of postoperative MI as defined by Troponin I > 0.07 microg/L, hospital LOS, and 30-day mortality.

ABSTRACT BODY: Results (Abstract Submission): A total of 3692 patients were included in the dataset. 1848 (50.1%) of the patients were male. The mean age of the cohort was 59±15yrs. 289 (7.8%) patients received antidepressants preoperatively. Females were twice as likely to receive antidepressants compared to males; 194 (10.5%) vs. 95 (5.1%) $p< 0.001$. The incidence of postoperative MI was similar between patients with and without antidepressant therapy i.e., 1.7% (5/289) vs. 1.1%.(38/ 3403) There was no difference in 30-day mortality between the two groups (1% (3/289) vs 1.5% (51/3403, $p=0.8$). The median hospital LOS was 4.0 days for both groups.

ABSTRACT BODY: Discussion (Abstract Submission): Presence of preoperative antidepressant therapy was not associated with higher incidence of postoperative MI, longer hospital LOS, or increased 30-day mortality after non-cardiac surgery.

ABSTRACT BODY: References (Abstract Submission): NA

(No Table Selected)

(No Image Selected)

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: Preoperative antidepressant therapy, Postoperative myocardial infarction, Non cardiac surgery.

CONTROL ID: 797590

TITLE: NATIONAL SURVEY AND SIMULATION MODEL OF EXTUBATION PRACTICE IN UK ICUS

CONTACT (NAME ONLY): Jack Hodd

CONTACT (INSTITUTION ONLY): Cleveland Clinic

ABSTRACT BODY: Introduction (Abstract Submission): Pooled colonized secretions commonly reside in the oropharyngeal space of intubated patients on the ICU, providing a potential reservoir for pulmonary aspiration. Alternative methods for secretion management can be used during cuff deflation and extubation in the critically ill. The aim of the survey is to determine the frequency of the techniques used. The simulation model was set up to gain insight as to the physical principles which may make one technique superior and to estimate the efficacy of the techniques to minimize aspiration in a benchtop model.

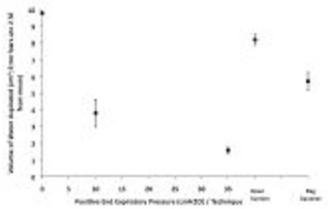
ABSTRACT BODY: Methods (Abstract Submission): An ethical waiver was provided by the Research Ethics Board. Using an online descriptive survey, all members of the British Association of Critical Care Nurses with an email address were invited to participate in completing a five item questionnaire. An intubated plastic model trachea at a 45° angle was intubated with cuffed tracheal tube which was attached to a circuit and mechanical ventilator. Ten mL of water was placed above the inflated cuff and the test protocols were applied in a random order, five times each (see figure). The volume of water "inhaled" was determined by the weight of the distal apparatus pre- and post-extubation. The students t test was used and data was displayed as means and 2 x SEMs. P-value of <0.05 was considered significant.

ABSTRACT BODY: Results (Abstract Submission): 532 critical care nurses completed the online survey (29% response rate). 460 (87%) of respondents used the trailing suction catheter technique, 31 (6%) squeezed a ventilation bag and 7 (1.3%) used PEEP.In the model PEEP >10cmH2O was more efficacious than non-PEEP techniques for minimising aspiration and a PEEP level of 35 cmH2O was the most efficacious (mean aspirate 1.6mL; SD 0.06) compared with 8.2mL (SD 0.71) aspirated with the suction catheter, an 81% reduction compared to open suction technique ($p< 0.001$). Simply deflating the cuff with no PEEP and no suction catheter was clearly the worst approach in this model causing 100% of the fluid to be aspirated (see figure).

ABSTRACT BODY: Discussion (Abstract Submission): The trailing suction catheter technique remains the standard approach within the UK despite no evidence. This laboratory study suggests that the reversal of the tracheal to laryngeal pressure gradient by the application of sustained PEEP is protective against pulmonary aspiration compared to the use of a tracheal suction catheter. Depending upon the clinical status of the patient, PEEP levels >10cmH2O and perhaps as high as 35cmH2O during extubation should be considered.

ABSTRACT BODY: References (Abstract Submission): -

(No Table Selected)



Fluid "aspirated" (mL) with the technique used and 2xSEM displayed

IMAGE CAPTION:
Fluid "aspirated" (mL) with the technique used and 2xSEM displayed

CATEGORY: Airway Management

KEYWORDS: Extubation, PEEP.

CONTROL ID: 799539

TITLE: THE A.P ADVANCE LARYGOSCOPE V GLIDESCOPE IN A HIGH-FIDELITY SIMULATOR

CONTACT (NAME ONLY): Jack Hodd

CONTACT (INSTITUTION ONLY): Cleveland Clinic

ABSTRACT BODY: Introduction (Abstract Submission): Improvements in video-laryngoscope design may offer advantages for both novice and expert users. The new A.P. Advance (Venner Medical, Singapore) is based upon a standard Macintosh laryngoscope and offers the potential advantage of being intuitive for those familiar with direct laryngoscopy. It also has a novel guiding mechanism to facilitate difficult intubation. We therefore tested the hypothesis that the A.P. Advance (APA) was not inferior to the GlideScope Ranger (GS; Verathon, Bothell, WA, USA). The primary end point was time to intubation. Direct laryngoscopy (DL) was also performed as a control.

ABSTRACT BODY: Methods (Abstract Submission): An ethical waiver was provided by the Institutional Research Ethics Board. Entry criteria for participants required a previous training in DL and a job role which includes performance of tracheal intubation even if infrequent. Previous experience with all devices was recorded. After standardized orientation, training and practice in line with the manufacturer's instructions for the devices, clinicians attempted intubation of a simulated normal and difficult (swollen tongue) laryngoscopy using the Laerdal Sim Man 3G high-fidelity Mannequin. Objective measurements included time to visualization of the cords, time to tracheal intubation, number of discrete forward advances of the tracheal tube tip onto laryngeal structures and failure to intubate. Subjective measures included operator perception of traumatic intubation (10cm visual analogue score; VAS) and clinician's preference for devices following the evaluation.
The Mann-Whitney U test was used for the non-parametric data. Student t-tests were used for the VAS analysis. A Fisher's Exact Test was used for percentage of abandoned procedures and oesophageal intubations. Bonferroni's correction was used.

ABSTRACT BODY: Results (Abstract Submission): Participant (n=30) experience in the use of the DL was mean of 4.0±6.9 years and 512±1315 (median 25) intubations. For the GS, participant experience was a mean of 0.6±1.1 years and 11±25 intubations. No one had used the APA before. See table for results. Clinician preference was 93% for the APA as the device of choice; 3% chose the GS and 3% chose the DL.

ABSTRACT BODY: Discussion (Abstract Submission): The APA was superior to GS regarding intubation time (nearly two times as fast in the normal model and three times in the difficult model) and potential for airway injury in normal and difficult airway simulation. Most participants preferred the APA.

ABSTRACT BODY: References (Abstract Submission): -

Difficulty of Simulation	Normal			Difficult		
Laryngoscope	APA	GS	DL	APA	GS	DL
% Intubation Failures	0	0	0	0	13.3	13.3
% Esophageal Intubations	0	0	3.3	0	6.7	30
Time to Visualisation	21.0±11.7	23.8±6.2	20±10.8	16.5±5.9*	28.0±12.1	39.4±22.8
Time to Intubation	30.8±17.3*	59.1±44.7	29.4±18.1	25.4±10.5*	91.9±57.9	50.8±29.1
Traumatic Intubation – Objective (forward advances)	0.7±1.6*	2.8±3.1	0.5±1.1	0.6±0.9*	6.2±4.9	1.1±2.9
Traumatic intubation – Subjective (VAS)	-	-	-	1.9±1.6*	4.7±2.5	5.6±2.5

Data presented as means±SD; *Significant improvement for the APA over the Glidescope at the $p<0.05$ level

TABLE TITLE:

TABLE FOOTER:
Data presented as means±SD; *Significant improvement for the APA over the Glidescope at the $p<0.05$ level

(No Image Selected)

CATEGORY: Airway Management
KEYWORDS: laryngoscope, glidescope, A.P. Advance.

CONTROL ID: 799786

TITLE: USE OF THE COBALT GLIDESCOPE® IN INFANT AIRWAY MANAGEMENT

CONTACT (NAME ONLY): James Armstrong

CONTACT (INSTITUTION ONLY): Hospital for Sick Children

ABSTRACT BODY: Introduction (Abstract Submission): To date, the newly designed pediatric Cobalt Glidescope® Video Laryngoscope (Cobalt GVL®, Verathon Medical) has only been assessed in small simulated mannequins [1] or larger children [2]. Prospective studies comparing the Cobalt GVL® with direct laryngoscopy (DL) for small infants are lacking. This current study was designed to assess the laryngoscopic view, time to best view and time to intubation in pediatric patients less than 10kg using the Cobalt GVL® as compared to DL.

ABSTRACT BODY: Methods (Abstract Submission): After research ethics approval, patients under the age of two years and weighing 10 kg or less requiring intubation were randomized to initial laryngoscopic technique by either Cobalt GVL® or DL. Patients with suspected difficult airways were excluded from the study. Following anesthetic induction via inhalational or intravenous technique, rocuronium 1 mg/kg was administered and positive pressure ventilation with 100% FiO2 provided for 90 seconds. Initial laryngoscopy was performed, the time to optimum view recorded and laryngoscopic view was graded according to the Cormack-Lehane (C-L) scale [3]. After bag-mask ventilation with 100% FiO2 for another 30 seconds the second method of laryngoscopy was performed, the view graded and the time to best view recorded. The trachea was intubated with the second laryngoscopy and the time to tracheal intubation measured. Laryngoscopy was performed by one of two anesthesiologists to reduce inter-individual variability. Data was analyzed using Fisher's Exact test and $P<0.05$ was accepted as significant.

ABSTRACT BODY: Results (Abstract Submission): Twenty-four patients have been recruited with an average age of 7.98 ± 3.93 months and weight of 7.98 ± 1.55 kgs. Direct laryngoscopy provided a grade 1 C-L view in sixteen of the 24 patients (67%), with the remaining 8 patients (33%) having a grade 2 C-L view. All 24 patients (100%) had a grade one view with the Cobalt GVL®. Time to optimum view was similar between groups (7.1 ± 1.7s for DL vs 6.3 ± 6.1s for Cobalt GVL®). There was no significant difference in time to tracheal intubation between the DL (22.8 ± 3.9s) and the Cobalt GVL® (27.8 ± 16.0s).

ABSTRACT BODY: Discussion (Abstract Submission): The Cobalt GVL® provides an equal, and in some cases better view than conventional DL in small pediatric patients under 10 kg with normal airways. The use of the Cobalt GVL® does not appear to prolong the time to tracheal intubation as compared to DL.

ABSTRACT BODY: References (Abstract Submission): 1. Paediatr Anaesth. 2009; 19: 1108-12
2. Paediatr Anaesth 2009; 19(7): 667-71
3. Anaesthesia 1984; 39: 1105-1111

(No Table Selected)

(No Image Selected)

CATEGORY: Airway Management

KEYWORDS: GlideScope, Infant.

CONTROL ID: 799945

TITLE: DOES BOUSSIGNAC CPAP MASK IMPROVE OXYGENATION IN BARIATRIC SURGERY PATIENTS?

CONTACT (NAME ONLY): David Wong

CONTACT (INSTITUTION ONLY): Toronto Western Hospital

ABSTRACT BODY: Introduction (Abstract Submission): The Boussignac™ CPAP (Vitaid Ltd, Toronto, ON) is a new, simple, portable face mask providing CPAP. This study compared the Boussignac and the Venturi mask for postoperative oxygenation in morbidly obese patients after bariatric surgery.

ABSTRACT BODY: Methods (Abstract Submission): Following hospital REB approval and written informed consent, morbidly obese (BMI > 35 kg/m2), aged 18-75 yr, ASA class I to III patients undergoing bariatric surgery were recruited. The patient was anesthetized, tracheal tube was inserted and laparoscopic Roux-en-Y gastric bypass was performed. The patients were randomly assigned to receive the Boussignac (Boussignac Group) or the Venturi face mask (Venturi Group), immediately after extubation. The patients were transported to PACU and the respective devices were applied for one hour. The PaO_2, FiO_2 and PaO_2/FiO_2 ratio (PF Ratio) were recorded after tracheal intubation (baseline), on PACU arrival (0 hr), at 1 hr and 2 hr post-extubation. T-test was used to compare continuous data and chi-square test for nominal data between the study groups. $P<0.05$ was considered statistically significant.

ABSTRACT BODY: Results (Abstract Submission): 48 patients (Boussignac Group-24, Venturi Group-24) were studied. Demographic data including age, gender, and BMI for the groups were comparable. The PaO_2 (mmHg) was significantly higher in Boussignac Group vs Venturi Group at 0 hr and 1hr, but similar at 2 hr. The FiO_2 was also higher in Boussignac Group vs Venturi Group at 0 and 1hr, but similar at 2 hr. The PF Ratio was higher in the Boussignac Group at 1 hr; however the difference was not statistically significant. The $PaCO_2$, pH and respiratory rate were comparable for both groups at all time points.

ABSTRACT BODY: Discussion (Abstract Submission): The use of the Boussignac CPAP mask results in a higher PaO_2 than the Venturi mask postoperatively while on these respective devices in morbidly obese patients after bariatric surgery; however, the FiO_2 is also higher in the Boussignac Group. The PF Ratio shows a trend towards improvement in the Boussignac Group; statistical significance may be achieved with a larger sample.

ABSTRACT BODY: References (Abstract Submission): .

PaO_2, FiO_2, and PF Ratio values using Boussignac CPAP and Venturi masks at various time points

	Boussignac Group	Venturi Group	p-value
PaO_2- Baseline	170.21 ± 62.59	172.13 ± 50.05	.908
PaO_2- 0 hr	**161.79 ± 69.20**	**124.43 ± 43.89**	**.033**
PaO_2- 1 hr	**178.22 ± 86.99**	**115.70 ± 37.57**	**.004**
PaO_2- 2 hr	146.73 ± 66.74	133.04 ± 53.41	.451
FiO_2- Baseline	.61 ± .17	.60 ± .18	.869
FiO_2- 0 hr	**.49 ± .14**	**.37 ± .05**	**.001**
FiO_2-1 hr	**.46 ± .15**	**.37 ± .09**	**.023**
FiO_2-2 hr	.38 ± .05	.38 ± .09	.869
PF Ratio-Baseline	291.84 ± 114.87	280.66 ± 102.74	.727
PF Ratio- 0 hr	358.54 ± 194.13	344.12 ± 133.52	.771
PF Ratio- 1 hr	386.56 ± 208.91	305.43 ± 109.02	.108
PF Ratio- 2 hr	369.21 ± 177.09	359.42 ± 136.00	.834

TABLE TITLE:

PaO_2, FiO_2, and PF Ratio values using Boussignac CPAP and Venturi masks at various time points

TABLE FOOTER:

(No Image Selected)
CATEGORY: Airway Management
KEYWORDS: oxygenation, bariatric surgery, Boussignac CPAP mask.

CONTROL ID: 801707

TITLE: BOUSSIGNAC CPAP MASK ON PULMONARY FUNCTION IN MORBIDLY OBESE PATIENTS UNDERGOING BARIATRIC SURGERY

CONTACT (NAME ONLY): David Wong

CONTACT (INSTITUTION ONLY): Toronto Western Hospital

ABSTRACT BODY: Introduction (Abstract Submission): The Boussignac^{TM} CPAP (Vitaid Ltd, Toronto, ON) is a new, simple, portable face mask providing CPAP. This study compared the Boussignac and the Venturi mask for postoperative pulmonary function in morbidly obese patients after bariatric surgery.

ABSTRACT BODY: Methods (Abstract Submission): Following hospital REB approval and written informed consent, morbidly obese (BMI > 35 kg/m^2), aged 18-75 yr, ASA class I to III patients undergoing bariatric surgery were recruited. The patient was anesthetized, tracheal tube was inserted and laparoscopic Roux-en-Y gastric bypass was performed. The patients were randomly assigned to receive the Boussignac (Boussignac Group) or the Venturi face mask (Venturi Group), immediately after extubation. The patients were transported to PACU and the respective devices were applied for one hour. Forced expiratory volume-1 sec (FEV1) and forced vital capacity (FVC) were recorded preoperatively (baseline), at 1hr and 2 hr post-extubation. T-test was used to compare continuous data and chi-square test for nominal data between the study groups. Paired t-test was used to compare variables within groups. $P<0.05$ was considered statistically significant.

ABSTRACT BODY: Results (Abstract Submission): 48 patients (Boussignac Group-24, Venturi Group-24) were studied. Demographic data including age, gender, and BMI for the groups were comparable. The FEV1 and FVC were higher in Boussignac Group vs Venturi Group at baseline, and 2 hr (Table). However, %predicted FEV1 and %predicted FVC were comparable in both groups at all time points. In both groups, % predicted FEV1 and %predicted FVC at 1 hr and 2 hr were significantly lower than the baseline values.

ABSTRACT BODY: Discussion (Abstract Submission): Postoperative %predicted FEV1 and %predicted FVC are comparable for the Boussignac and the Venturi groups in morbidly obese patients after bariatric surgery. There are significant reductions in %predicted FEV1 and %predicted FVC at 1hr and 2 hr compared to the baseline values.

ABSTRACT BODY: References (Abstract Submission): .

Pulmonary function measurements and % predicted values using the Boussignac CPAP and Venturi masks at various time points

	Boussignac Group	**Venturi Group**	**p-value**
FEV1- Baseline	3.14 ± .67	2.70 ± .70	.031
FEV1- 1 hr	1.93 ± .83	1.59 ± .56	.114
FEV1- 2 hr	2.20 ± .75	1.74 ± .45	.016
FVC- Baseline	3.88 ± .86	3.24 ± .85	.015
FVC- 1 hr	2.61 ± .99	1.90 ± .61	.007
FVC- 2 hr	2.85 ± .89	2.10 ± .59	.002
%FEV1- Baseline	96.33 ± 16.79	92.00 ± 22.99	.463
%FEV1- 1 hr	57.57 ± 22.17$^{\#}$	55.55 ± 22.61$^{\#}$	.764
%FEV1- 2 hr	65.74 ± 20.77$^{\#}$	59.41 ± 17.95$^{\#}$	.281
%FVC- Baseline	96.33 ± 15.11	91.22 ± 23.89	.388
%FVC- 1 hr	63.70 ± 23.35$^{\#}$	55.09 ± 19.87$^{\#}$	.191
%FVC- 2 hr	69.91 ± 23.05$^{\#}$	59.41 ± 18.26$^{\#}$	.098

# $P < 0.01$ comparing 1hr and 2 hr values vs Baseline values

TABLE TITLE:
Pulmonary function measurements and % predicted values using the Boussignac CPAP and Venturi masks at various time points

TABLE FOOTER:
# $P < 0.01$ comparing 1hr and 2 hr values vs Baseline values

(No Image Selected)

CATEGORY: Airway Management

KEYWORDS: Pulmonary function, Boussignac CPAP mask, Bariatric surgery.

CONTROL ID: 802615

TITLE: LEARNING CURVES OF MCGRATH AND MACINTOSH LARYNGOSCOPES

CONTACT (NAME ONLY): Orlando Hung

CONTACT (INSTITUTION ONLY): Dalhousie University

ABSTRACT BODY: Introduction (Abstract Submission): The Macintosh laryngoscope (MAC) has been considered to be the gold standard in tracheal intubation. Although it is a safe and effective device, MAC is not an easy technique to master1. A newly introduced McGrath (MCG) video laryngoscope has been shown to provide a better view of the glottis. However, the relative ease of use of the MCG and MAC laryngoscopes for tracheal intubation and their comparative learning curves have not been studied. The goal of this study is to assess the learning curves of these two devices by novices with no prior experience in airway management.

ABSTRACT BODY: Methods (Abstract Submission): After obtaining REB approval, novice first year medical students were recruited and randomized to MAC or MCG groups. Each group received a standardized instruction (video demonstration) before performing ten consecutive intubations in manikins using the study device. The participants were allowed to review the training video between each attempt, but no verbal feedback or instruction was offered. Each intubation attempt was assigned a random ID number and videotaped. The taped attempts were compiled, randomized again and reviewed by an independent staff anesthesiologist not involved with data collection. Each attempt was scored based on the following criteria: 1) tracheal intubation achieved; 2) time to intubation; 3) a score assigned by the reviewer based on six objective criteria for proper intubation1; and 4) a subjective score based on whether the reviewer would allow the novice performing the intubation on himself. We defined a successful attempt as a tracheal intubation, achieved in less than 60 seconds and considered acceptable by the reviewer. Success rates for each technique were calculated and learning curves were predicted using a generalized estimating equations approach.

ABSTRACT BODY: Results (Abstract Submission): Forty-one participants (48% female) have been recruited in this on-going study. Demographics of the study subjects and preliminary results of the study are summarized in the Table 1. Analysis predicts an intubation to be 90% successful on the 44th attempt with the MAC and on the 23rd attempt with the MCG. The learning curves of these techniques were significantly different ($p<0.05$).

ABSTRACT BODY: Discussion (Abstract Submission): Our results indicate that tracheal intubation using McGrath Laryngoscope is easier to learn by novice medical students compared to Macintosh laryngoscope. Our MAC learning curve in manikins is in agreement with the a previous study in patients (47th attempt with the MAC)1. Future clinical studies are needed to confirm the findings of this study.

ABSTRACT BODY: References (Abstract Submission): 1. Anesthesiology 2003;98(1):23-7.

Table 1.

	Macintosh Laryngoscope (N=20)	McGrath Laryngoscope(N=21)
Age (±SD), years	23.7 (±1.6)	25.0 (±3.49)
% Female	60	38
% Right Handed	100	93.3
Weight (±SD), kg	68.6 (±10.4)	74.5 (±12.2)
Predicted Attempt with 90% Success rate	44th	23rd

TABLE TITLE:
Table 1.

TABLE FOOTER:

(No Image Selected)

CATEGORY: Airway Management

KEYWORDS: McGrath laryngoscope, Macintosh laryngoscope, learning curve.

CONTROL ID: 800637

TITLE: CIRCADIAN RHYTHM AND VENTILATOR-INDUCED LUNG INJURY IN MICE

CONTACT (NAME ONLY): Matteo Parotto

CONTACT (INSTITUTION ONLY): The Keenan Research Centre in the Li Ka Shing Knowledge Institute, St. Michael's Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Ventilator-induced lung injury (VILI) contributes to patient morbidity and mortality. It is evident that VILI is influenced by the type of ventilatory strategies used. However, it is unknown whether the circadian rhythm plays a role in the development of VILI. We hypothesized that specific expression patterns of genes associated with VILI are partially modulated by circadian rhythm.

ABSTRACT BODY: Methods (Abstract Submission): The experimental protocol was approved by the Institutional Animal Care Committee. Thirty-six anesthetized C57BL/6 mice were studied at 4 time points (1am, 7am, 1pm, 7pm) to receive 3 different treatments in a randomized fashion: control (n=3), low pressure (LP) mechanical ventilation (MV) (n=3) and high pressure (HP) MV (n=3) for 2 hours. Total RNA was extracted from lungs and pooled samples were used for a genome-wide array. Gene expression was filtered based on the fold changes across the different conditions with a threshold of >2. Highly enriched biological modules were determined using the ToppGene program (http://toppgene.cchmc.org). The false discovery rate (FDR) cutoff value was 0.05%. P value <0.05 was considered statistically significant.

ABSTRACT BODY: Results (Abstract Submission): A number of genes were differentially regulated in the HP and LP groups as compared to the control groups (Figure 1). These MV-triggered transcriptional responses varied at different times of the day.

Among the genes differentially regulated by HP MV, we identified 26 genes that showed a circadian fluctuation in their expression. Some of these genes play a role in the mechanisms of inflammation, apoptosis and lung repair, including cytokine-cytokine receptor interaction (7 genes), toll-like receptor signaling (5 genes), MAPK signaling (4 genes) and apoptosis (4 genes) pathways. Among them are inflammatory cytokines (IL-1β, TNFα), chemokines (Cxcl2, Ccl3, Ccl4, Ccl7) and heat shock proteins 70.

ABSTRACT BODY: Discussion (Abstract Submission): MV, either with HP or LP, induces different transcriptional responses in the lung at different times of the day. Our data indicate that the expression of genes considered to play a significant role in VILI, such as inflammatory cytokines, chemokines and heat shock proteins, shows a circadian fluctuation, supporting the hypothesis of a circadian variation in the susceptibility to VILI.

ABSTRACT BODY: References (Abstract Submission): Wurfel MM. Proc Am Thorac Soc 2007;4:77-84

(No Table Selected)

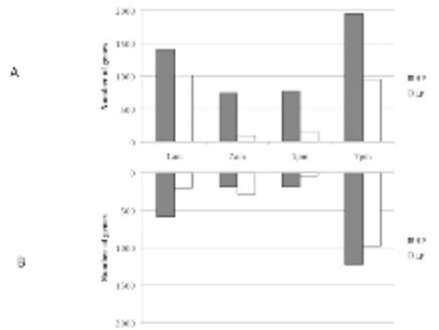


Figure 1. A) Number of genes upregulated as compared to control. B) Number of genes downregulated as compared to control. HP = high pressure, LP = low pressure. Genes were considered differentially expressed if having a fold change >2 as compared to control. Data are derived from pooled samples analyzed.

IMAGE CAPTION:

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: circadian rhythm, VILI.

CONTROL ID: 801354

TITLE: RINGER'S LACTATE IS COMPATIBLE WITH SAGM-PRBC FOR RAPID TRANSFUSION

CONTACT (NAME ONLY): Joel Parlow

CONTACT (INSTITUTION ONLY): Kingston General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Standard guidelines for blood administration state that Ringer's lactate (RL) should not be co-administered with packed red blood cells (PRBC) due to a potential risk of clotting, although this has been disputed in a number of studies.(1) In resuscitation of hypovolemia, RL may be favoured over normal saline (NS).(2) The purpose of this study is to determine whether RL can cause clotting when co-administered with PRBC stored with the currently used preservative, SAGM, during rapid transfusion.

ABSTRACT BODY: Methods (Abstract Submission): Following institutional ethics approval, 20 units of SAGM preserved PBRC were used during this two phased study. *Phase 1*: Samples from 12 units of PRBC were serially diluted from 0-97.5% by volume with RL and NS, and incubated for 30 min. These were passed through 40μm filters and examined visually for clots. Additional samples were frozen and batch analyzed at a later date, using an enzyme linked immunosorbent assay (ELISA) to measure F1+2, an index of thrombin generation. Finally, the remaining 150 mL of the PRBC units were diluted and flushed with crystalloid through a blood warmer and filtered for clots, using a rapid transfusion model. *Phase 2*: In order to determine whether prolonged incubation may have an effect on clotting, 8 further units were serially diluted to 25-95% by volume with RL only, incubated for 30, 60, 120, 180 and 240 minutes, then filtered and inspected for clot formation. The ELISA studies were repeated on fresh samples, and analyzed within 90 min of mixing. Finally, ionized and total calcium concentration were determined on the dilutions.

ABSTRACT BODY: Results (Abstract Submission): *Phase 1*: No filtered clots were observed at any dilution with either NS or RL, or during the simulated transfusion. In the stored, frozen samples, F1+2 ranged from 2.28 to 154.37 pmol/L in NS dilutions, and 2.80 to 1675.93 pmol/L in RL dilutions (Figure below). *Phase 2*: No clotting was observed in any filter at 30 or 60 min incubation. At 240 minutes, evidence of clotting was seen in most dilutions. ELISA analysis at 90 minutes showed F1+2 values ranging from 2.02 to 228.74 pmol/L. These values were all below physiological levels as established by past studies. Ionized calcium was significantly lower in the samples that had shown clotting.

ABSTRACT BODY: Discussion (Abstract Submission): In this comprehensive in-vitro study, utilizing both macroscopic and molecular methods, no clotting was observed at any dilutions of RL with SAGM- preserved PRBC within 60 min. However, with extended incubation, it was shown that RL could cause clotting. The results concur with previous studies that RL can be co-administered with PRBC for rapid transfusion. Calcium containing solutions should be avoided for slow (>60 minutes) transfusion.

ABSTRACT BODY: References (Abstract Submission): (1) Can J Anesth 2009;56:352-6. (2) J Trauma 2001;51:173–177.

(No Table Selected)

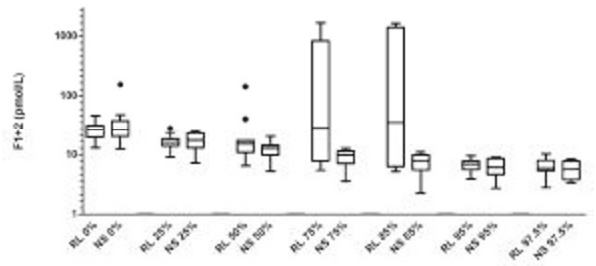


IMAGE CAPTION:

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: Ringer's lactate, Blood transfusion, Coagulation.

CONTROL ID: 801510

TITLE: PRESERVED SPONTANEOUS BREATHING IMPROVES INTESTINAL MICROCIRCULATION IN VENTILATED RATS.

CONTACT (NAME ONLY): Dietrich Henzler

CONTACT (INSTITUTION ONLY): Dalhousie University

ABSTRACT BODY: Introduction (Abstract Submission): Opposite to spontaneous breathing, mechanical ventilation in sedated subjects impairs intestinal organ perfusion. However, the effects on microcirculation and activation of inflammation in the intestine have not been investigated in assisted ventilation modes. We hypothesized that preserved spontaneous breathing during mechanical ventilation improves gut perfusion and attenuates leukocyte activation compared to controlled ventilation.

ABSTRACT BODY: Methods (Abstract Submission): After approval by the institutional Animal Care Committee male Sprague-Dawley rats were anesthetized and tracheotomized and 10 animals each were ventilated in pressure support (PSV), biphasic positive airway pressure (BIPAP) or pressure controlled (PCV) mode. PCV animals were paralyzed. After 5 hours of ventilation, intravital fluorescence microscopy was performed on sections of the small bowel. The density of functional capillaries (mm/mm^2) and the number of leukocytes adhering to endothelial surface (n/mm^2) were determined. Lungs were dissected and analyzed for histologic diffuse alveolar damage (DAD) scoring.

ABSTRACT BODY: Results (Abstract Submission): There were no differences in baseline hemodynamics or gas exchange. Animals were stable over the whole observation period with minimal changes in blood pressure and oxygenation (table 1).
The density of functional capillaries in the longitudinal mucosal layer tended to be lower in PCV (57±39) than in PSV (87±33) or BIPAP (66±24), but failed significance ($p=0.124$). The same relations were observed for circularis and mucosal capillaries.
Leukocyte adhesion in intestinal submucosal collecting and postcapillary venules was higher in PCV (228±119 and 371±131) than in PSV (93±65 and 235±169) and in BIPAP (101±41 and 171±82)($p<0.05$).
The DAD was highest in PCV (7.7±1.4) and lowest for BIPAP (4.8±1.1; $p<0.05$) with no differences to PSV (6.3±3.4).

ABSTRACT BODY: Discussion (Abstract Submission): In rats, the mode of ventilation or the presence of preserved spontaneous breathing had no influence on macro-hemodynamic stability or gas exchange.
Compared to assisted ventilation, pressure controlled ventilation caused a decrease in intestinal microcirculation, an increase in leukocyte adhesion and a worsening of lung damage.

ABSTRACT BODY: References (Abstract Submission): Putensen C et al. The effects of mechanical ventilation on the gut and abdomen. Curr Opin Crit Care. 2006; 12:160-5.

Hemodynamics and gas exchange

	PCV	PSV	BIPAP
HR [min-1]	393 ± 140	390 ± 34	403 ± 59
MAP [mmHg]	121 ± 33	109 ± 30	109 ± 31
PO2 [mmHg]	496 ± 66	497 ± 53	456 ± 147
PCO2 [mmHg]	59 ± 23	44 ± 5	59 ± 13

Mean ± SD values after 5 h of ventilation.

TABLE TITLE:
Hemodynamics and gas exchange

TABLE FOOTER:

Mean ± SD values after 5 h of ventilation.

(No Image Selected)

CATEGORY: Critical Care Medicine and Trauma
KEYWORDS: intestinal microcirculation, mechanical ventilation, inflammation.

CONTROL ID: 801982

TITLE: TRANSIENT DIURESIS: AN EARLY SIGN OF HYPOXIC RAT RENAL INJURY

CONTACT (NAME ONLY): Namhee Kim

CONTACT (INSTITUTION ONLY): University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Acute Kidney Injury (AKI) is a serious clinical problem associated with increases in morbidity and mortality. Renal tissue hypoxia plays a critical role in the development and progression of AKI. The outer renal medulla is especially vulnerable due to its precarious blood supply relative to the amount of work it performs. Our objective is to identify an early, reliable physiologic diagnostic indicator of this problem in vivo.

ABSTRACT BODY: Methods (Abstract Submission): With ACC approval, adult male Sprague-Dawley rats (400-500g) on regular diet were given an oral NaCl supplement (8 mmol kg-1) for over a period of 18 hours, to ensure the production of concentrated urine. Urine samples were collected during normoxia, and rats were exposed to 8% FiO2 (hypoxia; n = 8) for 150 minutes. Urine samples were collected at every time of excretion during and after exposure to hypoxia. Another hypoxic group (n = 8) was pretreated with dDAVP (4 μg/g body weight IP) prior to hypoxia exposure. In another group of rats (n = 3), hypoxia was prolonged to 300 minutes. The primary outcomes were urine flow rate, and urine and renal papillary osmolality.

ABSTRACT BODY: Results (Abstract Submission): In hypoxic rats, urine flow rate increased significantly within 70 minutes of hypoxia (72.73 + 20.25 vs. 5.63 + 3.46 μl/min; $p<0.05$). Urine osmolality was much lower at the peak flow rate period, relative to normoxia (1638 + 488 vs 372 + 168 mOsm/kg H2O; $p<0.05$). At 300 minutes of hypoxia, urine flow rate decreased to normoxic values (3.59 + 1.02 vs 4.83 + 0.92 μl/min). This suggested that the diuresis was transient. To test whether absence of vasopressin caused diuresis, dDAVP was given to another group. By contrast, urine flow rate during hypoxia remained low (3.61 + 2.45 vs 2.84 + 1.42 μl/min) and urine osmolality remained high (2488 + 121 vs 2615 + 297 mOsm/kg H2O) at 70 minutes of hypoxia, relative to normoxia. If low urine osmolality during hypoxia was due to lack of vasopressin, then there would be a higher concurrent papillary osmolality. Indeed, papillary osmolality was significantly higher than the urine osmolality in hypoxic rats not treated with dDAVP (789 + 276 vs 371 + 168 mOsm/kg H2O; $p<0.05$).

