**82667 - PERIOPERATIVE MANAGEMENT OF RENIN ANGIOTENSIN SYSTEM ANTAGONISTS**

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**Introduction**: Blockade of the renin angiotensin system (RAS) with ACE inhibitors (ACEi) or Angiotensin II receptor blockers (ARBs) is common in patients being treated for hypertension and cardiovascular disease [1]. Evidence is limited to guide anesthesiologists in the management of these drugs in the preoperative period [2]. Practice ranges from stopping or continuing these drugs on every patient, to decisions made on a case by case basis [3,4,5]. This study sought to identify the current practice of anesthesiologists and internal medicine specialists in the management of RAS blockers in the preoperative period to assist with the development of guidelines at our institution.

**Methods**: Application of our institution’s ethics tool indicated a full ethics review was not required. 102 email invitations to complete the online 15 question survey were sent to anesthesiologists (ANES) and pre-op clinic internists (IM) in our region.

**Results**: 77.5% of ANES and 21.5% of IM completed the survey. Regarding management of ACEi pre-operatively 16.5%, 16.5%, and 67% of ANES would always stop, would never stop, and would decide according to patient and procedure conditions, respectively, compared to 13.6%, 0%, and 86.4% of IM.

71.3% of respondents approach ACEi and ARBs similarly. Of those who manage them differently, 44% would always stop ARBs.

Rationale driving management included evidence from the literature (60.4%), and personal experience with difficult perioperative blood pressure control (64.9%). Significantly (p < 0.05) greater proportions of ANES cited simplicity of patient instruction as a factor (25.3% ANES vs 6.8% IM), but a greater proportion of IM noted that their rationale was driven by institutional expectation (29.5%IM vs 7% ANES).

Patient and procedure factors associated with the decision to hold RAS blockers were use of neuraxial block, with or without GA (71.6%), carotid surgery (62.5%), anticipated blood loss (77.8%), and perioperative fluid restriction (64%). The decision to give RAS blockers was most likely when sedation only was planned (67%). Ambulatory surgery had no influence as a factor.
75% and 82% of ANES and IM respectively would support development of a policy on preoperative management of RAS blockers. Of these, 78% of ANES vs 53% of IM (p < 0.05) would continue to support the policy if it were nurse administered without physician input for each patient. 55% of the respondents supporting the nurse administered policy make their decision regarding preoperative management based on patient and procedural factors themselves.

**Discussion:** There exists a broad range of practice in the preoperative management of RAS blockers. The majority of anesthesiologists and internists use patient and procedure factors to guide their decisions. While there is support for institutional guidelines for management, support decreases if these guidelines are being applied without direct physician input, perhaps reflecting that most physicians manage these drugs on a case by case basis.

**References:**
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83021 - PERIOPERATIVE INTRAVENOUS FLUID VOLUME PROLONGS SURGICAL RECOVERY

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Introduction:

In major abdominal surgery, it is common practice to administer intravenous fluids perioperatively to adjust for acute changes in fluid hemodynamics and hypotension. However, emerging evidence suggests that the volume of intravenous fluids administered is an important risk factor for postoperative complications and prolonged length of hospital stay (Corcoran et al. 2012). Our objective was to determine if perioperative intravenous fluid volume is associated with length of hospital stay (LOS) and complications after colorectal surgery.

Methods:

After obtaining the appropriate Research Ethics Board approval, data were retrospectively collected on adult patients who underwent inpatient colorectal surgery from 2008-2013. The primary outcome was prolonged LOS, defined as a LOS above the median (8.2 days). Secondary outcomes investigated included post-operative complications (pulmonary edema, acute renal failure and myocardial infarction) and postoperative death. The impact of fluid volume on LOS was examined using multivariable logistic regression. Surgical, anesthetic and patient variables were included in the model. Intravenous fluids included normal saline, balanced salts, hydroxyethyl starch and albumin (5%).

