2021 CAS Annual Meeting

Perioperative

(Abstracts)

Contents

A Systematic Review and Meta-Analysis of Preoperative Frailty Instruments Derived from Electronic Health Data

Jamal Alkadri[1], Dima Hage[2], Leigh H Nickerson[1], Lia R Scott[3], Julia F Shaw[4], Sylvie D Aucoin[1], Daniel I McIsaac[1,4,5]

1 Department of Anesthesiology & Pain Medicine, University of Ottawa, Ontario, Canada.
2 Faculty of Medicine, University of Ottawa, Ontario, Canada.
3 Department of General Surgery, Queen's University, Ontario, Canada.
4 School of Epidemiology and Public Health, University of Ottawa, Ontario, Canada.
5 Ottawa Hospital Research Institute, Ottawa, Ontario, Canada.

Background: Frailty is a multidimensional state related to accumulation of age- and disease-related deficits, acting as a strong predictor of adverse health outcomes in the perioperative period.[1,2] Given the increasing availability of electronic medical data, we performed a systematic review and meta-analysis with primary objectives of describing available frailty instruments applied to electronic data and synthesizing their prognostic value. Our secondary objectives were to assess the construct validity of frailty instruments that have been applied to perioperative electronic data and the feasibility of electronic frailty assessment.

Methods: Ethics approval was not applicable because the study did not involve human or animal research. Following protocol registration, a peer-reviewed search strategy was applied to Medline, Embase, Cochrane databases and the Comprehensive Index to Nursing and Allied Health literature from inception to December 31, 2019. All stages of the review were completed in duplicate. The primary outcome was mortality; secondary outcomes included non-home discharge, health care costs and length of stay. Effect estimates adjusted for baseline illness, sex, age, procedure and urgency were of primary interest; unadjusted and adjusted estimates were pooled using random-effects models where appropriate, or narratively synthesized. Risk of bias was assessed.

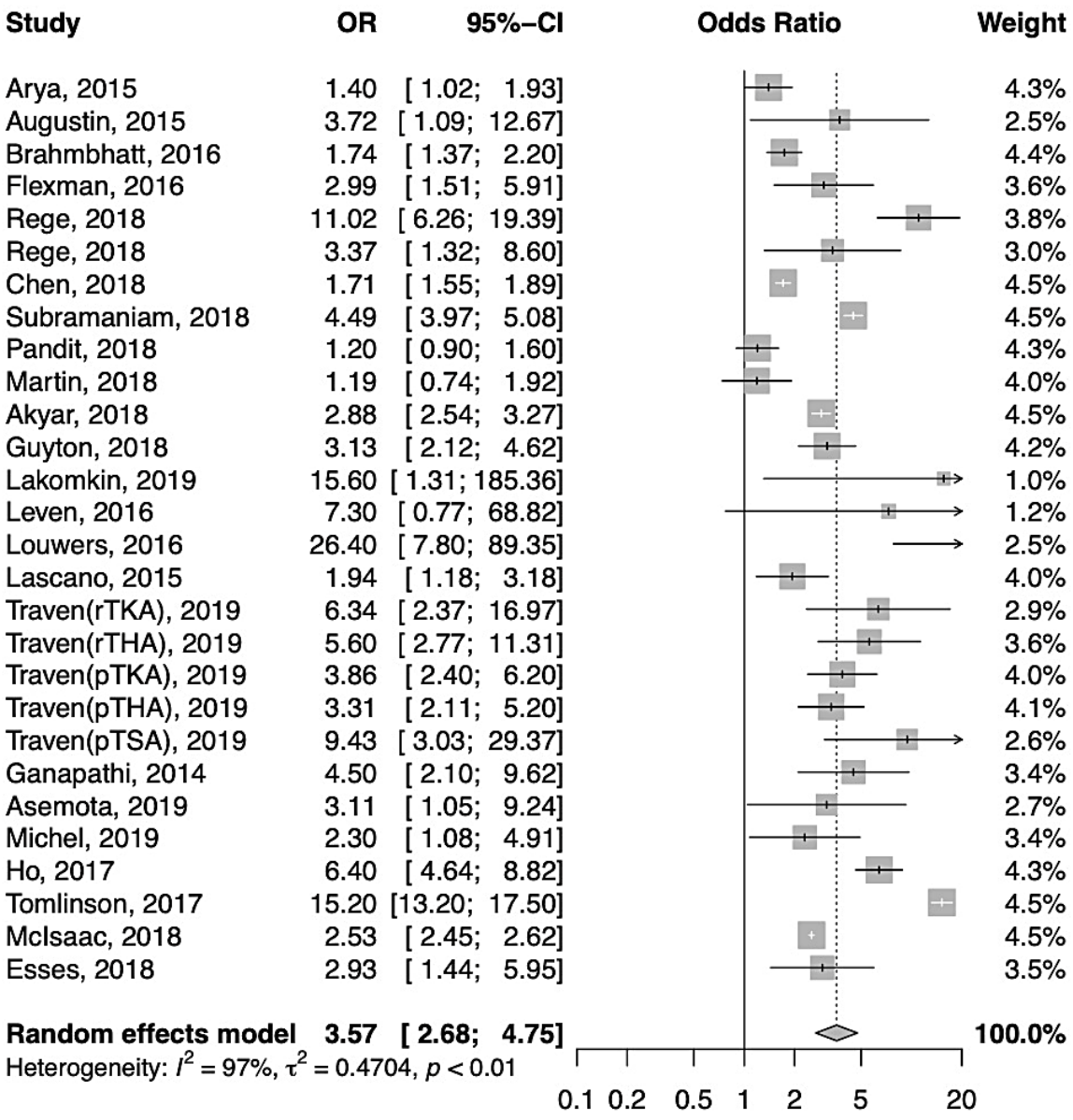
Results: Ninety studies were included; 83 contributed to the meta-analysis. Frailty was defined using 22 different instruments. In adjusted data, frailty identified from electronic data using any instrument was associated with a 3.57-fold increase in the odds of mortality (95%CI 2.68 to 4.75; P <0.001; I^2=97%, see Figure 1), increased odds of institutional discharge (OR 2.40, 95%CI 1.99 to 2.89, I^2=99%) and increased costs (incidence rate ratio 1.54, 95%CI 1.46 to 1.63, I^2=47%;). Most instruments were not multidimensional, head-to-head comparisons were lacking and no feasibility data was reported.

