Session Topic Area: Colorectal / Session Number: 1 / Order of presentation: 1

A Multidimensional Look at Quality-of-life Improvements with Rectal Prolapse Surgery: A Prospective Cohort Study

Authors: Rajan Bola1, Michael Guo1, Ahmer Karimuddin2, Guiping Liu1, Trafford Crump3, Jason Sutherland1

Institutions: 1) Centre for Health Services and Policy Research, University of British Columbia; 2) Section of Colorectal Surgery, Department of Surgery, University of British Columbia; 3) Department of Surgery, University of Calgary

Presenter: Rajan Bola, MSc

Background

Understanding the impacts of rectal prolapse repair from our patients' perspective is crucial to the surgeon-patient discussion when deciding on surgery. This study aims to measure the impact of rectal prolapse surgery on different aspects of quality-of-life (QoL), including pain interference, fecal incontinence severity, and disease-specific QoL.

Methods

This study is based on a prospectively recruited cohort of patients scheduled for rectal prolapse repair in British Columbia between 2013-2021. Patients were surveyed before and 6-months after surgery using patient-reported outcomes (PROs). Patients completed the EuroQol Five-Dimension Instrument (EQ-5D-5L), Fecal Incontinence Severity Index (FISI), Pain Intensity, Interference with Enjoyment of Life and General Activity (PEG), and Gastrointestinal Quality of Life Index (GIQLI) questionnaires. Responses were assessed for meeting minimally important difference (MID) thresholds. Multivariable linear regression was used to examine associations between patients' symptom severity and QoL with surgical wait-time, adjusting for differences in demographics and surgical approaches.

Results

For the 46 patients included, significant improvements in overall health status (EQ-5D-5L; $p<0.001$), fecal incontinence severity (FISI; $p=0.002$), pain interference (PEG; $p<0.001$), and gastrointestinal QoL (GIQLI; $p=0.004$) were observed after surgery. Most patients achieved the MID score thresholds for the EQ-5D-5L (67.4%), FISI (84.2%), PEG (60.9%), and GIQLI (68.4%), indicating that the improvements in health status or symptoms were also clinically meaningful. Patients waiting longer for surgery reported higher levels of postoperative pain interference ($p=0.02$).

Conclusion

Surgical repair of rectal prolapse improves patients' overall quality of life with meaningful improvements in fecal incontinence severity and symptom interference with daily activities.

Resident Competition: yes

Session Topic Area: Colorectal / Session Number: 1 / Order of presentation: 2

Effects of Diet and Antibiotics on Anastomotic Healing: A Mouse Model Study with Varied Dietary Fibre and Fat, and Pre-operative Antibiotics.

Authors: Michael Guo, Patricia Balmes, Jerry Liu, Ali Motmedi, Amandeep Ghuman, P Terry Phang.

Institutions: University of British Columbia, St. Paul's Hospital Colorectal Surgery.

Presenter: Michael Guo, BSc, MD MHSc

Introduction: Gut dysbiosis caused by a high-fat-low-fiber Western diet (WD) and pre-operative antibiotics may promote the growth of pathogenic bacteria such as Enterococcus faecalis, which can degrade collagen and impair wound healing. This study investigated the impact of diet and pre-operative antibiotics on colonic anastomotic healing using a mouse model.

Methods: Male C57BL/6J mice (n=13 per group) were divided into low-fat-high-fiber (standard diet, SD) or WD groups for 6 weeks. Subsequently, mice received either pre-operative antibiotics or a control sham before undergoing a surgical procedure to create a colonic anastomosis. After 7 days, the in vivo anastomosis was assessed using an established anastomotic healing score. Microbiota composition and biodiversity were analyzed in anastomotic tissue and surrounding stool samples.

Results: Mice fed a WD exhibited shorter post-surgery survival (5.2±2.3 vs. 6.9±2.3 days, p=0.022), greater weight loss (5.55±3.80g vs. 2.65±2.36g, p=0.03), and reduced biodiversity in anastomotic tissue and stool samples compared to mice fed an SD. Mice receiving pre-operative antibiotics demonstrated improved anastomotic healing scores (1.33 ± 0.65 vs. 2.08 ± 0.79, p=0.02) and reduced growth of Enterococcus faecalis in tissue and stool (p=0.02 for tissue, p=0.02 for stool) compared to mice without antibiotics. Improved anastomotic healing scores correlated with lower relative abundance of Enterococcaceae (p=0.04) and higher levels of Collagen III ($p<0.05$) in anastomotic tissue.

