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(Abstracts)

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Incidence, Risk Factors and Outcomes of Perioperative Cardiac Arrhythmias Following Non-Cardiothoracic Surgery: A Systematic Review and Meta-Analysis

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Introduction: Perioperative supraventricular arrhythmias are common after non-cardiothoracic surgeries and can lead to serious perioperative complications.1 The pathophysiology of postoperative AF after non-cardiothoracic surgery is poorly understood, but is thought to be due to stress and inflammatory postoperative response.2 There is presently limited evidence concerning new-onset arrhythmias (AF) following non-cardiothoracic surgery. The primary objective of this systematic review and meta-analysis (SR and MA) was to identify the risk factors of new-onset arrhythmias during non-cardiothoracic surgery.

Methods: Ethics approval was not applicable because the study did not involve human or animal research. We included studies which reported on any new-onset perioperative arrhythmia in adult patients (>18 years) after non-cardiothoracic surgery. Those studies without explicit reporting of perioperative arrhythmias were excluded. We searched multiple databases according to a pre-defined systematic search strategy. The primary outcome was to determine the demographic and clinical risk factors for new-onset perioperative arrhythmias after non-cardiothoracic surgery. Secondary outcomes were the incidence of perioperative complications associated with the arrhythmias. Data on demographics, comorbidities and perioperative complications were analysed and reported as corresponding crude odds ratios (OR) and 95% confidence intervals (CI). Random-effects models was used to estimate the pooled odds ratios for risk of perioperative complications. A two-sided P value less than 0.05 was considered statistically significant. Impact of heterogeneity (I2) was assessed by calculating the I2 statistic.

Results: Fifteen studies met the inclusion criteria, reporting on 123,157 patients undergoing non-cardiothoracic surgery, of which 3,087 developed perioperative arrhythmias. The pooled incidence of postoperative arrhythmia was calculated as 2.51 (95% CI 2.42-2.60). Advanced age (MD: 4.21; 95% CI: 2.15 to 6.28; I2: 89%; p<0.0001).(20–34), preoperative hypertension (Perioperative Arrhythmia vs Control: 60.0% vs 56.7%; OR: 1.53; 95% CI: 1.06 to 2.22; I2:52%; p=.009), pre-existing cardiac disease (Perioperative Arrhythmia vs Control: 25.3% vs 4.9%; OR: 2.26; 95% CI: 1.19 to 4.30; I2:89%; P=0.003) and a history of atrial fibrillation (Perioperative Arrhythmia vs Control: 20.5% vs 3.9%; OR: 5.60; 95% CI: 2.64 to 11.89; I2:51%; P<0.00001) were found to be significant predictors for perioperative arrhythmia The development of perioperative arrhythmia was significantly associated with development of post-operative respiratory complications (OR: 3.69; 95% CI: 1.50 to 9.11; I2: 80%; P=0.005).(22,29,31,34),