Results:

During the study period, 1,615 patients underwent colorectal surgery and complete perioperative data was available for 1,242 patients. The majority of these cases were elective (57.4%) oncology cases with Charlson Comorbidity Index (CCI) ≥ 3 in 9.3%. The volume (L) of intravenous perioperative fluids administered was independently
associated with an increased probability of prolonged length of hospital stay, with an odds ratio of 1.31 (95% CI, 1.19-1.45, p < 0.01). In addition to fluid volume, four other risk factors were found to be associated with prolonged LOS: age > 65, CCI ≥ 3, estimated blood loss > 200mL, and emergent surgical cases. Goodness of fit was assessed using a receiver operating characteristic (ROC) curve with a C statistic of 0.78 and Hosmer-Lemshow statistic of 0.67. Postoperative morbidity was associated with prolonged LOS, but the number of adverse events was not sufficient in order to investigate the association of these secondary outcomes with perioperative intravenous fluid therapy, independent of the effect of perioperative intravenous fluids on LOS.

Discussion:

Larger volumes of intravenous fluids administered perioperatively are independently associated with increased LOS after colorectal surgery. While additional studies are required to demonstrate a causal relationship, the volume of intravenous fluid administered in the perioperative period is an important, modifiable potential risk factor for prolonged LOS that deserves further investigation. Further studies may also shed light on possible associations between perioperative intravenous fluid therapy and postoperative adverse events (morbidity), independent of their possible effect on morbidity indirectly through increased LOS.

References:
Introduction: Anaphylaxis is a Type I immunoglobulin (Ig)E-mediated hypersensitivity reaction involving mast cells and basophils. The incidence during the perioperative period is estimated to range from 1 in 3,500 to 1 in 13,000 cases.1 Though rare, hypersensitivity reactions occurring during anesthesia can rapidly evolve into life-threatening anaphylaxis. The most common agents known to cause hypersensitivity reactions are muscle relaxants, latex, and antibiotics.2 Although benzodiazepines are considered safe from hypersensitivity reactions, a review of the literature has described rare case reports outside North America.3 4 5 Here, I report a case of midazolam hypersensitivity, and discuss the important role of perioperative follow-up to avoid re-exposure.

Case Presentation: A 51-year-old caucasian male; 98Kg and 175cm, was scheduled to undergo surgery for a left Femur biopsy, and the placement of an intra-medullary stabilizing rod secondary to impending pathologic fracture. Five minutes following induction of general anesthesia and surgical draping, the patient was found to have severe refractory hypotension. There were no cutaneous or bronchial signs of a hyperreactivity reaction. Intra-operative and subsequent work-up failed to determine any cardio-respiratory or equipment related causes for this presentation. The hypotension responded immediately to the titration of intravenous epinephrine. Anaphylaxis was the diagnosis of exclusion owing to the profoundness of his hypotension. His case was cancelled with the knowledge that a repeat OR was required. Post-operative work-up of anaphylaxis and a referral to an allergist was sought. Intradermal Skin Testing (IDT) at 4 weeks showed that Midazolam was the sole reagent that tested positively in-vivo for an allergic reaction.

Conclusion: The perioperative period is a unique environment wherein a myriad of exposures and parenteral drugs are encountered that may lead to an adverse reaction. Anesthetists are more likely to encounter and manage immediate hypersensitivity reactions than other physicians. Given the rapidity with which a life-threatening situation can occur, the mechanisms, therapy, and investigations of allergic responses should be familiar to every anesthetist. The perioperative management should focus on developing an approach to reduce its incidence by identifying potential allergens prior to subsequent anesthetics. Prevention is paramount to decrease the occurrence of anaphylaxis. Close collaboration and consultation between the allergist and anesthesiologist is a key goal when investigating an allergy. A validated protocol should be used. Recent guidelines have been published in an effort to standardize the
investigation of presumed anaphylaxis. Documentation of events leading to anaphylaxis, immediate laboratory investigations, referral to an allergist, as well as appropriate labeling of the patient are essential to prevent future episodes. Failure of the above measures may lead to unnecessary fatal re-exposure.

References:


83706 - PREVALENCE OF FATIGUE RELATED RISK AMONG LOCAL ANESTHESIA RESIDENTS

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Introduction: An anesthesiologist must be vigilant during his shift to provide good care. Despite this fact, anesthetists are working long hours without structured support programs which is negatively affecting their mood, cognitive function and alertness. Several measures were acknowledged by the Joint Commission to ensure alert and watchful anesthesiologist before putting patients to sleep. (1) Hospital administrations are recommended to enforce such measures to decrease fatigue related risk. This study is taking the first step for our local anesthesia residents, which is evaluating fatigue related risk.

Objective: To estimate prevalence of fatigue related risk among anesthesia residents in our country.