Conclusion: Mice fed a SD exhibited enhanced post-operative recovery and increased biodiversity in surrounding microbiomes. Pre-operative antibiotics improved anastomotic healing by suppressing the growth of Enterococcus faecalis, thereby reducing collagen III degradation.

Resident Competition: yes

Session Topic Area: Colorectal / Session Number: 1 / Order of presentation: 3

Modified 2-stage ileal pouch-anal anastomosis (IPAA) results in similar postoperative complication rates and long-term functional outcomes compared to 3-stage IPAA

Authors: Elizabeth Clement

Institutions: University of British Columbia

Presenter: Elizabeth Clement, MD, Fellow

Background: For patients with ulcerative colitis (UC), reconstructive IPAA is traditionally created in 3-stages: subtotal colectomy with end ileostomy, proctectomy with pouch creation and diverting loop ileostomy, then subsequent ileostomy closure. With favourable patient and intraoperative surgical factors, a modified 2-stage approach can be used without diversion and a third operation is avoided. This single centre study compares perioperative complications, quality of life (QOL) and functional outcomes of 3-stage versus modified 2-stage IPAA.

Methods: A chart review was performed for adult patients undergoing IPAA for UC between 2010 and 2020. Demographics and perioperative complications were collected. Quality of life and functional outcomes were assessed with EQ-5D-3L Quality of Life and Pouch Functional Score questionnaires.

Results: 152 patients were identified; 43 modified two-stage IPAA and 109 3-stage IPAA. There was no significant difference in rates of anastomotic leak (4.7% vs. 4.6%), abscess (11.6% vs. 11.9%) or ileus (16% vs. 9.1%) when comparing modified 2-stage and 3-stage approaches ($p>0.05$). Modified 2-stage had a lower rate of bowel obstruction compared to 3-stage IPAA (3.7% vs. 15.2%, $p=0.006$). Ninety-two patients completed questionnaires, which demonstrated no significant difference in QOL scores or pouch function ($p>0.05$).

Conclusion: Perioperative complications, QOL and functional outcomes are similar for 3-stage IPAA and modified 2-stage IPAA. Modified 2-stage IPAA is safe and has less postoperative bowel obstruction than traditional 3-stage IPAA.

Resident Competition: yes

Session Topic Area: Colorectal / Session Number: 1 / Order of presentation: 4

Outcome of preoperative percutaneous drainage of intra-abdominal abscess versus initial surgery in patients with Crohn's disease.

Authors: Dr Raghad AlShammari, , Dr Mohammed AlAbri, Dr. Ahmer A. Karimuddin, Dr. Carl J. Brown, Dr. Manoj J. Raval, Dr Amandeep (ANU) Ghuman, Dr. P. Terry Phang

Institutions: University of British Columbia

Presenter: Raghad Alshammari, MD

Background

Previous studies have compared the percutaneous and surgical drainage techniques for intraabdominal abscesses among patients with Crohn's Disease (CD). However, few studies have compared the outcomes of preoperative percutaneous drainage to surgical drainage alone.

Methods

This retrospective study included patients with CD, who underwent surgical drainage of intra-abdominal abscess and bowel resection from 2006 to 2022. The outcomes of patients who underwent percutaneous drainage prior to surgical intervention were compared to those of patients who did not require preoperative drainage. Recurrence of an intra-abdominal abscess within 30–60 days postoperatively was the primary outcome of this study. The length of hospital stay was the secondary endpoint.

Results

Among 73 patients, who underwent surgical drainage, ileocecal bowel resection, right hemicolectomy, and small bowel resection for CD, 17 patients (23%) underwent preoperative percutaneous abscess drainage. The postoperative abdominal abscess recurrence was higher in patients who did not have preoperative percutaneous drainage (27.4% vs 0% with a P value of <0.05). However, the length of hospital stay was not significantly different among the two groups. The Mean length of hospital stay was 22 days among patients who had surgical intervention first and 18 days in the preoperative percutaneous drainage group (P value 0.08).

Conclusion

Although most CD patients who develop intra-abdominal abscess appear to require surgical drainage, preoperative percutaneous drainage may reduce the rate of recurrence.