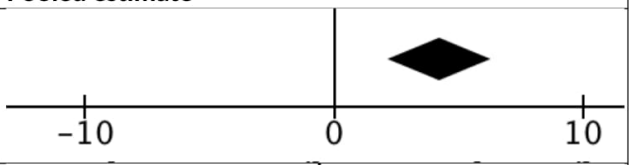
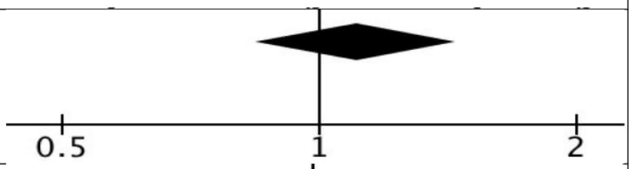
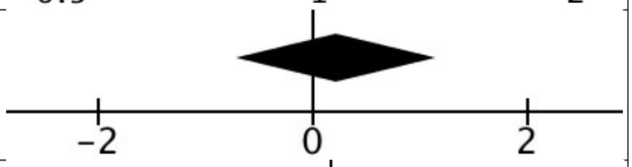
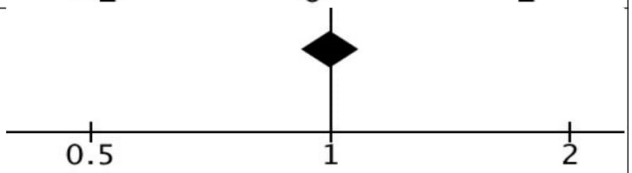
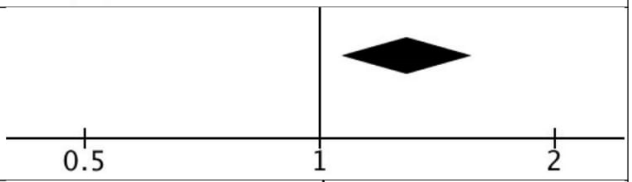
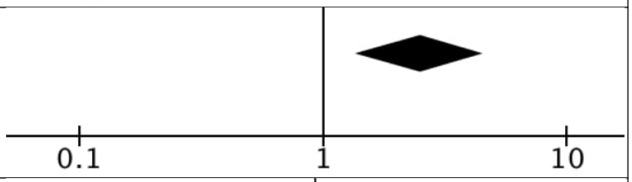
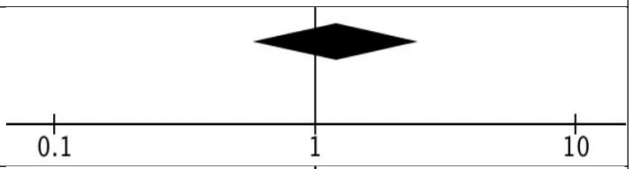
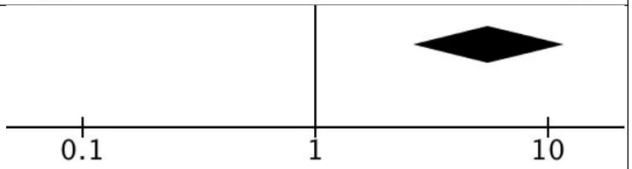
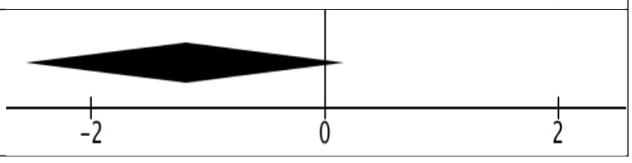
cardiac complications (Perioperative Arrhythmia vs Control: 34.1% vs 5%; OR: 5.24; 95% CI: 2.78 to 9.85; I2:69%; P<0.00001) and increased mortality (Perioperative Arrhythmia vs Control: 11.3% vs 2.4%; OR: 6.31; 95% CI: 3.19 to 12.50; I2:33%; P<0.00001).

Conclusion: This SR and MA identified advanced age, male gender, pre-existing cardiac comorbidities, hypertension and history of atrial fibrillation as risk factors associated with perioperative arrhythmia. We also found that the arrhythmia group had an increased postoperative cardio-pulmonary complications and higher mortality compared to the non-arrhythmia group, emphasizing the need for risk stratification and close monitoring of this surgical population.

REFERENCES:

1. Kahn RL, Hargett MJ, Urquhart B, Sharrock NE, Peterson MG. Supraventricular tachyarrhythmias during total joint arthroplasty. Incidence and risk. Clin Orthop Relat Res.1993 Nov;(296):265–9.
2. Chung MK, Martin DO, Sprecher D, Wazni O, Kanderian A, Carnes CA, et al. C-reactive protein elevation in patients with atrial arrhythmias: Inflammatory mechanisms and persistence of atrial fibrillation. Circulation. 2001 Dec 11;104(24):2886–91.

Meta-analysis evaluating the risk factors of perioperative arrhythmias in patients undergoing non-cardiothoracic surgery

Risk factor	Arrhythmia	Control	Pooled estimate
Age: Mean (SD)	73.5 (6.37)	67.4 (4.54)	
Male	53%	43.8%	
BMI: Mean (SD)	26.67 (5.52)	24.97 (3.98)	
DM	22.27%	22.75%	
Hypertension	58.27%	55.78%	
Cardiac disease	25.3%	4.9%	
Respiratory disease	17.3%	9.1%	
H/O Arrhythmia	20.5%	3.9%	
MELD Score: Mean (SD)	29.63 (9.9)	25.18 (11.9)	

Perspectives of the Opioid Epidemic and Interventions to Improve Prescribing and Usage: A Cross Sectional Survey of Adult Ambulatory Orthopedic Surgical Patients and Their Health Care Providers