ABSTRACT BODY: Discussion (Abstract Submission): Transient diuresis with decreased urine osmolality may be an early physiologic sign of renal medullary dysfunction after exposure to hypoxia. This dysfunction was reflected by consistent fall in the papillary osmolality throughout hypoxia. Diuresis and fall in papillary osmolality were prevented with dDAVP. To explain this result, plasma vasopressin will be analyzed in future experiments. If detected early enough, rise in urine flow rate and decrease in urine osmolality may be of diagnostic value in the clinical setting and dDAVP may have prophylactic or therapeutic potential.

ABSTRACT BODY: References (Abstract Submission): .

(No Table Selected)

(No Image Selected)

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: acute kidney injury, hypoxia, transient diuresis.

CONTROL ID: 802235

TITLE: IN VIVO ACCURACY OF TWO INTRACRANIAL PRESSURE MONITORS

CONTACT (NAME ONLY): Thomas Lescot

CONTACT (INSTITUTION ONLY): Groupe Hospitalier Pitié-Salpêtrière

ABSTRACT BODY: Introduction (Abstract Submission): Ventricular pressure measurement remains the reference standard for intracranial pressure (ICP) monitoring: the intraventricular catheter connected to an external strain gauge may be zeroed in situ. Development of new intraparenchymal microtransducers have decreased infection rate but must be calibrated prior to insertion and are susceptible to zero drift. A recent laboratory testing indicated similar in vitro accurate readings using the Codman device (Johnson& Johnson,Raynham, MA, USA) and the new Pressio ICP system (Sophysa, Orsay, France) 1. Nevertheless, clinical assessment is still missing. The aim of this study was (i) to evaluate in vivo the accuracy of the Pressio device, (ii) to compare it with the Codman intracranial pressure transducer.

ABSTRACT BODY: Methods (Abstract Submission): This study was conduct in accordance with our local research ethics board. Data were restrospectively collected in patients requiring ventricular drainage and simultaneous continuous ICP monitoring. This was achieved by placing both intraventricular drainage and intraparenchymal transducers according to our local monitoring guidelines 2. Codman device was placed in 15 patients (Gourpe C). In another set of 15 patients, ICP was monitored with the Pressio ICP system (Goup P). ICP values generated simultaneously by the two systems were recorded and the agreement between intraparenchymal transducers and intraventriclar catheter were assessed using the method described by Bland and Altman: the mean difference (bias), the standard deviation of the difference (s) and the limits of agreement (d±2s) were calculated. Statistical analysis was performed using student's t tests and chi-squared analysis.

ABSTRACT BODY: Results (Abstract Submission): A total of 30 patients were included in the study, representing 3089 data points. The reasons for ICP monitoring were as follows: Traumatic brain injury (n= 17), subarachnoid hemorrhage (n=7), intracranial arteriovenous malformation (n= 5) and tumour (n=1); Mean age at the insertion of the ICP monitoring device was 43±17 years. The average duration of simultaneous ICP monitoring was 13±5 days (range 6-25 d). No difference was found between the 2 groups in term of age, Glasgow coma score, and average of monitoring duration. The mean difference between intraparenchymal and extraventricular drainage (EVD) pressure (d±s) was -0.57 ± 3.59 mmHg in the P group (1562 data points) and -0.11 ± 3.30 mmHg in the C group (1527 data points) ($p<0.0001$). Regarding ICP greater than 20 mmHg, d was -1.22±4.27 mmHg and -2.40±6.50 mmHg for the P group (n=70 data points) and C group (N=68 data points) respectively ($p=0.44$). From day 1 to day 7, d was 0.27±3.16 mmHg in the P group (790 data points) and 0.73±3.74 mmHg (795 data points) in the C group ($p<0.05$). After D7, the mean differences was -1.42±4.16 and -0.15±3.19 mmHg in the P and C groups respectively ($P<0.001$).

ABSTRACT BODY: Discussion (Abstract Submission): This study provides the first in vivo data for the new Pressio ICP monitor system. The mean difference was slight between the two transducers. Nevertheless, ICP measurement should be interpreted in conjunction with clinical and radiological evaluation of the patient.

ABSTRACT BODY: References (Abstract Submission): 1. Neurosurgery 2008; 62: 1158-61
2. Curr Opin Crit Care 2008; 14: 129-34

(No Table Selected)

(No Image Selected)

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: Intracranial pressure, pressure transducer.

CONTROL ID: 802310

TITLE: PREDICTORS OF READMISSION TO A CARDIAC SURGICAL INTENSIVE CARE UNIT

CONTACT (NAME ONLY): Vance Beck

CONTACT (INSTITUTION ONLY): University of Ottawa

ABSTRACT BODY: Introduction (Abstract Submission): Readmission to an ICU following a surgical procedure has many implications. It contributes to a shortage of ICU beds that may lead to delay or cancellation of surgery. It is also expensive with the added days to the ICU management and to the overall hospital stay. In addition, the mortality rate is higher than that seen in patients who are not readmitted.The goal of this study was to determine the patient characteristics that predict the greatest likelihood of readmission to a cardiac surgical intensive care unit (CSICU).

ABSTRACT BODY: Methods (Abstract Submission): Following approval by the local institutional research ethics board, the Perioperative Care Database was interrogated to identify patients who were readmitted to the CSICU following discharge to the nursing units. Demographic and clinical information related to the ICU stay was collected. A detailed review of the clinical record was undertaken to obtain data related to the discharge characteristics and the clinical characteristics that led to readmission. Results were analyzed using Chi square analysis amd logistic regression analysis.

ABSTRACT BODY: Results (Abstract Submission): There were 2546 cardiac procedures done during the study period. 2476 patients were discharged alive from the CSICU. 88 (3.6%) patients were readmitted to CSICU following discharge to the nursing unit. The mortality rate of the readmitted patients was 27%. The likelihood of readmission to a cardiac intensive care unit was sigificant based on the following preoperative clinical parameters: age > 70 ($p=0.011$), renal failure creatinine > 165 ($p=0.0241$), congestive heart failure ($p<0.0001$), ASA 4 and 5 status ($p=0.0298$) and alcoholism($p=0.0003$). In hospital mortality rate in the readmitted group was 27.4% (n=24) vs 0.4% (n=10) for patients who were not readmitted.

ABSTRACT BODY: Discussion (Abstract Submission): A number of factors are associated with readmission. These include elderly patients over the age of 70 years, patients with preoperative renal failure with creatinine > 165, congestive heart failure , ASA status greater than 3 , and patients with a history of alcoholism. Knowing the characteristics of patients who are most likely to be readmitted is of potential value. It may be possible to better predict the need for critical care resources. It is also possible that earlier intervention in patients that are deteriorating on the nursing units may lead to a reduction of the number of readmissions. ICU readmission may also potentially be a marker of sub-standard care with one possibility being a surrogate for accelerated discharge related to cost pressures or hospital efficiency. Further studies including the observation of intra-operative events as predictors and longer term mortality and morbidity post hospital discharge will be undertaken to augment these results.

ABSTRACT BODY: References (Abstract Submission): Crit Care 2008;12(5):R123
BJA 2008 May;100(5):656-62.

Predictors of Readmission

Predictor	P Values
Age > 70	p = 0.011
Renal Failure	p = 0.0241
CHF	P < 0.0001
ASA > 3	p = 0.0298
Alcoholism	p = 0.0003

TABLE TITLE:
Predictors of Readmission

TABLE FOOTER:

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CATEGORY: Critical Care Medicine and Trauma
KEYWORDS: Readmission, Predictors, ICU.

CONTROL ID: 802357

TITLE: DOES DELAY IN VASOPRESSOR ADMINISTRATION IN SEPTIC SHOCK PATIENTS AFFECT MORTALITY?

CONTACT (NAME ONLY): Vance Beck

CONTACT (INSTITUTION ONLY): University of Ottawa

ABSTRACT BODY: Introduction (Abstract Submission): Early management with fluid and antibiotic treatment has been shown to reduce mortality in patients with septic shock (1,2). This study examined whether early directed treatment with vasopressor medication would similarly improve survival rates in patients with septic shock.

ABSTRACT BODY: Methods (Abstract Submission): This project received approval from its local research ethics board. In 8,640 adult patients with septic shock from an ICU database of 24 intensive care units in Canada and the United States, time to vasopressor administration was collected retrospectively. Initial incident of hypotension was considered the onset of septic shock when a) hypotension persisted despite fluid therapy (> 2L of saline or equivalent) or b) hypotension that only transiently improved with fluid therapy. Hypotension was defined as a mean blood pressure of < 65 mm Hg, a systolic blood pressure of < 90 mm Hg, or a decrease in systolic pressure of 40 mm Hg from the patients baseline, consistent with the 1991 Society of Critical Care Medicine/American College of Chest Physicians consensus statement on Sepsis Definitions. Time intervals to treatment were divided into ten similar, comparably-sized groups based on the distribution of cases in the cohort sample. For comparison purposes of demographic, medical and treatment characteristics, two categories were created, with one group representing 'early treatment' and the other 'delayed treatment'.

ABSTRACT BODY: Results (Abstract Submission): The main outcome was survival to hospital discharge. In total, all of the 8640 patients met the definition of septic shock and received vasopressor treatment. Median time to vasopressor administration of the entire cohort was 2.92 hours. Demographic characteristics, medical comorbidities, illness severity, infection and treatment characteristics were similar in those treated before or after the median time to vasopressors. The overall mortality rate was 47%. Interval between presentation and vasopressor treatment and its association with mortality is shown in Figure 1.

ABSTRACT BODY: Discussion (Abstract Submission): Among patients admitted to a critical care unit diagnosed with hypotension we observed no trend to improved outcomes with earlier administration of vasopressors. Multivariable analysis will be undertaken to determine the independent predictors of mortality in this population.

ABSTRACT BODY: References (Abstract Submission): 1. N Engl J Med (2001) vol. 345 (19) pp. 1368-77
2. Crit Care Med, 2006. 34(6): p. 1589-96.

(No Table Selected)

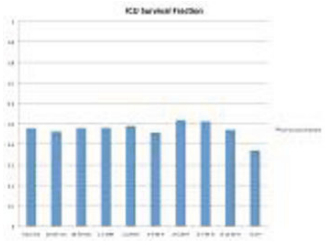

IMAGE CAPTION:

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: sepsis, vasopressor, mortality.

CONTROL ID: 803060

TITLE: PERIOPERATIVE TIGHT GLUCOSE CONTROL IN LIVER RESECTION

CONTACT (NAME ONLY): Tamaki Sato

CONTACT (INSTITUTION ONLY): Royal Victoria Hospical, McGill

ABSTRACT BODY: Introduction (Abstract Submission): Although hyperglycemia is a well recognized risk factor in the context of cardiac surgery the relevance of perioperative glycemic control for patients undergoing major non-cardiac operations has received little attention (1,2). This study was designed to assess the hyperglycemic response to liver resection and to test the hypothesis that perioperative glucose and insulin administration while maintaining normoglycemia (GIN therapy) provides glycemic control superior to that achieved by the conventional use of insulin.

ABSTRACT BODY: Methods (Abstract Submission): With the approval of the local Research Ethics Board, consenting patients were randomly assigned to GIN or control group. In the GIN group insulin was administered at 2 mU/kg/min during surgery. At the end of surgery, insulin infusion was decreased to 1 mU/kg/min and continued for 24 hours. Dextrose 20% was infused at a rate adjusted to maintain blood glucose within the target range of 3.5-6.1 mmol/L. Patients in the control group received a conventional insulin sliding scale during and after surgery. The mean and standard deviation (SD) of blood glucose as well as the percentage of blood glucose values within the target range were calculated. To evaluate relative variability, the coefficient of variability (CV) was calculated for each patient. Episodes of severe hypoglycemia, i.e. blood glucose < 2.2 mmol/L, were recorded. The primary outcome was the proportion of normoglycemic measurements.

ABSTRACT BODY: Results (Abstract Submission): We studied 52 patients. The mean blood glucose value in patients receiving GIN therapy always remained within the target range. The blood glucose levels were lower in the GIN group than in the control group (during and after surgery, $P<0.01$). In non-diabetic patients receiving GIN (n=19) target glycemia was achieved in 90.1% of measurements during and in 77.8% after surgery. In diabetic patients receiving GIN (n=7) 81.2% of intraoperative values were within target and 70.5% postoperatively. In non-diabetics receiving standard care (n=19) the target was achieved in 37.4% during, and 18.3% after surgery. In diabetic patients receiving standard care (n=7) 4.3% were within target during surgery and 2.9% in the ICU. The SD and CV of blood glucose were smaller in the GIN group than in the control group, especially in non-diabetic patients after surgery (SD, $P<0.001$; CV, $P=0.027$).

ABSTRACT BODY: Discussion (Abstract Submission): GIN therapy effectively provides normoglycemia in patients undergoing liver resection.

ABSTRACT BODY: References (Abstract Submission): 1. Anesthesiology 2009;110:970-7.
2. Diabet Med 2008;25:314-9.

Glucose control during and after surgery

During Surgery		GIN		Control	
	Units	nonDM	DM	nonDM	DM
N	(n)	19	7	19	7
Blood glucose	(mmol/L)	5.2 ± 0.7	5.3 ± 0.9	7.2 ± 1.7*	9.2 ± 1.8*
SD glucose	(mmol/L)	0.6 ± 0.3	0.6 ± 0.3	0.9 ± 0.6*	1.2 ± 0.6
CV glucose	(%)	11.8 ± 4.9	11.1 ± 5.3	12.9 ± 7.3	13.2 ± 8.1
Blood glucose range	(mmol/L)	2.7 - 7.4	3.5 - 7.5	4.6 - 12.0	5.9 - 12.9
ICU		GIN		Control	
	Units	nonDM	DM	nonDM	DM
N	(n)	19	7	19	7
Blood glucose	(mmol/L)	5.5 ± 1.1	5.6 ± 1.3	8.3 ± 2.5*	10.2 ± 3.4*
SD glucose	(mmol/L)	1.1 ± 0.3	1.2 ± 0.4	2.2 ± 0.9*	2.6 ± 1.6*

CV glucose	(%)	20.6 ± 4.2	21.1 ± 4.5	26.1 ± 9.6*	25.1 ± 11.1*
Blood glucose range	(mmol/L)	2.0 - 8.7	2.3 - 9.7	4.0 - 20.3	5.3 - 24.4

Values are mean ± SD. DM: Diabetes Mellitus, CV: Coefficient of Variation.
* $P < 0.05$ compared to GIN group.

TABLE TITLE:
Glucose control during and after surgery

TABLE FOOTER:
Values are mean ± SD. DM: Diabetes Mellitus, CV: Coefficient of Variation.
* $P < 0.05$ compared to GIN group.

(No Image Selected)

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: Tight Glucose Control, Liver Resection, Hyperglycemia.

CONTROL ID: 803485

TITLE: PROGNOSTIC VALUE OF S-100β PROTEIN IN PATIENTS WITH TBI: A META-ANALYSIS

CONTACT (NAME ONLY): Alexis Turgeon

CONTACT (INSTITUTION ONLY): Hôpital de l'Enfant-Jésus

ABSTRACT BODY: Introduction (Abstract Submission): Early determination of prognosis following traumatic brain injury (TBI) is important for critical care physicians. Many tests and exams have been proposed to help understand how prognosis is determined including several biochemical markers. The objective of this systematic review was to determine the ability of the S-100β protein to predict prognosis following moderate or severe TBI.

ABSTRACT BODY: Methods (Abstract Submission): We searched MEDLINE, EMBASE,Cochrane register of Controlled Trials, and the SCOPUS databases (1985 to August 2009). Bibliographies of eligible articles and relevant narrative reviews were also searched for potentially eligible studies. All prospective cohort studies with a sample size of ≥4 patients and that evaluated the prognostic value of the S-100β protein following moderate orsevere TBI were considered. Two investigators independently reviewed allcitations and abstracted data using a standardized case report form. Pooled results were presented using geometric means ratios (GMR) and analysed withrandom effects models. Sensitivity analyses based on a priori hypotheses were performed to explain potential heterogeneity. Discrimination threshold values were evaluated by calculating sensitivity and specificity when individual patient data were available.

ABSTRACT BODY: Results (Abstract Submission): We retrieved 2011 citations from which 26 studies were considered eligible. Most studies considered a Glasgow Outcome Scale (GOS) of 1, 2 or 3 as poor prognosis. All studies presented mean or median S-100β protein levels within 24 hours after admission. We observed a significant association between S-100β levels and a GOS of 1 to 3 (21 studies: GMR 2.9 [95% confidence interval (95%CI) 2.2-3.9]), mortality (7 studies: GMR 2.8 [95%CI 2.2-3.4]). Sensitivity analyses demonstrated these findings to be consistent in moderate or severe TBI. Variation in sampling time, sampling type, blinding of outcome assessors, or outcome evaluation timing produced similarly consistent results. A 100% specificity for poor prognosis was observed with a threshold value of S-100β protein ranging from 2.1 to 10.5 μg/L; the associated sensitivity was 9 to 44% (5 studies).

ABSTRACT BODY: Discussion (Abstract Submission): A significant association between S-100β protein levels and short, mid and long-term poor prognosis following moderate or severe TBI was observed; however, optimal discrimination threshold values of S-100β protein levels in clinical practice remain unknown. Further research should focus on standardizing S-100β methods of testing and on identification of optimal levels for prognosis determination.

ABSTRACT BODY: References (Abstract Submission): None

(No Table Selected)

(No Image Selected)

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: Traumatic Brain Injury, Biomarker, Prognosis.

CONTROL ID: 800449

TITLE: TIMING AND VOLUME OF TOPICAL TRANEXAMIC ACID ADMINISTRATION FOR POSTOPERATIVE BLOOD LOSS IN TOTAL KNEE ARTHROPLASTY

CONTACT (NAME ONLY): Amir Abrishami

CONTACT (INSTITUTION ONLY): Toronto Western Hospital, University Health Network, University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): We have previously shown that topical application of tranexamic acid (TA) for five minutes reduces postoperative blood loss in primary elective total knee arthroplasty (TKA)[1]. However, the optimal duration of time for application of the medication in the joint is unclear. As well, the volume of study medication (100 mL) used in our previous study can be too large for some patients' joint space. Therefore, the current study was conducted to determine the efficacy and safety of a reduced volume and time of application of tranexamic acid on postop blood loss.

ABSTRACT BODY: Methods (Abstract Submission): This is a randomized, double-blind, placebo-controlled clinical trial. Research Ethics Board approval and informed consent were obtained from all participants. Adult patients undergoing unilateral primary TKA were randomized to: 1) TA 1.5 g or 2) TA 3.0 g or 3) Placebo. At the end of surgery, a sterile solution containing TA (1.5 or 3.0 g in 50 cc normal saline) or placebo (50 cc normal saline) were applied into the open joint and left in place for 3 minutes. Postop blood loss was calculated based on the amount of postop drop in hemoglobin values. Analysis of variance, Chi ^{2} test and non-parametric statistics were applied where appropriate. A p value < 0.05 was considered significant.

ABSTRACT BODY: Results (Abstract Submission): Twenty-three patients were randomized. Three patients were subsequently excluded due to administrative problems (e.g. postponed surgery), therefore; 20 patients were given the medication/placebo and included in the intention-to-treat analysis. Patients' demographic and perioperative data were shown in Table 1. There was no statistically significant difference between the three groups in terms of calculated blood loss (p=0.5), however, a trend in favor of the treatment groups was noted (Table 1). There was no difference between the groups in terms of other efficacy outcomes. There was one thromboembolic event detected by Doppler ultrasonography in a patient in the placebo group. No other complications were found in any group.

ABSTRACT BODY: Discussion (Abstract Submission): The administration of a reduced volume and shorter time of application of topical tranexamic acid did not reduce postoperative blood loss in patients having elective primary total knee arthroplasty. However, since there is trend in favor of the treatment groups, further trials with larger sample sizes are suggested.

ABSTRACT BODY: References (Abstract Submission): ANESTH ANALG 2009; 108; S-22

Table-1 Patient characteristics of perioperative data

	TA 1.5g n=7	TA 3.0 g n=4	Placebo n=9	P value
Age (year)	67 ±9	68 ± 9	69 ±11	.856
Gender (female/male ratio)	5/2	3/1	8/1	.661
BMI (Kg/m2)	30 ± 3	27 ± 4	29 ± 6	.687
ASA (I/II/III)	0/6/1	1/1/2	0/9/0	.033
Surgery duration (min)	63 ± 11	62 ± 19	68 ± 11	.668
Tourniquet time (min)	82 ± 10	63 ± 19	71 ± 14	.608
Preop Hb (g/L)	142± 10	133 ± 17	135 ± 9	.348
Postop Hb on day 3 (g/L)	99.± 10	105 ± 10	94 ± 13	.470
% of postop Hb drop	29 ± 6 %	28 ± 10 %	29 ± 12 %	.975
Total calculated blood loss (ml)	1259 ± 272	1030 ± 432	1452 ± 816	.518
Postop day 2 pain intensity (VAS)	2.5 (0-8)	2.4 (0-8.2)	3.1 (0-8)	.507

Postop day 2 ROM ^{o}	83 (60-90)	87 (72-90)	80 (40-95)	.487
Duration of hospital stay (days)	4 (3-5)	3 (3-5)	5 (3-6)	.253

Values are mean ± SD, ratio or median (minimum-maximum), ROM: range of motion (flexion), VAS: visual analogue scale. ASA: American Society of Anesthesiologists. TA: tranexamic acid. BMI: body mass index.

TABLE TITLE:
Table-1 Patient characteristics of perioperative data

TABLE FOOTER:
Values are mean ± SD, ratio or median (minimum-maximum), ROM: range of motion (flexion), VAS: visual analogue scale. ASA: American Society of Anesthesiologists. TA: tranexamic acid. BMI: body mass index.

(No Image Selected)

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: Total Knee Arthroplasty, Tranexamic acid, Blood Loss.

CONTROL ID: 802717

TITLE: CASE REPORT: VENOUS AIR EMBOLISM DURING AN AWAKE DEEP BRAIN STIMULATION SURGERY

CONTACT (NAME ONLY): Osama Alabdulhadi

CONTACT (INSTITUTION ONLY): university of western ontario

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): Clinical features: Patient consent was obtained for this case report. A 62-year-old female patient was admitted for stereotactic frame-based bilateral placement of DBS electrodes with microelectrode recording for Parkinson's disease. Her other past medical history was insignificant. The procedure is performed under conscious sedation.
Intraoperative monitoring included electrocardiogram ,non-invasive blood pressure, oxygen saturation, capnograph, and urinary catheter. Oxygen was supplemented via nasal cannula at a rate of 4 liters per minute. The patient was placed in a semi-reclined position with a stereotactic frame. Intravenous sedation with midazolam and remifentanil was provided during placement of bilateral burr holes along with local infiltration by the surgeon. The bone edges were waxed and dural veins were coagulated prior to opening the dura matter. The first electrode was placed without incident.

Placement of the DBS introducer canula into the brain proceeded without complications and the dural opening was sealed to prevent leakage of cerebrospinal fluid (CSF). Three hours into the insertion of the second electrode, the patient began to cough and became tachypneic. She also became restless and uncooperative, feeling a clear sense of impending doom. At the same time, the oxygen saturation dropped from 100% to 82%; auscultation of the chest revealed normal breath sounds and no evidence of heart murmur. VAE was strongly suspected and the surgical team was informed. The patient was quickly placed on 100% oxygen and surgical field sealed and flooded with saline. After 35 minutes, patient had stabilized and oxygen saturation remained 92-94%; the decision made to proceed with remaining procedure. Patient was monitored closely for 24 hours without any complications. Patient discharged home after 96 hrs with excellent outcome.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): VAE occurs when here is a pressure gradient between the atmospheric and venous pressure, which favors the ingress of air into the venous system1 Few cases of VAE during DBS have been reported.1 We postulate that many factors were involved in the etiology of VAE in this case. These factors include spontaneous ventilation, sitting position, and potentially, gradual escape of CSF leading to brain shift and stretching of the superficial cortical veins draining into the superior sagittal sinus. Anesthesiologists must have a high index of suspicion of the possibility of VAE during awake craniotomy procedures2.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): Purpose: To describe a rare case of deep brain stimulator (DBS) insertion complicated by venous air embolism (VAE).

(No Table Selected)

(No Image Selected)

CATEGORY: Neuroanesthesia

KEYWORDS: venous air embolism, deep brain stimulation, cough.

CONTROL ID: 802848

TITLE: DESFLURANE VERSUS SEVOFLURANE ON INTRA-OPERATIVE MOTOR-EVOKED POTENTIALS

CONTACT (NAME ONLY): Chin Ted Chong

CONTACT (INSTITUTION ONLY): Toronto Western Hospital

ABSTRACT BODY: Introduction (Abstract Submission): During spinal surgery, monitoring of motor-evoked potentials (MEP) is a means of assessing the intraoperative integrity of corticospinal pathways. MEP are sensitive to the effects of anesthetic agents. Knowing the effects of anesthetic agents on MEP will allow for a wider spectrum of anesthetic agents to be used. We compared the effects of increasing concentrations of desflurane(DES) and sevoflurane(SEVO) anesthesia on intraoperative MEP obtained with multipulse stimulation.

ABSTRACT BODY: Methods (Abstract Submission): After IRB approval and informed consent, 10 patients with no preoperative neurological deficits undergoing major spine surgery were randomly assigned to the sequence of inhalation agents studied: DES followed by SEVO or SEVO followed by DES. Routine anesthesia induction and monitoring were performed. Anesthesia was maintained with infusions of propofol and remifentanil, air/ oxygen. The study was carried out during stable surgical stimulation. Each inhalation agent was studied at MAC of 0.3, 0.5 and 0.7 with a steady state period of 15 min between each concentration and complete wash out between the two agents. MEP were performed by cortical stimulation with a train of 5 consecutive pulses, 0.05ms duration, 2ms intervals, at C1-C2 positions. MEP recordings were taken from bilateral upper limb UL (flexor digitorum indicis) and bilateral lower limb LL (abductor hallucis and/or tibialis anterior). Amplitude and latency of each waveform was measured. Physiological parameters were kept stable. With increasing levels of inhalation agent, intravenous agents were decreased and/or vasopressors administered to maintain hemodynamic stability. Statistical analysis was with multiple ANOVA with Bonferroni correction. Ordinal data was analyzed with t test. $P<0.05$ was considered statistically significant.

ABSTRACT BODY: Results (Abstract Submission): 10 patients with mean(±SD) age 50±17yr and weight 77±16kg were studied. Data is presented as percent of control because of interpatient variability in responses. 40 observations were recorded (10 from each limb). There were no differences in MEP latencies at any time. Results for amplitude measurements for UL and LL are in Figure. Overall, the suppression of the amplitude measurements at 0.5 and 0.7 MAC were not different between DES and SEVO, though LL responses showed a greater effect.

ABSTRACT BODY: Discussion (Abstract Submission): 0.3MAC DES and SEVO with intravenous anesthesia background both provided good MEP recordings acceptable for clinical interpretation. The LL MEP are more sensitive to anesthetic-induced depression compared to UL. MEP amplitude changes with increasing MAC were similar for DES and SEVO.

ABSTRACT BODY: References (Abstract Submission): J Neurosurg Anesthesiol 2006;18:211-4

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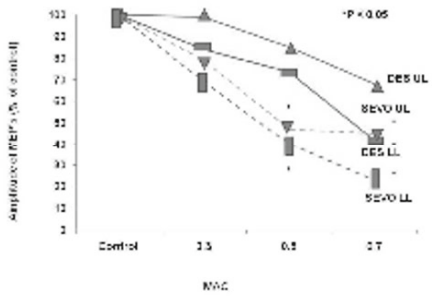

IMAGE CAPTION:

CATEGORY: Neuroanesthesia
KEYWORDS: motor-evoked potentials, spine surgery, desflurane and sevoflurane.

CONTROL ID: 802873

TITLE: EFFICACY OF PREVENTING BRADYCARDIA DURING CAROTID ANGIOPLASTY AND STENTING USING ANTICHOLINERGIC THERAPY

CONTACT (NAME ONLY): Melissa Setiawan

CONTACT (INSTITUTION ONLY): University of Calgary

ABSTRACT BODY: Introduction (Abstract Submission): Bradycardia and hypotension may result from manipulation of the carotid sinus during carotid angioplasty and stenting (CAS)(1). Management options include temporary pacing (intravenous (2) or transcutaneous (3)) and pre-emptive or therapeutic administration of anticholinergics, usually glycopyrrolate or atropine (4). We are unaware of any evidence-based pharmacologic strategy to prevent bradycardia during these procedures. The purpose of the present study was to evaluate current practice at our institution in order to determine a) the frequency of bradycardia during carotid balloon inflation, b) the proportion of patients pretreated with anticholinergics and c) the effect, if any, of the latter treatment on subsequent bradycardia.

ABSTRACT BODY: Methods (Abstract Submission): After receiving approval from the institutional review board, we used the administrative database to identify a cohort of 233 patients that underwent CAS from January 2004 to December 2008. The radiology database was then cross-referenced with the database for the automated anesthesia record system (AAR) to isolate 125 patients who underwent CAS and had an AAR to provide accurate continuous hemodynamic values. The primary outcome measures are an existence of a >10% decrease in heart rate (bradycardia) and/or blood pressure (hypotension) recorded at a time noted or consistent with balloon inflation. One investigator (MS) reviewed the medical records for demographic information, medications, comorbidities, and complications. We also noted the occurrence of asystole and sustained hypotension (defined as clinically determined to require pressor use) following bradycardia. The use, timing (pretreatment versus treatment in response to bradycardia) and doses of anticholinergics were recorded.

ABSTRACT BODY: Results (Abstract Submission): Balloon inflation was associated with bradycardia in 33 patients (Table), including 3 patients who were recorded as having asystole. Almost half of the patients (47%) were receiving chronic β-blocker therapy - baseline heart rates ranged from 43-102, with a mean value of 69 beats per minute. 45 patients were pre-emptively treated with atropine (0.3-0.6mg) or glycopyrrolate (100mcg-600mcg). Treatments were compared by 2x2 contingency tables to calculate the Chi2 test statistic. The influence of two confounding factors, chronic β-blocker therapy and baseline heart rate were assessed with logistic regression analysis: neither of these factors, nor pre-emptive anticholinergic treatment made a significant contribution to the likelihood of bradycardia (odds ratios of 1.00).

ABSTRACT BODY: Discussion (Abstract Submission): We conclude that although pre-emptive treatment with anticholinergics is a common practice (36% of patients), it is not associated with a decreased incidence of bradycardia or hypotension in CAS procedures.

ABSTRACT BODY: References (Abstract Submission): 1. J. Vasc. Surg 2007;46:846-854
2. Neurosurg 2001; 49:814-2
3. J Endovasc Ther 2008;15: 110-16.
4. J Vasc Surg 2005; 41: 956-961.

	Pre-emptive anticholinergic treatment (n=45)	No pre-emptive anticholinergic treatment (n=80)	p
Bradycardia	16 (36%)	17 (19%)	0.107
Bradycardia + hypotension	6 (13%)	9 (11%)	0.954

TABLE TITLE:

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(No Image Selected)

CATEGORY: Neuroanesthesia

KEYWORDS: Carotid angioplasty, Bradycardia, Anticholinergic.

CONTROL ID: 803413

TITLE: EFFECT OF DEXMEDETOMIDINE ON CEREBRAL METABOLISM DURING INTRACRANIAL SURGICAL PROCEDURE

CONTACT (NAME ONLY): Arthur Lam

CONTACT (INSTITUTION ONLY): Harborview Medical Center

ABSTRACT BODY: Introduction (Abstract Submission): Introduction:
Dexmedetomidine (DEX), an alpha-2 adrenoreceptor agonist, is a sedative agent that has recently been shown to be a useful adjunct in neuroanesthesia because it may improve perioperative hemodynamic stability(1). We have incorporated this into our anesthetic practice. Animal studies had demonstrated that there is a potential concern with decrease in cerebral blood flow but unchanged metabolism. However, Drummond et al. have previously shown that flow-metabolism coupling is preserved in healthy volunteers sedated with DEX (2). The effect of DEX on flow-metabolism coupling in patients undergoing surgery remains unknown. We hypothesize that cerebral flow-metabolism coupling will be unaltered with the use of DEX compared to propofol infusion alone, and performed this study.

ABSTRACT BODY: Methods (Abstract Submission): Methods: After receiving approval from our institutional IRB, we performed a retrospective analysis of our prospectively collected data to examine the influence of DEX on jugular bulb venous oxygen saturation and lactate levels during intracranial tumor resection or aneurysm clipping, lactate production. All patients were anesthetized with intravenous anesthesia using propofol and remifentanil infusion. Standard monitors include invasive arterial blood pressure, retrograde jugular venous catheter, central venous catheter, and bispectral index. Dex infusion at 0.3 μg/kg/hr was begun about 60 min after induction. We measured jugular venous oxygen saturation, arteriovenous oxygen content and lactate difference during baseline propofol infusion, and again approximately 1 hour after DEX infusion. During this period BIS was maintained between 40 to 60, and end-tidal CO2 was maintained. Blood pressure was maintained within 20% of baseline values, using phenylephrine infusion as needed. Student's t-test was used to compare variables measured during propofol infusion alone to propofol /DEX anesthesia. A p-value of <0.05 is considered significant.

ABSTRACT BODY: Results (Abstract Submission): Results: We reviewed metabolic parameters from 15 adult patients who required elective tumor resection or elective aneurysm clipping. The results are summarized in the table. BIS was comparable before and after DEX infusion, and DEX even this low dose has a significant propofol-sparing effect. There was no difference in jugular venous oxygen saturation, arteriovenous oxygen content difference or lactate difference. The sample size is powered to detect a difference of 20%.

ABSTRACT BODY: Discussion (Abstract Submission): Discussion: DEX infusion can improve hemodynamic stability during intracranial surgical procedures while preserving cerebral blood flow/metabolism coupling. These results support the safety of DEX use for intracranial procedures as part of total intravenous anesthesia, sparing use of propofol.

ABSTRACT BODY: References (Abstract Submission): References: (1) Bekker A et al. The Effect of Dexmedetomidine on Perioperative Hemodynamics in Patients Undergoing Craniotomy. Anesth Analg 2008;107:1340-7.
(2) Drummond JC et al. Effect of dexmedetomidine on cerebral blood flow velocity, cerebral metabolic rate, and carbon dioxide response in normal humans. Anesthesiology. 2008;108:225-32.