Discussion: Frailty status derived from electronic data provides prognostic value as it is associated with adverse outcomes, even after adjustment for typical risk factors. However, future research is required to evaluate multidimensional instruments, their head-to-head performance and to assess their feasibility and clinical impact.

REFERENCES:

1. Rockwood K, Song X, MacKnight C, et al. A global clinical measure of fitness and frailty in elderly people. CMAJ. 2005;173(5):489-495. doi:10.1503/cmaj.050051
2. Fried LP, Ferrucci L, Darer J, Williamson JD, Anderson G. Untangling the concepts of disability, frailty, and comorbidity: implications for improved targeting and care. J Gerontol A Biol Sci Med Sci. 2004;59(3):255-263

Figure 1. Forest plot for adjusted pooled strength of association between frailty and mortality.



Cognition-Cognizant Care: The Perioperative Brain Health Centre

Connor T.A. Brenna[1,2], Lilia Kaustov[2,3], Beverley A. Orser[2,3], Jane Huang[2,3], Stephen Choi[2,3]

1 Department of Medicine, University of Toronto, Toronto, Ontario, Canada.
2 Perioperative Brain Health Centre, Sunnybrook Research Institute, Toronto, Ontario, Canada.
3 Department of Anesthesia, Sunnybrook Health Sciences Centre, Toronto, Ontario, Canada.

Background: Postoperative neurocognitive disorder (P-NCD) is significant health issue with far-reaching socioeconomic implications, which can affect any patient undergoing surgery.[1,2] This multifactorial clinical phenomenon comprises a spectrum of perioperative cognitive changes,[3,4] which are commonly misdiagnosed as they often remain masked until long after surgery.[5] Unlike dementia, P-NCD has a clear starting point (i.e., surgery) and may represent an amenable target for intervention. Currently, however, there are no known preventative or therapeutic pharmacological approaches.

To address this, we established the multidisciplinary Perioperative Brain Health Centre (PBHC) at our quaternary referral center. The PBHC's objective is to develop innovative strategies to improve surgical patients' quality of life while reducing morbidity and economic burden. Our mission is three-fold: 1) investigate prospective diagnostic, preventative, and therapeutic tools for P-NCD; 2) care for patients in need; and 3) promote awareness and best practices among patients and providers, bolstering the safety of anesthesia and preserving cognitive health in the perioperative environment.

Methods: Ethics approval was obtained from the local REB. We employ multidisciplinary strategies highlighting perioperative cognition within the medical community and the broader public through patient education and outreach. The PBHC has several ongoing research arms focused on developing and validating techniques to recognize P-NCD, identifying perioperative cognitive risk factors, and testing potential preventative (repurposed and novel) interventions.