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Introduction: High case volumes combined with excessive postoperative opioid prescriptions have made ambulatory surgery a significant contributor to the prescription opioid epidemic (POE).[1] Single institutions have successfully reduced the quantity of dispensed postoperative opioid in select populations[2-4] but widespread implementation is lacking. Sustainable interventions to ensure proper disposal and prevent misuse are also needed. A thorough understanding of stakeholder perspectives of the POE and proposed harm reduction strategies is a necessary precursor to achieving these broader goals. This survey assessed patient and health care provider (HCP) awareness of the POE, opioid related practices, behaviors and attitudes, and perceived barriers to the implementation of published harm reduction interventions. The goal was to inform a multifaceted, multidisciplinary intervention to prevent opioid misuse in ambulatory orthopedic surgery patients.

Methods: Ethics approval was obtained from the local REB. Five stakeholder groups participated in this cross-sectional, self-administered, anonymous online survey between January and May 2019. We invited all pharmacists in our province through a college newsletter and all anesthesiologists and orthopedic surgeons in our health region through departmental email lists. We also recruited a consecutive series of preoperative ambulatory orthopedic surgery patients and all postoperative care nurses at our ambulatory surgery facility. Survey content was tested for readability and informed by a literature search and stakeholder input. Questions were either specific to a stakeholder, common across stakeholders or common to HCPs. Analysis was descriptive.

Results: 165/225 (73%) patients, 92/151 (61%) anesthesiologists, 30/39 (77%) orthopedic surgeons, 112/1632 (7%) pharmacists and 8/8 nurses participated. The response rate for each question was ≥ 80%. Most patients and HCPs (range 86-100%) were aware of the POE but >40% in each group underestimated the reported 6% risk of persistent postoperative opioid use.[1] The POE was seen as at least moderately important for minor surgery patients by 45% of patients and 50% (nurses) to 96% (surgeons) of HCPs. 58% of patients were male, 7% reported a household income less than $30,000CDN and 15% and 22% were 18-29 and >60 years old, respectively. 39% of patients had opioids at home, 21% had used opioids for a nonprescribed indication, 9% had shared with others, 1% had used recreationally and at least 30% could not

identify a safe disposal method from a list. Patients wanted more information about opioid misuse, multimodal analgesia, and postoperative weaning of analgesics delivered preferably on paper (62%) or through conversation with specific HCPs (range 28-51%) as opposed to through electronic media (14%). Each HCP discipline endorsed having at least a moderately important role in ensuring safe postoperative opioid use (range 83-95%). HCP specific interventions varied in perceived feasibility (Table 1).

Conclusion: Patients and health care providers have identified a number of potential targets for educational and process-of-care interventions.

REFERENCES:

1. Brummett, Chad M.Bohnert ASB, Waljee JF, Nallamothu BK, et al (2017) New Persistent Opioid Use After Minor and Major Surgical Procedures in US Adults. JAMA Surg 152:e170504. https://doi.org/10.1001/jamasurg.2017.0504
2. Hartford LB, Van Koughnett JAM, Murphy PB, et al (2019) Standardization of Outpatient Procedure (STOP) Narcotics: A Prospective Non-Inferiority Study to Reduce Opioid Use in Outpatient General Surgical Procedures. J Am Coll Surg 228:81-88.e1. https://doi.org/10.1016/j.jamcollsurg.2018.09.008
3. Hartford LB, Van Koughnett JAM, Murphy PB, et al (2019) The Standardization of Outpatient Procedure (STOP) Narcotics: A Prospective Health Systems Intervention to Reduce Opioid Use in Ambulatory Breast Surgery. Ann Surg Oncol 26:3295–3304. https://doi.org/10.1245/s10434-019-07539-w
4. Howard R, Waljee J, Brummett C, et al (2018) Reduction in Opioid Prescribing Through Evidence-Based Prescribing GuidelinesReduction in Opioid Prescribing Through Evidence-Based Prescribing GuidelinesLetters. JAMA Surg 153:285–287. https://doi.org/10.1001/jamasurg.2017.4436

