

RESIDENTS' RESEARCH DAY

May 7, 2014 | Paetzold Health Education Centre | VGH



VISITING PROFESSOR

Daniel Birch MSc MD FRCS FACS

Medical Director - Centre of the Advancement of Minimally Invasive Surgery (CAMIS)

Associate Professor - Department of Surgery for the University of Alberta

Chair Member- Canadian Association of General Surgeons (CAGS) Committee on Laparoscopy and Endoscopy



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THE UNIVERSITY OF BRITISH COLUMBIA

General Surgery | Pediatric Surgery
Thoracic Surgery | Vascular Surgery





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Medical Director- Centre of the Advancement of Minimally Invasive Surgery (CAMIS)
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Royal Alexandra Hospital
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Laparoscopy and Endoscopy

Dr. Daniel W. Birch completed his residency at McMaster University in 1998 and did his fellowship training in minimally invasive surgery in Surrey (UK) at the Minimal Access Training Unit and also at the University of Kentucky.

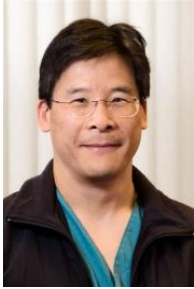
His pursuit of minimally invasive surgery continued when he was recruited to Capital Health in 2004 and as an associate professor in the Department of Surgery. Furthermore, he is the past chair of the Canadian Association of General Surgeons (CAGS) Committee on Laparoscopy and Endoscopy and is a founding member of the Canadian Association of Bariatric Physicians & Surgeons (CABPS).

Dr. Birch has presented his research at numerous venues such as the Canadian Surgery Forum, SAGES annual meeting, North Pacific Surgical Association annual meeting and the American Society for Metabolic and Bariatric Surgery.

His clinical expertise in minimally invasive procedures for gastrointestinal disease include, but are not limited to GERD, paraesophageal hernia, achalasia, gastric tumours, colorectal cancer and inflammatory bowel disease, abdominal wall hernia, and surgery for morbid obesity.



JUDGES



Stephen Chung, MD, PhD, FRCSC

Professor, Department of Surgery, University of British Columbia
Scientific Director, BC Transplant Society

Dr. Stephen Chung obtained his MD at the University of Toronto and completed his General Surgery training at the University of British Columbia. He then obtained his PhD degree from the University of Toronto, which was followed by a fellowship in hepatopancreatobiliary surgery & liver transplantation at the Toronto General Hospital. After his initial faculty appointment at the University Health Network in Toronto, he returned to Vancouver where his clinical practice at VGH includes hepatobiliary & pancreatic surgery, and liver transplantation.

Dr. Chung is very involved in research and education at the UBC Medical School where he has received several awards recognizing his contributions in these fields. He has over 100 peer-reviewed publications and holds research grant funding from the CIHR. He has served the medical community in a number of capacities including Head of UBC and VGH Division of General Surgery, Scientific Director for BC Transplant, and Medical Director of Surgical Services for VGH and UBC Hospital.

JUDGES



Sam M. Wiseman, MD, FRCSC, FACS

Associate Professor, Department of Surgery, University of British Columbia
Michael Smith Scholar
Member, Executive Council, BC Cancer Agency Surgical Oncology Network
Chair, Endocrine Tumor Group, BC Cancer Agency
Director of Research, Department of Surgery, St. Paul's Hospital & Providence Health

Dr. Wiseman graduated from medical school at the University of Manitoba in Winnipeg and also completed his residency training in General Surgery at the same institution, obtaining his Fellowship in Surgery from the Royal College of Physicians and Surgeons of Canada in 2000.

Dr. Wiseman subsequently moved to Buffalo New York where he spent three years in subspecialty fellowship training at Roswell Park Cancer Institute (RPCI). At RPCI he completed an American Head and Neck Society Advanced Training Council approved Head & Neck Surgery Fellowship, a Society of Surgical Oncology approved Surgical Oncology Fellowship, and an Oncology research fellowship that was focused on studying the molecular biology of cancer. After completing his training Dr. Wiseman joined the staff at St. Paul's Hospital in 2003 and is currently an Associate Professor in the Department of Surgery at the University of British Columbia.

While Dr. Wiseman's surgical practice is concentrated on the treatment of thyroid tumors and parathyroid disease, he still also carries out other cancer surgeries (such as sentinel node biopsy and lymph node dissection), and Endocrine Surgery operations (such as laparoscopic cholecystectomy and hernia repair).

While his clinical and basic research are especially focused on thyroid and parathyroid disease, Dr. Wiseman has also continued to study other human cancer types in the laboratory including; breast, colon, rectal, and lung cancers. His research has taken a translational approach, or applied new knowledge/discoveries learned in the laboratory to address important clinical diagnostic, prognostic and treatment questions. Dr. Wiseman has many research collaborators (both clinicians and scientists) and is involved in the training and supervision of many undergraduate, graduate, and postgraduate students.