Given our focus on cognitive risks in surgical patients, we are undertaking several large RCTs exploring perioperative cognitive care. We are applying remotely-administered, computerized cognitive screening to assess the prevalence and risk factors of P-NCD in patients undergoing major surgical procedures (joint replacements and open-heart surgery). In parallel, we are investigating targeted interventions for P-NCD prevention in cardiac patients.

Results: The PBHC's development models the implementation of a large-scale perioperative cognition program to redesign the pathway to surgery. Partnering with the Seniors Friendly program, we have created a breadth of educational materials to inform and support patients and their families. Across several ongoing clinical projects, we have screened 4443 patients and randomized 1321 into intervention groups. Of these, 447 patients have completed long-term follow-up.

Our early observations include a striking incidence of preexisting cognitive impairment (Pre-CI), a seldom-recognized preoperative cognitive disorder (and an important predictor of P-NCD), among patients with cardiac disease. Our preliminary findings identified Pre-CI in approximately 31% of cardiac surgery patients, compared to approximately 1% of patients undergoing joint arthroplasty.

Discussion: The assessment of cognitive function is a critical priority in the perioperative setting, and emerging applications of remote cognitive assessment and P-NCD prediction will enable the implementation of focused pharmaceutical and psychosocial interventions. Our experience designing the PBHC illustrates a robust and multifaceted approach to safeguarding cognitive health in the perioperative setting.

REFERENCES:

1. Boone, M.D., Sites, B., von Recklinghausen, F.M., Mueller, A., Taenzer, A.H. and Shaefi, S., 2020. Economic burden of postoperative neurocognitive disorders among US medicare patients. *JAMA network open*, 3(7), pp.e208931-e208931.
2. Steinmetz, J., Christensen, K.B., Lund, T., Lohse, N., Rasmussen, L.S. and ISPOCD Group, 2009. Long-term consequences of postoperative cognitive dysfunction. *The Journal of the American Society of Anesthesiologists*, 110(3), pp.548-555.
3. Evered, L., Silbert, B., Knopman, D.S., Scott, D.A., DeKosky, S.T., Rasmussen, L.S., Oh, E.S., Crosby, G., Berger, M., Eckenhoff, R.G. and Nomenclature Consensus Working Group, 2018. Recommendations for the nomenclature of cognitive change associated with anaesthesia and surgery—2018. *Anesthesiology*, 129(5), pp.872-879.
4. Price, C.C., Garvan, C.W. and Monk, T.G., 2008. Type and severity of cognitive decline in older adults after noncardiac surgery. *The Journal of the American Society of Anesthesiologists*, 108(1), pp.8-17.
5. Deiner, S., Fleisher, L.A., Leung, J.M., Peden, C., Miller, T. and Neuman, M.D., 2020. Adherence to recommended practices for perioperative anesthesia care for older adults among US anesthesiologists: results from the ASA Committee on Geriatric Anesthesia-Perioperative Brain Health Initiative ASA member survey. *Perioperative Medicine*, 9(1), pp.1-8.

GRANT ACKNOWLEDGEMENT:

The projects received funding from the Dana Foundation (17-13030) and the Sunnybrook AFP Association through the Innovation Fund of the Alternative Funding Plan from the Academic Health Sciences Centre of Ontario. BAO and SC receive funded academic time from the Sunnybrook Anesthesia Academic Partnership.

Contributing Factors to Elevated Postoperative Troponin in High Cardiovascular Risk Patients Referred for Multimodal Prehabilitation: Preliminary Data

Stefan Saric[1,2], Amal Bessissow [2,3], Gabriele Baldini [2,4], Franco Carli[2,4]

1 Division of Experimental Medicine (MSc), McGill University, Montreal, Quebec, Canada.
2 Perioperative Program, Montreal General Hospital, Montreal, Quebec, Canada.
3 Department of Internal Medicine, McGill University Health Centre (MUHC), Montreal, Quebec, Canada.
4 Department of Anesthesia, McGill University Health Centre (MUHC), Montreal, Quebec, Canada.

Introduction/Background: Multimodal prehabilitation involves preoperative exercise, nutrition, and anxiety management interventions to improve postoperative patient recovery (1). Functional capacity and elevated serum brain natriuretic peptide (BNP) predict myocardial injury after non-cardiac surgery (2), but the role of prehabilitation in improving outcomes for high cardiovascular risk patients is unknown. Using preliminary data, we compared baseline BNP, baseline 6-minute walk test (6MWT), and adherence to prehabilitation between patients who experienced elevated postoperative serum troponin, and those who did not.