Resident Competition: yes

Session Topic Area: Colorectal / Session Number: 1 / Order of presentation: 5

Outcomes associated with robotic ventral mesh rectopexy vs open posterior sutured rectopexy: What is the optimal surgical procedure for initial management of rectal prolapse

Authors: Rachel Jecker

Institutions: University of Washington

Presenter: Rachel Jecker

Introduction

Optimal surgical management of rectal prolapse is unclear. Traditional management is open posterior sutured rectopexy (PSR) but newer data would support a robotic ventral mesh rectopexy (VMR). We evaluated the outcomes of both approaches in a tertiary community practice.

Methods

A retrospective chart review of rectopexies from 2017-2021 was conducted. Patient demographics and procedure variables were obtained. Outcome variables were operative time (OT), length of stay (LOS), and recurrence overall and by surgeon. Statistical analysis was by students t-test.

Results

161 consecutive patients were included, 121 underwent VMR and 40 underwent PSR. Mean OT was 123 vs 75 min for VMR and PSR respectively ($p<0.05$). LOS was 1 vs 2.5 days ($p<0.05$). Recurrence rate was 14 vs 8 % ($p>0.05$). Open conversion for robotic procedures was 0.8% and one mesh related complication was observed. Volume variation and outcome differences were observed amongst surgeons (80 vs 44 vs 36 cases). Improved outcomes were associated with operative volume: mean OT VMR 108 vs 168 min, mean OT PSR 61 vs 139 min, mean LOS VMR 0.9 vs 2.3 days, mean LOS PSR 2.2 vs 5.8 days, recurrence VMR 10 vs 19%, PSR 5 vs 16 % ($p<0.05$ for all).

Conclusions

VMR offers improvement in LOS and recovery but longer operative times. Increased operative volume is associated with improved outcomes with both VMR and PSR. Optimal approach remains unclear but surgeons should be facile with multiple techniques.

Resident Competition: yes

Session Topic Area: Colorectal / Session Number: 1 / Order of presentation: 6

The delayed timing of anastomotic leak in patients undergoing CRS/HIPEC

Authors: Charlotte van Schooten, MD

Institutions: Swedish Medical Center

Presenter: Charlotte van Schooten, MD

Background

Anastomotic leak is a known complication of gastrointestinal surgery that generally presents 5-7 days postoperatively in 2-3% and 0.5% of large and small bowel anastomoses, respectively. It is known that hyperthermic intraperitoneal chemotherapy (HIPEC) raises the risk of anastomotic leakage with rates reported as high as 7-8%, but it is not well-established that leaks may occur on an unexpected post-operative timeline in these patients.

Methods

166 patients in a single center who underwent cytoreductive surgery with HIPEC between 2014 and 2022 were retrospectively reviewed. Statistical analysis was performed with Microsoft Excel (Redmond, WA).

Results

12 patients (7.2%) experienced anastomotic leak - 1 duodenal stump dehiscence, 2 small bowel, 3 ileocolic or ileorectal, 5 colorectal, and 1 unknown. Average pre-operative nutritional status was acceptable (albumin 4.0 +/- 0.3), all patients had good functional status (ECOG 0-1), and most patients (75%) received neoadjuvant chemotherapy. An expected variation of pathologies was represented – 5 colorectal, 5 appendiceal, and 2 gastric. Disease burden was moderate with average PCI 10.3+/- 6.6. 6 leaks were treated operatively, and 6 were treated non-operatively. Interestingly, leaks occurred later during the postoperative period than typically expected (14 +/- 7.9 days).

Conclusions

In well-selected patients who undergo cytoreductive surgery with HIPEC, there is a nearly three-fold increase in anastomotic leak compared to those who undergo gastrointestinal surgery without HIPEC. Additionally, leaks tend to occur about 1 week later than expected in the patient's post-operative course. Recognition of this trend may aid in the post-operative care of these complex patients.

Resident Competition: yes

Session Topic Area: Colorectal / Session Number: 1 / Order of presentation: 7

What is the role for robotic vs open abdominoperineal resection: Comparative results from a tertiary community practice

Authors: Noah Ircink, Timothy Bax, Nicholas Berger, David Brown, Dara Christante, Adam Juviler, Michael Moore, Ann Seltman, Shane McNevin

Institutions: Sacred Heart Medical Center

Presenter: Noah Ircink

Introduction

Utilization of minimally invasive vs open approaches to proctectomy remains controversial. We hypothesize robotic assistance can improve patient outcomes after surgeons become facile with the technique

Methods

Retrospective review of consecutive patients undergoing abdominoperineal (APR) resection from 2017-2021. Variables of interest were operative time, length of stay (LOS) and morbidity. Oncologic variables were intact mesorectum, margin positivity and lymph node harvest. Statistical analysis was performed with a students t-test.