Dr. Wiseman has published many clinical and scientific research papers and his research has been presented at countless meetings locally, nationally and internationally, and has been recognized with many honors and awards. Notably, in 2005 Dr. Wiseman was the first surgeon in the history of British Columbia to receive the prestigious Michael Smith Foundation for Health Research Scholar Award. Also notably, in 2007 Dr. Wiseman was selected from surgeons world-wide to receive the prestigious American College of Surgeons Travelling Fellowship to Japan. And recently Dr. Wiseman was a recipient of a 2008 Canada's Top 40 Under 40 Award. Canada's Top 40 Under 40 is a prestigious national award program that annually honours 40 Canadians in the private, public and not-for-profit sectors under the age of 40.

Throughout his career Dr. Wiseman has contributed to his profession and society in many different ways (other than clinical, research, and teaching contributions) including serving as a reviewer and editor for many medical journals, acting as a grant reviewer for several granting agencies, member of the Executive Council of the British Columbia Cancer Agency Surgical Oncology Network, Department of Surgery representative for the University of British Columbia Clinical Investigator Program, Endocrine Tumor Group Chair for the British Columbia Cancer Agency, and he is the Director of Research for the Department of Surgery St. Paul's Hospital & Providence Health Care.

2014 RESIDENTS' RESEARCH DAY WINNERS

Congratulations to last year's winners!

Best Research Presentation – 1st Prize

Dr. Zaheer Kanji Overall survival and clinical characteristics of pancreatic cancer in BRCA mutation carriers

Best Research Presentation – 2nd Prize

Dr. Nazgol Seyednejad Unplanned admission following daycare laparoscopic cholecystectomy

Best Research Proposal

Dr. Anu Ghuman What effect has the implementation of a “Colorectal Closure Bundle” in elective colorectal surgeries had on surgical site infection rates

Accredited by UBC CPD



CONTINUING PROFESSIONAL DEVELOPMENT
FACULTY OF MEDICINE

This event is an Accredited Group Learning Activity eligible for up to **7.0** Section 1 credits as defined by the Maintenance of Certification program of the Royal College of Physicians and Surgeons of Canada. This program has been reviewed and approved by UBC Division of Continuing Professional Development. Each physician should claim only those credits he/she actually spent in the activity.

0730-0800		Breakfast and Registration
0800-0810	Dr. Adam Meneghetti Dr. Neely Panton	Welcome and Introduction of Visiting Professor – Dr. Daniel Birch and Judges – Dr. Stephen Chung, Dr. Sam Wiseman

Resident Research Presentations

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0850-0905	Dr. Tiffany Chan & Dr. Julia Hollett	Developing a New UBC General Surgery Clerkship Curriculum Using the Kern Model	11
0910-0925	Dr. Sohrab Khorasani	The Treatment of Abdominoscrotal Hydrocele: Is There a Role for Non-operative Management	12
0930-0945	Dr. Sepehr Khorasani	Parallel or Divergent? The Evolution of Emergency General Surgery Service at 3 Canadian Teaching Hospitals	13
0945-0955	BREAK		
0955-1010	Dr. Atif Jastaniah	Fistulae Related to Colonic Diverticular Disease: The St. Paul’s Hospital Experience	14
1015-1030	Dr. Chris Zroback	Fluorescent Cholangiography in Laparoscopic Cholecystectomy: The Initial Canadian Experience	15
1035-1050	Dr. Cecily Jonker	Transanal Endoscopic Microsurgery Resection of Rectal Neuroendocrine Tumors : A Single Centre Canadian Experience	16
1055-1110	Dr. Farhana Shariff	Maternal and Community Predictors of Gastroschisis and Congenital Diaphragmatic Hernia in Canada	17
1115-1130	Dr. Alison Wallace	Electronic Cigarettes: Harmless Fog or Toxic Smog?	18
1135-1150	Dr. Joseph Margolick	A Systematic Review of the Risks and Benefits of Venous Thromboembolism Prophylaxis in Traumatic Brain injury	19
1155-1240	LUNCH		

Visiting Professor Lecture

1245-1340 Dr. Daniel Birch Abdominal Wall Hernia Repair – A Sisyphian Task

Research Opportunities

1345-1400 Dr. Francis Lynn Diabetes and Pancreas Development

1400-1415 Dr. Alice Mui Inflammatory Diseases and Cancer

Research Proposals

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1420-1435	Dr. Dimitrios Coutsinos	Cerebral Blood Flow Autoregulation and Cerebral Oximetry in Hepatic Failure	20
1435-1455	Dr. Sepehr Khorasani	Does FIT-Based Colon Cancer Screening Program Translate to Better Post-Operative Outcomes? A Retrospective Case-Control Study	21
1455-1505	Dr. Hamid Izadi	The Burden of Over- and Under-Triage In Inter-facility Transfers of Trauma Patients to British Columbia’s Largest Tertiary Trauma Centre	22
1505-1520	Dr. Sohrab Khorasani	Vital Tracker: A Novel Technological Solution for More Efficient Access to and More Effective Evaluation of Vital Signs in Inpatient Setting	24
1520-1535	Dr. Geoffrey Chow	Real time Laparoscopic Imaging Using Near-Infrared Light: Another Dimension (Video)	