Methods: Ethics approval was obtained from the local REB. Data were audited from previous 4-6 week multimodal prehabilitation programs between 2018-21 at a single tertiary hospital. Using an elevated preoperative BNP (≥92pg/mL) (3), we identified 24 patients at high risk of adverse cardiovascular events perioperatively. Baseline BNP and 6MWT were examined. Postoperative myocardial infarction (MI), elevated serum troponin, stroke, death at 30 days, and hospital length of stay (LOS) were also recorded. Participants were deemed adherent to prehabilitation if they attended >75% of prescribed sessions.

Results: Data comprised 24 patients (67% male), aged 61-95 years (mean=76 years), ASA 3 (58%) with a revised cardiac risk index (RCRI) of 1 (54%), 2 (29%), or ≥3 (17%). Surgeries were predominantly for cancer (92%) and minimally-invasive (79%). Mean baseline BNP was 198pg/mL (*SD*=95) and mean baseline 6MWT was 389m (*SD*=113). Thirteen (54%) patients adhered (>75%) to the prehabilitation program.

Postoperative serum troponin was elevated in 6 patients (5 non-adherent to prehabilitation), and 1 patient had an MI postoperatively (also non-adherent). Baseline BNP in patients with elevated postoperative troponin (*mean* = 274pg/mL, *SD*=*97*) was significantly greater than in patients who did not have an elevated troponin (*mean* = 140pg/mL, *SD* =55; *p* = 0.022). Baseline 6MWT in patients with elevated postoperative troponin (*mean* = 294m, *SD*=71) was significantly lower than in patients who did not have an elevated troponin (*mean* = 422m, *SD*= 107m; *p*=0.005). Median (IQR) length of stay for patients with an elevated postoperative troponin was 8 (29) days, and 3 (3) days for patients who did not have an elevated troponin (*p*=0.116). No strokes or deaths were recorded.

Discussion: This exploration of preliminary data identified that high cardiovascular risk patients who went on to have an elevated troponin postoperatively had higher baseline BNP and lower baseline 6MWT. They were also less likely to be adherent to the prehabilitation program. All three of these factors may have contributed to increased incidence of elevated postoperative troponin. Future trials investigating the role of prehabilitation in high cardiovascular risk patients are required.

REFERENCES:

1. Minnella EM, Bousquet-Dion G, Awasthi R, Scheede-Bergdahl C, and Carli F. Multimodal prehabilitation improves functional capacity before and after colorectal surgery for cancer: a five-year research experience. *Acta Oncol.* 2017;56(2):295-300.
2. Rodseth RN, Biccard BM, Le Manach Y, Sessler DI, Lurati Buse GA, Thabane L, et al. The prognostic value of pre-operative and post-operative B-type natriuretic peptides in patients undergoing noncardiac surgery: B-type natriuretic peptide and N-terminal fragment of pro-B-type natriuretic peptide: a systematic review and individual patient data meta-analysis. *J Am Coll Cardiol.* 2014;63(2):170-80.
3. Duceppe E, Parlow J, MacDonald P, Lyons K, McMullen M, Srinathan S, et al. Canadian Cardiovascular Society Guidelines on Perioperative Cardiac Risk Assessment and Management for Patients Who Undergo Noncardiac Surgery. *Can J Cardiol.* 2017;33(1):17-32.

Dexmedetomidine Is a Strong Predictor of Postoperative Hypotension in Hip and Knee Arthroplasties – Preliminary Results

Charles Gélinas[1], Edmund Yim[1], Mandy Li[2], Stephen Su Yang[1, 3]

1 Department of Anesthesia, McGill University, Montreal, Quebec, Canada.
2 Faculty of Medicine, McGill University, Montreal, Quebec, Canada.
3 Lady Davis Institute for Medical Research, Jewish General Hospital, Montreal, Quebec, Canada.

Introduction/ Background: The volume of total hip arthroplasties (THA) and total knee arthroplasties (TKA) is increasing in many developed countries, including Canada. Although there is no gold standard anesthetic technique for these procedures, observational data demonstrated better outcomes with neuraxial anesthesia(1). Based on evidence from randomized controlled trials, dexmedetomidine, a selective alpla-2 agonist often used as a sedative with neuraxial anesthesia, offers significant benefits in THAs and TKAs(2, 3). These include better pain control, reduced post-operative delirium and prolonged spinal analgesia. Despite its significant benefits, dexmedetomidine can have a potential risk, specifically hypotension. There is strong evidence showing that postoperative hypotension is linked to worse outcomes(4). With its elimination half-life of 2-3 hours, it is still unclear if dexmedetomidine is associated with postoperative hypotension. To our knowledge, no study has examined the incidence of postoperative hypotension with the use of dexmedetomidine in THAs and TKAs.