Methods: After local ethical approval has been obtained, all anesthesia residents were invited to voluntary participate. We have conducted a self-reporting survey that includes demographic data, Epworth sleepiness scale (ESS) and two scales to assess fatigue related risk. The first scale used is a Checklist for Individual Strength (CIS) that has been validated to assess fatigue in the working population. (2) The second is a predefined comprehensive fatigue risk assessment that was previously developed by the Australian Medical Association (AMA). (3)

Results: We received 102 responses, with more than half of the sample were at elevated risk of fatigue according to CIS measures and 58.6% (n=92) of the participants are excessively sleepy on ESS. On AMA risk assessment of work patterns 35% of the participants (n=60) were at moderate risk of fatigue and quarter of them are at higher risk.

Discussion and Conclusion: Our sample can be labeled to be fatigued and sleepy. Also, our population had a higher score in being excessive sleepy than general health care workers (59.78% vs. 39.3% representative sample in 3 hospitals locally) (4). Concluding that, such difference could be owed to the different type of population. Statistical analysis demonstrated that although the residents are fatigued, more than half of the resident were feeling motivated (62.54%). Being motivated wasn’t enough to alter the overall risk of fatigability in our population.
All three scales suggest presence of fatigue related risk. This could be multifactorial; explained by long shifts, cultural and lifestyle habits. In the conference, we will explain our recommendation to start a Residents Well-Being Program to decrease fatigue, and increase awareness of healthy sleeping habits. Therefore, ensuring residents remain physically and mentally healthy and subsequently safer healthcare for our patients.

References:

AIRWAY INJURY AFTER DIFFICULT INTUBATION UNDER ANAESTHESIA

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Background: Airway related complications arising from difficult endotracheal intubations can cause significant morbidity. This study was designed to assess the rate of airway related complications associated with difficult endotracheal intubations during anesthesia at our institution and compare it with the complications rate reported in literature. This study was carried out at two acute care facilities in a specific urban location. The results are important as they may lead to initiatives to improve health outcomes for patients with difficult endotracheal intubations.

Methods: After appropriate ethics approval, all entries between Feb 1st, 2009 - March 31st, 2014 were retrieved from the difficult airway database of the Department of Anesthesia. Out of 216 patients contacted via phone 104 patients agreed to participate. After providing verbal consent participants answered a 5 - question survey about any airway related complications arising up to 72 hours postextubation. Additionally a retrospective chart review of the participating patients was completed. Data was analyzed using descriptive statistics, chi square tests and correlations.

Results: Sore throat (47.1%) and hoarseness (39.2%) were the most commonly observed complications. The average number of intubation attempts was 2.4. Video laryngoscopy was associated with the highest rate of success. Out of the 350 reasons listed BMI > 25, limited mouth opening, and Mallampati classification > II were the top three reasons for being difficult to intubate. Being male ($\chi^2 (1)=6.6$, $p = .01$, Phi=.25) or having a GI/GU surgical procedure ($\chi^2 (4)= 14.97$, $p = .005$, Cramer’s V = .38) were associated with lower rates of complication. Hoarseness was more commonly observed in females ($\chi^2 (1)= 5.18$, $p = .02$, Phi=.23) and after Cardiothoracic surgeries ($\chi^2 (4)=11.94$, $p=.02$, Cramer’s V=.34).

Discussion: The rate of complications for sore throat, hoarseness, pharyngeal lacerations, vocal cord paralysis, and broken/chipped teeth were all comparable or lower than what is reported in the literature except, laryngeal nerve damage which was greater. We also found that being male, overweight, or having a GI/GU surgical procedure was associated with lower rates of complications. Given the small cohort size and retrospective design of study, caution should be exercised in generalizing the results. A prospective study with a larger sample size can further examine the interplay of various factors on severity and duration of airway injury related to difficult airway management during general anesthesia.
References:

2. Anesthesiology 2004 100: 1146-50
3. Anesthesiology 1999 91: 1703-11
4. CEACCP 2006 6(2): 67-70
Introduction: Seminal work by Maltby and others in the 1980s and 1990s demonstrated that clear fluids are cleared from the stomach within 2 – 3 hours, thus negating the need for long periods of fasting (1). Recent evidence suggests that starvation – "NPO from midnight" – for clear liquids is not only unnecessary to allow for gastric emptying, but could also have deleterious effects in the peri-operative period (2). The widespread adoption of these evidence-based fasting guidelines has been slow. We present data from a recent survey of anesthesiologists from Canada, Australia, and New Zealand (ANZ) to determine current practices and perceptions around fasting guidelines.