RESIDENTS’ RESEARCH DAY & GRADUATING RESIDENTS’ DINNER

Shaughnessy Golf & Country Club | 4300 SW Marine Drive | Vancouver, BC V6N 4A6
Reception 18:00 | Dinner 19:00

ABSTRACTS

EXPLORING THE LEARNING EXPERIENCE OF THE GENERAL SURGERY CLERKSHIP

AUTHORS

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AFFILIATION

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BACKGROUND

In Canada, interest in surgical careers amongst medical students is declining. While many factors likely contribute to this trend, it is sufficiently worrisome to prompt an evaluation of the learning experience at the surgical undergraduate clerkship level. Ideal clerkship learning can be described as “supported participation in practice,” incorporating experiential learning in a social context that is directed toward learner-identified goals. However, there is minimal literature on what, or how, students want to learn during their surgical clerkship, or the experiences that merge what is ideal with what is practical. This study explores the learning experiences of medical students during their general surgery clerkship rotations and, where possible, describes them as positive or negative to fill this knowledge gap.

METHODS

Purposive and theoretical sampling techniques were used to select medical students at the University of British Columbia and University of Calgary. One-on-one semi-structured interviews were conducted and transcribed verbatim. Ten interviews have been completed to date. An additional 5-7 more are anticipated to yield thematic saturation. Thematic analysis of transcripts using grounded theory methods described by Corbin and Strauss with the assistance of NVivo software is in progress. This consists of open and axial coding phases with constant comparison.

PRELIMINARY RESULTS

Students favorably describe experiences that promote critical thinking by providing independence and responsibility through direct patient care. The support from a teacher with whom they have established a teaching alliance creates an environment where students can comfortably internalize constructive feedback, reflect, and improve. These qualities transform the learning experience from “passive” to “active,” which identifies the learning experience as “positive

CONCLUSIONS

Identification of positive and negative learning experiences in the general surgery clerkship may: (1) encourage curricula review at various medical schools in Canada, (2) improve the educational experience for future students, and (3) promote the specialty of general surgery overall.

CHARACTERIZING THE CYTOKINE MILIEU IN ABDOMINAL SEPSIS: INTERIM RESULTS

AUTHORS

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²Clinician Investigator Program, UBC

BACKGROUND

The clinical trajectory of patients with abdominal sepsis is modulated by access to surgery, extent of operation, and underlying physiologic reserve. Characterization of the cytokine milieu in the immediate perioperative period may shed insight into the underlying inflammatory state of patients and provide useful markers of sepsis resolution.

METHODS

Prospective cohort study of patients fulfilling 2 or more SIRS criteria admitted to hospital with abdominal sepsis requiring inpatient management. Serial blood collection was performed at specified time intervals (immediately prior to skin incision, in recovery post-op, POD2, POD5, and at 4-6 weeks post discharge). Peritoneal fluid collection was performed at the time of surgery. Samples were analyzed using a custom Luminex assay to determine serum and peritoneal fluid concentrations of human HGF, IFN- γ , TNF- α , IL-10, IL-17, IL-1RA, IL-2R, IL-5, IL-6, IL-8, MCP-1, MIP-1 α , and RANTES.

RESULTS

A total of 61 patients meeting inclusion criteria were recruited. Interim analysis of cytokines was performed on the initial 38 patients. Male patients comprised 69% of the cohort. Most common etiologies of abdominal sepsis were perforated appendicitis (13.9%), non-perforated appendicitis (13.9%), small bowel obstruction (11.1%), and colonic perforation (11.1%). Rate of ICU admission was 38.9%, in hospital mortality was 22%. Significantly higher concentrations of HGF ($p=0.005$) and IL1-RA ($p=0.024$) were found in pre-operative serum and IL-17 was significantly higher ($p=0.035$) in peritoneal fluid of non-survivors. The observed significant difference in HGF concentrations persisted until POD5. Other promising candidates identified include POD2 IL-5 and IL-10, and POD5 MCP-1, HGF, and IL-1RA.

CONCLUSIONS

Multiple promising candidates were identified for distinguishing survivors and non survivors and different timepoints of sepsis recovery. Since each cytokine has a specific peak in relation to onset of stimulus, further delineation of the utility of various cytokines at different timepoints remains to be investigated.

BLUEPRINTING EDUCATIONAL STRATEGIES FOR A GENERAL SURGERY CLERKSHIP USING THE KERN MODEL

AUTHORS

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AFFILIATION

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²UBC Division of General Surgery

BACKGROUND

The Canadian Royal College Competence By Design (CBD) Project outlines milestones for the undergraduate, postgraduate, and practice level to facilitate transition of trainees through their careers. While undergraduate programs are not required to follow this framework, medical educators must ensure that curriculum delivery meets the needs of learners while reflecting advances in medical education. Here, we describe an academic approach to curriculum development for the UBC general surgery clerkship using the Kern Model, an iterative six-step method for curriculum design and evaluation, including a needs assessment, content determination, and choice of educational strategies.