	Propofol alone	Propofol-DEX	p-value
BIS	48 ± 11	47 ± 12	NS
Propofol Dose(μg/kg/min)	144 ± 20	126 ± 20	0.001
Jugular venous O2 Sat	59.3±14.6	58.8±10.9	NS
A-V O2 content diff.	6.8 ± 2.4	6.5 ± 1.7	NS

All values are mean±SD, NS = nonsignificant

TABLE TITLE:

TABLE FOOTER:
All values are mean±SD, NS = nonsignificant

(No Image Selected)

CATEGORY: Neuroanesthesia
KEYWORDS: dexmedetominde, neuroanesthesia.

CONTROL ID: 793830

TITLE:

CONTACT (NAME ONLY): Robin Cox

CONTACT (INSTITUTION ONLY): Alberta Children's Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Increasingly, neurosurgical procedures are being carried out in children in a Magnetic Resonance (MR) operating room. In these facilities, the magnet may be permanently situated in the operating room, but these are generally of low power, and hamper surgical access(1). Other approaches are to employ a more powerful magnet that is only intermittently located in the operating room. Either the patient moves to an adjoining room which houses the magnet(2), or the magnet itself enters the room(3). IMRIS® Inc., Winnipeg, in collaboration with the University of Calgary, has developed a mobile MR capability that has been in use at the Foothills Medical Centre, Calgary, for over a decade. With this system, the patient remains under anesthesia in a dedicated operating room, with the suspended magnet entering the room for scans that may be preoperative, intra-disectional, for quality assurance purposes, or a combination. This environment, in a remote location, employing a 1.5 tesla magnet, presented numerous anesthetic challenges with pediatric patients, and required meticulous planning using a team-based approach. In adults, there is no demonstrable increase in morbidity attributable to this environment(4). Our hypothesis was that safe anesthesia and perioperative care can also be provided to children for this intervention. This hypothesis was tested by a retrospective review of ten years experience in this environment, with the primary outcomes being adverse events and other indicators of perioperative morbidity.

ABSTRACT BODY: Methods (Abstract Submission): After local Research Ethics Board approval, a retrospective chart review was conducted of 98 children, who underwent 105 neurosurgical procedures in a remote MR operating room, from 1998 – 2008. Descriptive data is presented as mean ± SD, or median (range), as appropriate.

ABSTRACT BODY: Results (Abstract Submission): Surgical procedures were for tumor (52), seizures (27), vascular malformations (12), and others (14). The median age of patients was 12 years (4 months – 18 years), median weight 45 kg (6 – 112 kg). Mean anesthesia time was 438 ± 101 mins. Patient position was supine (76), prone (22), or lateral (6). Anesthesia was maintained with isoflurane (88), sevoflurane (7), or TIVA (7). Nitrous oxide was used in 76/105 cases.

Anesthesia Outcomes: Median blood loss was 4.5 (0 – 64) ml/kg. Blood transfusion was required in 6 patients. Extubation was in OR (91), PACU (7), or ICU (7). One patient reintubated in ICU for decreasing conscious level. Mean PACU temperature was 37 ± 0.9C. Mean Recovery Score was 7.2 ± 0.9 / 8 @ 30 mins. Two patients had seizures in PACU, treated with propofol, O2. No complications were seen during transport to ICU (5km ambulance). ICU stay ≤ 1 day in 85, ≥ 2 days in 14 patients. No other major complications were attributable to anesthesia management. Minor complications: 1 swollen lip, 1 inflamed ear (ear plug).

ABSTRACT BODY: Discussion (Abstract Submission): With appropriate planning, and a multidisciplinary approach, it is possible to manage children of all ages and sizes in a remote MR operating room, with minimal morbidity attributable to the perioperative environment. Involvement of anesthesiology departments is crucial when developing such services.

ABSTRACT BODY: References (Abstract Submission): 1. Neurosurg 1997; 41: 381–45.
2. Neurosurg 2008; 63: 412–6.
3. Br J Neurosurg 2009; 23: 14–22.
4. Can J Anesth 2002; 49: 420–6.

(No Table Selected)

(No Image Selected)

CATEGORY: Pediatric Anesthesia

KEYWORDS: Intraoperative MRI, Pediatric, Anesthesia Outcomes.

CONTROL ID: 793873

TITLE: DEXAMETHASONE IN CHILDREN UNDERGOING DENTAL REHABILITATION

CONTACT (NAME ONLY): Robin Cox

CONTACT (INSTITUTION ONLY): Alberta Children's Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Dental rehabilitation is a common procedure requiring general anesthesia in children. Many of these procedures are prolonged, and may cause significant postoperative morbidity(1). Dexamethasone reduces morbidity after tonsillectomy in children(2), and third molar extraction in adults(3). Dexamethasone also has a role as a long acting antiemetic after strabismus surgery(4). We hypothesized that dexamethasone, 0.3 mg/kg, would reduce morbidity after dental surgery for up to 24 hrs. The primary outcome was pain, as measured by parental numerical rating scale(5). Key secondary outcomes were oral intake and vomiting/retching.

ABSTRACT BODY: Methods (Abstract Submission): A randomized, placebo-controlled, double-blind study was undertaken. After REB approval and informed consent, 200 children, aged between 2-8 years, scheduled for more than one hour of dental rehabilitation were randomized by computer to one of two groups. Group D received dexamethasone 0.3 mg/kg (maximum 8 mg), and group S received an identical volume of normal saline, given postinduction. A standardized anesthetic was administered, including preoperative acetaminophen, sevoflurane for induction, propofol 1-3 mg/kg, nasotracheal intubation, 50% O2 in N2O, isoflurane, fentanyl 0.5 µg/kg prn, ketorolac 0.5 mg/kg, and ondansetron 0.1 mg/kg. IV fluids comprised Ringers Lactate 20 ml/kg for 1 hour, then 10 ml/kg/hr. The primary outcome measure was pain, as assessed by the parent using a 0-10 Numerical Rating Scale (NRS). Key secondary outcomes were the child's oral intake on a 4 point scale, and the incidence of vomiting/retching. All outcomes were recorded in PACU, prior to discharge, and at 24 hours by scripted telephone interview. Additional outcomes included time of hospital discharge, use of rescue antiemetics or analgesics, and overall parental satisfaction. Assuming a clinically important difference of 1 point in NRS, a SD of 2.381, a two sample t-test with alpha of 0.05 and power of 80%, we calculated a need for 90 subjects in each group, with an additional 10 subjects per group to allow for study violations and withdrawals, for a total of 200 subjects. As the data was skewed, analysis was undertaken with Wilcoxon rank sum test and Fisher's test as appropriate. A P-value of < 0.05 was considered significant.

ABSTRACT BODY: Results (Abstract Submission): After elimination of 22 subjects for protocol violations, 178 were analyzed. There was no difference in the demographics, length of procedure, or complexity of the dental surgery performed between the two groups. There was no significant difference in postoperative pain scores over the first 24 hours, or in oral intake at 24 hours. There was a significant difference in the percentage that vomited in the first 24 hours; 8/91 vomited in Group S, 1/87 vomited in Group D. Therefore, 7.74% more vomited in Group S (p-value= 0.045), with a 95% confidence interval for the difference in percentages who vomited of (0.32 to 15.16).

ABSTRACT BODY: Discussion (Abstract Submission): Based on these findings, the rationale for administering dexamethasone to children undergoing prolonged restorative dentistry under general anesthesia lies in the reduced incidence of delayed, post-discharge vomiting. A significant improvement in pain scores or oral intake could not be shown.

ABSTRACT BODY: References (Abstract Submission): 1. Int J Paediatr Dent 2004; 14: 9-16.
2. Cochrane Database Syst Rev 2003; 1: CD003997.
3. Anesthesia 1993; 48: 961-964.
4. Anesthesiology 1998; 88: 72-5.
5. Anaesthesia 1996; 51: 1005-7.

(No Table Selected)

(No Image Selected)

CATEGORY: Pediatric Anesthesia

KEYWORDS: Dexamethasone, Pediatrics, Dental Surgery.

CONTROL ID: 799459

TITLE: SAFE ADMINISTRATION OF PROPOFOL IN CHILDREN

CONTACT (NAME ONLY): Maryam Dosani

CONTACT (INSTITUTION ONLY): British Columbia Children's Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Propofol is increasingly used in children within and outside the operating room (OR). The use of propofol in some settings remains controversial as respiratory depression is a significant risk.[1] Slower administration of propofol will reduce the drug's peak concentration and may allow for accumulation of carbon dioxide to offset central respiratory depression. This investigation aimed to increase the safety of propofol administration by developing a dosing schedule that would preserve spontaneous ventilation in at least 95% of subjects.

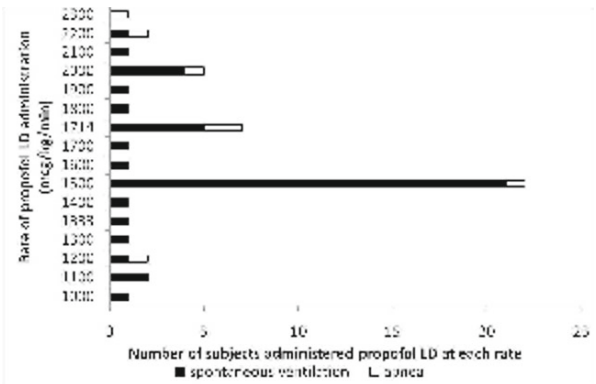
ABSTRACT BODY: Methods (Abstract Submission): With REB approval and informed consent we recruited 52 ASA 1 & 2 children aged 6-15y presenting for upper or lower gastrointestinal endoscopy in the operating room (OR). Routine monitors were applied and vital signs were continuously recorded. An intravenous (IV) cannula was inserted and flushed with 0.5 mg/kg lidocaine. An IV loading dose (LD) of propofol (4 mg/kg) was administered at a constant rate determined by a randomization schedule. Following the LD, propofol was infused at a rate of 200 mcg/kg/min for 5 min or until a period of apnea was observed (absence of chest movements and end-tidal carbon dioxide trace for 20s, or oxygen saturation less than 90%). The randomization schedule began with an initial rate of 1000 mcg/kg/min. The rate was sequentially increased by 100 mcg/kg/min until apnea was observed in three subjects. If apnea occurred, the rate for the subsequent subject was decreased by an increment of 100 mcg/kg/min. The next 33 subjects were randomized according to a Biased Coin Design principle[2]: The time for infusion was increased by 20s if apnea occurred or decreased by 20s 5% of the time if spontaneous ventilation was preserved. The max infusion rate whilst preserving spontaneous ventilation was calculated using the pooled-adjacent-violators algorithm (PAVA) and bootstrap methods were used to compute 95 % confidence limits.

ABSTRACT BODY: Results (Abstract Submission): Fifty subjects were included in the analysis (Figure 1), mean (SD) age 11.4 (2.5) years and weight 43.0 (14.9) kg. Infusion rates ranged from 1000mcg/kg/min to 2300 mcg/kg/min (Figure 1). Seven subjects experienced apnea. The mean (SD) time to apnea was 104 (36) s and duration was 93 (51) s. *The time over which the loading dose of propofol should be administered in order to maintain spontaneous ventilation in 95% of subjects is 3.0 min (Confidence Limits 1.9 - 3.5).* The peak respiratory effect of propofol was seen between 3 - 4 min.

ABSTRACT BODY: Discussion (Abstract Submission): The administration of a loading dose of 4 mg/kg propofol over a period of 3 min preserves spontaneous ventilation in 95% of subjects.

ABSTRACT BODY: References (Abstract Submission): 1)Anesth Analg 2009;108:795-804
2)Anesthesiology 2007;107:144-52

(No Table Selected)



Rate of propofol administration

IMAGE CAPTION:

Rate of propofol administration

CATEGORY: Pediatric Anesthesia
KEYWORDS: Propofol, Pediatrics, Apnea.

CONTROL ID: 799485

TITLE: PROSPECTIVE AUDIT OF POPLITEAL NERVE BLOCKS FOR FOOT SURGERY IN A PEDIATRIC POPULATION

CONTACT (NAME ONLY): Natasha Broemling

CONTACT (INSTITUTION ONLY): Hospital for Sick Children

ABSTRACT BODY: Introduction (Abstract Submission): Popliteal nerve blocks are a feasible, safe and efficacious means to decrease pain in children after clubfoot surgery. Continuous popliteal catheters have a reported failure rate of 15% while single-shot popliteal blocks have failure rates of 5%.1,2,3,4 Following implementation of a peripheral nerve block program, we initiated a prospective audit of acute pain management for pediatric foot surgery, focusing on peripheral nerve blocks. The goal is to establish a benchmarking process with which to follow the development of our regional anesthesia service.

ABSTRACT BODY: Methods (Abstract Submission): In September 2009, with Research Ethics Board approval, we began enrolling all children aged 6 months - 18 years of age undergoing foot surgery with a popliteal nerve block. Exclusion criteria included trauma, day surgery, and refusal of block. Data collection focused on patient demographics, details of perioperative analgesic modalities, pain scores, and side effects. Data was analysed with descriptive statistics and compared to published results.

ABSTRACT BODY: Results (Abstract Submission): Patients underwent single foot osteotomy except #3 (bilateral clubfoot osteotomy) and #6 (tendon transfer). All children had nerve blocks performed under general anesthesia, prior to surgical incision, except for #3 and #4, who were blocked after surgery. A lateral ultrasound-guided approach was used in all patients, with a nerve stimulator in two patients. Four patients had supplemental local anesthetic infiltration of the wound (#1) or saphenous nerve (#6,#8,#9). 20 or 25 gauge catheters were inserted and continuous infusions initiated in the postanesthetic care unit. Catheter dislodgement occurred in #5, #6, #9 and inadequate block in #4, accounting for a catheter failure rate of 66%. Multimodal analgesia was provided, including as needed systemic opiates (PCA, infusion, oral). No block complications occurred.

ABSTRACT BODY: Discussion (Abstract Submission): Single-shot and continuous popliteal blocks provide adequate analgesia following clubfoot repair. Local failure rates for continuous popliteal blocks of exceeded published rates. Improving catheter fixation is a priority.

ABSTRACT BODY: References (Abstract Submission): 1. Paediatr Anaesth 2007; 17: 874-80
2. Anesth Analg 2007; 105: 1234-42
3. Anesth Analg 2006; 102: 744-9
4. Best Pract Res Clin Anaesthesiol. 2002;16:247-54

Patient	Age / Sex	Local anesthetic			Intravenous morphine equivalents (mg/kg)			Pain scores 0 – 24 h median +/- [interquartile range]	Duration of infusion (h)	Days on APS
		Bupivacaine with epinephrine			Intraoperative	0-24h	24-48h			
		Bolus	Infusion							
		0.25% (ml)	%	rate (ml/hr)						
1	14 M	10	-	-	0.00	0.32	-	1 [1-2]	-	-
2	13 M	20	-	-	0.00	0.09	-	3 [2-3]	-	-
3	15 M	20 per side	-	-	0.04	0.45	0.24	2 [2-2]	-	2

4	12 M	20	0.1	10	0.10	0.65	0.60	4 [3-7]	39	2
5	11 M	20	0.1	6	0.00	0.00	0.06	0 [0-0]	21.5	2
6	4 M	10	0.25	3.4	0.00	0.23	0.31	1 [0-5]	14	2
7	16 M	10	0.125	4	0.00	0.08	0.00	2 [2-4]	39.5	3
8	12 M	20	0.125	5	0.04	0.36	0.28	4 [3-5]	47	2
9	2 F	10	0.1	4	0.19	0.48	0.33	0 [0-0]	18	2

TABLE TITLE:

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CATEGORY: Pediatric Anesthesia

KEYWORDS: Popliteal Nerve Block, Postoperative Pain, Pediatric.

CONTROL ID: 799763

TITLE: DOES SUCCINYLCHOLINE STILL HAVE A PLACE IN PEDIATRIC ANESTHESIA?

CONTACT (NAME ONLY): Catherine Doherty

CONTACT (INSTITUTION ONLY): Hospital For Sick Children

ABSTRACT BODY: Introduction (Abstract Submission): Succinylcholine was introduced into clinical practice in 1951 its main use being for rapid sequence induction (RSI), treatment of severe laryngospasm, and emergency airway control. In recent years succinylcholine, has become a drug of increasing controversy over its use in pediatric anesthesia and the search for an alternative continues (1). The aim of this survey was to investigate the current use of and attitudes towards succinylcholine in pediatric anesthesia practice in North America and the United Kingdom.

ABSTRACT BODY: Methods (Abstract Submission): After local Research Ethics Board approval, a survey of 10 questions was designed and administered to the registrants at the Pediatric Anesthesia Conference (PAC) 2009. It was also sent by email with a weblink to the members of the Association of Pediatric Anesthetists of Great Britain and Ireland (APAGBI). The questionnaire assessed participants' practice profile, years of experience and geographical location. It investigated the use of succinylcholine for elective surgery, RSI, and treatment of severe laryngospasm with no intravenous (IV) access.

ABSTRACT BODY: Results (Abstract Submission): The response rate for the PAC group was 165/220 (75%). Of the PAC group, 56.7% practice in Canada, 35.4% in the USA, 88.5% are staff anesthetists, and 50.6% are in full time pediatric anesthesia practice. The preliminary response rate for the APAGBI group was 435/755 (57.6%). 85.2% of the APAGBI group practice in the UK, 79.3% are consultant anesthetists, 38.4% are in full time pediatric anesthesia practice. (see table 1).

ABSTRACT BODY: Discussion (Abstract Submission): Preliminary data suggests,differences exist in the use of succinylcholine based on geography and years in practice. For those in UK who now prepare less succinylcholine, a common reason was that it is now available in minijet prepared syringes. This may be a cost and environmentally effective alternative.Its use has changed over the years for some anesthesiologists, particularly those in practice for greater than 15 years. Other reasons for using less succinylcholine were due to published or personal experience of side effects and the introduction of propofol, rocuronium, remifentanil and sugammadex into pediatric practice. In conclusion, the use of succinylcholine in pediatric anesthesia remains controversial. Despite availability of alternative medications, succinylcholine is still widely used for RSI and management of laryngospasm in pediatric anesthesia.

ABSTRACT BODY: References (Abstract Submission): 1.Pediatric Anesthesia 2009; 19: 561-570.

Succinylcholine use – PAC vs APAGBI

	PAC	APAGBI	PAC <15years practice	PAC >15years practice	APAGBI <15years practice	APAGBI >15years practice
Always draw up	58.5%	26.5%	64.7%	51.9%	33.2%	20.7%
Change in practice (no longer drawn up)	26.7%	48%	20%	32.9%	44.3%	51.1%
Rarely/never use electively	81%	90.9%	79.8%	82.1%	89.1%	93.4%
Change in practice (now use less)	48.5%	33.2%	24.7%	73.4%	16.4%	48%
Use succinylcholine for RSI	42.4%	74.3%	38.8%	45.6%	77.8%	72.1%
Succinylcholine IM for laryngospasm (no IV)	80.6%	66.4%	78.8%	82.3%	76.2%	57.6%

TABLE TITLE:

Succinylcholine use – PAC vs APAGBI

TABLE FOOTER:

(No Image Selected)
CATEGORY: Pediatric Anesthesia
KEYWORDS: succinlycholine.

CONTROL ID: 799924

TITLE: USING PHYSIOLOGICAL DISCHARGE CRITERIA IN PEDIATRIC RECOVERY

CONTACT (NAME ONLY): James Armstrong

CONTACT (INSTITUTION ONLY): Hospital for Sick Children

ABSTRACT BODY: Introduction (Abstract Submission): Clearly defined discharge criteria can reduce time spent in post-op recovery units (PACU) without compromising safety [1-5]. Prospective studies [6,7] comparing criteria based systems with time-based discharge in adults show significant reduction in length of stay (up to 24%), with no reported adverse events. Scoring systems exist to determine discharge fitness in adult ambulatory patients [1-3,8-10] but pediatric data are lacking.
We undertook a prospective, observational study to evaluate the effectiveness, in terms of time saved, and safety of a clinical discharge score in pediatric ambulatory patients.

ABSTRACT BODY: Methods (Abstract Submission): With Research Ethics Board approval, we recorded observations from ambulatory patients aged 1-18 years and ASA 1-3 over a 6 week period. Children having airway surgery and those admitted post-operatively were excluded.
A hybrid of the modified Aldrete score [9] and Post-Anesthetic Discharge Scoring System [10] was used (Table 1) to record scores every 15min. The time the minimum score for discharge ($\leq$12) was reached was recorded as 'criteria-based discharge' (CBD) time. Actual discharge was according to existing, time-based discharge (TBD). The difference between these two times was compared using a Mann-Whitney test. $P<0.05$ was accepted as significant. Any adverse events occuring between CBD time and TBD time were recorded.

ABSTRACT BODY: Results (Abstract Submission): Observations from 322 patients were recorded, mean age 7 ±4.8yrs and weight 27.1 ±18kg. The median CBD time, 30min (range 15-135min), was significantly shorter than the TBD time, 60min (range 30-120), $P<0.0001$. The median reduction of time spent in PACU was 15min. Seven events (2%) were recorded between CBD and TBD times. Three patients required anti-emetic and 3 extra analgesia. One patient became drowsy and transiently desaturated to 88% 40min after receiving morphine and dimenhydrinate. The saturation recovered after 2min of supplemental oxygen and the patient was discharged.

ABSTRACT BODY: Discussion (Abstract Submission): This study indicates that discharge criteria, based on physiological observations, have the potential to significantly speed transit of pediatric patients through PACU. Seven events were observed in the time between when the patient would have been discharged with the criteria score and when they were discharged with the old time-based system. These events emphasize the importance of provision of post-operative medications and instruction to ambulatory patients and their parents, and highlight the need to ensure adequate assessment time after sedating medications, prior to discharge.

ABSTRACT BODY: References (Abstract Submission): 1. Can J Anesth 2006; 53 (9): 858-872
2. BJA 2004; 93 (6): 768-74
3. J Perianesth Nurs 2003; 18 (4): 247-53
4. Anesth Analg 2001; 92: 918-22
5.J Perianesth Nurs 2006; 21 (4): 259-267
6. Anaesth Intensive Care 2004; 32 (1): 33-42
7. J Clin Anesth 2008; 20: 175-179
8. Analg 1970; 49: 924-34
9. Anesth Analg 1999; 88: 1069-72
10 .J Clin Anesth 1995; 7: 500-6

Table 1. Discharge criteria score

Discharge Criteria		Score
Conscious level & Activity	Awake & Orientated, appropriate movements	2
	Rousable with minimal stimulation, weak movements	1
	Responsive only to tactile stimulation, no movement	0
Respiratory Stability	Coughing, crying, deep breathing	2
	Hoarseness with crying or coughing	1
	Stridor, dyspnoea or wheeze	0

Oxygen Saturation	Maintains > 95% on room air 90%-95% on room air Requires O2 to maintain > 90%	2 1 0
Hemodynamic Stability	HR & systolic BP within 15% of baseline value HR &/or systolic BP within 15-30% of baseline HR & systolic BP outside 30% of baseline, mottled	2 1 0
Post-op Pain	None, or mild discomfort Moderate to severe, controlled with IV analgesia Persistent severe pain	2 1 0
Post-op Nausea or Vomiting	None, or mild nausea with no vomiting Transient vomiting or retching Persistent moderate to severe nausea & vomiting	2 1 0
Surgical Site	No blood or fluid loss Minimal loss, no intervention required Ongoing losses, dressing changes required	2 1 0

TABLE TITLE:
Table 1. Discharge criteria score

TABLE FOOTER:

(No Image Selected)

CATEGORY: Pediatric Anesthesia
KEYWORDS: Discharge criteria, Pediatrics, PACU.

CONTROL ID: 800337

TITLE: MAJOR COMPLICATIONS RELATED TO EPIDURAL ANALGESIA IN CHILDREN: A TWELVE YEAR AUDIT OF 2340 PATIENTS.

CONTACT (NAME ONLY): Abeer Arab

CONTACT (INSTITUTION ONLY): University of Ottawa

ABSTRACT BODY: Introduction (Abstract Submission): Epidural analgesia is an effective method of post-operative analgesia.(1,2) However major complications related to its use in children have a reported incidence of 47-90 in 10,000.(3,4) We sought to determine the incidence of such complications occurring in our centre over a 12 year period, and to identify potential areas for improvement in the management of epidural analgesia in children.

ABSTRACT BODY: Methods (Abstract Submission): Approval from the institutional research ethics board was obtained for a retrospective review of the acute pain service database for the period 1997 to 2008. This database captures all epidural analgesia infusions used and records associated incidents. Major complications were identified and categorized according to type of complication, with a grading of severity from severe (resulting in permanent deficit), moderate (resolving with intervention) to mild (resolving without intervention). Children were categorized into two major groups, infants (<1 year old) and older children, and comparisons were made using Chi-squared or Fisher's exact test.

ABSTRACT BODY: Results (Abstract Submission): Of 2340 epidurals performed, 19 major complications were identified. The most common types of complication were local skin infection and drug error. Two severe complications (1 cardiac arrest, 1 permanent nerve injury) were associated with epidural analgesia but were not shown to be directly attributable to it. 9 complications were of moderate severity, and 8 complications were mild. [table1] Patients <1 year of age had a higher incidence of complications compared with those >1 year ($P<0.01$). Compared with children, infants with caudally inserted catheters had a higher incidence of complications ($P<0.05$).

ABSTRACT BODY: Discussion (Abstract Submission): Our results demonstrate an overall incidence of 81 complications per 10,000 epidurals. Most of these incidents had no long-term sequelae. The 2 most common types of complications were potentially preventable. Identifying incidents from all causes may be an important initial step toward changing practice guidelines to reduce preventable complications associated with epidural analgesia in children. Further discussion will be held at the meeting.

ABSTRACT BODY: References (Abstract Submission): 1.BJA 1993;70:10-16

2.Anesth 1990;37:359-]362

3.Ped Anesth 1995; 5: 41-46

4.Ped Anesth 2007; 17: 520-33

Table1: Complications related to continuous epidural infusion analgesia in all patients

TYPE OF COMPLICATION	TOTAL NUMBER	% OF TOTAL COMPLICATIONS
Local skin infection	8	42.1
Drug error	3	15.8
Intravascular Catheter	1	5.3
Intrathecal catheter	1	5.3
Misplaced Catheter	1	5.3
Error on Catheter Removal	1	5.3
Respiratory depression	1	5.3
Pressure Sore*	1	5.3
Peripheral nerve injury*	1	5.3

Cardiac arrest*	1	5.3
ALL COMPLICATIONS	19	100

*Not directly attributable to epidural analgesia

TABLE TITLE:
Table1: Complications related to continuous epidural infusion analgesia in all patients

TABLE FOOTER:
*Not directly attributable to epidural analgesia

(No Image Selected)

CATEGORY: Pediatric Anesthesia
KEYWORDS: pediatric epidural, epidural complication, pediatric acute pain.

CONTROL ID: 800632

TITLE: PCA-DERIVED DATA PREDICT 24-HR MORPHINE CONSUMPTION AND PAIN

CONTACT (NAME ONLY): Clyde Matava

CONTACT (INSTITUTION ONLY): Hospital for Sick Children, Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Post-operative pain persists as a challenge in the management of children after idiopathic scoliosis surgery(1). Hyperalgesia, high opioid consumption and opioid-related side effects are commonly experienced yet no sensitive indicators exist to predict their occurrence or severity. A previous unpublished study from our institution suggested that a PCA ratio of demands/deliveries of ≤ 1.75 at 8-h after surgery is predictive of significant pain (APS ≤ 7) at 24 hours after surgery. We hypothesized that PCA ratios in the early postoperative period could predict total opioid consumption and increased analgesia requirements in the first 24 hours after surgery.

ABSTRACT BODY: Methods (Abstract Submission): Following institutional REB approval, we performed a retrospective database review of all patients who underwent surgery for idiopathic scoliosis. Data describing type and duration of surgery, PCA demands and deliveries, morphine consumption, pain scores and opioid related side effects were collected and entered into a database for analysis. Excluded were children receiving a regional technique or ketamine infusion for postoperative analgesia. We systematically stratified patient data using the PCA ratios of 1.5, 1.75 and 2.0 at 4-h, 8-h and 12-h respectively. Data were analyzed using the Mann-Whitney rank-sum test for non-parametric data and the Chi-square test for nominal data.

ABSTRACT BODY: Results (Abstract Submission): We reviewed 202 patient records with 37 being excluded and 165 analysed. Patients with PCA ratio ≤ 1.5 at 4 hours post surgery consumed significantly more morphine at 4 hours compared to patients with PCA ratio < 1.5 (P=0.005). This difference persisted throughout the first 24 hours after scoliosis surgery (P=0.0002) [Table 1]. Patients with PCA ratio ≤ 1.5 at 4 hours post surgery did not demonstrate significantly greater pain scores than patients with PCA ratio < 1.5 (Table 1). Pain scores did not predict increased opioid consumption until 24 hours post scoliosis surgery. Patients with PCA ratio ≤ 1.5 at 8 hours demonstrated significantly higher incidence of pruritus and sedation (P=0.02). Patients with a PCA ratio ≤1.5 at 4 hours experienced a significantly longer mean stay in hospital of 164 hrs compared to 145 hrs, for patients with a PCA ratio < 1.5 (P=0.01).

ABSTRACT BODY: Discussion (Abstract Submission): We have demonstrated that a 4 hour PCA ratio of demands/deliveries of ≤ 1.5 predicted increased pain and opioid consumption at 24 hours post idiopathic scoliosis repair. A PCA ratio ≤ 1.5 at 8 hours predicted increased side effects such as sedation and pruritus. In this patient population, the PCA ratio was a more sensitive predictor of postoperative pain than APS pain scores and represents an opportunity to alter pain management before the development of severe postoperative pain and opioid related side effects. Prospective studies in other surgical populations are warranted.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg. 2006 Jun;102(6):1662-7

(No Table Selected)

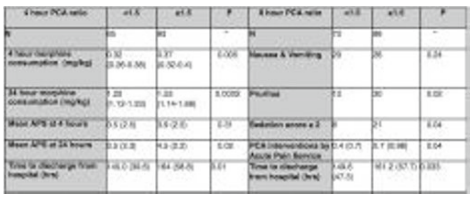

Table 1. Patients with PCA ratio 1.5 at 4 hours and 8 hours post surgery

IMAGE CAPTION:
Table 1. Patients with PCA ratio 1.5 at 4 hours and 8 hours post surgery

CATEGORY: Pediatric Anesthesia

KEYWORDS: pediatric, PCA, scoliosis.

CONTROL ID: 802337

TITLE: PEDIATRIC SURGERY IN A DISTRICT HOSPITAL: A BET IN PROGRESS

CONTACT (NAME ONLY): Marco Barone

CONTACT (INSTITUTION ONLY): Regional Hospital "U.Parini"

ABSTRACT BODY: Introduction (Abstract Submission): The pediatric surgery in a District Hospital (DH) remains worldwide an open problem depending on many factors: anaesthetic-surgical skills, distance from main pediatric Centres, volume of procedures per year (1). The peculiarities of different countries influence the organizational strategies: distances, economical limits, different Health Systems, number of specialists. Our living area is characterized by mountains, 120,000 inhabitants (15,000 in paediatric age), a high-technological DH, main surgical specialities, 2-3 hours from nearest Reference Pediatric Centres. The occasional meeting between a group of anaesthesiologists with a potential interest in pediatric anaesthesia and 2 pediatric surgeons employed respectively in general and urologic surgery units, permitted to overcome the limits of a DH, realizing a specific pathway for children.

ABSTRACT BODY: Methods (Abstract Submission): Beginning: 3 years ago. SKILLS: no pediatric anaesthesiologists, no specific nursing, no adapted materials, poor pediatric approach, no methods of distractions for children, not-standardized premedication and anaesthetic perioperative management. OUTPATIENT: no specific outpatient for children. OPERATORY ROOM: mixed adults-children operatory lists, no specific pathway for small children (0-3 year old) (FEAPA GL), not paediatric environment. TERRITORY: poor relationships with pediatricians, high migration-rate of surgical pathology. ELECTIVE PROCEDURES (2006): 257 (0-16 yrs old), 49 (0-3 yrs). IMPROVEMENT STRATEGY: a selected group of anaesthetists should acquire pediatric skills in main Centres.

ABSTRACT BODY: Results (Abstract Submission): Nowadays. SKILLS: 1 pediatric anaesthetist and 2 anaesthetists with an interest in pediatric anaesthesia (FEAPA GL), all trained in an international pediatric hospital, a staff of nurses experienced in pediatric anaesthesia, annually certified retraining in pediatric Centres, regular visits of Professors in Pediatric Anaesthesia and Surgery in our DH, age-adapted materials and drugs (pediatric anaesthesia mobile box), standardized premedication and perioperative care with attention to the psychological stress, drugs' side effects, safe practice of regional anesthesia and pain relief. OUTPATIENT: specific outpatient for 0-16 year old children. OPERATORY ROOM: dedicated anaesthetic staff, 4-5 pediatric lists per month for elective surgery (general surgery, urology, tonsils and dental surgery, minor orthopaedic, skin and ophthalmological surgery), assistance during diagnostic procedures (MRI, CT-scan, digestive endoscopy). Specific pathway for small children (0-3 year old), wider adherence to the EACH Charter (hospital stay in pediatric ward or in child-adapted rooms), environmental amelioration (paintings, toys, books, music, smile-therapy). TERRITORY: systematic meetings with pediatricians, lower migration-rate, transfer to specialised hospitals only for selected cases. ELECTIVE PROCEDURES (2009): 352, 37% increase (0-16 yrs old); 64, 31% increase (0-3 yrs old).

ABSTRACT BODY: Discussion (Abstract Submission): We betted to realize a children-sized pathway in a DH. The aim of our daily activity is to enlighten the "dark side of the moon" of pediatric pathology treatable in a DH, providing to specific skills to the pediatric population "in loco". In conclusion, faced with the pediatric dilemma: "Operate or not operate", we reply: "Yes, we can!".

ABSTRACT BODY: References (Abstract Submission): 1. J Pediatr Surg.2005;40:75-80

(No Table Selected)

(No Image Selected)

CATEGORY: Pediatric Anesthesia

KEYWORDS: paediatric anesthesia , district hospital.

CONTROL ID: 802780

TITLE: EVALUATION OF THE INTUBATING LARYNGEAL AIRWAY IN CHILDREN

CONTACT (NAME ONLY): Erin Cooke

CONTACT (INSTITUTION ONLY): University of British Columbia

ABSTRACT BODY: Introduction (Abstract Submission): The Air-Q® intubating laryngeal airway (ILA) is a new laryngeal mask airway (LMA) specifically engineered for use both as a primary airway and as a rescue device to facilitate fibreoptic bronchoscope (FOB) guided endotracheal intubation. This study is the first of three designed to evaluate ILA performance in paediatric patients during clinical practice. The objective of this study is to test the performance characteristics of the ILA as a primary airway in clinical paediatric anaesthetic practice.