Methods: Local ethics committee approval was obtained. An anonymous electronic survey was created using a web-based survey company. Practicing anesthesiologists were solicited by email via provincial and national anesthesia societies.

Results: 834 anesthesiologists (659 Canada; 175 ANZ) agreed to participate in the survey. Fasting guidelines were determined by an anesthesiologist in 89% of hospitals in all countries; however, they were generally provided to patients by the preoperative clinic nurse (86.8% Canadian, 76.6% ANZ), and 34% of patients were informed by their surgeon. The majority (85%) of respondents followed society fasting guidelines. Preoperative fluids were encouraged by 46% of Canadian anesthesiologists compared to 64% of ANZ anesthesiologists. Reasons cited included a variable OR schedule (30.2% Canadian; 25.1% ANZ), and fear that the practice could not be safely implemented (21.1% Canadian; 14.2% ANZ). 23% of Canadians allowed patients to have solid food 6 – 8 hours before surgery, but 83% of ANZ physicians allowed this practice. Less than 1% of respondents stated they had ever seen a peri-operative aspiration event, yet more than 5% had seen adverse events from dehydration, and hypoglycemia. The majority of anesthesiologists reported having patients comment on enforced fasting prior to surgery (28.4% frequently; 58.4% rarely).
Discussion: Modern fasting guidelines allow for intake of fluids prior to surgery, yet clinical practice lags behind current recommendations. Despite the majority of anaesthesiologists indicating that they follow current fasting guidelines, less than half of them encourage their patients to drink liquids prior to 3 hours to OR, citing variability of OR times, and perception around patient safety, as reasons. Interestingly, the majority of ANZ anesthesiologists are comfortable with a light breakfast the morning of surgery (compared to less than 10% of Canadian anesthesiologists); this is likely due to the fixed morning and afternoon operating room schedule. Given increasing ambulatory surgery, enhanced post-operative recovery programs (such as ERAS), and potential detrimental effects of fasting from midnight, we hope our survey will help reveal ways in which traditional fasting policies can be changed to follow more current guidelines. We are investigating by expanding the survey to Europe and other countries.

References:


Introduction: In 2013, our perioperative patient safety committee identified a cluster of adverse event reports involving bed bracket failures. Bed brackets are devices that are clamped onto the operating room (OR) table to secure bed attachment equipment, such as lithotomy stirrups. Bracket failures are defined as the bracket (and the accompanying bed attachment equipment) falling off while in use, potentially causing serious patient injury.

Our initial goals were to investigate the frequency of bracket failures and identify contributing factors. The ultimate goal was to institute and monitor changes that would reduce bracket failures.

Methods: Local Ethics Committee approval was sought and waived. A multidisciplinary meeting was held to identify contributing factors. OR Nurses and OR Attendants at two sites of our hospital were also consulted at nursing rounds. Surveys were distributed and collected during these rounds, which resulted in equipment changes and new training protocols. Follow-up rounds and a repeat survey were conducted 3 months post intervention. Odds ratio and confidence interval (CI) were calculated using Microsoft Excel.

Results: Contributing factors identified included: 1) lack of sufficient training in bracket usage, 2) non user-friendly brackets, and 3) wide variety of bracket types (seven different types of brackets, each with distinct features).

The initial survey generated 91 responses (100% response rate). 29% of respondents had witnessed a bracket failure in the past 3 months. 13% of respondents reported receiving training in bracket usage. 35% felt the brackets were user-friendly, 78% felt there were too many types of brackets, and 33% felt comfortable using the brackets.

Our initial analysis led to the acquisition of new, user-friendly brackets, limited to two types. This initiative, implemented in September 2014, was followed by a widespread education campaign on proper bracket usage.

The follow-up survey generated 73 responses (92% response rate). 22% of respondents had witnessed a bracket failure in the past 3 months. 67% of respondents reported receiving training in bracket usage and 52% felt comfortable using the brackets.
(Figure 1). Survey respondents were 2.2 times more likely (Odds ratio 2.2, 95% CI 1.17-4.16) to feel comfortable using the brackets after the training initiative.

**Discussion:** Our initial survey results suggests that bracket failures were more frequent than previously thought. The comfort level in equipment usage was lower than expected, possibly due to a high variability in bracket types and low training rates. The follow-up survey demonstrated an improvement in comfort level and reduction in bracket failures. The variability between sites in bracket training rates suggests a relationship between training, comfort level, and reported witnessed bracket failures.