Methods: Ethics approval was obtained from the local REB. In this single-centre retrospective study, we will review 1600 patients who underwent an elective THA or TKA under neuraxial anesthesia between 2017 and 2019. Independent variables were selected based on biological plausibility and a literature review of known associated factors related to postoperative hypotension(5). The outcome of interest was the presence of postoperative hypotension in the post-anesthesia care unit (PACU), defined as a systolic BP <90 mm Hg. Secondary outcomes will include time spent in PACU and major adverse cardiovascular events (MACE) during admission.

Results: Preliminary data analyzed based on 400 patients. Median age was 71 (IQR 63-77) with 34.0% male patients. 22.9% of patients developed postoperative hypotension in the recovery room with a median systolic blood pressure of 83 mm Hg (IQR 76-87). 22.3% of patients received dexmedetomidine as an intraoperative intravenous sedation with an adjusted odds ratio for postoperative hypotension of 4.08 (95% confidence interval 2.17-7.67).

Discussion: Preliminary data demonstrate that dexmedetomidine is a significant predictor of postoperative hypotension in patients undergoing orthopaedic surgery. As we know, postoperative hypotension is associated with poor outcomes, especially in the elderly population requiring hip or knee arthroplasties. Our results indicate that despite its numerous advantages in this patient population, its hemodynamic effects should be seriously taken into consideration when choosing this agent. As more data will be collected and analyzed, we will be able to determine if these finding are associated with MACE during admission. Detailed analysis of other predictors and sedation agents will also be presented.

REFERENCES:

1. Memtsoudis SG, Sun X, Chiu YL, Stundner O, Liu SS, Banerjee S, et al. Perioperative comparative effectiveness of anesthetic technique in orthopedic patients. Anesthesiology. 2013;118(5):1046-58.
2. Chan IA, Maslany JG, Gorman KJ, O'Brien JM, McKay WP. Dexmedetomidine during total knee arthroplasty performed under spinal anesthesia decreases opioid use: a randomized-controlled trial. Can J Anaesth. 2016;63(5):569-76.
3. Mei B, Meng G, Xu G, Cheng X, Chen S, Zhang Y, et al. Intraoperative Sedation With Dexmedetomidine is Superior to Propofol for Elderly Patients Undergoing Hip Arthroplasty: A Prospective Randomized Controlled Study. Clin J Pain. 2018;34(9):811-7.
4. Group PS, Devereaux PJ, Yang H, Yusuf S, Guyatt G, Leslie K, et al. Effects of extended-release metoprolol succinate in patients undergoing non-cardiac surgery (POISE trial): a randomised controlled trial. Lancet. 2008;371(9627):1839-47.
5. Yang SS, Devereaux PJ. Predictors of postoperative hypotension. Perioperative Care Congress. Toronto, ON2019.

Postoperative Vision Loss after Common Surgical Procedures: Effect of Longitudin115al Data on Incidence and Risk Factors in A Population Based, Administrative Database Cohort

Michael T Paille[1], Violet FY Luo[2], Cameron D Goldie[3], Frank Stockl[4], Dan Chateau[5,6], Thomas C Mutter7

1 Max Rady College of Medicine, University of Manitoba, Winnipeg, Manitoba, Canada.
2 Department of Anesthesiology, Perioperative and Pain Medicine, University of Calgary, Calgary, Alberta, Canada.
3 Department of Anesthesiology, Pharmacology, and Therapeutics, University of British Columbia, Vancouver, British Columbia, Canada.
4 Max Rady College of Medicine, Department of Ophthalmology, University of Manitoba, Winnipeg, Manitoba, Canada.
5 Rady Faculty of Health Sciences, Department of Community Health Sciences, Winnipeg, Manitoba, Canada.
6 Manitoba Centre for Health Policy, University of Manitoba, Winnipeg, Manitoba, Canada.
7 Max Rady College of Medicine, Department of Anesthesiology, Perioperative and Pain Medicine, University of Manitoba, Winnipeg, Manitoba, Canada.