ABSTRACT BODY: Methods (Abstract Submission): With REB approval and written informed parental consent (assent where appropriate), 57 children have so far been recruited into this observational study. The aim is to recruit 120 subjects, stratified by ILA size, into four groups of 30: size 1.0 (<7 kg), size 1.5 (7-17 kg), size 2.0 (17-30 kg) and size 2.5 (30-50 kg). Following induction of anaesthesia, the ILA is inserted according to the manufacturer's recommended technique. The cuff is then inflated to the manufacturer's recommended intracuff pressure of 60 cmH2O as measured with a digital pressure cuff monitor. The ILA is evaluated using a standardized methodology which includes: number of placement attempts; ease of insertion; quality of ventilation; presence or absence of gastric insufflation; oropharyngeal leak pressure (OLP); maximum tidal volume (VTmax); FOB view; and presence of blood after removal. The primary outcome measure is OLP. In order to minimize variability, the number of evaluators is limited to three.

ABSTRACT BODY: Results (Abstract Submission): Data are reported from the 57 subjects recruited to date (Table 1). With the head in neutral position, the mean (SD) OLP and VTmax were 16.7 (5.3) cmH2O and 19.3 (6.1) mL/kg, respectively. The mean (SD) OLP increased to 27.4 (7.3) cmH2O in flexion. Using Brimacombe and Berry's scoring system for FOB view of the larynx through an LMA device (1), 5 subjects had no vocal cords visible, 15 had vocal cords and lingual surface epiglottis visible, 12 had vocal cords and laryngeal surface epiglottis visible, and 25 had only vocal cords visible. The vocal cords were thus visible in 52/57 subjects.

ABSTRACT BODY: Discussion (Abstract Submission): Although recruitment is not yet completed, the performance of the ILA has been satisfactory thus far. The current neutral OLP values for the ILA are lower than existing published data for the ProSeal LMA (2-5). The mean OLP appears to increase significantly when the neck is flexed. The FOB view is excellent. This augers well for FOB-guided endotracheal intubation, which will be specifically evaluated in a separate study.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg 1993;76:450.
2. Paediatr Anaesth 2006;16:297-301.
3. Anesth Analg 2005;100:1605-10.
4. Br J Anaesth 2005;94:385-9.
5. Anesth Analg 2006;102:405-10.

(No Table Selected)

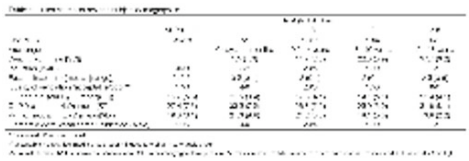

IMAGE CAPTION:

CATEGORY: Pediatric Anesthesia

KEYWORDS: Laryngeal Mask Airway, Children.

CONTROL ID: 802825

TITLE: INCIDENCE OF DIFFICULT BAG MASK VENTILATION IN CHILDREN: AN EXPLORATORY OBSERVATIONAL DESCRIPTIVE STUDY.

CONTACT (NAME ONLY): Teresa Valois

CONTACT (INSTITUTION ONLY): Montreal Children's Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Airway events in pediatric anesthesia continue to be a source of morbidity and mortality, as reported in the pediatric perioperative cardiac arrest registry (1), where 27% of anesthesia related cardiac arrests are of respiratory etiology.
Despite these findings, the incidence of difficult airway in children remains unknown, particularly difficult bag-mask ventilation. Difficult intubation has been reported in 0.25-4.6% (2-4) in retrospective studies. We therefore designed an exploratory observational descriptive study to find out the incidence of difficult bag mask ventilation, a component of difficult airway, and factors that may be associated.

ABSTRACT BODY: Methods (Abstract Submission): After local REB approval, patients were recruited on the day of surgery, informed consent and/or assent was obtained. Patients were taken into the operating room and anesthesia proceeded in the standard manner. The research team observed the airway management during induction. Difficult face mask ventilation was defined as the need for two ore more of the following: CPAP, Oral/Nasal airway, two person ventilation and/or presence of desaturation (<95%). Demographic data and airway variables were analyzed using SPSS program.

ABSTRACT BODY: Results (Abstract Submission): The patients recruited for the study all consented to participate (n=314) and consisted of 61.8% males and 31.2% females. The median age was 47.5 months with an IQR of 46. The incidence of difficult bag mask ventilation was 5.4%. Asthma or reactive airway disease, history of snoring, and weight above the 95th percentile may be associated factors and their incidences are 13.4%, 44.7%, and 11% respectively. (See Table 1)

ABSTRACT BODY: Discussion (Abstract Submission): Our study showed an incidence of difficult bag-mask ventilation of 5.4% in otherwise healthy children, this is to our knowledge the first report of its kind. In pediatric anesthesia practice where inhalational induction is common, the ability to recognize and manage a difficult airway is a critical skill. We hope our findings will serve for the development of future studies exploring definition and factors associated with difficult airway in children.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg 2007;105(2):344-50.
2. J Cardiothorac Vasc Anesth 2004;18: 610–612.
3. Minerva Anesthesiol 1996;62: 259–264.

Table 1. Demographic and study variables.

Demographics	
Male	61.8
Age (months)	Median 47.5 (IQR 46)
Airway variables	
Difficult Bag Mask Ventilation	5.4%
Asthma or Reactive Airway Disease	13.4%
History of Snoring	44.7%
Weight >95th percentile	11%

TABLE TITLE:
Table 1. Demographic and study variables.

TABLE FOOTER:

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CATEGORY: Pediatric Anesthesia

KEYWORDS: Difficult airway, Bag-mask ventilation, Pediatrics.

CONTROL ID: 803613

TITLE: TEE CLARIFIED THE CAUSE OF CARDIOVASCULAR COLLAPSE DURING SCOLIOSIS SURGERY IN A CHILD.

CONTACT (NAME ONLY): Victor Neira

CONTACT (INSTITUTION ONLY): Children's Hospital of Eastern Ontario

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): Case Description:
Informed consent was obtained from the patient's parents to publish this case. The prone position may cause important hemodynamic changes. We describe an otherwise healthy 14 year old male, with idiopathic scoliosis (Cobb's angle 74 °), but who had a markedly narrowed antero-posterior (AP) chest diameter. He developed severe intraoperative cardiovascular instability. The surgery was suspended at the time of pedicle screw insertion due to massive bleeding, elevated CVP, and hypotension refractory to fluids, transfusion and inotropes.
Three days later the patient underwent a TEE in the supine, lateral and prone positions. We found a normal echocardiographic study in supine position, and narrowing of the RVOT with flow acceleration in lateral position. A modified mid esophageal long axis view was used to study the RVOT, due to technical difficulties obtaining mid esophageal right ventricle inflo-outflow view in prone position. In the prone position with transverse bolsters under the chest and pelvis, we identified significant decrease in the RVOT diameter. With pressure applied to the back by the surgeon, RVOT markedly obstructed with significant decrease in the flow. We documented simultaneous changes in the CVP from 10 to 24mm Hg. Using longitudinal bolsters, we found appreciably less impact to the RVOT, RV size and flow, both with and without pressure to the back. This was the position recommended for his re-operation. The patient returned to complete his spinal fusion surgery 3 weeks later in the prone position using separate longitudinal supports on each side of the chest, avoiding any pressure on the sternum. The operation was uneventful.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): Conclusion:
Chest deformity associated with thoracic scoliosis can produce a decrease in the AP diameter of the chest. A compliant chest cage, associated with the positioning and pressure on the sternum, seemed to explain the mechanical effects in the right heart. Transesophageal echocardiography was useful to clarify the pathophysiology of the cardiovascular instability in this case.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): We report a case of transesophageal echocardiography (TEE) examination confirmed right ventricular outflow tract (RVOT) obstruction during prone position. The patient developed cardiovascular collapse, massive bleeding and raised central venous pressure (CVP) during posterior spinal fusion surgery. The TEE enabled us to optimize patient's bolstering when the patient was prone.

(No Table Selected)

(No Image Selected)

CATEGORY: Pediatric Anesthesia

KEYWORDS: Transesophageal echocardiography, Prone position, Spinal fusion surgery.

CONTROL ID: 763741

TITLE: RECURRENT EPISODES OF ASYSTOLE FROM CAROTID SINUS HYPERSENSITIVITY

CONTACT (NAME ONLY): Angela Truong

CONTACT (INSTITUTION ONLY): MD Anderson Cancer Center

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): Patient consent was obtained in accordance with local institutional guidelines.

A 39 year-old male with recurrent thyroid carcinoma presented for upper mediastinal lymphadenectomy. He had undergone thyroidectomy in 1999 followed by bilateral neck dissection and radiation therapy in 2001. Medical history included hypothyroidism and obesity BMI 36. Physical exam showed a Mallampati class 3 airway with fibrotic post-radiation changes of the neck. Range of motion was limited, especially extension. Preop EKG showed sinus rhythm of 60 bpm. Pre-induction vital signs were BP 126/73, HR 62, RR 18 and SpO2 98%. He was induced with fentanyl, propofol, and rocuronium. He was orally intubated with a fiberoptic bronchoscope. An arterial catheter was placed. Vital signs for 15 minutes after induction showed BP systolic 90-100, HR 58-60 with 4% desflurane. As the patient was positioned for surgery with a roll placed under his shoulders and neck hyperextended, asystole was noted on the monitor. No carotid pulse was palpable. CPR was started and ephedrine 30 mg IV given. Pulse and blood pressure returned after 45 seconds. Surgery was aborted, the patient awoken and extubated. He had no neurological sequelae. Serial cardiac enzymes and EKGs were negative for ischemia. Carotid dopplers showed no evidence of stenosis. Transthoracic echocardiogram revealed normal LV function. The impression was the asystolic episode was due to a vagal stimulus and/or carotid baroreceptor dysfunction which became manifest after head positioning. Three weeks later the patient returned for surgery. He was pre-treated with glycopyrrolate 0.2 mg. An esophageal pacer was inserted after intubation. Again as he was positioned with head hyperextended, asystole occurred. He was treated with glycopyrrolate 0.4 mg and esophageal pacing with good effect. Surgery proceeded without further incident. The patient was discharged home in good condition two days later.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): CSH has been described as early as the 10th century AD.1 Hypersensitivity of the afferent or efferent limb of the carotid sinus reflex results in vagal activation and/or sympathetic inhibition leading to bradycardia and/or vasodilation. Intraoperative CSH leading to cardiac arrest is rare. Only one other case has been reported in a patient undergoing cholecystectomy. Vasovagal reaction to the stimulus of intubation compounded by nifedipine promoted CSH resulting in cardiac arrest.2

It is likely that in our patient, prior history of neck dissection and radiation therapy augmented his risk of CSH. Treated head and neck cancers have been reported to be associated with CSH.3 Furthermore, chronic denervation of the sternocleidomastoids and CSH have been shown to be significantly related, suggesting a pathophysiological relation between the two entities.4 This unique case highlights the importance of raising awareness to anesthesia providers of CSH syndrome. Preparedness with vagolytic drugs, close monitoring, and the immediate availability of pacing contributed to a positive patient outcome.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): To describe a unique case in which asystole occurred during positioning on two separate occasions in a patient with carotid sinus hypersensitivity (CSH).

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: asystole, vagus, positioning.

CONTROL ID: 800435

TITLE: ASA PHYSICAL STATUS CLASSIFICATION: ARE THERE DIFFERENCES BETWEEN ANESTHESIOLOGISTS AND INTERNISTS

CONTACT (NAME ONLY): Deepali Patil

CONTACT (INSTITUTION ONLY): U of Calgary

ABSTRACT BODY: Introduction (Abstract Submission): The American Society of Anesthesiologist Physical Status Classification (ASA PS) is used to describe patients peri-operatively. Previous surveys using mock cases have demonstrated unreliability in applying the ASA PS. This study looks at the reliability of the ASA PS when applied by anesthesiologists and general internists examining actual patients.

ABSTRACT BODY: Methods (Abstract Submission): This study received ethics approval from the local institutional review board.
Subjects were adult patients seen by both an anesthesiologist and an internist in pre-admission clinic. The anesthesiologist and internist were asked to independently provide an ASA PS score for each patient. Data was collected via two color coded forms. No identifying patient information was collected. The proportion of cases in agreement between anesthesiology and internal medicine specialists was compared to unity using a Z-test for proportions. The proportion of cases in which there was a disagreement that is greater than one class in the ASA PS is reported as a secondary outcome.

ABSTRACT BODY: Results (Abstract Submission): The sample size was 133. There was agreement in ASA PS in 56% (74/133, $p<0.0001$). The majority of patients fell into ASA II and III. Patients scored as ASA II (n=53) by anesthesiologists were also scored as such by internists in 58% of cases ($p<0.001$). Patients scored as ASA III (n=70) by anesthesiologists were also scored as such by internists in 54% of cases ($p<0.0001$). Of the cases in which the ASA PS was discordant, in only 2/61 cases (3.3%, p non significant) the difference was greater than one ASA PS class.

ABSTRACT BODY: Discussion (Abstract Submission): The purpose of this study was to assess the reliability of the ASA PS classification system. It was demonstrated that the system had an unreliable score in 46% of cases in which two physicians assessed the same patient on the same day. Most variability was seen in ASA grade 2 and 3 patients, which are most controversial groups. The ASA PS, a scoring system that is widely used in peri-operative medicine, appears to have low reliability.

ABSTRACT BODY: References (Abstract Submission): 1.Anesthesiology 1941; 2(3): 281-4.
2.Anesthesiology 1963;24:111.
3.JAMA 1961; 178(3): 261-6.
4.ASA Relative Value Guide, 10th edition. Park Ridge, ASA Publications. 2009.
5.Acta Anaesthesiol Scand 1988; 32: 653-64.
6.Anesthesiology. 2002; 97(1): 108-15.
7.Anesthesiology. 2003; 99(2): 259-69.
8.Anesth Analg 2005; 100(3): 855-65.
9.Anesthesiology 1978; 49: 239-43.
10.Anaesth Intensive Care 2002; 30: 633-40.
11.Anaesthesia 1995; 50: 195-9.
12.Oxford Oxford University Press, 2006, pp 30,45.
13.Scand J Caring Sci 2005; 19: 432-428.
14.Accident and Emergency Nursing 2006; 14: 83-88.

Agreement between Anesthesiologists and Internists

ASA PS	Anesthesiologists	Internists	Agreement	p - value
1	3	0	0 %	P=0.05
2	53	31	58.5 %	P<0.0001*
3	70	38	54.3 %	P<0.0001*

4	7	3	42.9 %	P=0.04

* statistically significant

TABLE TITLE:
Agreement between Anesthesiologists and Internists

TABLE FOOTER:
* statistically significant

(No Image Selected)

CATEGORY: Patient Safety
KEYWORDS: ASA physical status classification.

CONTROL ID: 801747

TITLE: METABOLIC MARKERS FOR DEEP WOUND INFECTION AFTER HIP AND KNEE SURGERY

CONTACT (NAME ONLY): Boris Mraovic

CONTACT (INSTITUTION ONLY): Thomas Jefferson Univesity

ABSTRACT BODY: Introduction (Abstract Submission): Deep wound infection after major orthopedic surgery is one of the most serious complications. Various risk factors for developing infection after hip and knee replacement surgery have been described including patients' comorbidities and surgical technique factors.(1,2) We investigated which metabolic markers increased risk for periprosthetic joint infection (PJI) after total hip and knee arthroplasty.

ABSTRACT BODY: Methods (Abstract Submission): After obtaining IRB approval, we reviewed our computerized database for primary total hip and knee arthroplasty from 2000 to 2008. Demographic information, past medical history of patients, perioperative biochemistry and postoperative complications were reviewed. Periprosthetic (deep) wound infection was defined as a deep infection below fascia, involvement of muscle, and bone with one of the following conditions: wound opened for incision and drainage, positive culture was obtained, or infection was treated with antibiotics. All patients have the same perioperative infection prophylaxis; cefazolin for 24 hours, laminar airflow operating room environments, and body exhaust suits, as well as DVT prophylaxis with coumadin. Continuous variables were tested using the t-test. Categorical variables were tested using Fischer's exact test. P values reported are two-sided.

ABSTRACT BODY: Results (Abstract Submission): Data from 17960 patients were included in the study. Incidence of PJI was 1.06 % (190/17960 patients, 95% CI 0.91, 1.21). Infected patients tended to be male (51 vs 42 %, P=0.018), had higher BMI (33 vs 30 kg/m2 , P<0.001), higher ASA PS (2.45 vs 2.68, P<0.001), had history of (h/o) MI (7.9 vs 4.3 %, P=0.029), h/o renal disease (4.2 vs 1.9 %, P=0.004), and h/o DM (20 vs 12 %, P=0.002). Significant metabolic markers for PJI were: preoperative creatinin (0.95 in non-infected vs 1.24 in infected patients, P<0.001), postoperative rise in creatinin (0.04 vs 0.18 mg/dL, P<0.001), mean perioperative albumin (4.0 vs 3.7 g/dL, P<0.001), mean perioperative blood glucose (125 vs 130 mg/dL, P=0.012), mean Hb (11.0 vs 10.6 g/dL, P<0.001), mean INR (1.32 vs 1.36, P=0.009), and BUN (14.7 vs 17.9 mg/dL, P=0.001). Longer operative time, knee arthroplasty compared with hip arthroplasty increased significantly incidence of PJI (p<0.001).

ABSTRACT BODY: Discussion (Abstract Submission): Preoperative creatinin, postoperative rise in creatinin, mean blood glucose, albumin, INR and BUN were found to significantly increase risks for PJI after total hip and knee arthroplasty. Other risk predictors were: male sex, BMI, ASA PS, h/o MI, h/o renal disease, h/o DM, longer duration of surgery and knee arthroplasty. Knowing risk factors associated with PJI could help physicians to indentify patients who might need more aggressive prophylaxis and postoperative infection surveillance. A prospective, randomized, controlled trial is required to determine whether optimizing metabolic markers (creatinin, blood glucose and albumin) perioperatively would decrease the incidence of PJI in this clinical setting.

ABSTRACT BODY: References (Abstract Submission): 1. Infect Control Hosp Epidemiol 2004;25:477-480.
2. J Bone Joint Surg Am 2009;91:38-47

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: metabolic, infection, orthopedics.

CONTROL ID: 802497

TITLE: PERIOPERATIVE PRACTICAL EXPERIENCES IN USING A LEVEL II PORTABLE POLYSOMNOGRAPHY

CONTACT (NAME ONLY): Peter Liao

CONTACT (INSTITUTION ONLY): University Health Network

ABSTRACT BODY: Introduction (Abstract Submission): Portable polysomnography(PSG) is increasingly being used in clinical practice. The objective of the study is to summarize our practical perioperative experience using a portable PSG device.

ABSTRACT BODY: Methods (Abstract Submission): After REB approval, the patients giving consent underwent PSG with a 10-channel portable
device (Embletta x100) preoperatively at home; postoperative night 1, 3, 5 and 7 in hospital or at home. The device was installed by well trained technicians. The recordings were scored by a certified sleep technologist.

ABSTRACT BODY: Results (Abstract Submission): In 385 patients, 1002 perioperative PSGs were done : preoperative - 385, postoperative night 1-298, night 3 - 208, night 5- 56, Night 7 – 55. There were 204 females and 181 males. The age was 59 ± 13 years and BMI 39 ± 5 kg/m2. The majority of PSG recordings (88.7%) were technically good, which is
defined as more than 4 hours recording with good quality on all channels. Nine percent of PSG recordings were technically acceptable, which is defined as more than 4 hours recording with defect in one or two channels, but the AHI was still viewed as reliable. This included PSG recordings without thorax and/or abdominal effort monitoring, no EOG , heavy EKG artifact on EEG, no EMG or only one channel of EEG. Only 23 (2.3%) PSG recordings failed, including 6 (0.6%) without EEG recording, 4 (0.4%) with battery failure within 4 hours and 13 (1.3%) with electrodes removed by patients within 4 hours. The scoring of AHI was viewed as reliable in 98.2% of home PSG recordings.

ABSTRACT BODY: Discussion (Abstract Submission): When installed by a well trained sleep technician, portable PSG device produced a very high rate of technically acceptable and good PSG recordings, and can be a good alternative for perioperative patients.

ABSTRACT BODY: References (Abstract Submission): none

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: polysomnography, obstructive sleep apnea, perioperative.

CONTROL ID: 802537

TITLE: VALIDATION OF LEVEL II PORTABLE POLYSOMNOGRAPHY DEVICE IN SURGICAL PATIENTS

CONTACT (NAME ONLY): Peter Liao

CONTACT (INSTITUTION ONLY): University Health Network

ABSTRACT BODY: Introduction (Abstract Submission): Embletta X-100 is a level II diagnostic device for obstructive sleep apnea and is increasingly used in clinical practice. The objective of the study is to evaluate Embletta x-100 against simultaneously recorded standard polysomnography (PSG).

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval, the surgical patients givng consent underwent standard PSG and
Embletta X100 simultaneously in sleep laboratory before surgery. The devices were installed by certified PSG technologists. The recordings from Embletta x-100 and standard PSG were scored by two different certified PSG technologists at two different laboratories, with Somnologia Studio 5.0 for Embletta and and Sandman version 7.2 for standard PSG recording. They were blinded to the results from each other.

ABSTRACT BODY: Results (Abstract Submission): Of 24, 21 patients with good quality of PSG recordings on both systems were included analysis.
10 females and 11 males, age: 54 ± 11. BMI: 36 ± 9 kg/m2. There was a significantly correlation between the corresponding parameters regarding sleep architecture and sleep breathing disorders from the two methods with Pearson correlation coefficient between 0.444 to 0.972, except for the central apnea index, mixed apnea index, average duration for apnea hypopnea episodes, longest duration for apnea hypopnea episodes and average wake SaO2. However, there was a significant difference of absolute value of parameters between the two methods. For example, AHI is overestimated by Embletta by 2.3 ± 4.7 (mean ± SD) or 1.2(2.6)(median(IQR)), p=0.038. The inter-rater agreement between Embletta and standard PSG was substantial to perfect at different AHI cutoffs. Kappa coefficient was 1 for AHI>5and AHI>15, 0.811(95% CI :0.566-1.000) for AHI>10, and 0.69 (95% CI: 0.29-1.00) for AHI> 30 .

ABSTRACT BODY: Discussion (Abstract Submission): There was a strong correlation between parameters from Embletta X100 ,installed by well
trained sleep technicians , and standard PSG. Embletta x100 is a good alternative when standard PSG was not available or impractical.

ABSTRACT BODY: References (Abstract Submission): none

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: portable polysomnography, obstructive sleep apnea, validation.

CONTROL ID: 802595

TITLE: IS BRONCHOSPASM DURING PERANESTHETIC ANAPHYLAXIS RELATED TO ASTHMA?

CONTACT (NAME ONLY): Benjamin Aubier

CONTACT (INSTITUTION ONLY): Hopital Bichat Claude Bernard

ABSTRACT BODY: Introduction (Abstract Submission): Anaphylaxis reflects a pathological immunologic reaction due to a repetitive contact with an antigen in a sensitized patient. In the general population, asthmatic patients undergoing anaphylaxis are considered to be at higher risk for mortality (1). However, the relationship between history of asthma and clinical manifestation of intraoperative anaphylaxis is not well documented.
The present study aimed to analyze the relations between a history of asthma and the clinical characteristics of anaphylaxis in patients undergoing per-anaesthesia allergic reaction.

ABSTRACT BODY: Methods (Abstract Submission): Local ethics committee approval was obtained. We retrospectively analyzed cases from all patients admitted for testing in an allergo-anaesthetic reference center from January 2005 to December 2006. Data collected were demographic features (age at the time of reaction, gender), history of asthma, allergy, characteristics of the accident (severity from grade 1 to 4 of the Gell & Combs classification, presence of bronchospasm, treatment, mortality).
The substance responsible for the anaphylactic event was documented after the analysis of biologic tests (prick test, IDR in extenst, specific IgE, elevation of Tryptase and Histamin) and the conclusion of a multidisciplinary discussion. Results are expressed as median (range) Comparisons were carried out using a Chi2 test.A p value < 0.05 was considered to be significant.

ABSTRACT BODY: Results (Abstract Submission): Forty patients (13 males), age 50 (20-85) years were included into the study. Ten patients (25%) had a history of asthma. No death was observed; 24 patients showed grade 3 manifestations and 16 patients showed grade 1 or 2 manifestations; 11 patients (27%) had bronchoconstriction.
We didn't find any difference in the incidence of bronchospasm between the asthmatic and the non asthmatic group (26% vs 30%, p=1). The bronchospasm was not associated with a specific molecule (hypnotic, myorelaxant, antibiotic, latex). The severity of anaphylaxis was not different between the asthmatic and the non asthmatic group.

ABSTRACT BODY: Discussion (Abstract Submission): These results suggest that history of asthma is not related to the clinical characteristics, nor to the severity of an anaphylactic event during anaesthesia. these findings confirm those of a recent epidemiologic study (2). In the context of intraoperative anaphylaxis, the physiopathology of bronchoconstriction must be elucidated in order to find new therapeutic approaches.

ABSTRACT BODY: References (Abstract Submission): (1) Allergy proc 1989 10: 271-74
(2) Ann Fr Anesth Reanim 2004 23: 1133-43

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: anaphylaxis, bronchoconstriction, asthma.

CONTROL ID: 803020

TITLE: HYPERTONIC SALINE REDUCES ANESTHESIA INDUCED HYPOTENSION

CONTACT (NAME ONLY): Parviz Kashefi

CONTACT (INSTITUTION ONLY): Isfahan University of Medical Sciences

ABSTRACT BODY: Introduction (Abstract Submission): General anesthesia leads to vasodilatation, myocardial depression and hypotension. To prevent this hypotension that is secondary to anesthesia drugs, intra vascular fluid volume must be increased previous to anesthesia induction or synchronously.
In recent articles, the effect of isotonic and hypertonic fluids in spinal and epidural anesthesia induced hypotension has been studied.
As a result hypertonic solutions are more recommended(2).
In this study, the effect of these two fluids in preventing general anesthesia induced hypotension will be compared.

ABSTRACT BODY: Methods (Abstract Submission): With ethical approval from our local ethics committee and written consent, in this randomized, prospective clinical trial study, seventy, ASA physical status I and II, aged 20-50 yr, were undergoing lower limb elective surgery, and were randomly allocated into two groups. Normal saline group (N group, n=30) and hypertonic group (H group=30) received 13mL/kg 0.9% saline and 2.3 mL/kg 5% hypertonic saline respectively over 10–15 min before anesthesia induction. The general anesthesia protocol was the same for all patients. After the initial fluid administration, 0.45% saline infusion was started as maintenance fluid at the rate of 2 mL /kg/h and to maintain mean arterial pressure at 80% of its control value.
Systolic, diastolic, mean arterial pressure and heart rate at 2, 5, 10 and 15 th minute after induction and total volume of 0.45% saline were measured in two groups.

ABSTRACT BODY: Results (Abstract Submission): sixty patients were included in the study. There were no significant differences between the two groups with respect to age, gender, weight, ASA class, and Clinical characteristics. Mean volume of fluid received in N group 968.8ml and in H group 149.5ml. In spite of considerable difference in receiving fluid volume between two groups there was no significant difference between systolic, diastolic and mean arterial pressure and heart rate changes and so was total volume of 0.45% saline. (P value >0.05). In all patients, the plasma sodium concentrations and serum osmolality were within the normal range after surgery.

ABSTRACT BODY: Discussion (Abstract Submission): We concluded that 2.3 mL/kg of 5% hypertonic saline was as effective as 13 mL/kg of 0.9% normal saline in the prophylaxis of hemodynamic changes in these patients.According to these results, applying 5% hypertonic saline seems more beneficial for preventing anesthesia induced hypotension especially in patients with limitations in receiving fluids.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg 2000; 91:1461-1465
2. Veterinary surgery 2004;Volume 28 Issue 1, Pages 77 - 82

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: Hypertonic Saline , General anesthesia , hypotension.

CONTROL ID: 803099

TITLE: SIMULATION OF MALIGNANT HYPERTHERMIA IMPROVES PATEINT SAFETY

CONTACT (NAME ONLY): Noel O'Regan

CONTACT (INSTITUTION ONLY): Memorial University of Newfoundland

ABSTRACT BODY: Introduction (Abstract Submission): The operating room is a high risk environment which relies on various systems to work effectively. Malignant hyperthermia (MH) is a very rare (1) peri-operative crisis. Correct management of MH relies on a well functioning multidisciplinary team and a system for managing the crisis which includes a standardized treatment protocol (2). Latent problems could be present within the systems for dealing with MH but never uncovered until an actual MH crisis occurs, possibly resulting in a negative patient outcome. One strategy for limiting medical error (3) is by simulating a system or environment in an attempt to find latent conditions.

The following article describes a multidisciplinary team simulation of an MH crisis in a point-of-care environment. Low fidelity technologies were used in combination to provide a high fidelity experience. The multidisciplinary team included anaesthesiology, general surgery, respiratory therapy and nursing. The simulation was used to identify weakness in the systems used to manage an MH crisis and as a teaching opportunity for the operating room staff.

ABSTRACT BODY: Methods (Abstract Submission): A basic CPR manikin was placed on an OR table and draped for an appendectomy. CO2 was T-ed into the ventilation circuit and titrated to manipulate ETCO2 while ventilating the anesthesia re-breathing bag. An esophageal temperature probe was placed in warm water and the temperature was manipulated by adding hot water. ECG and HR were provided by an impulse generator. BP and SaO2 were provided by having an anesthesia assistant wearing the monitors. A multidisciplinary team of 6 volunteers resuscitated an MH crisis according to established guidelines. At the conclusion of the simulation, the team was debriefed and several deficiencies were identified. A short survey using a 5 point Lickard-like scale was filled out concerning the educational experience.

ABSTRACT BODY: Results (Abstract Submission): The MH simulation was found to be an excellent educational experience (4.95) and very similar to a real peri-operative crisis (4.69). The simulation was found to be an excellent means for meeting the objectives of learning about MH (4.95) and it was felt that the simulation in a point-of-care environment was appropriate (4.91).

Significant policy and equipment changes were necessary secondary to the noted defiencies. The policy changes involved personnel responsible for the maintenance of the MH cart. Equipment changes consisted of the re-organization and labelling of the MH cart.

ABSTRACT BODY: Discussion (Abstract Submission): Patient simulation in a point-of-care environment provides excellent educational opportunities to multidisciplinary teams. The simulation of MH significantly improved patient safety by finding latent errors and finding ways to correct these errors. The simulation used basic low fidelity equipment which provided a high fidelity experience at minimal cost which could be replicated in virtually any OR.

ABSTRACT BODY: References (Abstract Submission): 1: Brady JE, Lena SS, Rosenburg H and Guohua L. Prevalence of Malignant Hyperthermia Due to Anesthesia in New York State, 2001-2005. Anesth Analg 2009, 109 (4), 1162-1166.
2: Zhou J, Allen PD, Pessah IN and Naguib M. Neuromuscular Disorders and Malignant Hyperthermia. In: Miller's (Ed) Anesthesia 7th Edition, Philadelphia PA, Churchill Livingstone Inc.; 2009.
3: Institute of Medicine, To Err is Human: Building a Safer Health Care System. Washington DC, National Academy Press, 2000.

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: Patient Safety, Simulation, Malignant Hyperthermia.

CONTROL ID: 803472

TITLE: POSTOPERATIVE DELIRIUM IS UNDERESTIMATED IN A HOSPITAL ADMINISTRATIVE DATABASE

CONTACT (NAME ONLY): Jo Carroll

CONTACT (INSTITUTION ONLY): Toronto General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Delirium is a common and potentially devastating complication after cardiac surgery. The diagnosis of delirium is based solely on clinical assessment and is often under recognized during routine clinical practice, especially in the early postoperative period. This could potentially lead to lack of proper documentation and a false representation of the true incidence of postoperative delirium determined from the administrative hospital databases.

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval, we compared prospectively collected data on postoperative delirium in a research database with the administrative hospital database.
In the research database, postoperative delirium was assessed by the cardiovascular intensive care unit (ICU) nurses using the Confusion Assessment Method in the ICU (CAM-ICU) every 12 hours starting from the first postoperative day. All nurses were trained by the nurse-educators in the use of the CAM-ICU method in both ventilated and non-ventilated patients. This training consisted of an introductory lecture and a series of in-service training sessions. The administrative database contained the International Classification of Diseases version 10 (ICD-10) codes for patient diagnoses. These codes are entered by professional coders and abstractors after reviewing information in the patient chart, including discharge summaries, consultation reports, clinical notes, and interventional reports. The diagnostic code for delirium must be based on physician documentation. For each patient in the research database, the ICD-10 codes were extracted from the administrative database and checked for the presence of the code for delirium.

ABSTRACT BODY: Results (Abstract Submission): Data from 1528 patients were analyzed. The mean age of the cohort was 63±13 yrs.1096 patients (71.2%) were male, 491 (32%) underwent emergency cardiac surgery. The median length of stay was 7.8 [1,183] days. All patients included in the analysis had at least one postoperative CAM assessment. The incidence of postoperative delirium identified with the CAM-ICU assessment was 11.8% (179/1528), while the administrative database identified 46 patients diagnosed with delirium (2%), $p < 0.001$.

ABSTRACT BODY: Discussion (Abstract Submission): The hospital administrative database does not reflect the true incidence of postoperative delirium in patients undergoing cardiac surgery, and therefore does not provide a reliable source of information for observational studies of postoperative delirium.

ABSTRACT BODY: References (Abstract Submission): NA

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: Postoperative delirium, Incidence, Hospital database.

CONTROL ID: 754880

TITLE: A CASE SERIES OF POSTOPERATIVE RESPIRATORY DEPRESSION & A DECISION ALGORITHM FOR PREGABALIN

CONTACT (NAME ONLY): Naveen Eipe

CONTACT (INSTITUTION ONLY): The Ottawa Hospital

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): The first patient was elderly with borderline renal dysfunction and had undergone a craniotomy for tumor excision and had a respiratory arrest in the immediate postoperative period. The second patient presented with severe respiratory depression 12 hours after a spinal anesthetic for joint replacement, was later found to have clinically significant obstructive sleep apnea. The third patient, who was elderly and otherwise healthy and on benzodiazepines for anxiety; had a respiratory arrest in the PACU after an uneventful anesthetic for lumbar spine decompression. All these patients were treated successfully with standard resuscitation measures. While we considered other causes of respiratory depression in these patients, there appears to be a definite association of pregabalin with this complication.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): We review the indications and contraindications for the perioperative use of pregabalin. Based on this case series, our experience and the available evidence, we have developed a clinical algorithm to guide the preoperative prescription of pregabalin. We believe this algorithm may be helpful in increasing the safety of perioperative pregabalin use.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): Pregabalin is widely prescribed in the perioperative period for its well known opioid sparing effect and its usefulness in treating neuropathic pain1. While its role in the management of acute pain is still being evaluated in a number of clinical trials2-5, little has been published on its side- effect profile.