Results

140 patient were included, 91 robotic and 49 open APR. Mean operative time was similar between groups (245 vs 239 min). A statistically significant improvement in LOS was found (5.5 vs 7.2 days, $p<0.05$). Incidence of superficial SSI was higher in the open group (0 vs 6%) and deep SSI was similar between groups (9 vs 10%). No significant difference in intact mesorectum (73 vs 82%), positive tangential margin (11 vs 8%) and lymph node harvest (15 vs 12 nodes) was found. Individual surgeon analysis showed only decreased operative time with increased operative volume (199 vs 345 min).

Conclusion

Robotic assistance for APR is advantageous. Significant improvement in LOS and superficial SSI are seen without compromise to short term oncologic outcomes. Increased operative volume is associated with decreased operative times and LOS.

Resident Competition: no

Session Topic Area: Colorectal / Session Number: 1 / Order of presentation: 8

Who's Who in Same Day Discharge Colectomy: Building Your Team for Success

Authors: Karleigh R. Curfman, MD1, Ailina Lao2, Gabrielle E. Blair3, Callan L. Kosnik, PA-C1, Sunshine A. Pille, PA-C1, Laila Rashidi, MD1

Institutions: 1. MultiCare Health Network, Tacoma WA, 98405. 2. A.T. Still University, School of Osteopathic Medicine, Renton AZ, 98057. 3. University of Portland, Portland OR, 97203

Presenter: Ailina Lao, MS4

Background

Same day discharge (SDD) colectomy is gaining significant interest. Our institution has had our program since 2019, and we constantly work to grow and improve. Our program has been successful in many ways thus far, but that success is cemented in having a good team in place with designated roles and protocol understanding. To the best of our knowledge, no other report exists to describe all the necessary persons involved to make SDD successful.

Methods

A retrospective review was conducted of the SDD colectomy protocol from November 2022 through May 2023. We analyzed all colorectal procedures (n=127), narrowing our final cohort to those who underwent a colectomy and successfully were discharged in less than 24 hours without an overnight stay (n=44).

Results

Our analysis revealed 44 SDD (34.6%) within the cohort. Of these, 100% were called by the physician within 24 hours of their discharge. Additionally, 100% of patients were contacted by a team member on postoperative day 3 or 4 for their second follow-up. Furthermore, 100% were seen in office by team member for the first inpatient postoperative visit by postoperative day 5-9. Of the 44 patients, 26 (59.1%) received anesthesia provided local pain blocks.

Conclusions

SDD requires a multidisciplinary approach to be successful. This includes physicians, advanced practice providers, residents/fellows, students, hospital administration, anesthesia, front office staff, medical assistants, nurses in all care phases, schedulers, coders/billing, and social workers, just to name a few. Many people and teams are essential to have a successfully functioning SDD program.

Resident Competition: yes

Session Topic Area: Colorectal / Session Number: 2 / Order of presentation: 1

Distance to Ambulatory Endoscopy Centers and Acute Care Centers Amplifies Racial Inequities in Colorectal Cancer Mortality in Washington State

Authors: Ashley Edwards, BS; Rachel Monroe MD; Ofer Amram, PhD and Anjali S. Kumar, MD MPH FACS FASCRS

Institutions: Elson S. Floyd College of Medicine | Washington State University

Presenter: Ashley Edwards

Background:

Colorectal cancer (CRC) is preventable, but deaths from CRC in Washington (WA) remain high (11.9 per 100k). Race and access to care are associated with poorer health outcomes. Our study is the first to investigate relationships among race, location of health care centers which provide endoscopy services, and CRC mortality in WA.

Methods:

Using advanced geospacial epidemiologic software, we overlayed residence data of Washingtonians who died from CRC (obtained from the department of health) with locations of ambulatory surgical centers (ASCs) and acute care centers (ACCs) which provide endoscopy services. CRC mortality from 2011-2018 was compared in white and nonwhite individuals within and outside of the range of 10km from an endoscopy care center [buffer]. We used linear regression to assess the impact of distance and race on mortality – adjusting for gender and education level.