Background: Postoperative vision loss (POVL) is most frequently described as immediate, irreversible and profound blindness due to retinal artery occlusion or ischemic optic neuropathy in one or both eyes after cardiac and major spine surgery. However, its epidemiology has been defined by clinical registries and *cross-sectional analyses* of hospital discharge abstracts restricted to these procedures.[1–4] We used *longitudinal data* to more reliably exclude patients with pre-existing vision loss, to explore the potential for late presentations of POVL after hospital discharge, and to compare the risk of POVL between a variety of higher and lower risk surgical procedures.

Methods: With local ethics approval, we performed a retrospective, unblinded analysis of administrative health data from a single Canadian province, spanning April 1, 1982 to March 31, 2019. Records of major spine procedures, cardiac surgery and other common major and minor procedures were included from patients who had at least five years of data before surgery. Records from patients with pre-existing ocular disease were excluded, as were those from patients who developed multiple sclerosis, intracranial or pituitary tumour anytime before or within 90 days after surgery.

We identified cases of POVL using the International Classification of Diseases-Clinical Modification 9th edition diagnosis codes for retinal arterial and venous occlusions, ischemic optic neuropathy and cortical blindness, visual disturbances, and blindness and low vision. Incident diagnoses recorded in hospital discharge abstracts and in physician visits during hospital admission and up to 14 days after hospital discharge were considered POVL.

Results: We identified 651,367 surgeries of interest between April 1,1987 and December 31, 2018. We excluded 409 diagnoses of POVL due to pre-existing ocular disease, leaving 599 incident POVL cases for analysis. 237 (39.6%) diagnoses were made after discharge including 147 (62.0%) made by ophthalmologists, neurologists or radiologists. In univariate regression analyses, patients with POVL were older, more likely to be male and have higher Charlson comorbidity index scores than patients without POVL (all $p < 0.01$). Incidence varied by type of surgery (Figure 1). In multivariable logistic regression analyses, with minor surgery as a

reference, cardiac, major spine, colorectal, vascular and femoral fracture surgery were associated with increased risk of POVL (all p≤0.003).

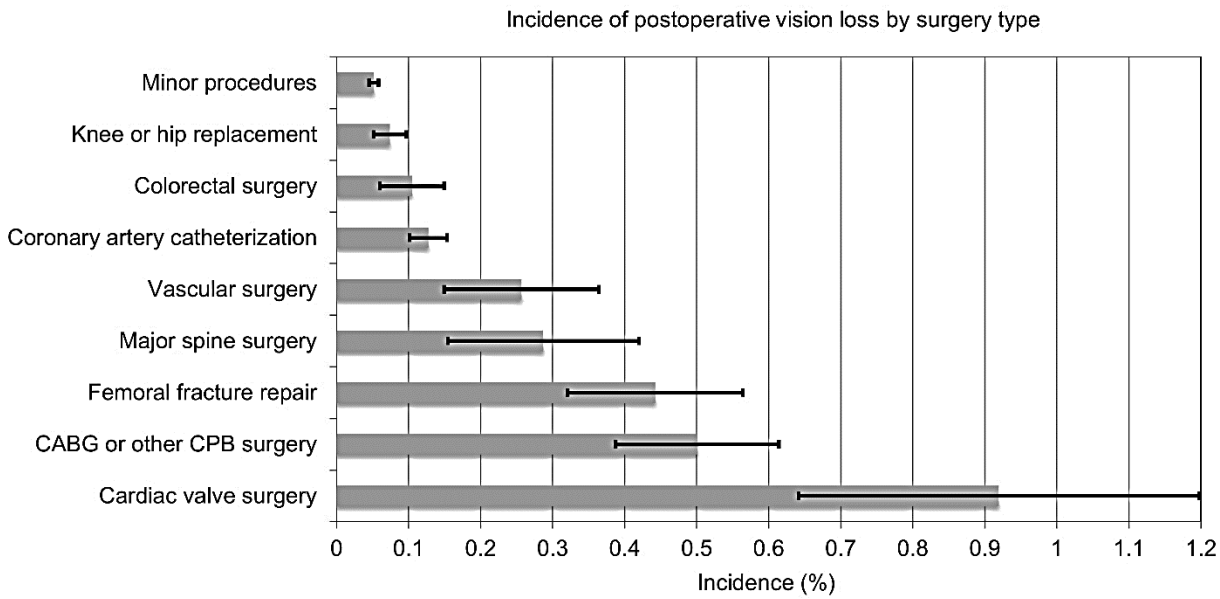
Discussion: Using longitudinal data including physician visit diagnoses, we found POVL may occur more frequently, across a wider variety of surgical procedures and with more varied timing of presentation than previously reported in cross sectional hospital discharge abstract analyses. Late presenting cases could represent anterior ischemic optic neuropathy and less severe vision loss. These findings mirror emerging evidence on perioperative stroke which may share a common pathophysiology with some POVL subtypes.[5] Clinical validation of this administrative health database work would expand our understanding of POVL epidemiology and better inform preventative strategies.