The education campaign will continue until achieving a training rate of 100%. Another survey will be conducted 6 months post implementation of the new brackets.
Introduction: Transanal minimally invasive surgery (TAMIS) is a technique first developed in 2009 for local excision of appropriately selected low-grade rectal neoplasia. Since its initial description, it has been used increasingly in the United States and internationally as an alternative to local excision and transanal endoscopic microsurgery for local excision of distal and mid rectum neoplasms.

We present a case of surgical emphysema, hypercarbia & pneumomediastinum that occurred during (TAMIS), which led to postoperative intensive care unit (ICU) admission. To the best of our knowledge, these complications have never been reported to occur during TAMIS.

Case Report: An 81-year-old woman was diagnosed with rectal adenocarcinoma. On MRI, the tumor was staged as a T2 N0 tumor. Although the surgeon recommended a low anterior resection as the standard care of T2 tumor, the patient elected to proceed with TAMIS given its decreased morbidity compared to major intra-abdominal procedure. Patient's informed consent was obtained.

In the operating room, standard monitoring was applied. Anesthesia was induced after adequate pre-oxygenation. The patient was positioned in the lithotomy position. TAMIS port was inserted. Pneumorectum was applied by insufflation of CO2 at a rate of 3 L/min with an insufflation pressure of 15 to 20 mmHg. The lesion included about 40% of the rectum circumference. As the rectum kept collapsing, the insufflation pressure needed to be increased by a few mmHg briefly. Eventually the tumor was excised. The defect was closed in running fashion.

Before the end of the surgery, the airway pressure and the end tidal CO2 began to increase. Chest auscultation revealed bilateral wheeze and ventolin was given through the ETT. The ventilation parameters were changed. 10 minutes later as the surgery concluded a significant amount of subcutaneous emphysema was noted on the face, neck and chest. End tidal CO2 continued to rise to 67 mmHg despite attempts to increase minute ventilation. The patient’s hemodynamics were stable. Arterial blood gases (ABGs) revealed a pH of 7.07 and a pCO2 of 112 mmHg. Given the amount of emphysema and the high pCO2, the patient remained sedated and intubated, and was transferred to the ICU.
In the ICU, Chest X-ray revealed diffuse subcutaneous emphysema and evidence of pneumomediastinum. There was no definite pneumothorax. After a few hours of ventilation, the emphysema began to resolve. Further laboratory investigations revealed a normalizing ABGs with a pH of 7.38 and a pCO2 of 50 mmHg. There were no signs of rectal perforation. The patient was extubated and then discharged from the ICU with no further complications.

**Discussion:** Postoperative complications following TAMIS are often mild, but serious complications may occur. Emphysema from extra-peritoneal insufflation of CO2 during TAMIS could be a result of raised insufflation pressures, in combination with full thickness excision, causing decreased tissue integrity \(^2,3\).

Once insufflation has stopped the CO2 should theoretically reabsorb. However, delayed hypercarbia may occur after the procedure, and respiratory failure may develop\(^3\). As such, prolonged patient ventilation and monitoring in an appropriate setting should be considered.

**References:**


**85562 - QUALITY OF RECOVERY IN PATIENTS UNDERGOING MAJOR SURGERIES**

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**Introduction:** Post-operative quality of recovery is an important composite outcome tightly correlated with best care practices¹. ERAS society and the Postoperative Quality Recovery Scale (PQRS) define recovery as a return to baseline scores in all the domains implicated in daily living: physical, social and psychological functions². In order to advance our understanding of the areas that need improvements, we designed a descriptive study aiming to describe the characteristics and patterns of recovery in patients undergoing major abdominal, thoracic and orthopedic surgeries; as measurement tool we used the PQRS, a validated scale for assessing quality recovery³.

**Methods:** After obtaining Institutional Ethics Committee approval, 130 patients, age 20 to 89, undergoing major surgeries were enrolled in our prospective longitudinal descriptive study. The PQRS questionnaire was administered pre-operatively, as a measurement for the patient's baseline, as well as 40 minutes, 1 day, 3 days and 1 month post-operatively. While in the hospital, the questionnaire was conducted face-to-face, whereas following discharge from the hospital it was obtained via telephone. Patients’ baseline demographics and potentially confounding perioperative factors were collected. Data are presented as mean ± SD for continuous data and as percentage for categorical data. Recovery was obtained through the PQRS website calculation tool. Overall recovery, as well as recovery in each domain was obtained. A Pearson's chi-squared test was used to compare patients who recovered to whose who did not return to baseline characteristics after surgery. p < 0.05 was considered statistically significant.