We report the perioperative course of three patients who received pregabalin and had significant respiratory depression in the postoperative period. All three patients have consented to the report and publication of this Case Series.

(No Table Selected)

IMAGE CAPTION:

CATEGORY: Pain: Acute - Basic and Clinical

KEYWORDS: Postoperative Respiratory Depression, Pregabalin, Perioperative Decision Algorithm.

CONTROL ID: 790019

TITLE: ROLE OF KETAMINE AND LIGNOCAINE INFUSION IN POST OPERATIVE PAIN MANAGEMENT FOR MAJOR LIVER RESECTION - A PILOT PROJECT

CONTACT (NAME ONLY): Debashis Roy

CONTACT (INSTITUTION ONLY): University of Western Ontario

ABSTRACT BODY: Introduction (Abstract Submission): Liver resection involving rooftop incision is a major surgery causing severe post operative pain. Placement of an epidural catheter is controversial in view of deranged coagulation after major liver resection. The standard practice in our hospital is to administer intrathecal morphine pre-operatively followed by patient controlled analgesia (PCA).
This is a pilot project to evaluate the efficacy of intra-operative low dose ketamine and lignocaine infusions on post operative analgesia & opioid consumption in patients undergoing major liver resection.

ABSTRACT BODY: Methods (Abstract Submission): This is a prospective , non randomised single blinded case series comprising twenty adult patients undergoing major liver resection. After obtaining informed patient's consent, patients were divided into 2 groups. Group I (control) received intrathecal morphine and PCA. Group II received intathecal morphine, PCA and an infusion of ketamine and lignocaine.
Intrathecal morphine 300 to 400 microgram was administered L3-4 interspace via 25 G whitacre needle.
Immediately, after intubation, patients in ketamine and lignocaine group (Group II) received an intravenous infusion of ketamine (70 mcgm/kg/hr) and lignocaine (0.33mg/kg/hr). The infusions were stopped approximately 30-45 minute before the completion of surgery.
Post operatively, PCA was started with hydromorphone. Patients were monitored for side effects.
Post- operative hydromorphone consumption (microgram/kg/day) for the first, second and third days were recorded from the chart maintained by APS team who were blinded of the anesthesia technique.

ABSTRACT BODY: Results (Abstract Submission): There were 7 women and 13 men in the project. Their age, weight, height, distribution of sex and length of anesthesia were comparable.
PCA provided adequate analgesia in both the groups but hydromorphone consumption in Group II (67.2±20.6 mcg/kg/day) was less than Group I (83.13±12.89). Lower hydromorphone consumption was also observed on post operative day 2 and 3.
Sedation scores on post operative day 1 were similar in both groups ($p=0.29$, Fisher Exact) but on post operative day 2, sedation scores were higher in the control group ($p=0.002$, Fisher Exact).
Post operative nausea and vomiting occured in 3 patients in group I, and in 1 patient in group II.
There were no incidence of lignocaine or ketamine induced side effects.

ABSTRACT BODY: Discussion (Abstract Submission): Studies showed use of lignocaine infusion reduces post operative pain, faster return of bowel function and shortened hospital stay1-3.
Small dose ketamine (30-150mcg/kg/hr) was shown to reduce pain score, opioid consumption and opioid induced side effect 4,5. We have found that systemic low dose ketamine and lignocaine reduces hydromorphone consumption when administered perioperatively and the effect also continued in post operative day 2 & 3. This suggests that lignocaine and ketamine acts by preventing the induction of central hyperalgesia, rather than analgesic themselves.6
Our study was not powered enough to calculate the side effect. They might be more prominent in larger sample.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg. 1998; 86: 235-39.
2. Anesth Analg. 2004; 98: 1050-5.
3. Anesthesiology 2007; 106:11-8.
4. Can J Anaesth 1996;43:212–15.
5. Anesthesiology 2003;98: 1195–205.
6. Pain 2000; 85: 217–24.

(No Table Selected)

(No Image Selected)

CATEGORY: Pain: Acute - Basic and Clinical

KEYWORDS: Liver Resection, Ketamine and Lignocaine, post operative pain.

CONTROL ID: 799320

TITLE: COMPARISON OF THE ANALGESIC EFFICACY OF PREEMPTIVE AND PREVENTIVE INTRA-ARTICULAR PETHIDINE INJECTION AFTER ARTHROSCOPIC KNEE SURGRERY

CONTACT (NAME ONLY): Hassanali Soltani

CONTACT (INSTITUTION ONLY): Isfahan University of medical sciences

ABSTRACT BODY: Introduction (Abstract Submission): Postoperative pain relief is an important goal in surgical procedures of the lower extremity (1).
Arthroscopic knee surgery (AKS) is one the most common ambulatory surgeries. Several previous studies had been evaluated the efficacy of intra-articular (IA) pethidine as a compound which has anesthetic and opioid agonist properties, on postoperative pain relief in AKS(2,3). The aim of this study was to compare the postoperative analgesic effect of pre & post surgical IA pethidine administration in AKS.

ABSTRACT BODY: Methods (Abstract Submission): After institution ethics committee approval and patient's informed written consent 75 adult patients (ASAI&II)undergoing AKS with general anesthesia were enrolled in this double blind study.Patients were randomized in three equal groups to receive either 50 mg IA pethidine before surgical incision (preemptive) , after completion of surgery (preventive) and placebo (G1, G2 and G3 respectively). In each patient operated knee joint pain at rest and movement, was evaluated at 1, 2,6,12 and 24 hours after surgery completion using visual analog scale (VAS).Patients received morphine(0.05 mg/kg IM) as postoperative analgesia as requested.Data were analyzed using ANOVA- Repeated measure and T-paired tests.

ABSTRACT BODY: Results (Abstract Submission): Postoperative pain scores in three groups are shown in table . The time (mean ± SD) between completion of operation and patient's request of morphine, morphine consumption (mean ± SD) in postoperative 24 hours and the numbers of patients requested analgesic in G1,G2,G3 were: 2± 1.3, 3.3± 1.5 & 5.2 ± 1.3 hours $p<0.05$, 4.4± 2.4, 8.7± 2 & 11.6 ± 4.4 mg $p<0.05$, 11,18 & 21 person $p<0.05$ respectively.

ABSTRACT BODY: Discussion (Abstract Submission): This study showed that preemptive intra- articular pethidine injection is more effective than preventive injection for postoperative pain relief in arthroscopic knee surgery

ABSTRACT BODY: References (Abstract Submission): 1) Orthopade 2008 37(10):959-60,62- 9 2) Pain 1999 80(1-2):229-38 3)Acta Anaesthesiol Scand. 1997 41(1 Pt 1):6-11

Postoperative pain intensity(VAS, Mean SD) at knee rest(r) or movement(m)

Time(hour) /Group	G1(n=25)	G2(n=25)	G3(n=25)*
1r	2.4± 2**	4.9± 2.4	7.6± 3.1*
2r	2 ± 1.5**	3.9 ±1.9	6.8± 2.5*
6r	1.9 ±1.4**	3.4± 1.6	6.3± 2.1*
12r	2± 1.6	2.9 ±1.4	5.1 ±1.1*
24r	1.2 ±0.9	1.7± 1.1	3± 0.6*
1m	2.7 ±1.9**	5.8± 2.9	7.9± 2.4*
2m	2.9± 1.7**	4.7± 2.1	7.4 ±2.7*
6m	2.7± 0.5**	3.8± 1.5	7.5 ±2.4*
12m	2.8± 1.7	2.9± 1.6	4.5 ±2.1*
24m	2 ± 1	2.5 ±1.1	4 ±2.4*

* Higher in G3 vs G1 and G2, $P<0.05$,ANOVA- Repeated measure
**Lower inG1 vs G2, $P<0.05$, T-paired

TABLE TITLE:

Postoperative pain intensity(VAS, Mean SD) at knee rest(r) or movement(m)

TABLE FOOTER:
* Higher in G3 vs G1 and G2, P<0.05,ANOVA- Repeated measure
**Lower inG1 vs G2, P<0.05, T-paired

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CATEGORY: Pain: Acute - Basic and Clinical
KEYWORDS: Arthroscopy, Pethidine, Pain after surgery.

CONTROL ID: 802139

TITLE: PRETREATMENT WITH HYDROMORPHONE TO REDUCE WITHDRAWAL MOVEMENT ON ROCURONIUM INJECTION PAIN

CONTACT (NAME ONLY): Chul Joong Lee

CONTACT (INSTITUTION ONLY): Samsung Seoul Hospital, Sungkyunkwan University School of Medicine

ABSTRACT BODY: Introduction (Abstract Submission): Rocuronium is known to cause pain on injection, which is often elicited as withdrawal movements of the hand or general movements of the body even after the induction of anesthesia. Hydromorphone is a potent mu-opioid selective agonist that is widely used for postoperative and cancer-related pain control.(1-3) However, there are no reports of its use during the induction of anesthesia or during surgery. This study compared the efficacy of hydromorphone in reducing the withdrawal movements to the injection of rocuronium with that of fentanyl, and evaluated their effect on the hemodynamic responses during tracheal intubation.

ABSTRACT BODY: Methods (Abstract Submission): This randomized double-blinded study was approved by the institutional review board, and written informed consent was obtained from all subjects. One hundred and ninety patients were randomly assigned to receive 5 ml of hydromorphone 2 mg or fentanyl 100 μg or normal saline. After injecting the study drugs, anesthesia was induced with 2.5% thiopental sodium 5 mg/kg. After the loss of consciousness, rocuronium 0.6 mg/kg was injected, and withdrawal movements were recorded.

ABSTRACT BODY: Results (Abstract Submission): The overall incidence of withdrawal movements was significantly lower in the hydromorphone (2 patients; 3%) and fentanyl group (5 patients; 7.9%) than in the saline group (36 patients; 59%) ($P < 0.001$). The mean arterial pressure and heart rate after intubation in the fentanyl and hydromorphone group were significantly lower than those in the saline group (fentanyl group $P = 0.003, < 0.001$; hydrmorphone group $P < 0.001, < 0.001$ respectively).

ABSTRACT BODY: Discussion (Abstract Submission): Hydromorphone 2 mg substantially attenuated the rocuronium-induced withdrawal movement to a comparable degree with fentanyl with 100 μg and reduced the hemodynamic responses to tracheal intubation.

ABSTRACT BODY: References (Abstract Submission): 1. Sarhill N, Walsh D, Nelson KA. Hydromorphone: pharmacology and clinical applications in cancer patients. Support Care Cancer 2001; 9: 84-96.
2. Quigley C, Wiffen P. A systematic review of hydromorphone in acute and chronic pain. J Pain Symptom Manage 2003; 25: 169-178.
3. Chang AK, Bijur PE, Meyer RH, Kenny MK, Solorzano C, Gallagher EJ. Safety and efficacy of hydromorphone as an analgesic alternative to morphine in acute pain: a randomized clinical trial. Ann Emerg Med 2006; 48: 164-172.

(No Table Selected)

(No Image Selected)

CATEGORY: Pain: Acute - Basic and Clinical

KEYWORDS: injection pain, hydromorphone, rocuronium.

CONTROL ID: 802240

TITLE: SYMPTOMS OF NEUROPATHIC PAIN, HOW EARLY AFTER CARDIAC SURGERY DO PATIENTS REPORT THEM? PRELIMINARY RESULTS

CONTACT (NAME ONLY): Jennifer Cogan

CONTACT (INSTITUTION ONLY): Institut de Cardiologie de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): We have recently established an acute pain service for the control of pain after cardiac surgery in our institution. This has allowed us to follow all patients closely for 3 to 4 days following surgery. The objective of this study was to identify the prevalence of symptoms of neuropathic pain in the first four days after cardiac surgery.

ABSTRACT BODY: Methods (Abstract Submission): The methods used in this study have been approved by IRB of our institution. Since the inception of our service we have followed 200 patients patients daily during the first four days after surgery. Pain levels have been evaluated on a numerical rating scale (NRS) of 0 to 10. If the patient reported pain its location, severity and characteristics were recorded in a computerized data base. All patients who reported pain were systematically questioned regarding the presence of sensations of burning and electrical shocks. If these were present they were then asked if they experienced allodynia, hyperesthesia and tingling.

ABSTRACT BODY: Results (Abstract Submission): Forty percent of patients, 63%, 74%, 84% were pain free on days one through four, respectively. The average levels of pain on movement, for patients who had pain, on days 1 to 4 were: 5.3, 4.9, 4.5, and 4.6, respectively. Symptoms of neuropathic pain were present in 5% of patients in this early post-op period; the most common symptom was a sensation of burning, followed by the sensation of electric shocks. When treated the symptoms declined immediately.

ABSTRACT BODY: Discussion (Abstract Submission): Symptoms of neuropathic pain, such as burning and electrical shocks were thought to first occur several months after surgery. However the evidence extracted from our data base shows that onset symptoms, for some patients, may begin much earlier after cardiac surgery than originally thought. The presence of these symptoms warrants early treatment and intensive follow-up in order to diminish the long term negative consequences of this type of pain.

ABSTRACT BODY: References (Abstract Submission): Markman P, J Thorac Cardiovasc Surg. 2009 Sep 21 Searle R, Interact CardioVasc Thorac Surg. 2009:9;999-1002

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CATEGORY: Pain: Acute - Basic and Clinical

KEYWORDS: Acute pain, neuropathic pain, cardiac surgery.

CONTROL ID: 802370

TITLE: PREOPERATIVE ASSESSMENT OF PAIN SENSITIVITY AND ITS CORRELATION WITH POSTOPERATIVE PAIN – A SYSTEMATIC REVIEW

CONTACT (NAME ONLY): Amir Abrishami

CONTACT (INSTITUTION ONLY): Toronto Western Hospital, University Health Network, University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Identification of patients at risk of severe postoperative pain will allow more effective pain management. Pain perception to minor physical stimuli has been hypothesized to be related to the subsequent pain ratings after surgery[1]. The objective of this systematic review is to evaluate the correlation between preop pain sensitivity and postop pain intensity.

ABSTRACT BODY: Methods (Abstract Submission): We searched MEDLINE, EMBASE, and the online format of the international meeting abstracts to identify all correlational studies on the topic. Studies with uni- and/or multivariate analysis were included. All the included studies were independently reviewed, critically appraised and data extracted by the authors. A p value <0.05 was considered significant correlation.

ABSTRACT BODY: Results (Abstract Submission): Thirteen papers (n=817 patients) met the eligibility criteria. The median sample size was 54 patients (range: 20-165). The mean age of the patients ranged from 18 to 69 years. Each study was on one type of surgery; orthopedics, thoracic, gynecologic, or lower abdominal surgery. Three types of pain stimuli were applied; thermal, pressure, and electrical pain and four types of pain measures were studied as follows: Pain threshold (detection of pain), Pain tolerance (detection of intolerable pain), Supra-threshold pain intensity (pain beyond patient threshold) and Temporal summation of pain (sensitization caused by repetitive stimuli). Pain threshold and supra-threshold pain were the most commonly studied variables. The pain thresholds following heat, pressure or electrical stimuli were reported to have reverse correlation with postop pain. The intensity of supra-threshold heat pain was consistently shown to have direct correlation with postop pain and only 13% of studies had "no-correlation" results (Figure 1). In terms of methodological quality, the most common limitation of the included studies was the method of statistical analysis and lack of multivariate analysis.

ABSTRACT BODY: Discussion (Abstract Submission): The results of this systematic review suggest that lower preop pain thresholds are associated with higher postoperative pain intensity. Also, high levels of pain intensity evoked by a supra-threshold heat stimulus were consistently associated with more postoperative pain. More research is required to establish the correlation of other pain sensitivity variables with postop pain outcomes.

ABSTRACT BODY: References (Abstract Submission): 1: Anesthesiology 2004; 100:115-9

(No Table Selected)

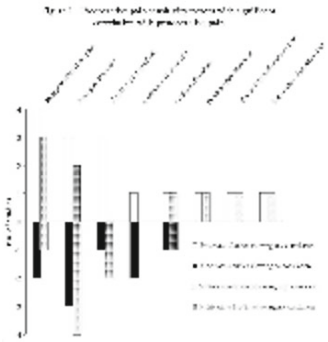

IMAGE CAPTION:

CATEGORY: Pain: Acute - Basic and Clinical

KEYWORDS: acute postoperative pain, pain sensitivity, systematic review.

CONTROL ID: 802609

TITLE: EPIDURAL AND IV ANALGESIA FOR PAIN MANAGEMENT AFTER LIVER DONATION

CONTACT (NAME ONLY): Jo Carroll

CONTACT (INSTITUTION ONLY): Toronto General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Post operative pain management is an important consideration for patients who undergo live liver donation. However, there has been very little documentation of the postoperative pain experience after right living donor hepatic (RLDH) surgery.

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval a retrospective chart review was performed of 226 patients who underwent RLDH surgery between April 2004 and January 2009. Patients who received, as their primary postoperative analgesic modality, intravenous patient controlled analgesia (i.v. PCA) (n=158), were compared to patients that received patient controlled epidural analgesia (PCEA) (n=68).

ABSTRACT BODY: Results (Abstract Submission): Baseline demographic profiles for the two groups were similar with respect to age, gender, and body mass index. Postoperative pain intensity was significantly lower in patients who received epidural analgesia ($p<0.01$). Clinically significant moderate pain (defined as a Numeric Rating Scale (NRS) pain score of greater than 4) was reported more frequently in the i.v. PCA group ($P<0.05$) along with increased sedation ($P<0.05$). Pruritus was reported more frequently in the PCEA group of patients ($p<0.05$) who were also given access to a full diet 1 day sooner than the i.v. PCA group ($p<0.05$). Significant between group differences were not found for the incidence of postoperative vomiting, the time at which patients began fluid intake, the time to initial ambulation, or the length of hospital stay.

ABSTRACT BODY: Discussion (Abstract Submission): Epidural analgesia provides better postoperative pain relief, less sedation, but more pruritus than i.v. PCA after live liver donation.

ABSTRACT BODY: References (Abstract Submission): NA

(No Table Selected)

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CATEGORY: Pain: Acute - Basic and Clinical

KEYWORDS: Postoperative pain, Live liver donation, Epidural analgesia .

CONTROL ID: 802702

TITLE: DEVELOPMENT, IMPLEMENTATION AND EARLY RESULTS OF AN ACUTE PAIN SERVICE AT THE ********

CONTACT (NAME ONLY): Jennifer Cogan

CONTACT (INSTITUTION ONLY): Institut de Cardiologie de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): Three, two week audits in 2009 at the ******* showed high levels of pain postoperatively. As postoperative pain has negative physical1 and psychological effects2, may prolong hospital stay2, and has been shown to be a predictor of chronic pain3 the departments of nursing and anesthesia embarked on a campaign to create an Acute Pain Service (APS). Our purpose was to create a cohesive, supportive, highly specialized, and multiparticipatory, acute perioperative pain service.

ABSTRACT BODY: Methods (Abstract Submission): While respecting all internal IRB requirements the department of anaesthesia drafted a working document outlining the functioning of the acute pain service, its insertion into the general fabric of the hospital structure, the roles of all concerned in pain management: patients, nurses, physicians, pharmacists, students, administrative personnel. Formal and informal discussions were been held with all groups concerned, and budget request were submitted. Plans for functioning were drawn up and included joint daily rounds on all post surgical patients by the APS nurse, pharmacist and anaesthesiologist on days 1 to 4; recording of pain scores, general well being, and side effects; review and change of medication orders as necessary. All data was to be recorded in a web based specifically designed portable system and individual patient reports were to be printed for each patient each day.

ABSTRACT BODY: Results (Abstract Submission): One APS nursing position was approved in June. After a selection process the APS nurse took up her position in October 2009. Within 3 short months we have been able to increase to proportion of pain free patients on days 1, 2, 3 and 4 from 27%, 23%, 25% and 34% respectively to 40%, 63%, 74%, and 84%, respectively. The average levels of pain on movement, for patients who had pain, on days 1 to 4 were: 5.3, 4.9, 4.5, and 4.6, respectively.

ABSTRACT BODY: Discussion (Abstract Submission): The departments of Anesthesia, Nursing and Pharmacy have collaborated to improve quality of care for patients after cardiac surgery. Both the earlier ground work and continuing efforts have created the cohesive framework that is capable of supporting the creating and implementation of this new structure within our hospital and we have been able to significantly increase the number of patients who are now pain free after cardiac surgery.

ABSTRACT BODY: References (Abstract Submission): 1 Lancet 1999;353:2051-8
2 Eur J Pain. 2008 Oct 24
3 Pain Manag Nurs, S11-S21, 2008
4 AHCPR 1992,

(No Table Selected)

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CATEGORY: Pain: Acute - Basic and Clinical

KEYWORDS: acute pain, cardiac surgery, APS.

CONTROL ID: 800884

TITLE: PREOPERATIVE PREGABALIN DELAYS DISCHARGE FROM THE PACU

CONTACT (NAME ONLY): Alan Chaput

CONTACT (INSTITUTION ONLY): The Ottawa Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Pregabalin is increasingly being used preoperatively as both an analgesic and anxiolytic. [1,2,3] Anecdotal reports from recovery room nurses suggest that pregabalin increases sedation, contributes to respiratory depression and delays discharge. A chart review was undertaken to assess whether objective evidence exists to support these claims.

ABSTRACT BODY: Methods (Abstract Submission): After receiving Local Ethics Committee approval, a retrospective chart review was conducted on 205 consecutive orthopedic patients undergoing total hip or knee arthroplasty or major spine surgery between July 2006 and January 2008. Patients were identified by the medical records department. Data was collected on preoperative medications, comorbidities, intraoperative medications and type of anaesthetic. Risk factors for level of sedation and respiratory depression at 30 minutes after arrival in the PACU, as well as time to readiness for discharge were analyzed by linear and logistic multi-variate regression analysis using SAS.

ABSTRACT BODY: Results (Abstract Submission): The charts of 205 patients were reviewed. Of these, 28 patients had hip surgery, 52 patients had knee surgery and 125 patients had spine surgery and 51% of patients were male. 24% of patients used chronic opioids. Obstructive sleep apnea was a preoperative comorbidity in 5.8% while 16.5% had a diagnosis of COPD. The average OR time was 179.5 minutes and 68.3% of patients received a general anesthetic, while the remainder received spinal anesthesia. Independent risk factors for respiratory depression at 30 minutes included increased age ($p<0.0001$) and general anaesthesia ($p<0.0319$), while OR time ($p<0.0015$) was an independent predictor of level of sedation at 30 minutes. Significant independent risk factors for delayed time to readiness for discharge from the PACU included pregabalin administration preoperatively ($p<0.0001$), OSA ($p<0.0001$), increased operative time ($p<0.0001$) and increased morphine equivalents given intraoperatively ($p<0.0007$). When results were analyzed by the dose of pregabalin administered, delayed discharge was noted with doses equal to or exceeding 100 mg ($p<0.00021$).

ABSTRACT BODY: Discussion (Abstract Submission): Results of this chart review suggest that while pregabalin use preoperatively was not independently associated with respiratory depression and sedation at 30 minutes post-admission to the PACU, doses equal to or exceeding 100 mg were associated with delayed time to readiness for discharge from the PACU. Given the limited evidence supporting the use of preoperative pregabalin for prevention of postoperative pain, it would be prudent to limit the preoperative dose to less than 100 mg in order to minimize discharge delays.

ABSTRACT BODY: References (Abstract Submission): 1. Anesth Analg 2007;104:1545-1556
2. Curr Opin Anaesthesiol 2007;20:456-472
3. Curr Drug Targets 2009;10:716-733

(No Table Selected)

(No Image Selected)

CATEGORY: Pharmacology: Basic Science and Clinical

KEYWORDS: Pregabalin.

CONTROL ID: 802333

TITLE: HEMODYNAMIC EFFECTS OF INTRAOCULAR EPINEPHRINE DURING CATARACT SURGERY

CONTACT (NAME ONLY): Shekoufeh Behdad

CONTACT (INSTITUTION ONLY): Yazd university of medical sciences

ABSTRACT BODY: Introduction (Abstract Submission): In this prospective clinical trial we evaluate hemodynamic effects of intraocular epinephrine irrigation in patients undergoing cataract surgery.

ABSTRACT BODY: Methods (Abstract Submission): This study was approved by the Ettics Committee and the patients gave written informed consent.88 patients aged between 38-90 years underwent cataract surgery were randomly allocated into two groups: Group E received intraocular irrigation fluid (balanced salt solution) with epinephrine 1:1000, 000, and group P received intraocular irrigation fluid (balanced salt solution) without epinephrine. Heart rate (HR), systolic and diastolic blood pressure (SBP, DBP) were measured before and at 5, 10, 15 minutes intervals after starting intraocular infusion of epinephrine1:1000, 000 in both groups.

ABSTRACT BODY: Results (Abstract Submission): Both Heart rates and systolic blood pressure were similar in two groups at different time intervals .Diastolic blood pressure decreased at 5 minutes in the group E compared to the group P, but diastolic blood pressure at 10 and 15 minutes had no significant differences in two groups.

ABSTRACT BODY: Discussion (Abstract Submission): Our findings were similar to other studies(1,2) showing that Intraocular infusion of epinephrine 1:1000,000 is a safe and effective method to maintain mydriasis during cataract surgery without adverse cardiovascular side effects.

ABSTRACT BODY: References (Abstract Submission): 1-Basic Clin Pharmacol Toxicol 2006 98(6):547-54
2-J Ocul Pharmacol Ther.1998 Aug,(14):357-61.

(No Table Selected)

(No Image Selected)

CATEGORY: Pharmacology: Basic Science and Clinical

KEYWORDS: epinephrine, hemodynamic, intraocular.

CONTROL ID: 802639

TITLE: ISOCAPNIC HYPERPNOEA AND RECOVERY FROM ISOFLURANE IN OBESE PATIENTS

CONTACT (NAME ONLY): Jo Carroll

CONTACT (INSTITUTION ONLY): Toronto General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Isocapnic Hyperpnoea (IH) accelerates the elimination of volatile anesthetics. IH has previously been shown to reduce time for recovery from isoflurane anesthesia in animal and human models. Isoflurane has several properties that make it a preferable agent for anesthesia in obese patients. Its main limitation is a longer recovery time due to slower elimination in comparison to other agents due to its relatively high plasma solubility. We compared recovery time from isoflurane anesthesia in obese patients during standard anesthesia management protocol (control) to a group treated with IH.

ABSTRACT BODY: Methods (Abstract Submission): After REB approval we studied 18 ASA obese patients (body mass index > 30 kg/m^2) undergoing elective surgery. All patients were monitored with standard anesthesia monitoring and Bispectral EEG analysis (BIS, Aspect Medical Systems, Newton, MA, USA).
Patients were anesthetized in a standardized manner with propofol, fentanyl, and rocuronium which were supplemented as necessary. Anesthesia was maintained with isoflurane in air/oxygen. At the end of the surgery patients were randomized into isocapnic hyperpnoea (IH), and control recovery groups. IH group patients received 2-3 times their intra-operative minute ventilation with a non-rebreathing system while maintaining isocapnia. Control patients recovered from anesthesia in the routine way.
We recorded time intervals from turning off Isoflurane to a) return of BIS value to >75%, b) opening of eyes to command, c) extubation, d) leaving the operating room (OR)

ABSTRACT BODY: Results (Abstract Submission): Nine patients were randomized to the IH group and 9 to the control group. There was no difference in age and BMI between the groups (52 ± 7 vs 57 ± 11 years, p=0.2; 36.8 ± 4.5 vs 36.8 ± 7.4 kg/m^2, p=0.9)
The time for opening eyes, appropriate response to verbal command, return of BIS value >75%, extubation, and leaving OR were significantly shorter for IH group (Table 1).

ABSTRACT BODY: Discussion (Abstract Submission): IH results in shorter immediate recovery from anesthesia with Isoflurane in obese patients. Possible explanations include: a) fat stores act as a "sink" for isoflurane rather than a reservoir; b)increased minute ventilation increases anesthetic elimination (ml anesthetic per ml blood) despite reduced clearance (fraction of anesthetic/ml blood).

ABSTRACT BODY: References (Abstract Submission): NA

Table 1. Comparison of duration of awakening after Isoflurane anesthesia between the Isocapnic Hyperpnoe (IH) and Control groups.

	IH group(n=9)	Control group(n=9)	P value
BIS value 75%	3.0 ± 2.0	8 ± 3.5	0.006
Opening eyes in response to verbal command (min)	5.5 ± 3.2	9.3 ± 3.4	0.03
Time of extubation (min)	5.5 ± 2.5	10.2 ± 3.6	0.006
Fulfill criteria for leaving OR (min)	7.7 ± 2.6	12.4 ± 3.9	0.01

TABLE TITLE:
Table 1. Comparison of duration of awakening after Isoflurane anesthesia between the Isocapnic Hyperpnoe (IH) and Control groups.

TABLE FOOTER:

(No Image Selected)

CATEGORY: Pharmacology: Basic Science and Clinical

KEYWORDS: Isocapnic Hyperpnoea, Isoflurane, Obesity.

CONTROL ID: 802923

TITLE: LIDOCAINE BLOCKS THE HYPERPOLARIZATION-ACTIVATED MIXED CATION CURRENT, I(H), IN RAT THALAMOCORTICAL NEURONS

CONTACT (NAME ONLY): Stephan Schwarz

CONTACT (INSTITUTION ONLY): The University of British Columbia

ABSTRACT BODY: Introduction (Abstract Submission): Intravenous lidocaine is effective both in chronic neuropathic pain and perioperatively - in the maintenance of general anesthesia, to reduce acute postoperative pain, and to hasten recovery.(1,2) In addition to its therapeutic effects, systemic lidocaine also exhibits neurotoxicity that ranges from sedation and alterations in sensorium to generalized seizures, coma, and death. Previous research has implicated as an important supraspinal site of lidocaine's systemic actions the ventrobasal thalamus (VB).(3,4) One of the main determinants of cellular excitability and firing patterns in VB is the hyperpolarization-activated inwardly rectifying mixed cation current, I(h). Since lidocaine blocks this current in dorsal root ganglion neurons,(5) we undertook this study to examine the concentration-dependent effects of lidocaine on the membrane and firing properties of VB relay neurons and test the hypothesis that lidocaine blocks I(h) in VB at clinically relevant concentrations.

ABSTRACT BODY: Methods (Abstract Submission): The experiments were approved by the Committee on Animal Care of the University of British Columbia. We used whole-cell voltage- and current-clamp recording techniques in rat brain slices (250 μm; Wistar rats aged postnatal days 13-16) in vitro, aided by DIC-IR videomicroscopy. Drugs were bath-applied to superfusing oxygenated artificial cerebrospinal fluid. Statistical analyses were performed using Student's paired t-test, $\alpha = 0.05$.

ABSTRACT BODY: Results (Abstract Submission): Hyperpolarizating voltage pulses (duration, 3 s) applied to VB neurons voltage-clamped at -70 mV induced an inwardly rectifying current consisting of an instantaneous component and a slow activating component known to represent I(h).(6) Application of 600 μM lidocaine (n = 4) completely and reversibly blocked the I(h) component in all neurons. This blockade was accompanied by a reversible increase in neuronal input resistance from 262 ± 50 MΩ to 556 ± 93 MΩ ($p = 0.015$), an increase in slope resistance in the voltage range of -95 to -55 mV, and a hyperpolarization of the resting membrane potential from -70 ± 1.7 mV to -76.5 ± 1.9 mV ($p = 0.005$). These effects were concentration-dependent with a maximum at 600 μM, but diminished at higher concentrations (1 mM). While lidocaine blocked tonic repetitive Na+-mediated action potentials, the observed changes in membrane properties were associated with an increase in Ca2+-mediated excitability such that previously subthreshold depolarizing current injections could evoke dendritic high-threshold Ca2+ action potentials in the presence of lidocaine.

ABSTRACT BODY: Discussion (Abstract Submission): Lidocaine concentration-dependently blocked the hyperpolarization-activated mixed cation current, I(h), in ventrobasal thalamic neurons. This action was associated with an increase in electroresponsiveness mediated by high-threshold Ca2+ currents. Whereas future studies will further delineate the various overlapping concentration-dependent supraspinal effects of lidocaine, these findings provide insight into the mechanisms that underlie the complex array of therapeutic and toxic effects that intravenous lidocaine exerts on the CNS.

ABSTRACT BODY: References (Abstract Submission): (1) Cochrane Database Syst Rev 19: CD003345 (2005)
(2) Anesth Analg 98: 1050-5 (2004)
(3) Br J Pharmacol 124: 1633-42 (1998)
(4) Neurosci Lett 267: 25-8 (1999)
(5) Br J Pharmacol 139: 1273-80 (2003)
(6) J Neurophysiol 95: 3073-3085 (2006)

(No Table Selected)

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CATEGORY: Pharmacology: Basic Science and Clinical

KEYWORDS: Lidocaine, intravenous, Thalamus, I(h).

CONTROL ID: 793846

TITLE: OPIATE-TOLERANT SURGICAL PATIENTS: PREVALENCE & RECOGNITION

CONTACT (NAME ONLY): Jennifer Wilson

CONTACT (INSTITUTION ONLY): University of Ottawa

ABSTRACT BODY: Introduction (Abstract Submission): With increasing use of opioids over the last decade (1) a growing number of opiate-tolerant patients are presenting for surgery. There is little information regarding these patients in the perioperative period (2,3,4). The purpose of this retrospective chart review was to determine the prevalence, ability to recognize and manage opiate-tolerant patients that presented to our hospital for elective surgery from April 2008 to March 2009.

ABSTRACT BODY: Methods (Abstract Submission): Local Ethics Committee approval was obtained. During the period of interest 6,525 Same Day Admit surgeries were done. Using data from Moulin et al(5) we estimated that approximately 8% of this population is taking opiate medication. For the purpose of this retrospective study, identification was defined as administering a patient's baseline opioid the morning of surgery. 800 charts were randomly retrieved from Medical Records and reviewed. With 800 charts the 95% CI around a frequency of 8% would be less than 2%.