METHODS

To determine content, all objectives from the Medical Council of Canada Qualifying Exam (MCCQE) Part 1 relevant to the general surgery clerkship were identified, with additional content added by surgical educators within our institution. Objectives were written in a competency-based manner. Royal College Undergraduate Milestones from the “Medical Expert” role determined competency level. Competencies were reviewed and consensus reached by a panel of experts. All rotation objectives were organized into an electronic blueprint. These were mapped to cognitive, psychomotor, or affective domains to determine an appropriate corresponding teaching strategy.

RESULTS

A list of general surgery clerkship competencies was created that incorporated learner needs and complements the Royal College CBD project. A curriculum blueprint was created to map objectives to optimal teaching method and environment based on feasibility within our program.

CONCLUSIONS

Times of transition create the opportunity to critically evaluate existing education programs. The use of a structured approach to curriculum development facilitates an alignment of learner needs with accreditation standards in an evidence-based fashion. As per the Kern model, this work will serve as the foundation for learner and program evaluation as competencies and strategies are implemented.

THE TREATMENT OF ABDOMINOSCROTAL HYDROCELE: IS THERE A ROLE FOR NON-OPERATIVE MANGEMENT?

AUTHORS

Khorasani, Mohammadali MD¹, Murphy, James MD, MScEng, BEng, FRCSC², Jamieson, Douglas RCPC³

AFFILIATION

¹UBC Division of General Surgery

²BC Children's Hospital, General Surgery

³BC Children's Hospital, Radiology

BACKGROUND

Abdominoscrotal hydrocele (ASH) is an uncommon entity. Until now, the recommended treatment has been surgical with only one successful case of non-operative management in literature. We report the largest single institution ASH case series to date, providing insights into outcomes of non-operative approach to ASH. In addition, we discuss use of Spring Back Sign and dynamic ultrasound in evaluation of scrotal swelling and relate our findings to pathophysiology of ASH.

METHODS

Retrospective chart review of patients treated from 1994 to 2015 for ASH at British Columbia Children's Hospital, Canada.

RESULTS

Thirty patients were identified with ASH, 29 included in the analysis. Twenty-four (0.83) patients had the Spring Back Sign. In 9 patients (0.31) operative management was chosen with no observation period. Twenty out of 29 patients (0.69) were initially managed expectantly. Sixteen of the 20 patients (0.80) had at least resolution of their abdominal component. Twelve of these patients had complete resolution of ASH; four had the resolution of abdominal component with scrotal portion managed operatively; in 4 patients (0.20) ASH persisted despite observation, requiring operative management.

CONCLUSIONS

ASH should be included in the differential diagnosis of scrotal swelling when Spring Back Sign is present. We recommend dynamic ultrasound to look for an abdominal component. Observation is a reasonable first step in managing patients with uncomplicated ASH. It can result in complete resolution of ASH or its abdominal component leaving a scrotal portion that can be managed with less challenging dissection and high ligation of the processus vaginalis.

PARALLEL OR DIVERGENT? THE EVOLUTION OF EMERGENCY GENERAL SURGERY SERVICE AND 3 CANADIAN TEACHING HOSPITALS

AUTHORS

Khorasani, Sepehr MD¹; Anderson, Blaire MD²; Switzer, Noah MD²; Sutherland, Jason PhD¹; Hameed, M. MD MPH FRCSC FACS¹; de Gara, Chris MB MS FRCSC FACS²

AFFILIATION

¹University of British Columbia, Vancouver, British Columbia

²University of Alberta, Edmonton, Alberta

BACKGROUND

Emergency general surgery (EGS) has evolved from a system of individual surgeon responsibility to one of collective responsibility provided by call groups and dedicated EGS teams. Interestingly, the specific structure and function of EGS services are dependent on local contexts, and a spectrum of models has evolved in hospitals across the country. This is one of the first multicenter studies to compare the way emerging EGS services in Canada have evolved to confront modern challenges in emergency surgical care.

METHODS

The delivery **structure** of EGS services in 3 major teaching hospitals (A, B, and C) was characterized through structured interviews with surgical residents and attending surgeons. Next, the **process** of care, with respect to timing of operations, for acute cholecystitis and appendicitis was compared using retrospective analysis of prospectively collected institutional databases over a 12-month period. ICD-10-CA coding was used to match diagnoses. Outcomes included admission-to-operating room (OR) time interval, daytime (0700h-1500h), evening (1500h-2300h) or nighttime (2300h-0700h) procedure, and hospital length of stay (LOS). Additionally, surgeon satisfaction in centers A and B was compared using a survey tool. Questions were designed to capture surgeon practice patterns, call volumes, schedule disruptions, and perceptions of quality and timeliness of care. Overall personal satisfaction with EGS services was also assessed.