**Results:** Our preliminary analysis finds that overall recovery at 1 month was the best in urological patients, although, even for those, only 50% of the assessed patients fully recovered. When looking at individual domains though, most of the patients recovered in the physiological, ADL and cognitive domains. The domains that skewed the overall recovery towards such a low percentage were the nociceptive and the emotional ones. Age, sex, type of anesthetics and length of surgery did not impact recovery. Patients enrolled in the enhanced recovery after surgery program were more likely to recover after surgery. Preoperative depression, pre-existing medical conditions with high ASA grade, poor postoperative pain control and postoperative complications were independent predictor factors for low quality of recovery after surgery.
**Discussion:** To our knowledge, this is the first study analyzing the quality of recovery in a large number of patients undergoing different major surgeries. The preliminary results of our study are consistent with the literature: the ERAS program and good postoperative pain control are already proven benefits in improving the quality of recovery after surgery\(^4,5\). The study confirmed the ability of PQRS to discriminate recovery in each domain and highlighted the need of finding specific strategies to improve the quality of recovery after each types of surgery, adapted to the particular patient's profile.

**References:**
Introduction: The overall incidence of post-operative complications is 10% and high-risk emergent surgery patients are associated with 30-day mortality rates of 9-18%. This may be in part due to difficulty in stratifying post-surgical patients appropriately within a two destination, ward vs. ICU, model of care. We hypothesize that the institution of an intermediate, third level of care (termed surgical special care unit, or SSCU) improves the surveillance of at-risk surgical patients and may lead to global improvements across surgical patient outcomes. Although a universal definition of SSCUs does not exist, they generally provide continuous monitoring, a high nurse:patient ratio, and intensive medical care in the absence of mechanical ventilation. Our systematic review is designed to answer the question, "In adult non-cardiac surgical patients does a three-level model of care delivery (i.e. ward, SSCU, ICU) compared to a two-level model of care (i.e. ward, ICU) affect post-operative mortality (in-hospital deaths or 30 day mortality)?"

Methods: Ethics approval was not required as this is a review of published literature. The protocol for this systematic review will be registered with PROSPERO. A systematic search of Medline, CINAHL, Embase, and the Cochrane library has been designed in collaboration with an information specialist, and a Peer Review of Electronic Search Strategy (PRESS) review of the strategy has been performed. The 2139 returned citations will be screened and data extracted in independently by two reviewers using piloted datasheets in DistillerSR. Disagreements between reviewers will be resolved through discussion with a senior team member. We will compare exposure to a two-level care model to exposure to a three level care model. All studies that include perioperative non-cardiac surgery patients will be included. Eligible studies will include randomized controlled trials and non-randomized comparator studies (e.g. controlled
before-after studies, interrupted time series and repeated measures studies). Outcomes reported in similar manners (hospital level, patient level) will be pooled. Meta-analysis using random effects modeling will be performed for the primary outcome of in-hospital or 30-day mortality, as well as selected secondary outcomes (e.g. serious adverse events, hospital resource utilization, measures of patient experience, and measures of processes of care). All data will be expressed with appropriate ratios and confidence intervals. Risk of bias will be assessed using either the Cochrane Risk of Bias Tool for randomized studies or A Cochrane Risk Of Bias Assessment Tool: for Non-Randomized Studies of Interventions, as appropriate. The results of this review will be reported according to PRISMA guidelines.

**Discussion** This will be the first systematic review of SSCUs. Results of this systematic review will help define the impact of SSCUs on the care of high-risk perioperative patients. In addition, it may help guide future studies investigating the role of SSCUs in perioperative care.
**86039 - DIFFERENT STOP-BANG SCORES FOR OSA PATIENTS IN VARIOUS POPULATION.**

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**Introduction:** The diagnosis of patients with suspected obstructive sleep apnea (OSA) is important because of the increased risk of perioperative complications. Polysomnography (PSG) - the gold standard for diagnosis of OSA - is time consuming and costly. The STOP-Bang questionnaire is a validated screening tool for obstructive sleep apnea. We conducted this systematic review and meta-analysis to compare the effectiveness of different STOP-Bang scores to screen OSA patients in the sleep clinic and surgical population.