Discipline	Intervention	Facilitators	Barriers
Pharmacists	Unused opioid disposal	98% of pharmacies accept opioids for disposal	- 26% do not communicate this to patients verbally or in print materials - 35% report lack of time - Only 2% of pharmacists identified safe "home-based" disposal techniques
Pharmacists & Postoperative Care Nurses	Patient education on weaning opioids and multimodal oral analgesia	88% of nurses comfortable describing multimodal regimens	- Most pharmacists (83%) and nurses (62%) believe <60% of patients leave their care with a good understanding - Lack of time, knowledge and resources identified by at least 20% of respondents in both groups
Surgeons	Reduced prescription sizes	91% see surgeons as having an important primary role in this regard	- 38% willing to reduce prescription sizes - 25% want data on their patients first - Increased office calls and visits foreseen as significant problem by >70%
Surgeons	Prescribing opioids not compounded with acetaminophen	70% supportive	- Triplicate opioid prescriptions create an administrative burden on high volume slates
Surgeons	Partfill prescriptions	79% supportive	- Appropriate prescription sizes not defined by the survey or in the literature
Anesthesiologists	Alter anesthetic for patients at high risk of misuse	89% at least somewhat likely to do so	- 25% have lack of knowledge or skill for distal upper extremity blocks and lower limb blocks

Table 1: Selected list of facilitators and barriers to harm reduction interventions to optimize postoperative opioid use. Prescribing opioids not compounded with acetaminophen facilitates regular use of multimodal analgesia. Partfill prescriptions limit the initial number of opioids dispensed and provide the option to return to the pharmacy for the remainder of the prescription if needed.

Preoperative Needs and Postoperative Satisfaction in Patients Undergoing Elective Hip and Knee Surgical Procedures - A Quantitative Evaluation – The First Step in a Program of Research to Help Improve Patient Preparation for, and Outcomes with, Early Post-Operative Home Recovery

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Background: It is the first step in a program of research that seeks to understand how well patients are prepared, in the preoperative phase, to understand the protocols, concerns and demands they will face post-surgery. Subsequently, understanding how well the needs of patients are met following surgery will be assessed by asking them about their access to support from family and other care givers, coping strategies, and level of satisfaction with their postoperative experience and health outcomes.1

Objective: To investigate patients' concerns, preparation and expectations in the preoperative phase and the level of postoperative satisfaction in the perioperative period using a quantitative survey methodology.

Methods: 240 consecutive patients who attend the preadmission clinic for scheduled preoperative visits were invited, and informed consent was obtained. This study was conducted in accordance with the Declaration of Helsinki. Demographic and other clinical data was collected. Survey Questionnaires: Following recruitment, all patients were asked to respond to interviewer-administered survey questionnaire. Two interviews were conducted based on the study questions focussing on the objectives of the study. The first interview was conducted with the patient and with the patient's caregivers before the surgery and the second interview was conducted on postoperative day 5 -7 using the set of questions. The newly developed questions are designed based on the four potential areas of concerns for the early post-surgical discharge.1 The preoperative questions seek to quantify the extent of patient knowledge, expectations, and preparedness to handle early post-surgical discharge. The postoperative questions seek to understand patient coping and management strategies post-surgery, to quantify how well the patient is doing. This was done by rating on a 5-point Likert scale (with the higher score indicating a higher level of patient need & satisfaction).

Results: This prospective observational study explored the level of patients' needs and satisfaction undergoing the hip and knee surgical procedure, based on the patient-centred care

framework. The patients had a mean age of 66±11 years, 57% of the patients were female and 43% of the patients were male. 45.4% had the hip surgery and 54.8% had the knee surgery. The overall mean score for patients needs was 3.45±0.48 and overall mean score for patient's satisfaction was 4.19±0.25, out of possible 5 Lockhart scale. Among the subdomains of the patient need and satisfaction, the perioperative medication, pain management, recovery process and side-effects/complications were reported. Nearly 12.9% of the patients visited the family doctor within 5 days after the surgical procedure.

Conclusion: This study reports the higher level of patient need and higher level of satisfactions in patients undergoing the hip and knee surgical procedure. These results add to the body of the knowledge in understanding the patients' needs and satisfaction in the perioperative period.

REFERENCES:

1. LHSC. London Health Sciences Centre – Decision Support, Quality Based Payment (QBP) data For Years 15/16, 16/17.