RESULTS

Marked variability in structure and patterns of resource utilization were observed. Centre A had access to a dedicated daytime OR only (0730h-1700h), Centre B had a consultant led team only, and Centre C had both dedicated daytime OR availability (0730h-1500h) and a consultant led team. Admission-to-OR interval (hh:mm) was not different for appendectomies (A-05:51, B-07:42, C-06:18; P=0.07); it was significantly longer for cholecystectomies at Centre C (A-30:37, B-24:52, C-41:22; P<0.01). Centre B surgeons were operating more during nighttime for appendectomies (A-7.7%, B-34.1%, C-9.0%; P<0.01) and cholecystectomies (A-3.4%, B-26.7%, C-0%; P<0.01). However, for both procedures, there was no significant difference with respect to LOS (days) (appendectomy A-2.6, B-2.3, C-2.6, P<0.01; cholecystectomy A-3.5, B-3.8, C-5.7, P<0.01). Compared to Centre A, surgeons in Centre B were more likely to be unsatisfied with OR availability and report perceived patient care compromise as a result of inadequate daytime OR access. Surgeons in both centers were found to be more satisfied with their call experience after the establishment of EGS services

CONCLUSIONS

Daytime OR access, nighttime operating, and differences in admission-to-OR time did not affect LOS. Surgeon satisfaction with EGS models, however, did appear to be influenced by timely daytime access to the OR. Limited OR accessibility was associated with lower surgeon satisfaction and perceived negative effects on patient care. As the future of general surgery, EGS services will continue to evolve optimally to suit local environments; focus should be on structure and process reforms directed at improved patient care and surgeon satisfaction.

FISTULAE RELATED TO COLONIC DIVERTICULAR DISEASE: THE ST. PAUL'S EXPERIENCE

AUTHORS

Jastaniah, Atif MBBS, Brown, Carl MD, MSc, FRCSC, Phang, Terry MSc, MD, FRCSC, FACS, FABCRS, Raval, Manoj BSc, MSc, MD, FRCSC, Karimuddin, Ahmer BSc, MC, MAEd, FRCSC.

AFFILIATION

UBC Division of General Surgery

BACKGROUND

Fistulae related to Colonic Diverticulitis remain a complex problem. The role of pre-operative investigations, laparoscopy and proximal diversion remains controversial. Our aim is to investigate our institutional management of this complex problem.

METHODS

A retrospective review of patients undergoing surgery for diverticular disease at St. Paul's Hospital (2006-14) was undertaken. From this, patients with fistulae were identified. Patient demographics, comorbidities, pre-operative investigations, type of surgery, proximal diversion, operating time, hospital stay and complications were recovered.

RESULTS

57 patients, median age 63, with a majority (63.2%) women were identified. 89.5% of patients had pre-operative colonoscopy, 87.7% of patients had pre-operative CT, with 21.1% undergoing cystoscopy. 88.6% of fistulae were identified accurately preoperatively. 53 patients underwent resection and primary anastomosis. 23 (40.4%) were attempted laparoscopically, with 8 (34.8%) converted to open due to technical issues. 8 patients were diverted at surgery. 21.1% of patients had multiple fistulae. 54.4% had colovesicular, with another 33.3% colovaginal. 14% of patients had colocutaneous fistulae, with 5.3% coloenteric. 16 (28.1%) received an omental patch. The bladder was managed in colovesicular fistulae by suture repair in 54.8%, with no repair required in 45.2%.

These patients had a mean hospital stay of 11.9 days (2-43), with a mean operative time of 2 hrs, 47 mins (1:07 – 5:42), with an average time for open vs. MIS attempted 2h 59m vs. 2h 33m respectively. 8 patients (14%) had complications \geq Clavien-Dindo 3. There was 1 death, and 3 anastomotic leaks (5.3%) with 2 requiring surgery. There were 2 (3.5%) fascial dehiscences requiring emergent surgery. At early follow up, 1 patient had recurrence of the fistula.

CONCLUSIONS

Diverticular related fistulae represent a complicated surgical problem and carry significant diagnostic and management challenges. Pre-operative investigations, while helpful, do not identify all fistulae. A minimally invasive approach is possible, and recommended. Routine diversion is not necessary.

FLUORESCENT CHOLANGIOGRAPHY IN LAPAROSCOPIC CHOLECYSTECTOMY: THE INITIAL CANADIAN EXPERIENCE

AUTHORS

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AFFILIATION

¹UBC Division of General Surgery

BACKGROUND

Bile duct injury rates have not decreased despite increased rates of laparoscopic cholecystectomy. Fluorescent cholangiography using Indocyanine Green (ICG) is a new approach that facilitates real-time intraoperative identification of biliary anatomy. This technology is hoped to improve surgical practice and the safety of dissection within Calot's triangle.

METHODS

In the use of Endoscopic Fluorescent Imaging at UBC hospital, patient demographics, intraoperative details and surgeon subjective data were recorded. The primary goal was to identify real-time rates of cystic and common bile duct identification. Survey questions were obtained regarding the functionality, use, and perceived benefit of the device.

RESULTS

Near infrared imaging with ICG cholangiography has been used in 7 biliary cases to date in Canada. Indications have been for biliary colic and chronic cholecystitis with prior placement of cholecystostomy tubes. Visualization rates of the cystic and common bile ducts have been high, and fluorescent cholangiography incorporates smoothly into the operation. This technology has not impacted operative slates, and has facilitated safe dissection of the critical view of safety.

CONCLUSIONS

Fluorescent cholangiography allows for non-invasive real time visualization of the extra-hepatic biliary tree. This novel technique has received positive feedback in this initial Canadian use and will likely be a durable adjunct for laparoscopic surgery.