ABSTRACT BODY: Results (Abstract Submission): 18.5% of patients were taking an opiate at the time of surgery. 4.7% were on long-acting preparations and 13.8% were on short-acting preparations only. Back and joint surgeries showed the highest prevalence of opiate use: 53% and 14% respectively. Patients undergoing joint surgeries showed the highest prevalence of short-acting, and low dose (<30 mg of morphine equivalents [ME]) opiate use, whereas back surgeries showed the highest prevalence of long-acting and high dose (> 99 mg of ME) use. Anesthesiologists recognized 66% of short-acting opioid users and 56% of long-acting opioid users as identified in their charts. Of the patients taking opioids, 42% received Acetaminophen, 45% received NSAIDs and 45% received Pregabalin preoperatively. Regional was used in 54% of patients taking opiates. Patient Controlled Anesthesia (PCA) was used in 56% of the surgeries. Postoperatively, adjuvants such as Acetaminophen, NSAIDs, Anticonvulsants and Antidepressants were used for 86%, 58%, 44%, and 3% of patients respectively. The median Length of Stay (LOS) was 4 days. The range was 1-80 days, 25th percentile was 3 days, 75th percentile was 6 days.

ABSTRACT BODY: Discussion (Abstract Submission): Acute pain management in opioid dependent patients is challenging, and increasingly common. Only 66% of short-acting and 56% of long-acting opioid users were clearly identified by Anesthesiologists. Given that less than 50% of patients received adjuvant medication pre-operatively, capacity to improve management exists. In accordance with expert guidelines, Regional and PCA was used when possible. Even though many patients were undertreated there was no clear effect on LOS. A large prospective study will be needed to determine if this is the case. We plan a prospective cohort study to examine the effect of the rigorous application of expert guidelines on the management of opiate tolerant patients to elucidate their effects on measures such as: post-operative pain control, LOS, peri-operative complications and re-admission rates. Back surgery patients with the highest prevalence and dose of long-acting opiates are an important population for vigilance and future study.

ABSTRACT BODY: References (Abstract Submission): 1.Best Pract Res Clinic Anaesthesiol 2002 16: 521-525
2.Reg Anesth Pain Med 2004 29: 576-591
3.Can J Anesth 2006 53: 1190-1199
4.Anaesthesia 2006 61: 269-276
5.Pain Res Manage 2002 7: 179-184

(No Table Selected)

(No Image Selected)

CATEGORY: Pain: Chronic - Basic and Clinical

KEYWORDS: opiate tolerance, chronic pain, perioperative.

CONTROL ID: 801811

TITLE: CONTINUOUS EPIDURAL ANALAGESIA IN A PATIENT WITH SEVERE PAIN ASSOCIATED WITH CALCIPHYLAXIS

CONTACT (NAME ONLY): Kelly Shinkaruk

CONTACT (INSTITUTION ONLY): University of Ottawa

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): Consent was obtained from the subject of this case report.
A 61yr old female presented to our institution's pain clinic with an advanced case of calciphylaxis with severe bilateral leg ulceration and both nociceptive and neuropathic pain. At that time, the patient rated her pain 8-9/10 on a VAS scale despite oral opioids and co-analgesics including hydromorph contin, gabapentin, nortriptyline, and cesamet. As the leg ulceration progressed, she was admitted to hospital due to sepsis and for initiation of a novel treatment of calciphylaxis, sodium thiosulfate. Despite this, the patient experienced increased pain both at rest and with dressing changes. She received escalating doses of intravenous opioids and ketamine and quickly developed toxicity to these medications including sedation, agitation, and myclonus. Clinically, she showed no significant response to the initial calciphylaxis treatments and deteriorated rapidly.
After discussions regarding risks and benefits, the patient and family agreed to receive a continuous lumbar epidural infusion for pain control. An Algoline catheter was placed at the L2 level under fluoroscopic guidance and tunneled subcutaneously to the patient's flank. Using patient controlled epidural analgesia infusing bupivicaine 2mg/ml, fentanyl 5mcg/ml, epinephrine 2mcg/ml the VAS score was reduced to 2/10. The patient maintained ambulation but required a Foley catheter. Sodium thiosulfate treatments continued for a total of twelve weeks. Within six weeks of epidural and sodium thiosulfate treatment, the patient showed significant clinical improvement with nearly complete resolution of her leg ulcers. Sleep, appetite and cognition returned to normal. The patient was weaned onto oral opioid medications, the epidural was discontinued, and the patient was discharged home. Over the next two months, follow up appointments revealed excellent progress with minimal residual pain and without recurrence of ulcers.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): Epidural and intrathecal analgesia have many benefits in the cancer pain and vertebral compression fracture populations (1,2,3,4). In addition to optimizing pain control, minimizing opioid side effects, and enhancing quality of life, we propose that epidural analgesia has the additional benefit of improving clinical outcome by decreasing pain-associated stress response. Chronic activation of the stress system profoundly inhibits immune response (5,6) and patients with severe pain and anxiety display a decrease in protection against microbial infections (7). In this case, calciphylaxis, a rare condition causing vasculopathy and severe ulcer-related pain (8,9), shows improved outcome with epidural analgesia as compared with previously documented modalities including lumbar sympathetic blocks and continuous intravenous opioid and ketamine infusions (10,11).

ABSTRACT BODY: Purpose (Case Reports/Series Submission): The purpose of this case report is to demonstrate the usefulness of epidural analgesia in managing severe pain associated with calciphylaxis.

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CATEGORY: Pain: Chronic - Basic and Clinical

KEYWORDS: epidural analgesia, calciphylaxis, pain.

CONTROL ID: 802789

TITLE: AGGRESSIVE PERIOPERATIVE MULTIMODAL ANALGESIA REDUCES PAIN BUT DOES NOT IMPROVE FUNCTION SIX WEEKS AFTER THA: A PILOT STUDY

CONTACT (NAME ONLY): Nicole Carmichael

CONTACT (INSTITUTION ONLY): University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): The primary goal of total hip arthroplasty (THA) is to alleviate severe pain and improve function. However, some patients fail to achieve good outcomes after this surgery (1,2). An important predictor of poor outcome is the presence of significant postoperative pain which is correlated with preoperative pain intensity. Therefore, we hypothesized that controlling pain in the weeks before and after surgery with celecoxib and pregabalin (CP) would reduce pain and improve physical function following THA.

ABSTRACT BODY: Methods (Abstract Submission): Inclusion criteria consisted of patients scheduled for THA, ASA status I-III, average daily VAS ≤ 4, male or female aged 18 – 75 years. Exclusion criteria consisted of patients with an allergy to study medication, history of drug abuse, chronic pain (>30mg morphine equivalent per day), rheumatoid arthritis, psychiatric disorders, patients unable to use PCA, diabetic patients, impaired renal function (Creatinine > 55) or BMI > 40. After REB approval and informed consent, patients were enrolled in this double-blinded, randomized-controlled study. Patients were given celecoxib (100mg BID) and pregabalin (75mg BID) pre (beginning 14 days before surgery), intra and postoperatively (for 3 weeks after surgery) (Group 1, G1) or standard existing treatment (pregabalin and celecoxib) in the intraoperative period and placebo administration pre (beginning14 days before surgery) and postoperatively (for 3 weeks after surgery) (Group 2, G2). All patients had spinal anesthesia [15 mg (3cc) of 0.5% hypobaric bupivacaine with 10 microg of fentanyl]. The primary outcome measure was physical function assessed with the 6-minute walk test (6MWT) at 6 weeks following surgery. Secondary outcome measure was pain intensity (VAS) at rest and with movement. Data was analyzed using a two-way ANOVA and unpaired t-test. Significance was assumed at $p<0.05$.

ABSTRACT BODY: Results (Abstract Submission): G1 had significantly less intense pain at rest (VAS = 2.1 ± 1.4; n=17) on the day of surgery compared to G2 (VAS = 3.3 ± 1.9; n=17) (p=0.04, t-test). As well, 6 weeks after THA, G1 reported significantly less pain with movement (VAS = 0.2 ± 0.4; n=15) compared to G2 (VAS= 1.1 ± 2.1; n=16) (p=0.01, t-test). However, there was no difference in the walk test performance between the two groups at 6 weeks following THA (G1: 106.7 ± 38.7m, n=15; G2: 147±175.9m, n=16) (p=0.4, t-test).

ABSTRACT BODY: Discussion (Abstract Submission): An intensive pain control regimen with pregabalin and celecoxib before and after total hip replacement surgery improves pain control but provides no benefit with respect to improvement in physical function as measured by six minute walk test.

ABSTRACT BODY: References (Abstract Submission): 1. Ann Rheum Dis 2003:62:923-930.
2. J Bone Joint Surg 2006;88(4):685-91.

(No Table Selected)

(No Image Selected)

CATEGORY: Pain: Chronic - Basic and Clinical

KEYWORDS: Multimodal analgesia, Chronic pain, Physical function.

CONTROL ID: 803273

TITLE: EPIDURAL ADMINISTRATION OF LOW-DOSE NALOXONE IN COMBINATION WITH MORPHINE AND BUPIVACAINE: EFFECT ON PAIN AND UNDESIRABLE EFFECTS

CONTACT (NAME ONLY): Gilbert Blaise

CONTACT (INSTITUTION ONLY): Centre hospitalier de l'Université de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): Opiates such as morphine are commonly prescribed to combat chronic lower back pain but give rise to numerous undesirable effects. Naloxone, at low doses, has been reported to improve the therapeutic window of opiates. Thus, we were interested to determine whether the combination of morphine with low-dose naloxone, would produce adequate analgesia with a reduced side-effects profile.

ABSTRACT BODY: Methods (Abstract Submission): This prospective, double-blind, randomized clinical trial with a cross-over design evaluated the effects in 28 patients of an epidural injection of (A) morphine (1mg) with bupivacaine (10mg) and (B) morphine (1mg) with bupivicaine (10mg) and naloxone (0.08mg). Informed consent was obtained from each patient and the study received local ethics approval. Patients suffering from chronic lower back pain were recruited into this clinical trial. Patients in each group (14) received treatment A or B, followed by a wash-out of 15 days, and subsequently received treatment B or A. Pain was recorded on a visual analog scale for 14 days after each injection; values on the 15th day after the first injection were considered baseline values for the 2nd injection. The presence of 4 of the most common undesirable effects, namely, pruritis, urinary retention, nausea/vomiting and respiratory depression were noted (0 for no, 1 for yes) for 14 days after each injection; a sum of the undesirable effects for each patient was calculated.

ABSTRACT BODY: Results (Abstract Submission): Height (164.7 ± 2.4 versus 170.6 ± 2.7 cm), weight (77.8 ± 5.4 versus 78.4 ± 4.1 kg) and age (58.2 ± 3.5 versus 54.7 ±3.0 years old) were not significantly different between groups A and B; the male to female ratio was different between the two groups, with a 3:11 ratio for group A and a 8:6 ratio for group B. Preliminary data suggest that pain scores in the two groups are lower than baseline values for more than 24 hours after a single injection and that a 14-day washout period may not be sufficient to ensure no carry-over, especially in the group injected with the low-dose naloxone. A trend towards greater reductions in pain score from baseline is present after the 1st injection in the group that received the ultra low-dose naloxone. A trend towards a lower undesirable effects profile exists in the group treated with the low-dose naloxone after the 1st injection.

ABSTRACT BODY: Discussion (Abstract Submission): Preliminary data suggests that low-dose naloxone may have beneficial effects. However, the low number of patients and the possible carry-over effect limit the interpretation of results. These promising findings should be repeated in a study with an increased number of patients, without a cross-over design, to limit-possible confounding factors.

ABSTRACT BODY: References (Abstract Submission): 1- Fundam Clin Pharmacol, Vol. 14 (4): 327-34, 2000 Jul-Aug
2- Int J Obstet Anesth, 2009

(No Table Selected)

(No Image Selected)

CATEGORY: Pain: Chronic - Basic and Clinical

KEYWORDS: Naloxone.

CONTROL ID: 743227

TITLE: INOTROPES AND BI-VENTRICULAR FUNCTION IN VALVULAR SURGERY

CONTACT (NAME ONLY): André Denault

CONTACT (INSTITUTION ONLY): Montreal Heart Institute/Université de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): Inotropic agents are often needed to wean from cardiopulmonary bypass (CPB) in valvular or complex surgery, but their effects on systolic and diastolic function have not been well reported. The aim of this study was to evaluate the effect of inotropic support on bi-ventricular systolic and diastolic function, as well as outcome, compared to a control group without inotropes, in patients undergoing valvular surgery. The secondary objectives were to assess factors which can predict the need for inotropic support after cardiopulmonary bypass, and also to document the change in systolic and diastolic function over time in valvular surgery.

ABSTRACT BODY: Methods (Abstract Submission): The protocol was reviewed and approved by the Research and Ethic Committees of our institution. Written informed consent was obtained from all patients. Single-center double-blind, double-dummy controlled trial in patients undergoing valvular surgery and randomized to receive intravenous amiodarone or placebo intraoperatively. Patients were divided in those requiring or not postoperative inotropic agents. Demographic and biochemical data were obtained. Hemodynamic profile and bi-ventricular comprehensive transesophageal echocardiographic (TEE) exam were performed and described before, after bolus and after cardiopulmonary bypass (CPB). Patients were followed-up for 6 years.

ABSTRACT BODY: Results (Abstract Submission): One hundred and twenty patients (mean age 65±11 years) were randomized to amiodarone or placebo. There was no difference in the use of inotropic agents after CPB in patients randomized to amiodarone or placebo. There were no significant baseline biochemical or hemodynamic differences among patients receiving inotropes after CPB. The use of inotropes was associated with increased left atrial dimensions ($p=0.0196$), increased E/e ratio ($p=0.0104$), reduced tissue Doppler mitral systolic velocities ($p=0.0086$), increased end-systolic right ventricular area dimension ($p=0.0197$) with associated reduced hepatic venous flow systolic velocities ($p=0.0093$) before CPB. Inotropic agents after CPB were associated with increased tissue Doppler mitral annular atrial velocities ($p=0.0252$), pulmonary ($p=0.0459$) and hepatic venous flow ($p=0.003$) atrial reversal velocities. There were no difference in postoperative complications and in survival in both groups however the number of death at 6 years was increased in patients who received intraoperative inotropes ($p=0.0247$).

ABSTRACT BODY: Discussion (Abstract Submission): In patients undergoing cardiac valvular surgery, significant hemodynamic and bi-ventricular systolic and diastolic echocardiographic changes do occur after CPB. Inotropic medications were not associated with a difference in hemodynamic and echocardiographic parameters after CPB when compared to a control group. However inotropic medications were associated with increased bi-atrial activity after CPB. At 6 years, despite similar baseline demographic characteristics, an increased number of deaths was observed in patients requiring inotropic medication.

ABSTRACT BODY: References (Abstract Submission): None

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Cardiac surgery, Amiodarone, Inotropic agents.

CONTROL ID: 794236

TITLE: URGENT MITRAL VALVE REPLACEMENT AND REFRACTORY THYROTOXICOSIS

CONTACT (NAME ONLY): Laura Wakely

CONTACT (INSTITUTION ONLY): UWO

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): Mitral stenosis results in compromised left ventricular filling, dependant on diastolic time. The left atrium dilates and is prone to atrial fibrillation. Pulmonary hypertension and reduced cardiac output follow.[1] Any pathophysiologic state that exaggerates these factors, such as hyperthyroidism, may result in rapid decompensation. In hyperthyroidism, elevated thyroid hormones increase inotropy, chronotropy and overall cardiac output.[2] Arrythmias are common and hypertension can be problematic.

Patient consent was obtained according to institutional guidelines. A 53 year old woman with mitral stenosis from rheumatic heart disease presented with increasing dyspnea and palpitations over a two week period. An echocardiogram revealed severe mitral stenosis with a valve area of $0.5cm^2$ and high pulmonary pressures. Cardiac surgery was consulted and an urgent mitral valve replacement was recommended. The patient was in rapid atrial fibrillation, with clinical symptoms of hyperthyroidism. Biochemistry confirmed markedly elevated thyroid function tests. She had been on longstanding amiodarone therapy for atrial fibrillation, and a diagnosis of amiodarone-induced thyrotoxicosis was made. Amiodarone-induced thyrotoxicosis is resistant to standard medical therapy and often has a prolonged course.[3] Medical management was initiated to restore a euthyroid state. Consideration was given to performing an urgent thyroidectomy, which has been advocated to manage refractory amiodarone induced thyrotoxicosis.[4] In this case, awaiting normalization of thyroid hormone levels was believed to be of greater risk than proceeding with cardiac surgery. It was felt that the severity of mitral stenosis made the risk of pre-emptive thyroidectomy too high, and a combined procedure was not undertaken due to the risks of heparinazation and thyroidectomy. Following two weeks of therapy, with PTU, steroids, and aggressive beta-blockade, thyroid hormone levels remained elevated and the patient's dyspnea continued to worsen. A pacemaker was inserted to allow maximal beta-blockade therapy. At this point, the risk of developing thyroid storm was weighed against the mortality risk of severe mitral stenosis and the patient went to the operating room on day 15 of admission. The anesthetic was conducted with preparation for management of tachyarrythmias and instability with careful monitoring for signs and symptoms of thyroid storm. An esmolol infusion was used, and conventional cardiac anesthesia monitoring was employed. The patient tolerated the procedure well and endured no significant hemodynamic compromise during the perioperative period.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): In thyrotoxicosis there is a true mortality risk associated with potential thyroid storm development in the perioperative period and little evidence exists for clinicians to determine when surgery can safely be pursued. This risk must be weighed against the urgency of the surgical procedure.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): To review the pathophysiology of combined mitral stenosis and thyrotoxicosis, and to address anesthetic considerations for thyrotoxic patients undergoing mitral valve replacement.

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: thyrotoxicosis, mitral stenosis, thyroid storm.

CONTROL ID: 800767

TITLE: TRANSFUSION REQUIREMENTS IN ORTHOPEDIC SURGERY (TRIOS)

CONTACT (NAME ONLY): Élise Vuille-Lessard

CONTACT (INSTITUTION ONLY): Université de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): The hemoglobin (Hb) concentration that allows optimal functional recovery after major orthopedic surgery remains unknown. Clinicians have widely adopted a restrictive transfusion threshold (75-80 g/L) but anemia may be associated with a decrease in postoperative vigor (1, 2) and quality of life (3). We hypothesize that, in patients undergoing major arthroplasties, a threshold Hb concentration exists below which functional recovery becomes difficult.

ABSTRACT BODY: Methods (Abstract Submission): A prospective, observational study in patients > 60 years undergoing an elective, isolated total hip or knee arthroplasty at a major teaching institution since May 2008. The primary outcome variables were distance walked in 6 minutes, Borg's Rating of Perceived Exertion and maximal grasping of dominant superior limb. The relationship between Hb concentration and primary outcome measures was determined using one way ANOVA, chi-square test, Student-t test. We present the results of 237 of the 344 patients planned. The study protocol was approved by the institutional review board and written patient consent was obtained.

ABSTRACT BODY: Results (Abstract Submission): The main results are presented in the Table. There was no difference among Hb groups regarding patient demographic characteristics. Results of the group with Hb<80 g/L are difficult to interpret due to the small number of patients. There were too few adverse events (AEs) to detect any differences among Hb groups. There were no deaths.

ABSTRACT BODY: Discussion (Abstract Submission): A higher Hb concentration (90 g/L) appears to improve the 6 Minutes Walking Test and could optimize the functional recovery of patients undergoing major orthopedic surgery.

ABSTRACT BODY: References (Abstract Submission): 1. Transfusion 2003 43:1717-22
2. Age Ageing 2008 37:173-178
3. Anesth Analg 2008 106:1056-61

This work received financial support from the CAS. No conflicts of interest to declare.

Association between hemoglobin concentrations and primary outcomes

	<80 g/L (n=12)	80-89 g/L (n=62)	90-99 g/L (n=72)	≤100 g/L (n=91)	p-value
Hemoglobin (g/L)	77.1 ± 2.5	85.5 ± 2.7	94.7 ± 2.7	110.1 ± 7.7	<0.001
Distance walked in 6 minutes (m)	95.6 ± 60.9	72.4 ± 38.9*	92.2 ± 68.3*	96.3 ± 71.6	0.1231
Borg's Rating of Perceived Exertion (12-Point scale)	5.00 ± 2.2	4.65 ± 2.0	4.35 ± 2.0	4.85 ± 2.2	0.4495
Maximal grasping (kg)	23.1 ± 10.6	22.4 ± 10.4	23.4 ± 11.7§	26.8 ± 12.1§	0.0906

Data are reported as mean ± SD (continuous variables).
* Difference between group 80-89 g/L and group 90-99 g/L is significant (p = 0.0457).
§ Difference between group 90-99 g/L and group ≤100 g/L did not reach statistical significance (p = 0.0725).

TABLE TITLE:
Association between hemoglobin concentrations and primary outcomes

TABLE FOOTER:

Data are reported as mean ± SD (continuous variables).
* Difference between group 80-89 g/L and group 90-99 g/L is significant (p = 0.0457).
§ Difference between group 90-99 g/L and group ≤100 g/L did not reach statistical significance (p = 0.0725).

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Transfusion, Red blood cells, Orthopedic surgery.

CONTROL ID: 801012

TITLE: ARE B-BLOCKERS EFFECTIVE IN TREATMENT OF PERIOPERATIVE DIASTOLIC DYSFUNCTION?

CONTACT (NAME ONLY): Ashraf Fayad

CONTACT (INSTITUTION ONLY): Ottawa Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Perioperative diastolic dysfunction (DD) is increasingly recognized as a risk factor in cardiac surgery patients. Treatments of DD is mainly focused on reduction of the heart rate (HR) to provide the myocardium with more relaxation time. β -blockers are well established treatment for DD. However, no previous studies looked at the echocardiographic changes in diastolic parameters after administration of β-blockers. The aim of this study is to examine whether intraoperative administration of β-blockers improves/alters diastolic function assessed by Transesophageal Echocardiography (TEE) in patient undergoing elective abdominal aortic aneurysm (AAA) repair.

ABSTRACT BODY: Methods (Abstract Submission): Depends on the availability of the echocardiographer, TEE, in our institute, is routinely used to monitor hemodynamics in patients undergoing elective AAA repair. After obtaining the ethical approval, 7 patients (out of 12) were diagnosed to have DD utilizing intraoperative TEE. Diastolic function was measured before/during aortic cross clamping and after administration of the β-blockers. Transmitral inflow and tissue Doppler of the mitral annulus were obtained. The severity of DD was documented. Each patient received 5-10 mg of Metoprolol titrated against the HR.

ABSTRACT BODY: Results (Abstract Submission): Only 4 patients have all diastolic parameters measured before and after administration of the Metoprolol. The other 3 patients did not receive Metoprolol or had incomplete study and were excluded. Two patients were classified to have mild DD (impaired relaxation). The other 2 patients had moderate DD (Pseudonormal). Metoprolol administration resulted in restoring diastolic parameters in patients with mild DD. Metoprolol administration in the moderate DD patients did not improve diastolic parameters.

ABSTRACT BODY: Discussion (Abstract Submission): Patients with mild DD may benefit from β-blockers treatment. β-blockers may not be the drug of choice in treating patients with advanced DD. DD patient tend to have a smaller left ventricular volume and subsequently smaller stroke volumes (SV). Reduction of the HR by β -blockers without an increase in the SV may compromise the cardiac output and further worsen the diastolic heart failure. Further study is warranted.

ABSTRACT BODY: References (Abstract Submission): 1. Neubauer S. "The failing heart — an engine out of fuel". N Engl J Med. 2007; 356 (11): 1140-51

2. Hjalmarson A, Goldstein S, Fagerberg B, et al. Effects of controlled-release metoprolol on total mortality, hospitalizations, and well-being in patients with heart failure: the Metoprolol CR/XL Randomized Intervention Trial in congestive heart failure (MERIT-HF). MERIT-HF Study Group. JAMA. 2000; Mar 8;283(10):1295-302.

(No Table Selected)

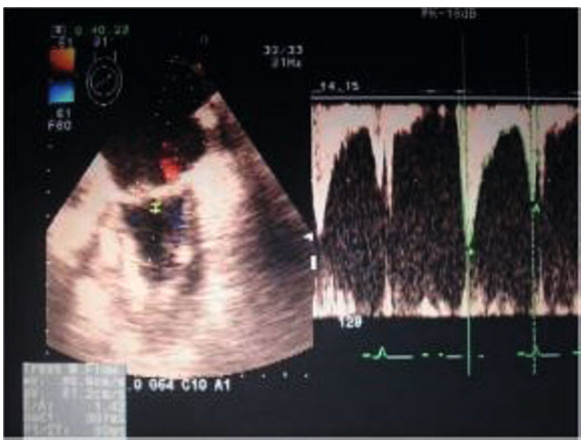


IMAGE CAPTION:

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical
KEYWORDS: Beta-blockers, Diastolic Dysfunction.

CONTROL ID: 801314

TITLE: ASYMPTOMATIC TRANSIENT STRESS CARDIOMYOPATHY OCCURRING DUE TO SEVERE POSTOPERATIVE PAIN

CONTACT (NAME ONLY): Vidur Shyam

CONTACT (INSTITUTION ONLY): Queens University

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): Consent for disclosure of this case was obtained from the patient. A 74-year-old 52kg female with severe rheumatoid arthritis underwent multiple finger fusions and arthroplasties on her right hand under routine general anesthesia. Medications included MS contin 60mg bid, prednisone and furosemide. Transthoracic echocardiogram (TTE) four years previously was normal. Cardiac history included remote paroxysmal atrial fibrillation and a remote smoking history. She had excellent exercise tolerance and no symptoms of cardiac failure. When assessed three months preoperatively, electrocardiogram (ECG) showed new T-wave inversion. Two weeks later coronary angiogram showed minor disease and normal left ventricular (LV) function.

ECG four days preoperatively was normal. Intraoperatively her systolic blood pressure (SBP) and heart rate (HR) were 180-120 mmHg and 100-80/min respectively and no ECG abnormalities were detected. Postoperatively she complained of 9/10 right hand pain despite a total of morphine 25mg and fentanyl 275mcg. An uneventful axillary brachial plexus block was performed using 0.5% ropivacaine 30 ml. Her pain decreased to 1/10.

T-wave inversion was then detected by cardiac monitoring and confirmed by 12-lead ECG. She denied chest pain or dyspnea. SBP and HR were 160-110 mmHg and 90-75/min respectively for the postoperative period. Laboratory investigations revealed a troponin peak of 1.137 ng/ml. TTE revealed LV apical and distal anterior wall akinesis. She was discharged home the next day after coronary angiography revealed only minor coronary artery disease. Two months later her ECG had normalized and repeat TTE revealed normal LV function.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): Transient stress (TSC), or Takotsubo, cardiomyopathy, is characterized by: apical and/or midventricular LV dysfunction, ECG changes mimicking acute coronary syndrome or slight increases in myocardial enzymes, and minimal arterial disease on angiography. It most commonly affects postmenopausal women and is usually precipitated by emotional or physical stress. Patients commonly present with chest pain and dyspnea but can present with dysrhythmias or cardiogenic shock. Pathophysiology is unknown but multivessel coronary vasospasm, abnormalities in coronary microcircular function, and catecholemine-mediated cardiotoxicity have been proposed. Most patients have an excellent prognosis.[1]

In the perioperative period TSC has been attributed to preoperative anxiety or pain, anaphylaxis, and the stress of major surgery.[2] Although the cause of this patient's transient *pre*operative T wave changes remains unclear, this case illustrates that severe postoperative pain can precipitate TSC and can present without classic symptoms or hemodynamic changes. This case underscores the importance of adequate pain control in at risk populations and the difficulty in distinguishing TSC from acute coronary syndrome in the perioperative setting.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): To report a case and review the clinical features and implications of an atypical presentation of transient stress cardiomyopathy due to postoperative pain.

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Stress Cardiomyopathy, Takosubo Cardiomyopathy, Apical Ballooning Syndrome.

CONTROL ID: 802816

TITLE: ONDINE'S CURSE: ANESTHESIA FOR AN ADULT ON NON INVASIVE VENTILATION

CONTACT (NAME ONLY): Ahtsham Niazi

CONTACT (INSTITUTION ONLY): Toronto Wetern Hospital

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): Consent was obtained from the patient for presentation of this case report.
We report a case of a 50 year-old lady who had acquired CAHS due to meningitis since the age of 14 and had used non-invasive positive pressure ventilation (NIPPV) almost exclusively. Her clinical features consisted of pulmonary hypertension with cor-pulmonale, chronic left pleural effusion, polycythemia and atrial fibrillation. The patient was transferred to the operating room on oxygen via nasal prongs breathing spontaneously. Standard ASA monitoring was used in addition to a radial arterial line. Cardiac pacing/defibrillating leads were applied to the patient prior to induction. The patient was preoxygenated with 100% O2 by bag-valve-mask assist ventilation. The patient was induced with fentanyl and propofol titrated to effect prior to intubation. No muscle relaxant was used. The patient was maintained with TIVA using propofol and remifentanil. Transient hypotension was treated with boluses of phenylephrine to good effect. The patient's tidal volume was maintained at 450-500 ml using volume control ventilation. The respiratory rate was maintained at 8-10 breaths per minute to target an ETCO2 of 45 which correlated with a PaCO2 reflective of the patient's baseline value measured by two serial blood gas samples. The surgery was completed uneventfully. Prior to extubation the diaphragmatic pacemakers were tested which correlated with direct visual contraction and a curare-notch on the ETCO2 curve. Mechanical ventilation was discontinued and spirometry showed adequate flow-volume curves with tidal volumes that varied between 320-400 ml. Infusions were discontinued and the patient's trachea was extubated. The patient was transferred to the ICU. After a brief requirement for NIPPV in the immediate post-operative period, the patient was discharged on post-operative day one uneventfully.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): CAHS is a rare disorder which may pose many challenges to the anesthetist. Proper understanding of the disorder and good communication between the anesthetist, patient and surgeon may overcome some of these challenges and lead to a successful outcome.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): Central Alveolar Hypoventilation Syndrome (CAHS) or Ondine's Curse is a rare disorder in which autonomic regulation of respiration is lost. Though the congenital form of this disease is more common1, acquired forms of this condition have been reported2. Nearly all patients require ventilator support at night and a third require support for 24 hours per day3. Diaphragmatic pacing has been described as an effective treatment for this condition4. We report the anesthetic management of an adult patient suffering from acquired CAHS on non invasive ventilation for diaphragmatic pacemaker insertion.

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Ondine's Curse, Diaphragm, Pacemaker.

CONTROL ID: 803522

TITLE: CPB INDUCED COAGULOPATHY - IS IT DUE TO 'REBOUND' HEPARIN OR 'RESIDUAL' HEPARIN?

CONTACT (NAME ONLY): Ravi Taneja

CONTACT (INSTITUTION ONLY): London Health Sciences Centre

ABSTRACT BODY: Introduction (Abstract Submission): Exposure to cardiopulmonary bypass (CPB) is associated with postoperative coagulopathy and hemorrhage. We(1) and others(2) have shown that heparin rebound occurs almost universally following cardiac surgery. This ongoing pilot study is designed to evaluate how soon heparin rebound occurs after CPB.

ABSTRACT BODY: Methods (Abstract Submission): After REB approval, 12 patients undergoing elective cardiac surgery under CPB were enrolled. Patients were excluded if they had received any prior anticoagulants, antiplatelet drugs or had any known coagulopathies or liver dysfunction. All patients underwent normothermic CPB and received tranexamic acid. Blood samples were evaluated 5-7 min after administration of protamine (after ACT had returned to baseline) and at 0, 2, 4 and 6 hours after ICU admission. ACT (activated clotting time), anti-Xa levels and APTT were measured at each time point.

ABSTRACT BODY: Results (Abstract Submission): The CPB times were 94.2 ± 24.1 min (mean ± sd) and aortic cross clamp times were 66.8 ± 24.1 min. The total heparin administered was 513.1 ± 92 u/kg and the total protamine dose was 371.7 ± 108 mg with a heparin-protamine ratio of 1.4 ± 0.3. 60 blood samples were evaluated. Anti-Xa levels immediately after protamine administration (with evidence of normal ACT) were 0.16 ± 0.17 u/ml with an accompanying APTT of 43 ± 19.3 sec. Anti Xa levels at 0, 2, 4 and 6 hrs of admission to the ICU were lower (0.09 ± 0.08, 0.05 ± 0.07, 0.05 ± 0.06 and 0.04 ± 0.05 u/ml) as were the corresponding APTTs (39.1 ± 13.4, 32.3 ± 9.1, 29.8 ± 5.1, 29.3 ± 5.4 sec). Clinically, surgery and anesthesia proceeded normally in the OR. Average chest drainage losses were 507 ± 144 ml at 18 hrs.

ABSTRACT BODY: Discussion (Abstract Submission): Circulating residual heparin, as measured by anti Xa levels, is commonly present following CPB. Return of ACT to normal after administration of protamine may not indicate complete neutralization of heparin as measured by anti Xa levels. It is also possible that residual heparin after CPB may not reflect those fractions of heparin that can be neutralized with protamine. Further studies are required to confirm this observation.

ABSTRACT BODY: References (Abstract Submission): 1. Taneja et al. Elevated activated partial thromboplastin time does not correlate with heparin rebound following cardiac surgery Can J Anaesth 2009; 56: 489-96.
2. Teoh et al. Can extra protamine eliminate heparin rebound following cardiopulmonary bypass surgery? J Thorac Cardiovasc Surg 2004; 128: 211-9.

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: CPB, heparin rebound, protamine.

CONTROL ID: 732363

TITLE: MALPOSITION OF A CENTRAL VENOUS CATHETER IN THE INTERNAL THORACIC VEIN

CONTACT (NAME ONLY): Magnus Breitling

CONTACT (INSTITUTION ONLY): Memorial University

ABSTRACT BODY: Clinical Features (Case Reports/Series Submission): Consent for publication was obtained from the patient's family. A 62 year old gentleman with a cerebellar mass presented for resection of tumor. After sterile skin preparation and draping, the patient was placed in Trendelenburg position. The right internal vein was punctured and a J wire type guide was advanced into the vessel lumen. A 16 gauge single lumen central venous catheter was inserted using a Seldinger technique and secured to the skin. After returning the patient to the supine position the CVP waveform was noted to be in the normal range but blunted. Aspiration of venous blood into a syringe was difficult and slow. An initial AP portable chest radiograph was taken which showed the catheter to be in apparent position within the SVC. Our suspicion of malplacement prompted a second radiograph this time taken during injection of radiocontrast. This image (Figure 1) shows the catheter within the right ITV.
The right ITV courses immediately behind the anterior thoracic wall and drains into the floor of the brachiocephalic behind the sternal end of the clavicle(3). Particularly with an internal jugular approach, the course of an inserted catheter is parallel to the ITV making misplacement unlikely.