**Methods:** A search of the literature databases MEDLINE (from 2008 to April 2014), Medline-in-process & other non-indexed citations (up to May 2014), Embase (from 2008 to May 2014), Cochrane Central Register of Controlled trials (up to May 2014), Cochrane Databases of Systematic Reviews (from 2008 to march 2014), Google Scholar, Web of Sciences (from 2008 to August 2014), Scopus (2008 to August 2014) and PubMed (from 2008 to August 2014) was carried out. The search yielded 340 citations. Irrelevant papers were excluded by title and abstract review, leaving 46 manuscripts. Inclusion criteria were: 1) Studies that used different STOP-Bang scores as a screening tool for OSA in adult subjects (>18year); 2) The accuracy of the STOP-Bang questionnaire was validated by polysomnography - a gold standard for diagnosing OSA; 3) OSA was clearly defined as apnea/hypopnea index (AHI), respiratory disturbance index (RDI) ≥ 5; 4) Publications in English language. Validity criteria assessing internal and external validity were explicitly described and coded according to Cochrane Methods group on screening and diagnostic tests. Statistical analysis was carried out using the Review Manager 5.3 software. The data about predictive parameters were pooled.

**Results:** Six studies (n=2807) qualified for the data collection to pool the predictive parameters of each STOP-Bang score cut-offs for the different AHI levels. Out of which four studies (n=1980) were from the sleep clinic population and two studies (n=827) from the surgical population.

In the sleep clinic population, as the STOP-Bang score increased from 1 to 8, the specificity and positive predictive value (PPV) increased continuously from 1% to 100% and 88.7% to 100% for all OSA (AHI ≥5); 1% to 100% and 67.5% to 95.1% for moderate-to-severe OSA (AHI ≥15); and 1% to 100% and 41.7% to 85.7% for severe
OSA (AHI ≥30) respectively (Table 1A). On the other hand in the surgical population, as the STOP-Bang score increased from 1 to ≥7/8, the specificity increased from 3% to 98% and the PPV increased from 68.6% to 81.6% for all OSA (AHI ≥5); 7% to 95% and 40% to 36% for moderate-to-severe OSA (AHI ≥15); and 2% to 97% and 18% to 32% for severe OSA (AHI ≥30) respectively (Table 1B).

**Conclusion:** The lower STOP-Bang score showed high sensitivity and NPV, while a higher STOP-Bang score showed higher specificity and PPV for all severities of OSA in the sleep clinic and surgical population.

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Handover of care can be a risk to patient safety, particularly when critical information is missed or misunderstood. Implementation of a handover improvement program has been shown to reduce medical errors and preventable adverse events in a large multicenter trial (1). At our center, a current state analysis showed no consistent approach to handover of patient care, and wide variability of practice among physicians and services. A study of our hospital’s cardiac surgical patients found increased morbidity and mortality when anesthesia care was handed over intraoperatively (2).

We created the eHandover Working Group, a team of health care and information technology experts, to design a user-friendly electronic handover tool that would enhance face-to-face handover, while keeping patient information secure. After conducting a literature review, needs assessment, and current state analysis, we designed the Handover tool for our electronic medical record on the iPad mobile device. A collaborative design approach was used. Key features include the ability to flag acute patients, to share information within and across teams, and to identify problems and tasks.

Usability testing was conducted with residents across multiple disciplines, and an iterative design process was used for tool refinement. We began our pilot in December 2014 with physicians in anesthesiology and geriatrics. Our protocol was reviewed by the local ethics committee, and was deemed not to entail human subject research, with further review not required. Survey data is being used to collect feedback from participating resident and staff physicians. The pilot has successfully begun and further improvements to the Handover tool will be implemented based on data collected.

Our electronic Handover tool is an innovative new solution to facilitate safe and comprehensive handover of patient care. Close partnership between physician users and information technology experts has led to a user-friendly tool that will be used to improve patient safety as part of a multifaceted handover improvement program. Although designed as an integral part of our Clinical Mobile electronic health record, the key features and overall design of Handover are applicable to other physicians looking to develop and use an electronic handover tool.
References:


(2) J Cardiothorac Vasc Anesth 2014 (Epub ahead of print Nov 24)