TRANSANAL ENDOSCOPIC MICROSURGERY RESECTION OF RECTAL NEUROENDOCRINE TUMORS: A SINGLE CENTRE CANADIAN EXPERIENCE

AUTHORS

Jonker, C MD; Karimuddin, A MD; Phang, T MD; Raval, M MD; Brown, CJ MD

AFFILIATION

UBC, Department of General Surgery

BACKGROUND

Transanal endoscopic microsurgery (TEM) has been shown to be a safe and effective treatment option for early rectal cancers. Few studies have looked at the use of TEM for small rectal neuroendocrine tumours (NETs), which have historically been treated with radical resection when not amenable to complete colonoscopic snare. Our objective was to review the experience of TEM resection of rectal NETs at a quaternary referral center.

METHODS

Between April 2006 and October 2014, data for all patients undergoing TEM procedure at St. Paul's Hospital (SPH) were maintained in the SPH TEM database. Patient demographics, tumor characteristics, operative details and postoperative course were collected prospectively and annual follow up performed by a research coordinator. All patients with preoperative or postoperative pathology confirmed NET were included in this study. Our primary outcome is recurrence free survival.

RESULTS

Over 8 years, 17 patients were treated by TEM for rectal NET at SPH. There were slightly more female patients (10:7, 65%) and the average age was 57.9 years. Less than half of patients were treated with primary excision (7/17, 41%), while the remainder were for re-excision for positive margins after colonoscopic resection. Most re-excisions were immediately after colonoscopic removal, but 1 (6%) was for excision of a recurrence a year post colonoscopic removal. The average tumor size was 7.6mm (1-18) and the average height was 6.5cm (3-10) from the anal verge. Histopathologically, none of the re-excised carcinoids showed residual disease and all of the resections had negative margins. Average operative time was 39 min and all patients were discharged the day of surgery. There was no morbidity post operatively. Median follow up after surgery is 27.9 months (2-93), and there have been no local or distant recurrences in this cohort.

CONCLUSIONS

TEM is a safe and effective primary therapy and definitive treatment after incomplete endoscopic removal in patients with small (<2cm) low grade rectal NETs.

MATERNAL AND COMMUNITY PREDICTORS OF GASTROSCHISIS AND CONGENITAL DIAPHRAGMATIC HERNIA IN CANADA

AUTHORS

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AFFILIATION

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BACKGROUND

The incidence of gastroschisis (GS) has increased globally. Maternal age and smoking are recognized risk factors and aboriginal communities may be more commonly affected. Factors leading to this increased incidence are otherwise unclear. We investigate maternal sociodemography, air pollution (PM_{2.5}) and personal risk factors comparing mothers of infants with GS with a control group of infants with diaphragmatic hernia (CDH).

METHODS

Maternal and infant data for GS and CDH was collected from a national, disease-specific database (May 2006- June 2013). Maternal community sociodemographic information was derived from the Canadian 2006 Census. Univariate and multivariable analyses were performed examining maternal factors related to diagnosis of GS and infant outcomes.

RESULTS

Infants with GS come from poorer, less educated communities with more unemployment, less pollution, fewer immigrants, and more aboriginal peoples than infants with CDH. . Teen maternal age (26.5% vs 4.0%, $p=0.002$), smoking (31.8% vs 10.6%, $p<0.0001$) and illicit drug use (20% vs 9.5%, $p<0.0001$) are associated with GS. Maternal community unemployment is associated with increased ventilation days and maternal smoking is associated with prolonged hospitalization.

CONCLUSIONS

Mothers of infants with GS are younger, more likely to smoke and come from socially disadvantaged communities with higher proportions of aboriginal peoples but lower levels of PM_{2.5} compared to mothers of CDH infants. Maternal drug use and cigarette smoking impact outcomes for infants with GS and young maternal age predicts death in CDH. Identification of maternal risks provides direction for prenatal screening and public health interventions.

ELECTRONIC CIGARETTES: HARMLESS FOG OR TOXIC SMOG?

AUTHORS

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AFFILIATION

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2) Department of Medicine, Division of Pulmonary, Sleep and Critical Care Medicine, Mount Sinai, New York, NY

BACKGROUND

Electronic cigarettes, or e-cigarettes, are claimed to be safer than cigarettes, however, the public health effects of e-cigarettes are poorly understood and clinical studies will take years to complete.

METHODS

Using an in vivo mouse model, we examined the lung health effects of exposure to e-cigarette vapour and assessed key parameters in the development of COPD. Four groups, consisting of 20 mice each, were exposed to e-cigarette vapour for 1 hour daily for 8 days (acute exposure) or daily for 4 months (chronic exposure). Group 1 was exposed to saline, group 2 was exposed to vehicle consisting of 50% propylene glycol and 50% vegetable glycerin, group 3 received vehicle plus 18mg/ml of nicotine, and group 4 received vehicle plus 36 mg/ml of nicotine.