ABSTRACT BODY: Conclusion (Case Reports/Series Submission): The plain AP chest radiograph is unable to accurately delineate the location of intrathoracic devices such as a central venous catheter. Its two dimensional representation of a three dimensional space led to a false positive identification of a catheter in proper position. Clinical features not in keeping with proper placement and an index of suspicion led to identification of misplacement with in the right internal thoracic vein. This is the first described malplacement from a right sided internal jugular approach.

ABSTRACT BODY: Purpose (Case Reports/Series Submission): When used to measure central venous pressure, a catheter misplaced in small veins may give erroneous measurements (1) and potentially negatively affect intravenous fluid therapy. Internal thoracic vein (ITV) cannulation is a rare occurrence and documented in the literature in only a few case reports (1,2,4). We report on a case of accidental right ITV placement using a right internal jugular approach.

(No Table Selected)

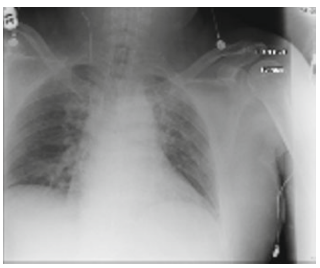


Figure 1

IMAGE CAPTION:
Figure 1

CATEGORY: Equipment/Monitoring

KEYWORDS: central venous catheter, placement, monitoring.

CONTROL ID: 797614

TITLE: A NOVEL QUANTITATIVE SENSORY TOOL (QST) FOR MONITORING OF FEMORAL NERVE BLOCKADE (FNB)

CONTACT (NAME ONLY): François Gaudreault

CONTACT (INSTITUTION ONLY): Université de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): FNB is commonly used for postoperative analgesia following knee surgery (KS) [1]. However, the most appropriate dose of local anesthetic (LA) for such procedure is currently ill-defined. Anesthesiologists do not have at their disposal tools and data that would allow them to predict precisely the sensory component of FNB. Current clinical methods (pinprick, ice) used for assessing nociception are subjective and of limited validity [2]. A thorough monitoring of the pharmacodynamic (PD) effect of LA is an important prerequisite for the elaboration of a model that will, in turn, enable identification of the best dosage. This study was therefore designed to evaluate the reproducibility of the current perception threshold test (CPT) as a monitoring tool for the PD response to LA in patients undergoing KS. It is part of a program destined to characterize the PK/PD relationship of commonly used LA.

ABSTRACT BODY: Methods (Abstract Submission): Volunteers study. After obtaining IRB approval and written informed consent, CPT measures were obtained at a standardized point on the medial aspect of the thigh of 12 healthy subjects using the Neurometer ® (Neurotron, Denver, CO, USA) that administers a constant-current sinusoid waveform stimulus of 5 Hz at different intensity levels (0.001-10 mA). The procedure was carried out every 5 min for a total of 30 min.
Patients study. So far, 8 patients undergoing total knee arthroplasty were enrolled after IRB approval and written informed consent. FNB was performed by injecting 20 mL (over 40s) of plain ropivacaine (ROP) 0.5%. Needle nerve proximity was confirmed by ultrasound and nerve stimulation. Venous blood samples (5 mL) were collected at several times after FNB and analyzed for total ROP plasma concentration [3]. The intensity and duration of FNB was monitored throughout the perioperative period using CPT measurements at standardized points on both thighs to exclude systemic effect of co-administered drugs.

ABSTRACT BODY: Results (Abstract Submission): There was no difference between CPT values obtained during repeated measures ($p=0.501$) in volunteers. Baseline CPT differed between patients (median : 11.9, range: 3.3 – 39.8) and data were therefore converted to % of maximum possible effect (MPE), calculated as ((CPT value-baseline/baseline) x 100). FNB produced a significant increase in MPE ($n=6$, $p=0.004$) 30 min after the induction (median 88 %, range: 58 – 1025 %). Return of sensory function correlated well with decreasing ROP plasma concentration and approximately occurred 29h after FNB (range: 22 – 33 h).

ABSTRACT BODY: Discussion (Abstract Submission): This is the first study using QST in patients with FNB. CPT was found to be reproducible in volunteers. Still, considerable variation occurred following FNB. Since there is significant variability in the distribution of FNB anesthesia [4], we feel that strict standardized electrodes placement prevented QST to capture the full extent of FNB effect in some participants. We conclude that CPT is a reliable method to monitor sensory function of FNB but cutaneous area tested may need to be individualized to allow for variation in nerve distribution.

ABSTRACT BODY: References (Abstract Submission): [1] Br J Anaesth, 2008. 100(2): p. 154-64.
[2] Anesth Analg, 2007. 105(1): p. 256-62.
[3] Ther Drug Monit, 2009. 31(6): p.753-7.
[4] Anesthesia, 2005. 60(1): p. 974-7.

(No Table Selected)

(No Image Selected)

CATEGORY: Equipment/Monitoring

KEYWORDS: Femoral Nerve Block, Neurostimulation, Monitoring.

CONTROL ID: 798513

TITLE: VARIATION IN ARTERIAL AND OXIMETER WAVEFORMS IN CHILDREN

CONTACT (NAME ONLY): John Chandler

CONTACT (INSTITUTION ONLY): BC Children's Hospital

ABSTRACT BODY: Introduction (Abstract Submission): The variations induced by mechanical ventilation in the arterial pulse pressure and plethysmographic waveforms have been investigated in adults as surrogates of changes in stroke volume (1). Pulse pressure variation (PPV) measured from the arterial waveform was shown to correlate significantly with manually calculated plethysmograph variation (PlethV) and an automated plethysmograph variability index (PVI) (2,3). The aim of our study was to investigate the relationship between PPV, PlethV and PVI in mechanically ventilated children in two age groups (< 2 years and 2- 10years).

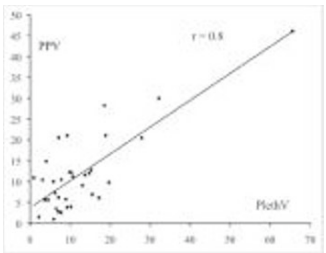
ABSTRACT BODY: Methods (Abstract Submission): Following institutional review board approval and informed parental consent, a prospective study was performed. We studied mechanically ventilated children, with arterial catheters placed as part of planned medical management in the intensive care unit (ICU) or in the operating room (OR). Patients with abnormal cardiac rhythm and intra cardiac shunts were excluded. Two additional oxygen saturation probes were placed on one hand and connected to separate monitors (Novametrix Oxypleth® 520a and Massimo® Radical 7™). A laptop computer was used to collect real time data (arterial pressure, endtidal CO2, ECG, plethysmograph), PVI values were downloaded from the Massimo oximeter following completion of the study. Patient characteristics, ventilator tidal volume, medical diagnoses and administration of vasoconstrictor medications were recorded. PPV and PlethV were manually calculated for three consecutive breaths and compared using Bland-Altman analysis and Pearson correlation. PPV and PlethV were individually compared to PVI using Pearson Correlations.

ABSTRACT BODY: Results (Abstract Submission): 38 subjects were recruited (19 in each group); three were excluded for poor quality plethysmograph waveforms. Median age was 5.25 years (range: 2 days - 10.5 years). PPV and PlethV were strongly correlated ($r=0.8$, $p<0.01$) and showed good agreement (bias = 0.58+/- 6.8%) (Figure 1). PVI was found to correlate significantly with PPV ($r=0.66$, $p<0.01$) and PlethV ($r = 0.71$, $p<0.01$). In comparison with the younger age group there was a
reduced correlation between PVI with both PPV and PlethV in the older age group. The relationship between PPV and PlethV was unchanged across the two groups.

ABSTRACT BODY: Discussion (Abstract Submission): This study demonstrates that in children, there is good agreement between ventilation-induced changes in arterial pressure and pulse oximeter plethysmograph amplitude.

ABSTRACT BODY: References (Abstract Submission): 1.Anesthesiology;106:1105-11 2007.
2.Crit Care;9:R562-8 2005.
3.Anesth Analg;106:1189-94 2008.

(No Table Selected)



Correlation between PPV and PlethV

IMAGE CAPTION:
Correlation between PPV and PlethV

CATEGORY: Equipment/Monitoring

KEYWORDS: pulse pressure variation, plethysmograph variation.

CONTROL ID: 799547

TITLE: INTRA-ABDOMINAL PRESSURE AND PERIOPERATIVE COMPICATIONS

CONTACT (NAME ONLY): Mahmoud Saghaei

CONTACT (INSTITUTION ONLY): Isfahan University of Medical Sciences

ABSTRACT BODY: Introduction (Abstract Submission): Normal value for intra-abdominal pressure (IAP) has not been defined clearly but it may be from sub-atmospheric to 7 mmHg[1]. Values greater than 12 mmHg is defined as Intra-abdominal hypertension[2], and may be associated with cardiorespiratory and renal co-morbidities. The effect of borderline values of IAP on the perioperative morbidities have not been investigated in previous studies. This study was designed to investigate the effect of high normal (borderline) values of IAP on the anesthesia related perioperative complications.

ABSTRACT BODY: Methods (Abstract Submission): After institutional approval and informed patient consent intra-abdominal pressure was measured before induction of general anesthesia in 60 adult non-obese patients scheduled for total hip replacement. Anesthesia complications such as oxygen desaturation, hypertension, dysrhythmia, etc were recoded. Logistic regression was performed to find independent factors responsible for development of complications.

ABSTRACT BODY: Results (Abstract Submission): Using area under ROC curve, odds ratios of significantly independent factors and percent of patients correctly predicted, the threshold number of complication episodes was selected as two episodes. Therefore patients were classified into two groups: those with total episodes of complication more then two (Complication group, n = 33) and those with fewer (Non-complication group, n = 27). IAP was significantly different between two groups (8.16 ± 3.7 mmHg in Complication group versus 4.6 ± 1.82 mmHg in Non-Complication group; $P < 0.05$). Although two groups were comparable with respect to most of perioperative variables, proportions of patients with bradycardia, hypertension, hypotension and desaturation were significantly higher in complication group (table 1). Logistic regression analysis showed that IAP was an independent predictor of developing complications (OR = 1.6; 95% CI = 1.1 – 2.1, P = 0.024).

ABSTRACT BODY: Discussion (Abstract Submission): The result of this study shows that high normal values of IAP is an independent predictor for development of perioperative anesthesia complications. Since normal physiology of different organ systems specially those of cardiorespiratory and renal, undergo changes during general anesthesia and surgery, it is possible that an otherwise non-significant chronic rise in the value of IAP (i.e. 7 – 12 mmHg) may contribute to the increase in the incidence of perioperative morbidity. Under these circumstances the established consensus threshold value for defining IAH may not be enough for predicting adverse outcomes.

ABSTRACT BODY: References (Abstract Submission): 1. Sanchez NC, Tenofsky PL, Dort JM, Shen LY, Helmer SD, Smith RS. What is normal intra-abdominal pressure? Am Surg 2001; 67: 243 – 248.
2. World Society of the Abdominal Compartment Syndrome www.wsacs.org

Table 1. Significantly different* variables in Complication, and Non-complication groups. Data are mean ± SD.

Variables	Non-complication(n = 27)	Complication (n = 33)
Age (year)	26.1 ± 6.4	30.1 ± 11.6
Weight (kg)	61.2 ± 8.6	71.7 ± 7.3
Waist (cm)	73.5 ± 4.59	83.2 ± 6.88
Hip (cm)	80.5 ± 4.3	92.1 ± 8.23
Sagittal abdominal diameter (cm)	14.2 ± 2.6	17 ± 3.4
Baseline Saturation (%)	97.1 ± 1.03	96.1 ± 1.1
Intraoperative bleeding (ml)	627 ± 264	886 ± 371
Time to extubate (min)	14 ± 8.4	21 ± 9.2

Body Mass Index (kg/m2)	21.93 ± 2.3	23.94 ± 3
Intra-abdominal pressure (IAP) (mmHg)	4.2 ± 1.51	8.21 ± 2.1

* $P < 0.05$

TABLE TITLE:
Table 1. Significantly different* variables in Complication, and Non-complication groups. Data are mean ± SD.

TABLE FOOTER:
* $P < 0.05$

(No Image Selected)

CATEGORY: Equipment/Monitoring

KEYWORDS: Intra-abdominal pressure, Anesthesia complication, Intra-abdominal hypertension.

CONTROL ID: 801351

TITLE: DIRECT MUSCLE VS ULNAR NERVE FOR NEUROMUSCULAR MONITORING

CONTACT (NAME ONLY): William McKay

CONTACT (INSTITUTION ONLY): University of Saskatchewan

ABSTRACT BODY: Introduction (Abstract Submission): It has been suggested that neuromuscular blockade (NMB) monitoring might be done by stimulating muscle bellies rather than peripheral nerves.(1,2,3) Hypothesis: effective NMB monitoring by stimulating muscle is limited to a range of stimulation currents.

ABSTRACT BODY: Methods (Abstract Submission): With institutional ethics approval, 10 adult subjects slated for elective surgery with muscle paralysis were recruited. We compared mid-biceps (B) stimulation to ulnar nerve (U) stimulation at the wrist, with B immediately before U, using train-of-four (TOF) stimuli 1) after induction, but before injection of relaxant; 2) 1 minute after relaxant injection, then; 3) every minute x 5, then every 5 minutes when U twitches began to reappear. TOF from 10 to 80mA in 10mA steps were used, with twitches sensed by 3-D accelerometer at biceps and by force transducer for thumb adductor and recorded with a physiologic recorder. Stimulus-to-peak times and resultant peak amplitudes were calculated. Data was studied in 4 depths of NMB: 1)Depth0: prior to relaxant; 2)Depth1: 1st and 4th U twitch present, allowing TOF ratio calculation; 3)Depth2: only 1st U twitch present (no 4th twitch); and 4)Depth3: no U twitches present.

ABSTRACT BODY: Results (Abstract Submission): 312 recordings were made. Stimulus-to-peak times: Three biceps peaks (B1, B2, and B3) appeared consistently (stimulus-to-peak time in ms, mean and [95%CI]: B1: 41 [40 to 43]; B2: 85 [82 to 88]; B-3: 169 [158 to 181]. Variance of B1〈B2〈B3 (P〈0.001). Ulnar stimulus-to-peak times were also consistent: 87.6 [85 to 90]ms. Amplitudes: At 10mA, no measurable peaks were found.1) Depth0: B1, B2, and B3 increased linearly with increasing current, while U plateaued above 50mA. 2)Depth1: measurable B peaks were not consistently found below 40mA. Regression coefficients of B-TOF ratios on U-TOF ratios are in the table. B1 TOF ratio at 50mA tracked U TOF ratio best. 3)Depth2,: B peaks tracked U peaks with regression coefficients: B1: 0.667; B2: 0.478; B3: 0.568. 4) Depth3, (no U twitches): B twitches began to appear at 20mA, and were consistently present at 80mA despite complete NMB. B2 amplitudes at 50mA are significantly smaller at Depth3 than at Depth0 (P 〈0.007).

ABSTRACT BODY: Discussion (Abstract Submission): Direct muscle stimulation sensed with a 3D accelerometer shows promise of clinical usefulness for NMB monitoring with a current of 40 to 50mA. Lower currents give inconsistent responses, and higher currents produce strong twitches despite complete NMB. Further research to refine direct muscle stimulation is warranted.

ABSTRACT BODY: References (Abstract Submission): 1. Canadian Journal of Anesthesia 2003; 50:342-347. 2. Can J Anesth 2003 50: 864-865. 3. J Clin Monit 1999; 15: 341 – 345.

Regression coefficients at Depth1 of TOF ratios of B peaks on U peaks

Peak	40mA	50mA	60mA	70mA	80mA
B1	0.752	0.930	0.711	0.458	0.851
B2	0.923	0.882	0.771	0.480	0.816
B3	0.541	0.616	0.238	0.392	0.673

TABLE TITLE:
Regression coefficients at Depth1 of TOF ratios of B peaks on U peaks

TABLE FOOTER:

(No Image Selected)

CATEGORY: Equipment/Monitoring

KEYWORDS: Neuromuscular block, train-of-four, muscle stimulation.

CONTROL ID: 802025

TITLE: USE OF RESERVOIR TO MITIGATE ETT CUFF PRESSURE

CONTACT (NAME ONLY): Sanjay Patel

CONTACT (INSTITUTION ONLY): University of Western Ontario

ABSTRACT BODY: Introduction (Abstract Submission): During anterior cervical discectomy, the trachea is retracted laterally to allow surgical access to the vertebral column; often the ETT cuff pressures increase dramatically due to a decrease in size of the tracheal lumen. The pressure is transmitted to the tissue surrounding the cuff and may lead to post operative vocal changes, sore throat, and nerve damage[1-2]. In this study we sought to evaluate an ETT cuff reservoir to mitigate the increased pressure exerted on the tracheal tissues.

ABSTRACT BODY: Methods (Abstract Submission): This randomized blinded model study did not require ethics approval. The study apparatus consisted of 2 inflated ETTs inside model tracheas; 1 trachea was placed in a fixed-width channel with a self-retraining retractor. The pilot line from the ETT cuffs were connected to a pressure transducer[3] +/- 50 cc reservoir.

Reservoir activation was randomized. Twenty OR personnel applied manual compressive force to the trachea and ETT cuff twice, with & without the reservoir. They then placed the self-retaining retractor to exert a compressive force on the trachea, with & without the reservoir. Participants attempted to exert the same force each time and were blinded to reservoir presence. The peak & plateau of the pressure increase were recorded by a blinded observer.

ABSTRACT BODY: Results (Abstract Submission): See Fig 1. Hatched bars show show control vs. the clear bars with reservoir use.

The mean plateau pressure during manual compression was 13 mmHg with the reservoir vs. 41 with no reservoir; peak pressures were 15 vs. 49. The plateau pressure during self-retaining retractor application was 5 mmHg with reservoir vs. 14 without; peak pressures were 7 vs. 23. All $P<0.01$.

ABSTRACT BODY: Discussion (Abstract Submission): In both models the reservoir dramatically attenuated the ETT cuff pressure increases associated with external pressure. The reservoir resulted in a 67%/66% decrease in the mean peak/plateau ETT cuff pressure with manual compression and a 69%/66% decrease with self-retaining retractor compression.

This model trachea study demonstrates that the reservoir functions to mitigate increases in ETT cuff pressure associated with external pressure applied to the trachea & surrounding structures. Ethics approval is under way to study this intervention in vivo.

ABSTRACT BODY: References (Abstract Submission): 1.Critical Care 2007(11): 109.
2.British Medical Journal, 1984; 288(6422): 965–968.
3.Anesthesiology 1999(91): 329.

(No Table Selected)

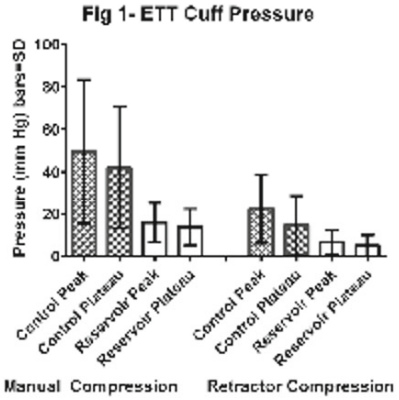


IMAGE CAPTION:

CATEGORY: Equipment/Monitoring
KEYWORDS: cuff pressure, retractor, anterior discectomy.

CONTROL ID: 803237

TITLE: LIGHT OUTPUT FROM THE TRACHLIGHT AND THE EFFECTS OF STERILIZATION

CONTACT (NAME ONLY): Andrew Milne

CONTACT (INSTITUTION ONLY): Dalhousie University

ABSTRACT BODY: Introduction (Abstract Submission): Adequate lighting can be crucial to successful intubation. Previous studies have evaluated the light intensity delivered by laryngoscope blades(1,2) and the effects of repeated sterilization(3,4) on the performance of these devices, however, no such studies have been published on the lightwand device, Trachlight™ (TL). The purpose of this study was to evaluate the light intensity delivered by a fleet of TLs currently in service at our institution and to examine the effects of repeated use and sterilization on light output.

ABSTRACT BODY: Methods (Abstract Submission): REB approval was deemed unnecessary by our institution. Light intensity or illuminance (Lux) was measured using a previously validated device(2). The TL consists of 2 parts: the lightwand and a handle. Twelve new lightwands were acquired for baseline control testing. All new lightwands were tested on a new TL handle equipped with new batteries. The light bulb was secured at a standardized distance (30 mm) from the light meter. Light output was recorded after 30 seconds. The mean of 3 serial tests was calculated for each wand. Thirty-one TL devices currently in use in our operating rooms (<10 uses) were tested on an "as-is" basis to determine our fleet's performance in comparison to the new devices. In the second phase of our study, the effect of repeated use and sterilization was assessed using 5 new wands. Each TL was loaded with an endotracheal tube, bent to a hockey stick configuration and unloaded to simulate intubation. The lightwand was then subjected to our institutions cleaning protocol - soaking in 0.6 % bleach for 10 minutes then rinsing with distilled water. Each wand was subjected to this use/cleaning procedure for 30 repeated cycles. Light output after each cleaning was expressed as a percentage of the original output for each wand. Statistical comparisons were performed using ANOVA with Bonferroni's correction for multiple comparisons. Data was expressed as mean ± 1 sd.

ABSTRACT BODY: Results (Abstract Submission): There was no significant difference ($p=0.15$) between the light output for 12 new wands (2653 ± 777 Lux) and the 31 devices currently in service (2376 ± 457 Lux). A significant decrement in light intensity ($p < 0.05$) was seen with repeated use and sterilization (Table 1).

ABSTRACT BODY: Discussion (Abstract Submission): To our knowledge, this is the first study to evaluate Trachlight™ illuminance. Although the devices currently in use at our institution were slightly lower in light output than new devices, this was not statistically significant. There is statistically significant degradation in light output after the manufacturer's maximum usage recommendation of 10 cycles and after 30 cleanings the light intensity drops to 60% of its original output. Future studies are required to determine the optimal light intensity required clinically to facilitate intubation.

ABSTRACT BODY: References (Abstract Submission): Anaesth 1996 51:667-72.
Acad Emerg Med 2007 14:496-9.
Anaesth 2003 58:461-465
Anesth Analg 2007 104:908-910.

Table 1. Effects of Repeated Sterilization

No of Cleanings	Light output % (mean ± sd)
0	100
10	75 ± 7
20	68 ± 4
30	59 ± 7

TABLE TITLE:
Table 1. Effects of Repeated Sterilization

TABLE FOOTER:

(No Image Selected)

CATEGORY: Airway Management

KEYWORDS: airway, intubation, lighted stylet.

CONTROL ID: 803455

TITLE: LIGHT INTENSITY OF DISPOSABLE FIBREOPTIC LARYNGOSCOPE BLADES

CONTACT (NAME ONLY): Andrew Milne

CONTACT (INSTITUTION ONLY): Dalhousie University

ABSTRACT BODY: Introduction (Abstract Submission): Concerns over prion disease transmission has lead to increasing usage of disposable laryngoscope blades (DLB). Previous studies have recommended a minimum lighting level of 100 candela/m2 or 900 Lux for direct laryngoscopy(1,2) and the ISO standard recommends a minimum of 500 Lux(3). The purpose of this study was to evaluate the light intensity delivered by several different brands of disposable blades in comparison to a standard reusable blade.

ABSTRACT BODY: Methods (Abstract Submission): REB approval was deemed unnecessary by our institution for this QA study. Light intensity or illuminance (Lux) from the blade was measured using a previously validated device(2). Nine different brands of single-use #3 Macintosh "fibreoptic" blades compatible with the ISO green standard system were acquired from the manufacturers (4 plastic/5 metal disposable blades). Five samples of each disposable blade type were tested. These were compared to the light intensity delivered by one new Heine Classic stainless steel reusable #3 Mac blade. All blades were tested using 3 different handle/battery sources: a new Heine 3.5 volt rechargable battery/fibre-optic handle set, a Heine 2.5 volt fibre-optic handle and new alkaline batteries, and a Vital Signs LED handle and new alkaline batteries. Each of the blade/handle combinations were serially tested 5 times and a mean light output was recorded. The rechargeable battery/handle was replaced on the charger between tests and the alkaline batteries were tested with a volt meter and replaced frequently to avoid battery drainage. Data were analyzed by ANOVA and Tukey HSD for multiple pairwise comparisons with $p < 0.05$ considered statistically significant.

ABSTRACT BODY: Results (Abstract Submission): The light intensity delivered by the various blades and handle/battery combinations is shown in table 1 (mean ± 1 sd). The Heine reusable blade performed significantly better than all of the DLB ($p < 0.001$). The 3.5 volt handle performed significantly better than the other 2 handle/battery sets ($p < 0.001$). Plastic blades performed significantly better than the disposable metal blades ($p < 0.001$).

ABSTRACT BODY: Discussion (Abstract Submission): Our data demonstrates that the disposable blades delivered significantly less light than the standard reusable blade (range 12-48%). The 3.5 volt handle provided significantly better lighting than the 2.5 volt and LED handles. Several of the metal blades were below the minimum 900 Lux threshold for direct laryngoscopic intubation.

ABSTRACT BODY: References (Abstract Submission): Anaesth 1996 51:667-72.
Acad Emerg Med 2007 14:496-9
ISO 7376:2009

Light Intensity (Lux)

		Light Intensity - Lux (mean ± sd)		
Manufacturer	Blade Type	3.5 v Handle	2.5 v Handle	LED Handle
Heine Reusable	Metal (control)	7538 ± 322	5600 ± 199	2372 ± 187
Heine XP	Plastic	1872 ± 258	1222 ± 114	2122 ± 135
Penlon Crystal	Plastic	3846 ± 447	2455 ± 271	2262 ± 138
Flexicare Venticare	Plastic	2462 ± 155	1103 ± 200	1778 ± 153
Vital Signs Green Standard	Plastic	2328 ± 209	1030 ± 60	1733 ± 57
Vital Signs Steelite	Metal	1073 ± 63	865 ± 53	1168 ± 35
Timesco Calisto	Metal	1919 ± 159	1790 ± 144	1742 ± 118
Penlon Crystal Metal	Metal	1113 ± 174	869 ± 115	842 ± 18
Green Rusch Lite	Metal	890 ± 101	790 ± 117	802 ± 76

Bomimed Metal	Metal	2495 ± 272	1536 ± 218	1259 ± 244

TABLE TITLE:
Light Intensity (Lux)

TABLE FOOTER:

(No Image Selected)

CATEGORY: Airway Management

KEYWORDS: Laryngoscope Blade, Light Intensity, Airway.

CONTROL ID: 803571

TITLE: EVALUATION OF SERVICE LIFE IN RECHARGABLE LARYNGOSCOPE BATTERIES

CONTACT (NAME ONLY): Andrew Milne

CONTACT (INSTITUTION ONLY): Dalhousie University

ABSTRACT BODY: Introduction (Abstract Submission): Previous research has characterized the performance of disposable alkaline batteries for use in laryngoscope handles(1). However, there is limited data in the anesthesia literature on the performance of rechargeable nickel metal hydride (NiMH), nickel cadmium (NiCAD) or lithium (LI) battery packs, and the maximum service life of these devices. The manufacturer of the 3.5 volt NiMH batteries that we currently utilize (Heine) recommends replacement every 2 years. The purpose of this study was to evaluate the performance of these different rechargeable battery types after several years of use in a large teaching institution and compare them to new NiMH units.

ABSTRACT BODY: Methods (Abstract Submission): REB approval was deemed unnecessary by our institution for this QA study. Each 3.5 volt rechargeable battery was charged for 24 hours prior to testing using a new handle (Heine Green Standard) and NT 200 laryngoscope handle charger. Useful battery life was quantified by measuring the light output generated from the fibreoptic bulb at the head of the handle. The light intensity or illuminance (Lux) was measured using a previously validated device(2), which was modified to measure the light output at the handle when the bulb was depressed. Each battery and handle unit was secured in the testing device and the light intensity was measured every 3 minutes under continuous use. The number of years of service for each battery was tracked by our quality control office based on serial numbers on each unit. Our test sample included: new NiMH (n=5), 3 years old NiMH (n=10), 5+ years old NiCAD (n=7) and 5+ years old LI (n=2). Raw data was expressed as mean ± 1 SD. Statistical analysis was performed using a Kaplan-Meier Survival Analysis, and ANOVA with post-hoc comparisons.

ABSTRACT BODY: Results (Abstract Submission): All batteries demonstrated similar discharge curve morphology. All batteries produced more than 10000 Lux after 20 minutes of continuous use. The times to zero light output were as follows: new NIMH 78 ± 2 mins, 3 yr NiMH 106 ± 3 mins, 5+ yr NiCAD 51 ± 21 mins, and 5+ yr LI 120 ± 4 mins. There were significant differences in battery life in all cases, except between the 3 yr old NiMH and 5+ yr old LI batteries ($p < 0.05$).

ABSTRACT BODY: Discussion (Abstract Submission): To our knowledge, this is the first study to evaluate the service life of rechargeable laryngoscope batteries. All of the batteries tested demonstrated acceptable performance despite exceeding the manufacturers recommended 2 year life cycle. If a 25% light transmission ratio is assumed between the handle and fibre-optic blade, all batteries tested would produce well above the minimum 900 Lux required at the blade tip for direct laryngoscopic intubation(2) for sufficient time (i.e. 10-20 minutes) to facilitate intubation under routine clinical usage.

ABSTRACT BODY: References (Abstract Submission): Can J Anesth 1999 46:A13-A.
Acad Emerg Med 2007 14:496-9

(No Table Selected)

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CATEGORY: Airway Management

KEYWORDS: Laryngoscope, Rechargeable Battery, Light Intensity.

CONTROL ID: 794259

TITLE: PROPORTION OF UNDIAGNOSED OBSTRUCTIVE SLEEP APNEA IN A SURGICAL POPULATION

CONTACT (NAME ONLY): Mandeep Singh

CONTACT (INSTITUTION ONLY): University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Introduction: Obstructive sleep apnea (OSA) affects approximately 2-26% of general population (1), about 90% of whom remain undiagnosed (2). Since OSA is associated with an increased risk of perioperative complications, we conducted a single-centre cross-sectional study to evaluate the proportion of undiagnosed OSA in surgical patients.

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval, patients visiting preoperative clinics were approached. The 840 who gave consent subsequently underwent laboratory polysomnography (PSG) (n=240) or portable PSG at home with Embletta X-100 (n=600) preoperatively. Apnea-hypopnea index (AHI) was determined from PSG data, and severity of OSA categorized as mild (AHI >5 to ≤15), moderate (AHI >15 to ≤30) or severe OSA (AHI >30). These patients' charts were also reviewed to ascertain whether they had been diagnosed with OSA by surgeons and anesthesiologists. Of 840, 723 patients with complete data were included in the analysis. "Definite OSA" was defined as prior documented diagnosis of OSA based on a formal PSG study performed exclusive of this study, and "Probable OSA" as features suggesting presence of OSA based on clinical suspicion.

ABSTRACT BODY: Results (Abstract Submission): The sample, of which 52% (n=380) were female, had a mean age of 59 years (SD 13) and mean BMI of 31 kg/m2 (SD 7). The types of included surgery were mainly orthopedic (49%) and general (18%). Of the 723 patients included, 65% (n=473) had OSA based on PSG data (AHI>5). Notably, 84% (n=398) of these patients had reported at least one symptom either of snoring, daytime sleepiness or observed apnea while asleep.

Of the 473 patients who were found to have OSA on PSG testing, surgeons diagnosed 9.7% (n=46) with OSA, with 8.4% (n=40) having definite OSA and 1.3% (n=6) having probable OSA. Definite OSA was identified by surgeons in 5.5% (12/219), 9.8% (13/132) and 12.3% (15/122) patients having mild, moderate and severe OSA, respectively. Conversely, probable OSA was identified in only 0.9% (2/219), 0.8% (1/132) and 2.5% (3/122) patients with mild, moderate and severe OSA, respectively.

By comparison, of the 473 patients with OSA on PSG testing, anesthesiologists diagnosed 40.4% (n=191) with OSA, with 20.3% (n=96) having definitive OSA, and 20.1% (n=95) having probable OSA. Anesthesiologists identified definite OSA in 15.5% (34/219), 18.2% (24/132) and 31.2% (38/122) patients having mild, moderate and severe OSA, respectively.
Conversely, they identified probable OSA in 16.4% (36/219), 21.2% (28/132) and 25.4% (31/122) patients having mild, moderate and severe OSA, respectively.

Overall, 90.3% (n=427) of patients with OSA on PSG testing were not diagnosed by surgeons, whereas 59.6% (n=282) were not diagnosed by anesthesiologists.

ABSTRACT BODY: Discussion (Abstract Submission): Proportion of undiagnosed OSA remains high among patients awaiting elective surgery, ranging from 59.6% (diagnosis by anesthesiologists) to 90.3% (diagnosis by surgeons). More than 80% of the included patients had at least one symptom suggestive of OSA. Screening questionnaires may be useful in reducing the percentage of undiagnosed OSA among surgical patients.

ABSTRACT BODY: References (Abstract Submission): 1. Am.J.Respir.Crit Care Med. 2002; 165: 1217-39
2. Sleep 1997; 20: 705-6

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: obstructive sleep apnea, screening questionnaire, diagnosis.

CONTROL ID: 795025

TITLE: DO HIGH FFP: RBC RATIOS REDUCE MORTALITY IN CARDIAC SURGERY?

CONTACT (NAME ONLY): Mark McVey

CONTACT (INSTITUTION ONLY): University of Toronto, ON

ABSTRACT BODY: Introduction (Abstract Submission): Massive bleeding after cardiac surgery carries a heavy burden. Several trauma studies have recently found a survival advantage when high fresh frozen plasma (FFP) to red blood cell (RBC) ratios are used (1). There are currently no data on the effects of high FFP to RBC ratios in cardiac surgery. In this observational retrospective study, we investigated the relationship between the FFP to RBC ratio on mortality in bleeding cardiac surgical patients.

ABSTRACT BODY: Methods (Abstract Submission): Following institutional ethics board approval, data on consecutive patients who underwent cardiac surgery with cardiopulmonary bypass from 2000 and 2008 and received 5 or more RBCs within one-day of surgery were obtained. Excluded patients were: transfusion outliers (> 16 RBC or FFP transfusions) and early (within one day of surgery) deaths. The relationship between the FFP to RBC ratio (total number of FFP units transfused / total number of RBC units transfused within one day of surgery) and in-hospital mortality was measured, using multivariable logistic regression analysis to control for confounders (co-morbidities, surgical complexity, and postoperative coagulopathy).