REFERENCES:

1. Rubin DS, Matsumoto MM, Moss HE, Joslin CE, Tung A, Roth S. Ischemic optic neuropathy and cardiac surgery: incidence and risk factors in the United States from the National Inpatient Sample 1998 to 2013. *Anesthesiology*. 2017;126(5):810-821.
2. Rubin DS, Parakati I, Lee LA, Moss HE, Joslin CE, Roth S. Perioperative visual loss in spine fusion surgery: ischemic optic neuropathy in the United States from 1998 to 2012 in the Nationwide Inpatient Sample. *Anesthesiology*. 2016;125(3):457-464.
3. Nandyala S V., Marquez-Lara A, Fineberg SJ, Singh R, Singh K. Incidence and risk factors for perioperative visual loss after spinal fusion. *Spine J*. 2014;14(9):1866-1872. doi:10.1016/j.spinee.2013.10.026
4. Anesthesiologists Task Force on Perioperative Visual Loss. Practice advisory for perioperative visual loss associated with spine surgery. *Anesthesiology*. 2019;130(1):12-30. doi:10.1097/aln.0b013e31823c104d
5. Mrkobrada M, Chan MTV, Cowan D, et al. Perioperative covert stroke in patients undergoing non-cardiac surgery (NeuroVISION): a prospective cohort study. *Lancet*. 2019;394(10203):1022-1029. doi:10.1016/S0140-6736(19)31795-7

GRANT ACKNOWLEDGEMENT:

This work was supported by the University of Manitoba Department of Anesthesiology, Perioperative and Pain Medicine Oversight and Advisory Committee, and the Office of the Dean, Max Rady College of Medicine.



Minor procedures include: carpal tunnel release, knee arthroscopy, anterior cruciate ligament reconstruction, colonoscopy, appendectomy, cholecystectomy, hernia repair, cystoscopy, and hysteroscopy
CABG: coronary artery bypass grafting
CPB: cardiopulmonary bypass
Error bars represent 95% confidence intervals

Preoperative Anxiety During the COVID 19 Pandemic

Claire Broe[1], Jaclyn Robinson[2], Anita Wadden[2], Claire Snyman[3], Kelly Mayson[4, 5]

1 Dept. of Anesthesia & Perioperative Care, Vancouver General Hospital and UBC Hospital, Vancouver, British Columbia, Canada.
2 Dept. Nursing & Perioperative Care, Vancouver General Hospital and UBC Hospital, Vancouver, British Columbia, Canada.
3 Patient Voice Member, Canadian Medical Association, Ottawa, Ontario, Canada.
4 Clinical Professor, Dept. of Anesthesia & Perioperative Care, Vancouver General Hospital and UBC Hospital, Vancouver, British Columbia, Canada.
5 Chairperson, Vancouver Coastal Health Physician Led Quality Improvement Committee, Vancouver, British Columbia, Canada.

Background: The importance of patient psychology and experience during the perioperative period has been recognized since the early 1900s. (1) Every community now faces a period of great anxiety and fear caused by a global pandemic. Our goal was to gather information to identify anxiety triggers preoperatively, better inform our staff and aim to alleviate preventable stress factors caused by COVID-19.

Methods: Ethics approval was waived by the local research ethics board. Patients were presented with a questionnaire at the time of admission to the preoperative care unit. All patients were informed that the questionnaire was entirely voluntary and written consent was taken for a follow up phone call by nursing at or greater than14 days postoperatively. The questions were based on the Amsterdam Anxiety and Information Scale (APAIS) using a Likert scale and prior patient reported outcomes measures (PROMs) used at our institution. Additional questions and patient comments were reviewed with a multidisciplinary team, consisting of a patient representative, anesthesia, and Patient experience, Quality & Safety staff. Two tertiary care sites were sampled which varied in the time of sampling and the type of procedures and length of stay, and restrictions on visitors.

Results: 361 questionnaires were disseminated across two hospital sites from June to September 2020. One patient refused to take part, three patients passed away prior to the follow up telephone call and 30% of patients were not contactable for follow up. Almost two thirds of patients were female. 69% of cases had a length of stay of less than or equal to three days. The most prevalent concern expressed by patients related to receiving adequate information regarding their procedure and anesthesia (47% for surgery vs. 22% for anesthesia). Only a small percentage of patients expressed high levels of concern regarding COVID delays. Both our institutions scored highly for kindness and support from hospital staff.