RESULTS

Our results indicate that acute e-cigarette smoke exposure increases lung inflammation in exposed mice. Chronic e-cigarette smoke exposure induces airway remodeling, causes emphysematous changes in the lung, and promotes airway hyper-reactivity.

CONCLUSIONS

These findings demonstrate the adverse health affects associated with e-cigarette use and show that exposure to these products produces similar results to cigarette smoke exposure. The results also implicate nicotine as a causative factor in the pathogenesis of COPD.

A SYSTEMATIC REVIEW OF THE RISKS AND BENEFITS OF VENOUS THROMBOEMBOLISM PROPHYLAXIS IN TRAUMATIC BRAIN INJURY

AUTHORS

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BACKGROUND

Patients suffering from traumatic brain injury (TBI) are at increased risk of venous thromboembolism (VTE). However, initiation of prophylaxis (VTEp) may cause further intracranial hemorrhage. We reviewed the literature to determine the post-injury time interval at which VTEp can be administered without risk of TBI expansion.

METHODS

MEDLINE and EMBASE were searched. Inclusion criteria were: studies investigating timing and safety of VTEp in TBI patients not previously on oral anticoagulation. Two investigators extracted data and graded the papers based on levels of evidence. Consultation with local experts was conducted to attain consensus and additional expert opinion.

RESULTS

A total of 408 studies were screened. Three-hundred-and-eighty-seven studies were excluded for the following reasons: literature reviews, studies on rehabilitation patients, those with hemorrhagic strokes or taking oral anticoagulation. Forty-five studies were reviewed in-entirety and 21 were included in the systematic review. There were 2 prospective randomized trials and 19 comparative studies. One study – a retrospective review of 1215 patients – suggested low-molecular-weight-heparin (LMWH) is a risk factor for TBI progression. One retrospective review found unfractionated-heparin was associated with higher rates of TBI progression than LMWH. Although there was study heterogeneity, hemorrhagic extension was associated with more severe TBI. Key limitations in the literature include: selection biases, patient heterogeneity and retrospective analysis.

CONCLUSIONS

Literature suggests that administering VTEp 48 hours post-injury may be safe for patients with low-hemorrhagic risk TBIs and stable injury on repeat imaging. A clinical practice guideline (CPG) was developed at our level-1 trauma center. Future research will prospectively test our CPG.

CEREBRAL BLOOD FLOW AUTOREGULATION AND CEREBREAL OXIMETRY IN HEPATIC FAILURE

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SUMMARY

Cerebral blood flow (CBF) perfuses the brain over a wide range of Mean Arterial Pressures (MAP) due to cerebral autoregulation. In healthy individuals, the neurovasculature vasodilates and vasoconstricts in order to maintain adequate cerebral perfusion when the MAP is between 50 and 150mmHg. However, in certain disease processes such as hypertension and following a traumatic brain injury, the curve is shifted to the right and MAP maintenance above 65mmHg is recommended for adequate cerebral perfusion. The higher MAP targets have been shown to be associated with decreased morbidity in these disease states.

Liver disease in the critical care setting can be due to an acute decompensation in an otherwise healthy individual or as a complication of chronic underlying liver or comorbid diseases. In this patient population, there is a high propensity of rapid deterioration with regards to hemodynamic instability and decline in mental status due to hepatic encephalopathy. The exact mechanisms associated with hepatic encephalopathy remain unclear, however; hyperammonemia, systemic inflammation, oxidative stress and their impact on CBF are key modulators to progression of disease. Indeed, the changes in cerebral autoregulation in the context of hepatic failure remain to be elucidated and the associations between specific MAP ranges to optimize CBF have yet to be studied. As such, novel techniques and approaches are required in order to enhance our ability to care for those with hepatic dysfunction.

We propose a prospective, single-centre, individual matched cohort study to determine if patients with liver failure have different MAP requirements to maintain adequate CBF. The zone of autoregulation will be assessed using a non-invasive Near-Infrared Spectroscopy Trans-cranial Doppler Ultrasonography, which examines how fluctuations in MAP change regional saturation of cerebral oxygenation (rSO₂). We will then establish the correlation coefficient (CO_x) between MAP and rSO₂ thereby determining an optimal MAP range for enhancement of CBF. From the data obtained, we can assess variations in CBF and MAP in hepatic dysfunction in both the acute and chronic setting by proposing specific MAP ranges. In addition, we can also determine optimal parameters for those in that have undergone or that are scheduled to undergo liver transplantation in the critical care setting.

DOES FIT-BASED COLON CANCER SCREENING PROGRAM TRANSLATE TO BETTER POST-OPERATIVE OUTCOMES? RETROSPECTIVE CASE-CONTROL STUDY

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SUMMARY

This retrospective case-control study aims to compare the post-operative outcomes of patients with colorectal cancers identified through FIT-based colon screening program with those whose colorectal cancer was identified from symptomatic presentation.