ABSTRACT BODY: Results (Abstract Submission): Among the 17,118 patients examined, 1637 (9.6%) received 5 or more RBC transfusions within one day of surgery, 1422 (87%) of whom met the inclusion criteria of the study. Mortality rate was 6% (n = 87), FFP transfusion rate was 90% (n = 1274), and median FFP units transfused was 5 (IQR 2 – 8 units). The median FFP to RBC ratio was 0.75 (IQR 0.4 – 1.1). FFP to RBC ratios were higher in patients who died (0.88 versus 0.77; P = 0.04), but many prognostic variables were associated with FFP to RBC ratios (e.g., positive association between FFP to RBC ratio and redo surgery, complex cases, circulatory arrest, CPB duration, coagulopathy, and re-exploration). After controlling for important confounders, FFP to RBC ratios were not associated with mortality either as a continuous variable (odds ratio 1.3; 95% CI 0.8 – 2.2; P = 0.3) or categorical variable (≤ 1 versus < 1; odds ratio 1.0; 95% CI 0.6 – 1.8; P = 0.9).

ABSTRACT BODY: Discussion (Abstract Submission): In cardiac surgery, the FFP to RBC ratio does not seem to be independently associated with mortality. This finding differs from most trauma studies, where high FFP to RBC ratio is associated with reduced mortality (1). Trauma and cardiac surgery patients can differ considerably in terms of baseline hemodynamic stability and coagulation status at time of transfusion. The applicability of trauma massive transfusion practice to cardiac surgery based on the present examination appears limited.

ABSTRACT BODY: References (Abstract Submission): (1) Vox Sang 2009 DOI 10.1111/j.1423-0410.2009.01265.x

(No Table Selected)

(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: cardiac surgery, blood transfusion, massive blood loss.

CONTROL ID: 799776

TITLE: EFFECT OF SYSTEMIC STEROIDS ON POST-TONSILLECTOMY BLEEDING: A META-ANALYSIS

CONTACT (NAME ONLY): Jennifer Plante

CONTACT (INSTITUTION ONLY): Université Laval

ABSTRACT BODY: Introduction (Abstract Submission): More than two-thirds of children undergoing tonsillectomy will suffer from postoperative nausea and vomiting (PONV)(1). Systemic steroids (SS) are one of the recommended drugs to prevent PONV. However, a recent randomized controlled trial (RCT) showed an increased risk of post-tonsillectomy bleeding following intraoperative use of dexamethasone (2). The objective of this study was to evaluate the risk of postoperative bleeding following SS use in patients undergoing tonsillectomy by conducting a meta-analysis of RCTs.

ABSTRACT BODY: Methods (Abstract Submission): A systematic search was performed using MEDLINE, EMBASE, Cochrane Library, SCOPUS, Web-of-science, Intute and BIOSIS databases, while gray literature was searched using OpenSIGLE, NTIS and Google Scholar. References of identified reviews were also manually searched. All RCTs comparing the administration of SS during tonsillectomy with any other comparator were included. The primary outcome was any postoperative bleeding. Secondary outcomes were the need for reintervention, hospitalisation, blood transfusion and mortality. Two reviewers independently screened all citations and extracted data using a standardized form. We evaluated the methodological quality of studies using the Cochrane Collaboration tool for assessing the risk of bias (3). Data were presented as Odds Ratio (OR) and analyzed using peto fixed-effects models for rare events (4). An OR greater than 1 implies greater risk in the SS group, and an OR less than 1 implies greater risk in the control group. We assessed heterogeneity using I^2 values (5). A series of sensitivity analyses based on clinical features (surgical technique, dosage regimen, timing of bleeding) and on methodological features (methodological quality of studies, sample size, duration of follow-up) were performed to understand potential sources of heterogeneity, if present, and to evaluate the robustness of our findings.

ABSTRACT BODY: Results (Abstract Submission): From 1222 citations identified by the literature search, 25 trials (n=2201) met all eligibility criteria. Seven RCTs presented a low risk of bias, but none was designed to systematically measure postoperative bleeding. Administration of SS did not significantly increase the risk of post-tonsillectomy bleeding (OR 1.05, 95%CI = 0.69-1.62, I^2 = 12%). However, we observed a significant increased incidence of reintervention in SS group (OR 3.47, 95%CI = 1.34-9.01, I^2 = 0%). Results of sensitivity analyses were consistent with our findings. There was no difference in hospitalisation for bleeding. No transfusion or death was reported in any of the studies.

ABSTRACT BODY: Discussion (Abstract Submission): In our systematic review, we did not observe an increased risk of post-tonsillectomy bleeding following the administration of SS. However, there was an important and significant increased incidence of reintervention that may represent greater bleeding severity. The majority of studies was of limited methodological quality and did not systematically measure and report the risk of bleeding. Because of potential harm and the quality of evidence, SS should be used with caution for the prevention of PONV following tonsillectomy.

ABSTRACT BODY: References (Abstract Submission): 1. BJA 2006, 97: 593-604; 2. JAMA 2008, 300: 2621-30; 3. Cochrane Handbook for Systematic Reviews of Interventions, Version 5.0.2, 2008; 4. Prog Cardiovasc Dis 1985, 27(5): 335-71; 5. BMJ 2003, 327: 557-60.

(No Table Selected)

(No Image Selected)

CATEGORY: Patient Safety

KEYWORDS: steroids, tonsillectomy, bleeding.

CONTROL ID: 800013

TITLE: VARIABLE VENTILATION AND PULMONARY EDEMA CLEARANCE IN PORCINE ARDS

CONTACT (NAME ONLY): Ruth Graham

CONTACT (INSTITUTION ONLY): University of Manitoba

ABSTRACT BODY: Introduction (Abstract Submission): Resolution of acute respiratory distress syndrome (ARDS) requires clearance of pulmonary edema to restore lung function. Biologically variable ventilation (BVV)[1] may provide an alternative approach to ventilation, with improved aeration and clearance of edema. We used computed tomography (CT) imaging combined with measurements of extra vascular lung water (EVLW) and pulmonary edema clearance rates to test the hypothesis that edema clearance is enhanced with BVV compared to conventional control mode ventilation (CMV).

ABSTRACT BODY: Methods (Abstract Submission): With local Animal Care Committee Approval, sixteen pigs with oleic acid lung injury were randomized to 4 hours of ventilation with either CMV (n=8) or BVV (n=8) at the same average low tidal volume and minute ventilation. Hemodynamics, gas exchange, and lung mechanics were determined hourly. CT images were obtained at baseline lung injury and after 4 hours to determine lung weight and regional aeration[2]. EVLW was determined by single thermal indicator dilution (PiCCO) hourly[3]. Alveolar fluid clearance rate was determined by the change in edema protein concentration over 4 hours[4]. Wet and dry lung weights were determined post-mortem.

ABSTRACT BODY: Results (Abstract Submission): At 4 hours, peak airway pressure decreased and lung compliance improved significantly with BVV compared to CMV ($p < 0.005$). Hemodynamics and gas exchange were not different between groups. With BVV, CT determined total gas volume increased from 683 ± 146ml (SD) to 780 ± 146 ml ($p=0.001$) and total lung weight decreased from 510 ± 71(SD) to 482 ± 73 gm ($p=0.005$) at 4 hours. This was associated with a significant increase in the volume of normally aerated lung regions ($p=0.009$) and a significant decrease in poorly aerated and atelectatic lung regions ($p = 0.01, 0.02$). No change in gas volume, regional aeration or lung weight occurred with CMV over the same time period. CT derived lung weights correlated well with post-mortem wet weights ($WT_{CT}= 0.96\ WT_{wet} - 31.8$. $R^2=0.79$, $p<0.01$). PiCCO determined EVLW decreased to 11.4 ± 1.1 ml/kg with BVV vs 12.1 ± 2.7 ml/kg with CMV (NSD). EVLW was lower than and correlated poorly with wet weight ($R^2=0.14$) and this difference increased with increasing wet weight. Alveolar fluid clearance rate was positive (1.4 ± 3 % /hr) with BVV and negative with CMV (-2 ± 4 % /hr)(NSD).

ABSTRACT BODY: Discussion (Abstract Submission): In this porcine ARDS model, CT imaging suggests that BVV results in enhanced clearance of edema fluid with improved recruitment of atelectatic and poorly aerated lung regions compared to CMV. Less sensitive measurements of EVLW and edema clearance rate were consistent but not significantly different over this short 4 hour period. Enhanced edema clearance, associated with improved aeration and lung compliance provides further evidence for the benefit of BVV over conventional ventilation in ARDS.

ABSTRACT BODY: References (Abstract Submission): 1.Am J Respir Crit Care Med 2002;165:456-462.
2.Clin Chest Med 2006;27:559-570.
3.Crit Care Med 2006;34(5):1437-1443.
4.Am J Respir Crit Care Med 2001; 163:1376-1383

(No Table Selected)

(No Image Selected)

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: ARDS, Mechanical Ventilation, pulmonary edema.

CONTROL ID: 800979

TITLE: THE IMPACT OF ANESTHESIA ON GLYCINE ABSORPTION IN OPERATIVE HYSTEROSCOPY: A RANDOMIZED CONTROLLED STUDY.

CONTACT (NAME ONLY): Pascale Ouellet

CONTACT (INSTITUTION ONLY): Laval University

ABSTRACT BODY: Introduction (Abstract Submission): Operative hysteroscopy has now become a standard surgical treatment for abnormal uterine bleeding. This procedure requires distention of the uterine cavity for adequate visualization and glycine is a widely used distention medium. However, its intraoperative absorption can cause volume overload and water intoxication. It is therefore recommended to stop the surgery when glycine absorption is superior to 1000-1500 mL. Two recent studies suggest that the type of anesthesia has a role to play in the amount of glycine absorbed in this surgery[1-2]. The objective of this study was to compare two recommended types of anesthesia on intraoperative glycine absorption in operative hysteroscopy.

ABSTRACT BODY: Methods (Abstract Submission): A randomized control trial including 95 patients undergoing operative hysteroscopy for abnormal uterine bleeding was performed. Women were prospectively randomized in two groups: Group GA (general anesthesia) and Group LAS (local anesthesia with intravenous sedation). Randomization followed a computer-generated sequence sealed in pre-numbered opaque envelopes and was stratified accounting for patient's menopausal status. General anesthesia was maintained with sevoflurane and positive pressure ventilation; rocuronium and anti-nausea prophylaxis were allowed. Local anesthesia included a paracervical block and medication (midazolam, sufentanil, and propofol) was titrated for spontaneous ventilation and Ramsay score ≤ 4. All operative hysteroscopies consisted of endometrial resection including or not myomectomy and polypectomy and were performed by 3 gynecologists. A 1,5% glycine solution was used for irrigation at a flow rate up to 300 mL/min under continuous pressure. Pressure outflow was electronically controlled by an automatic surgical irrigator that also measured the fluid balance. The primary endpoint was median glycine absorption. Secondary endpoints included rate of absorption ≥ 1000 mL, surgery stopped because of excessive absorption, the incidence of postoperative hyponatremia and quality of recovery at 24 hours (SF-8 questionnaire). Based on a previous study[1], a sample size of 92 patients was calculated to obtain a difference of 100% (from 150 to 300 mL, standard deviation of 250 mL) between groups, accepting Type I and Type II errors of 5 and 20% respectively. Nonparametric analyses (Mann Whithney, Chi-Squared and Fisher's T test) were used to compare the 2 groups. Ethics Board approval was obtained before the beginning of the study.

ABSTRACT BODY: Results (Abstract Submission): From 142 eligible patients, 95 agreed to participate and were randomized. Women who underwent GA had higher median glycine absorption and were more likely to have glycine absorption ≥ 1000mL (see table). These findings were also confirmed by a greater natremia fall in the GA group.

ABSTRACT BODY: Discussion (Abstract Submission): When compared to general anesthesia, local anesthesia with intravenous sedation is associated with less glycine absorption and should be preferred as the anesthetic of choice in operative hysteroscopy.

ABSTRACT BODY: References (Abstract Submission): [1] Am J Obstet Gynecol 2001
[2]Am J Obstet Gynecol 2009

	AG group	LS group	P
Glycine absorption* (mL)	480 (76-1300)	253 (70-728)	0,01
Glycine absorption < 500 mL 500-1000 mL > 1000 mL	27(53%) 14(28%) 10(20%)	36(82%) 6(14%) 2(4%)	<0,01
Natremia fall*(mmol/L)	2(-0,8 à 8,8)	0,5(-2,5 à 3,5)	<0,01
Severe hyponatremia	1(2%)	0	1,0
Stopped surgery because of absorption	4(8%)	2(4%)	0,68

Median*(10th-90th percentile)

TABLE TITLE:

TABLE FOOTER:
Median*(10th-90th percentile)

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CATEGORY: Ambulatory Anesthesia
KEYWORDS: glycine, hysteroscopy.

CONTROL ID: 802855

TITLE: SINGLE VERSUS DOUBLE INJECTIONS FOR US-GUIDED SUPRACLAVICULAR BLOCK

CONTACT (NAME ONLY): Melanie Roy

CONTACT (INSTITUTION ONLY): Université Laval

ABSTRACT BODY: Introduction (Abstract Submission): Ultrasound–guided supraclavicular block (UGSB) using one or multiple injections of local anesthetics have been described[1]. Despite the fact that multiple injections is thought to provide faster onset of analgesia, there is no consensus on whether more than one injection should be used for UGSB[1]. To assess this hypothesis, we conducted a prospective randomized controlled study to compare the success rate of UGSB performed with single or double injections.

ABSTRACT BODY: Methods (Abstract Submission): Adult patients undergoing hand, wrist or elbow surgery were enrolled in this study following provision of informed consent. In group S, 30 mL of mepivacaine 1.5% were injected at the junction of the subclavian artery and the first rib. In group D, 15 mL of the same solution were injected at the site described above, and 15 mL were injected at the superior divisions of the brachial plexus. All UGSB were performed by certified anesthesiologists using an in-plane technique with a linear ultrasound probe (5-10 mHz) positioned parallel to the clavicle and adjusted to give a transverse view of the subclavian artery. The sensory block was evaluated every 3 minutes up to 30 minutes by an investigator blinded to the technique. Primary endpoint was the success rate of sensory block defined as anesthesia to cold in the ulnar, radial, medial and musculocutaneous nerves territories at 15 minutes. Secondary endpoints were the success rate of sensory and motor blocks at each evaluation time, procedure time, need for complementary anesthesia, complications, and incidence of temporary ipsilateral diaphragmatic paralysis evaluated by spirometry and echography[2]. A follow-up phone call was made at 24 h and 1 month. Statistical analyses were conducted using the Student t test for continuous data and the Fisher exact test for proportions. A sample size of 102 patients was required to detect an increase in success rate of sensory block from 65% (data from local experience) in group S to 90% in group D, accepting β and α error of 5% and 20% respectively. A $p<0.05$ was considered significant. The study was approved by our hospital REB.

ABSTRACT BODY: Results (Abstract Submission): The two groups of 51 patients were comparable. The rate of complete sensory block at 15 minutes was comparable between groups: 49% (IC95% 36-62%) in group S versus 53% (IC95% 40-66%) in group D ($p=0.8$). The rate of sensory and motor blocks was comparable between groups for each time intervals up to 30 minutes. The procedure time was shorter in group S (179±104 sec vs. 275±137 sec, $p<0.01$), but general anesthesia was required for five patients in this group as opposed to one in group D ($p=0.20$). The incidence of temporary diaphragmatic paralysis was 29% (IC95%19-43%) in group D and 18% (IC95% 10-30%) in group S ($p=0.24$). No complication was reported at follow-up.

ABSTRACT BODY: Discussion (Abstract Submission): These results did not confirm our hypothesis that the success rate of sensory block at 15 minutes of UGSB using a double injection technique is superior to a single injection technique. Thus, both techniques appear to be a reasonable choice to perform USGB.

ABSTRACT BODY: References (Abstract Submission): 1. Tran QH et al., Reg Anesth Pain Med 2009
2. Riazi S et al., Br J Anaesth 2008

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CATEGORY: Regional Anesthesia

KEYWORDS: ultrasound-guided supraclavicular block.

Residents' Competition

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802855

CONTROL ID: 790429

TITLE: MULTICENTERED TRIAL OF TEZOSENTAN IN CARDIAC SURGERY

CONTACT (NAME ONLY): André Denault

CONTACT (INSTITUTION ONLY): Montreal Heart Institute/Université de Montréal

ABSTRACT BODY: Introduction (Abstract Submission): Cardiopulmonary bypass (CPB)-induced elevations in circulating endothelin levels are associated with post-operative pulmonary hypertension (PH), right ventricular failure and increased patient mortality following cardiac surgery. These effects may acutely worsen pre-existing PH in patients undergoing cardiac surgery. Endothelin receptor antagonists, such as tezosentan, may mitigate CPB-induced PH, reducing the incidence of right ventricular failure and associated mortality.

ABSTRACT BODY: Methods (Abstract Submission): The protocol was reviewed and approved by the Research and Ethic Committees of each institution. Written informed consent was obtained from all patients. In this multicenter, double-blind, randomized, placebo-controlled trial, eligible patients aged ≤18 years with significant documented PH scheduled to undergo cardiac surgery were randomized (1:1) to receive i.v. tezosentan (5 mg/h) during surgery and afterwards for up to 24 hours (1 mg/h), or matched placebo infusion. The primary efficacy endpoint was the proportion of patients with clinically relevant right ventricular failure during weaning from CPB, which was assessed 30 min after the end of CPB. Safety was assessed by means of treatment-emergent adverse events, serious adverse events and deaths.

ABSTRACT BODY: Results (Abstract Submission): Two hundred and seventy-four patients received tezosentan (n = 133) or placebo (n = 141). There was no difference between the two groups with respect to the primary endpoint; 14 patients in the tezosentan group (10.5%) and 16 patients in the placebo group (11.3%) had clinically-relevant right ventricular failure (treatment effect: 0.07 [95% CI -0.83, 0.53; p = 0.8491]). Similarly, there was no difference between the percentage of patients who had a major clinical event, in the time to weaning from CPB or time from end of CPB to final discharge from intensive care. The incidence of treatment-emergent adverse events and serious adverse events was also comparable between the two groups and rarely led to discontinuation. None of the three deaths (tezosentan, n = 1; placebo, n = 2) that occurred within 24 h of weaning from CPB was considered related to study medication.

ABSTRACT BODY: Discussion (Abstract Submission): A reduction in clinically-relevant right ventricular failure with tezosentan was not observed in this study. Safety findings were consistent with those reported previously with tezosentan in patients with acute heart failure and there was no indication of adverse outcomes with tezosentan.

ABSTRACT BODY: References (Abstract Submission): N/A

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Pulmonary hypertension, Cardiac surgery.

CONTROL ID: 797703

TITLE: METHEMOGLOBIN AS A POTENTIAL BIOMARKER FOR ANEMIC STRESS: A ROLE OF NEURONAL NITRIC OXIDE SYNTHASE IN MICE

CONTACT (NAME ONLY): Albert Tsui

CONTACT (INSTITUTION ONLY): University of Toronto

ABSTRACT BODY: Introduction (Abstract Submission): Acute anemia is associated with increased risk of morbidity and mortality, but the underlying mechanism is undefined. Our laboratory had demonstrated increased hypoxic cellular molecules, such as neuronal nitric oxide synthase (nNOS), in the brain of anemic rodents. Additionally, we have also reported increased methemoglobin (MetHb) levels in rodents undergoing hemodilution. Since nitric oxide (NO) can lead to the formation of MetHb in blood, we hypothesize that nNOS-derived NO may contribute to the accumulation of MetHb blood in acute hemodilutional anemia.

ABSTRACT BODY: Methods (Abstract Submission): After obtaining Animal Care Committee approval, spontaneously breathing anesthetized (2% isoflurane in 21% oxygen) wildtype and nitric oxide synthase (NOS) deficient mice (neuronal; nNOS-/-, endothelial; eNOS-/- and inducible; iNOS -/-) underwent stepwise hemodilution with pentastarch until hemoglobin concentration reached near 50g/L. Co-oximetry (hemoglobin concentration, oxygen saturation, oxygen content, MetHb) and blood gases (pH, pCO2, pO2) were measured. Two-way ANOVA was used to assess statistical significance.

ABSTRACT BODY: Results (Abstract Submission): In wildtype mice, MetHb was increased (0.5 ± 0.7% vs 1.7 ± 0.9%; $p<0.05$) as hemoglobin concentration was reduced (133 ± 10g/L vs 50 ± 6g/L; $p<0.05$). However, anemic nNOS-/- mice failed to increase MetHb (0.3 ± 0.1% vs 0.5 ± 0.6%; NS). Additionally, MetHb of anemic eNOS-/- and iNOS-/- were not different than the wildtype mice. Compared to the wildtype, nNOS-/- mice have a significantly lower in PCO2 at baseline, but it was not different during hemodilution. No other differences in co-oximetry and blood gases were observed between groups.

ABSTRACT BODY: Discussion (Abstract Submission): The novel findings of this study were: 1) MetHb was increased proportional to the severity of anemia in mice during acute hemodilution, as evident in the wildtype mice; and 2) the increase in MetHb level was, in part, due to NO production via nNOS isoform as MetHb did not increase in nNOS-/- mice. The formation of MetHb is associated with increased NO bioavailability. Our results suggested a relationship between MetHb and NO level in anemia. Since MetHb can be readily measured in the blood, MetHb may serve as a potential biomarker to assess the degree of anemic stress.

ABSTRACT BODY: References (Abstract Submission): '

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(No Image Selected)

CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: anemia, neuronal nitric oxide synthase, methemoglobin.

CONTROL ID: 800610

TITLE: ISOFLURANE AND PROPOFOL SYNERGISTICALLY REDUCE POSTISCHEMIC TNF-ALPHA RELEASE WITH CPB

CONTACT (NAME ONLY): Zhengyuan Xia

CONTACT (INSTITUTION ONLY): University of Hong Kong

ABSTRACT BODY: Introduction (Abstract Submission): The pro-inflammatory cytokine tumor necrosis factor – alpha (TNF) is increased after cardiopulmonary bypass (CPB) (1). It plays an important role in the inflammatory processes after CPB and may induce and exacerbate cardiac and lung dysfunction. Experimentally, both isoflurane (2) and propofol (3) have been shown to be able to reduce TNF production. We hypothesized that joint isoflurane preconditioning and propofol treatment would synergistically reduce TNF production in patients undergoing coronary bypass surgery using CPB and attenuate postischemic myocardial injury.

ABSTRACT BODY: Methods (Abstract Submission): After institutional research ethics board approval, 120 patients selected for CABG surgery were randomly assigned to one of four groups (n=30 each). After induction, anesthesia was maintained either with fentanyl and midazolam (Control); with propofol at 100 micro gram/kg/min before and during CPB followed by propofol 60 micro gram/kg/min 15 min after aortic declamping (group-P); an inspired concentration of isoflurane 1%-1.5% throughout the surgery (Group-I); or an inspired concentration of isoflurane 1-1.5% before CPB switching to propofol at 100 micro gram/kg/min during CPB followed by propofol 60 micro gram/kg/min 15 min after aortic declamping (Group-IP). Statistical evaluation of patients' files and perioperative data was performed by unpaired Student's t-test or Chi-square test when appropriate. Between- and within-group differences of bio-assay data were analyzed using two-way analysis of variance with repeated measures and Bonferroni correction.

ABSTRACT BODY: Results (Abstract Submission): The duration of aortic cross-clamping and CPB as well as patient characteristics did not differ statistically among groups. Plasma levels of TNF, the pro-inflammatory cytokine interleukin-6 (IL-6), the lipid peroxidation end product malondyaldehyde (MDA) and cardiac troponin I all increased significantly 5 min after aortic declamping relative to baseline ($P<0.01$), and peaked 4 h after CPB. The level of TNF at 1 h after CPB in group IP, but not in groups I or P was lower than that in the control group ($P<0.05$), coincident with a more profound reduction of plasma levels of MDA and IL-6 in group IP than in groups I or P ($P<0.05$). At 4 h after CPB and onwards, plasma Troponin I in group IP was lower than that in groups P, I and control, coincident with more profound increase of cardiac index in group IP than in the control group ($P<0.05$). In addition, time to extubation and the duration of intensive care unit stay were shorter in group IP than in groups P and I ($P<0.05$) or control group ($P<0.01$).

ABSTRACT BODY: Discussion (Abstract Submission): A joint isoflurane and propofol anesthesia regimen synergistically reduces TNF production in patients undergoing coronary bypass surgery using CPB and attenuates postischemic myocardial injury.

ABSTRACT BODY: References (Abstract Submission): 1.Börgermann J. et al. Thorac Cardiovasc Surg. 2002;124(3):608-17.

2. Gu Q, et al. J Cardiovasc Pharmacol. 2006;48(6):320-8.

3. Chen RM, et al. Ann N Y Acad Sci. 2005;1042:262-71.

(No Table Selected)

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: Isoflurane, propofol, tumor necrosis factor-alpha.

CONTROL ID: 801994

TITLE: PRESSURE SUPPORT VENTILATION IMPROVES LUNG PROTECTION AND OXYGENATION AS COMPARED TO PRESSURE CONTROLLED VENTILATION IN A PORCINE MODEL OF EXPERIMENTAL LUNG INJURY

CONTACT (NAME ONLY): Peter Spieth

CONTACT (INSTITUTION ONLY): St. Michael´s Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Mechanical ventilation modes that allow spontaneous breathing activity are increasingly used in patients with acute lung injury/acute respiratory distress syndrome (ALI/ARDS). However, the effects of pressure support ventilation (PSV) on lung function and protection are not well investigated in comparison with the standard care of pressure controlled ventilation (PCV). We hypothesized that PSV, especially with variable pressure support levels (noisy PSV) is superior to PCV with respect to lung protection.

ABSTRACT BODY: Methods (Abstract Submission): After approval by the local animal care committee, ALI was induced in 36 anesthetized juvenile pigs by surfactant depletion. The animals were randomly assigned to three groups of mechanical ventilation for 1h or 6 h, respectively: 1) PCV; 2) PSV; 3) noisy PSV. Driving pressure and PEEP were set in all animals according to the ARDS Network protocol. Endpoints included lung mechanics, inflammation, spatial distribution of pulmonary blood flow (PBF) by using fluorescent labeled microspheres, and pulmonary aeration determined by computed tomography (CT). Parametric and non-parametric statistical tests were used as appropriate. $P<.05$ was considered statistically significant.

ABSTRACT BODY: Results (Abstract Submission): Compared to PCV, PSV and noisy PSV improved gas-exchange (Fig. 1), decreased peak and transpulmonary airway pressure, lowered tissue IL-6 levels, and reduced histological lung injury. CT analysis revealed less tidal reareation and hyperaeration with PSV and noisy PSV as compared to PCV. Combining CT and PBF findings, PSV and noisy PSV were associated with a redistribution of PBF from dorsal to ventral lung regions without alveolar recruitment. As compared to PSV, noisy PSV further improved gas-exchange, reduced inspiratory effort, decreased inflammatory and alveolar edema and infiltration, and resulted in redistribution of PBF from caudal to cranial zones.

ABSTRACT BODY: Discussion (Abstract Submission): The application of PSV and especially noisy PSV attenuated lung injury and improved oxygenation by enhanced matching of ventilation and perfusion as compared to PCV. Our results suggest that induction of spontaneous breathing with PSV and noisy PSV may be superior to the standard ventilator strategies by reducing airway pressures and pulmonary inflammatory responses.

ABSTRACT BODY: References (Abstract Submission): N/A

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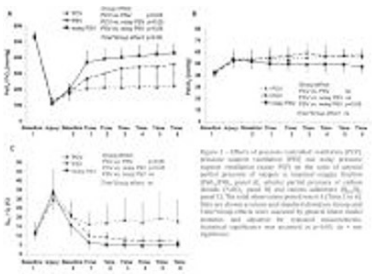

IMAGE CAPTION:

CATEGORY: Critical Care Medicine and Trauma

KEYWORDS: Acute Lung Injury, Mechanical Ventilation, Assisted Spontaneous Breathing.

CONTROL ID: 802585

TITLE: ACE INHIITORS REDUCE 30 DAY MORTALITY AFTER NON-CARDIAC SURGERY

CONTACT (NAME ONLY): Jo Carroll

CONTACT (INSTITUTION ONLY): Toronto General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Despite the widespread use of ACE inhibitors in patients coming for major non-cardiac surgery, there is little data to guide the clinical practice in the perioperative period. Current clinical guidelines suggest that they be withdrawn on the day of surgery due the propensity for these patients to experience hypotension. We therefore carried out a retrospective cohort analysis of the effect of ACE inhibitors on 30 day in-hospital mortality of all non-cardiac surgical patients for a 6 year period from Jan 1, 2003 to Dec 31, 2008.

ABSTRACT BODY: Methods (Abstract Submission): Following REB approval, we accessed our surgical booking system (ORSOS) to identify all patients coming for non cardiac surgery. We then retrieved data on surgical procedures, demographics and survival, medication administration and laboratory results for all patients from electronic records stored in an Enterprise Data Warehouse. The effect of ACE inhibitors on 30 day mortality was carried out using logistic regression adjusting for important covariates. Classification of the co-morbidities was done utilizing the methodology of Quan et al (1). In a secondary analysis, we assessed the effects of perioperative ACE inhibitors by creating a propensity score matched pairs cohort where the all known co-morbidities were balanced. SAS v 9.0 was used for all analyses.

ABSTRACT BODY: Results (Abstract Submission): In this cohort of 61,420 consecutive surgical patients 7339 (12%) of patients were receiving ACE inhibitors as indicated by their administration in the immediate postoperative period. There was no change in the percentage of patients receiving ACE inhibitors over the 6 years of the study (range 11.4-12.2%). In our primary analysis using logistic regression, we found that ACE inhibitors, given in the immediate postoperative period, were associated with a reduction in all cause mortality (OR 0.54 95% CI 0.42-0.69) $p<0.0001$. The logistic regression model was accurate (ROC= 0.82) and well calibrated Hosmer-Lemenshow = 0.52). In a sensitivity analysis 2 cohorts of 5822 pairs were created using propensity score matching (79% of patients receiving ACE inhibitors were matched). These 2 cohorts were balanced for demographics, type of surgery, the types and number of co-morbidities, and other pertinent drug use (β-blockers, statins, calcium channel blockers, ASA, and ARB's) (median standardized mean difference was 0; range -3.7 to 3.1) A difference of less than 10% is considered acceptable. The beneficial effects of ACE inhibitors was confirmed in the propensity matched cohort (HR 0.59 95% CI 0.44-0.71). The protective effect of ACE inhibitors was seen across all Charlson co-morbidity classes. (Breslow-Day)

ABSTRACT BODY: Discussion (Abstract Submission): The chronic use of ACE inhibitors in patients presenting for non-cardiac surgery is associated with a reduction in 30 day mortality. Although we do not have information about withdrawal prior to surgery, the protective effect was shown across all patients on ACE inhibitors. The practice of withdrawing ACE inhibitors preoperatively may need to be carefully examined. Further studies on the perioperative use of ACE inhibitors are urgently required.

ABSTRACT BODY: References (Abstract Submission): 1. Quan et al Medical Care 2005, vol 43 pg 1130

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CATEGORY: Cardiothoracic & Vascular: Basic Science & Clinical

KEYWORDS: ACE Inhibitors, Mortality, Non Cardiac Surgery.

CONTROL ID: 802692

TITLE: CHRONIC PERIOPERATIVE BETA BLOCKADE IS SUPERIOR TO ACUTE POSTOPERATIVE BETA BLOCKADE

CONTACT (NAME ONLY): Jo Carroll

CONTACT (INSTITUTION ONLY): Toronto General Hospital

ABSTRACT BODY: Introduction (Abstract Submission): Despite the results of POISE, the ACC/AHA recommends the prophylactic use of beta-blockers for cardiac risk reduction in moderate to high-risk patients undergoing elective non-cardiac surgery. In light of the DECREASE studies, it has been proposed that chronic beta blockade may be superior to the acute use of beta blockers. There are no studies which make a direct comparison between chronic and acute dosing. This report uses a propensity score matched cohort design to compare the effects of chronic beta blockade to beta blockers started on the day of surgery

ABSTRACT BODY: Methods (Abstract Submission): After obtaining REB approval, we prospectively collected a detailed preoperative history utilizing an electronic structured questionnaire on 5455 consecutive elective non-cardiac surgical patients between April 1 2008 and March 30 2009. This dataset includes patient demographics, type of surgery, history of previous anesthesia and surgery, co-morbidities, medications, allergies, past non-invasive investigations, and laboratory tests. The data was linked to the Enterprise Electronic Data Warehouse, containing data on postoperative drug use, laboratory results, length of stay and mortality. The primary outcome was the incidence of MACE, a composite that included myocardial infarction, nonfatal cardiac arrest and in-hospital mortality. Myocardial infarction was defined as postoperative troponin I levels > 0.7 mg/L. Propensity scores estimating the probability of receiving a preoperative beta blocker were estimated using a logistic regression model. Patient receiving preoperative beta blockers were then matched 1:1 with patients where beta blockers were initiated in the postoperative period. For matching, we included the following variables: type of surgery, gender, height, weight, preoperative history of coronary disease, congestive heart failure, diabetes, the calculated Revised Cardiac Risk Index, hypertension, and cancer. Preoperative drug treatment with calcium channel blocker, ACE inhibitors, ASA and statins were also included. The type of beta blockers was also balanced in the propensity score. Comparisons between the matched pairs were made using conditional logistic regression analysis. SAS v 9.1 was used for all analyses.

ABSTRACT BODY: Results (Abstract Submission): Eighteen percent of patients were taking preoperative beta blockers and there were 250 patients who received acute postoperative beta blockade. Propensity matching created a cohort of 202 pairs that were well balanced for the known measured confounders. 55% of the patients were at moderate to high risk of cardiac morbidity. The composite outcome was observed in 6 (3.0%) chronic versus 15 (7.4%) acute patients. (RR 2.8; 95% CI 1.01 – 7.8; p = 0.048). Myocardial infarction occurred in 5(2.5%) chronic and 15 (7.4%) acute beta-blocked patients within 24 h of surgery (relative risk 3.5; 95% CI 1.2 - 10.6; p = 0.028).

ABSTRACT BODY: Discussion (Abstract Submission): Beta-blockade started within 24h of surgery does not appear to possess the magnitude of cardio-protective effects that are evident in patients who present to surgery on chronic beta blockade.

ABSTRACT BODY: References (Abstract Submission): NA

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CATEGORY: Pharmacology: Basic Science and Clinical

KEYWORDS: Beta Blocker, Postoperative Myocardial Infarction, Elective non cardiac surgery.

Richard Knill

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