Discussion: There was less anxiety in our patient population regarding COVID-19 in the preoperative period than anticipated. Our preadmission nurses screen patients for COVID symptoms 48-72 hours preoperatively and this may be of benefit for relieving some anxiety. Evaluation of comments by patients in the follow up interviews highlighted three main areas for quality improvement for patient management- 1) clarification of visiting guidelines and policies during COVID-19 for the post operative patient, 2) improving discharge and follow up instructions post operatively to avoid unnecessary stress regarding self management and 3) improved communication from surgical teams during their daily rounds.

REFERENCES:

1. Moerman. N, Frits S, Muller MJ, Oosting H " The Amsterdam preoperative anxiety and information scale (APAIS)" Anesthesia & Analgesia 82, vol.3 (1996):445-451

The Outcome of a Pre-Operative Screening Process in Identifying and Triaging Patients Requiring Optimization: A Quality Improvement Study

Caroline Gardiner[1], Stella Harley[2], Geoff Schierbeck[3], Kelly Mayson[4]

1 University of British Columbia, Vancouver, British Columbia, Canada.
2 Quality and Patient Safety, Vancouver Coastal Health, Vancouver, British Columbia, Canada.
3 Specialist Services Committee, Doctors of B.C., Vancouver, British Columbia, Canada.
4 Department of Anesthesia and Perioperative Care, Vancouver General and UBC Hospitals, Vancouver, British Columbia, Canada.

Introduction/Background: It is well established that surgical prehabilitation improves patient outcomes and is economically efficacious for healthcare systems [1]. The surgical optimization program recently instituted at our tertiary care center provides educational materials and/or interventions to activate appropriate patients in modifiable health domains including anemia, smoking cessation, pre-existing pain, social supports, nutrition, physical activity, frailty, glycemic control, and sleep apnea. Patients should be screened a minimum of 21 days in advance for the feasibility of a referral/intervention, and 7 days in advance to receive educational material. Our study aims to assess the impact of a new screening process in identifying and triaging patients requiring optimization, as well as the subsequent effect of SARS-CoV-2 on its efficacy.

Methods: Ethics approval was waived by the local REB. A new patient questionnaire, pre-operative bloodwork guidelines, and standard operating procedures for triaging were instituted. A retrospective chart review was performed on all patients undergoing urology, gynecology and spine surgeries at our center from November 2019 to mid-March 2020 as cohort 1 (N=594), and following hospital-level changes in response to COIVD-19, from March 15 to June 2020 as cohort 2 (N=352). Analysis was completed using descriptive statistics.

Results: Only 27.1% of cohort 1 (161/594) and 25.9% of cohort 2 (91/352) were screened >21 days in advance of surgery with the proper paperwork to be triaged. Of these patients, 83.2% in cohort 1 (134/161) and 82.4% in cohort 2 (75/91) had indications for optimization on the basis of their questionnaire and/or bloodwork. Overall the most frequent referrals were made to the perioperative blood management program (71/252) and pain services (50/252), while the most frequently distributed educational materials were for pain management (104/252) and nutrition (72/252). Diabetic patients accounted for 11.1% of cases (28/252), and only 32.1% of these had optimal glycemic control with HgbA1c <7.1% (9/28). 5.2% of patients were smokers (13/252) and 4.4% of patients were identified as potentially frail (11/252). 41.2% of cohort 1 (245/594) were not triaged due to lack of new proper paperwork at the time of screening, versus 8.2% of cohort 2 (29/352). In cohort 2 triaging was hampered by insufficient screening time with only 28.4% of patients (100/352) screened >21 days in advance of surgery as compared to 48% of cohort 1 (285/594).

Discussion: The majority of patients undergoing surgery at our hospital had indications for optimization. Pre-operative pain and anemia represent pervasive issues amenable to prehabilitation. The main barrier to engaging eligible patients in optimization is screening far enough in advance for an intervention to be feasible. COVID-19 further impaired timely screening, likely as a result of slates being created on shorter notice and inadequate nursing resources to screen for both optimization and COVID-19.

REFERENCES:

1. Meka, Arjun P., Uchenna Okoro, et al. What Should Pre-operative Clinics Do to Optimize Patients for Major Surgery? *Michigan Journal of Medicine* 1.1 (2016): 78-87.