THE BURDEN OF OVER- AND UNDER-TRIAGE IN INTER-FACILITY TRANSFERS OF TRAUMA PATIENTS TO BRITISH COLUMBIA'S LARGEST TERTIARY TRAUMA CENTRE

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ABSTRACT

Advances in pre-hospital and tertiary trauma care have significantly improved the care of the injured patient. However, triage and timely transport of these patients to an appropriate facility remains a challenge. Various pre-hospital triage protocols exist to guide appropriate triage from the field, but there has been little analysis of the appropriateness of inter-facility transfer of trauma patients. In this paper we propose a retrospective case series study to examine over- and under-triage rates in inter-facility transfers of trauma patients from lower acuity hospitals to a tertiary trauma centre in Vancouver.

BACKGROUND

Tertiary trauma care is appropriate and cost effective in a select group of severely injured patients. Despite advances in tertiary trauma care, the pre-hospital triage of the severely injured patient remains a challenge. Overtriage represents a potentially high resource burden, while undertriage prevents timely care of the severely injured patient. Transfer from lower acuity settings to a higher level trauma centre has been shown to reduce morbidity and mortality. There has been a recent drive in several jurisdictions to institute validated standardized protocols to improve triage. Triage protocols in British Columbia have not yet been studied in this regard. It is therefore not clear what proportion of patients that are transported to Vancouver General Hospital (VGH) are appropriate transfers.

In this paper, we aim to study the rate of under- and overtriage in patients transferred to VGH in a retrospective manner. Our aim is to:

1. Develop a better understanding of the appropriateness of triage practices
2. Enable development / improvement of protocols to reduce under-triage
3. Possibly reduce over-triage

METHOD

Study design:

Retrospective case series

Patient population:

Admission information will be analyzed for all trauma patients transferred to VGH from January 1st, 2009 to Dec 31st, 2014. This analysis will be conducted in a retrospective manner by means of chart review. Subjects will include all adult patients which were transferred to VGH from another acute care hospital for the purpose of assessment and treatment of severe injuries.

Definitions:

Trauma severity:

Most common measure of severe injury has been the injury severity score (ISS). The ISS is a validated measure of traumatic injury, which is sensitive and specific, and correlates directly to various measures of severity such as mortality, morbidity, hospital stay, etc. The ISS assigns an Abbreviated Injury Scale (AIS) score of 0-6 to 6 body regions. The top 3 scores are squared and summed, and can range from 1 to 75.

The American College of Surgeons Committee on Trauma (ACS-COT) guidelines for field triage of injured patients uses $ISS \geq 16$ as a threshold for severe injury requiring tertiary trauma care. Other retrospective studies of trauma triage have also used this cutoff.

However, more recently certain shortcomings of the ISS have been outlined, which are explained below. Several alternative scoring systems have been proposed. Among these the New Injury Severity Score (NISS) may potentially replace ISS given several key advantages. These include a more balanced tally of injury scores, ease of calculation, and higher sensitivity. Other scoring systems include the Anatomic Profile (AP), and Penetrating Abdominal Trauma Index (PATI).

Currently the BC ambulance service does not calculate ISS for trauma patients. As a result this or any other score will have to be calculated based on recorded EMS assessment, as well as post-admission clinical summaries.

Finally, certain authors have advocated the use of measures of resource utilization as a means of better defining injury severity. These include but not limited to, admission longer than 48-72 hours, ICU admission, and need for surgery in less than 24-48 hours.

Undertriage:

This definition has previously been primarily based on ISS scores. However, in this study we propose to use injury severity definitions that incorporate more information than solely an injury score. Question: what proportion of the transferred trauma patients met our definition of severe injury and therefore should have been transported to VGH from the field.

Overtriage:

Question: What proportion of transferred patients did not meet our definition of severe injury and therefore should not have been transferred to VGH.

STUDY LIMITATIONS

1. Injury severity definitions ISS
 - a. Score will be affected by charting practices of trauma bay staff
 - b. Degree of completeness may be different among hospitals
 - c. If EMS notes incomplete, must ensure ISS scores are calculated based on initial assessment in trauma bay and not post imaging
2. Resource utilization measures
 - a. Length of admission
 - b. ICU admission
 - c. Time to surgery
3. Effect of EMS crew proximity to a trauma centre
4. Charting practices
 - a. Degree of completeness may be different among hospitals

TIMELINE

Literature review – Nearly complete

Ethics approval – 1-2 months

Chart reviews– 4-6 months

Integration and analysis – 2-4 months

VITAL TRACKER: A NOVEL TECHNOLOGICAL SOLUTION FOR MORE EFFICIENT ACCESS TO AND MORE EFFECTIVE EVALUATION OF VITAL SIGNS IN INPATIENT SETTING

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SUMMARY

Evaluation of recorded vital signs is an integral part of daily assessment of inpatients by clinicians during rounds. Point-of-care acquisition of vitals and other physiological data can alert clinicians early about patient's status. Currently, paper-based nursing documentation of vital signs is the most common method used across British Columbia. Alternatively, elsewhere in Canada and across the world, recording vital signs onto and accessing them from the Electronic Medical Records (EMR) is becoming more widely used. Either of these methods presents obstacles to efficient and timely access to vital signs, effective evaluation of this important information as well as barriers to physicians' and nursing workflow. These challenges can affect patient care negatively. We are in the process of designing and building a technological solution to address these issues.