Results:

We found a disproportionate rate in premature death among nonwhites by distance from endoscopy center. Specifically, females and individuals of white race were more likely to live longer. Median mortality was 72.9y vs. 68.2y for white vs. nonwhite ($p<0.001$). Compared to whites residing within the buffer, nonwhites residing outside the buffer died 6.9y earlier ($p<0.001$); nonwhites residing inside the buffer died 5.2y earlier ($p<0.001$); whites residing outside the buffer died 1.6y earlier ($p<0.001$). Heatmaps illustrating density of deaths of nonwhite individuals outside the buffer geolocated Everett and Southeast Washington.

Discussion:

Our analysis has identified hotspots in WA where we can now strategize for targeted intervention to prevent premature death from CRC.

Resident Competition: yes

Session Topic Area: Endocrine/Quality/Education / Session Number: 2 / Order of presentation: 2

Routine thymectomy in the surgical treatment of renal hyperparathyroidism should be abandoned.

Authors: Michael Y Guo, Michal Pillar, Neraj Manhas, Adrienne Melck.

Institutions: University of British Columbia, St. Paul's Hospital Endocrine Surgery

Presenter: Michael Guo, BSc, MD, MHSc

Introduction

The role for routine thymectomy at the time of parathyroidectomy in patients with renal hyperparathyroidism (HPT) is unclear with few studies to guide decision-making. We aim to compare rates of recurrent disease and complications in patients who underwent subtotal parathyroidectomy with and without thymectomy for renal HPT.

Methods

A cohort of patients who underwent surgical treatment for renal HPT between Jan 1, 2010 to Oct 1, 2022 was retrospectively reviewed at a tertiary endocrine surgery referral center. Presence of parathyroid tissue in resected thymus glands was identified by reviewing pathology reports. A multivariate logistic regression was used to compare baseline characteristics, recurrence rates, and surgical complications between those who underwent thymectomy vs. no thymectomy.

Results

Of 107 patients who underwent subtotal parathyroidectomy (64 for secondary HPT and 43 for tertiary HPT), 29 (27.1%) underwent concomitant thymectomy. Recurrence occurred in 15 patients (14%) and occurred almost exclusively in patients with secondary HPT with 1 exception. Thymectomy did not affect recurrence (OR: 0.33, 95%CI: 0.06-1.28, p=0.14), but was associated with permanent hypoparathyroidism (OR: 4.62, 95%CI: 1.67-13.18, p=0.003). Incidence of other operative complications was rare (0 hematomas, 1 recurrent laryngeal nerve injury). Fewer parathyroid specimens and secondary HPT increased the odds of thymectomy (p=0.04). Parathyroid glands were found in 6 thymectomy samples (20.7%).

Conclusion

The therapeutic yield of routine thymectomies is questionable due to the lack of association with disease recurrence, increased likelihood of permanent hypoparathyroidism, and the presence of parathyroid tissue in only a small portion of the resected specimens.

Resident Competition: yes

Session Topic Area: Endocrine/Quality/Education / Session Number: 2 / Order of presentation: 3

Screening for Asymptomatic Nephrolithiasis in Primary Hyperparathyroid Patients is Warranted

Authors: Taryn Zabolotniuk MD, Michelle Kwon PhD, Sam M. Wiseman MD, FRCSC

Institutions: UBC, Providence Health

Presenter: Taryn Zabolotniuk, MD, General surgery resident

Background:

Studies have reported that asymptomatic nephrolithiasis is found in up to a quarter of PHPT patients. However, there are currently no clear recommendations regarding screening for nephrolithiasis in PHPT patients, nor is it clear what proportion of asymptomatic screen-diagnosed kidney stones warrant urologic intervention. This study aimed to investigate the prevalence, characteristics, and management of nephrolithiasis diagnosed in PHPT patients.

Methods:

Medical records of patients who underwent parathyroidectomy for PHPT at a tertiary hospital in British Columbia between January 2016 and April 2023 were reviewed. Relevant demographic data, laboratory results, imaging reports, and urologic plan were collected. Patients with MEN1, MEN 2, lithium use, and childhood neck irradiation were excluded. Descriptive statistics and appropriate statistical tests were utilized to analyze the data.

Results:

A total of 414 PHPT patients were included in the study population, 311 females (75%) and 103 males (25%), with 122 (29.5%) of patients having a history of nephrolithiasis. Of the 292 patients with no history of kidney stones, 54 (18.5%) were found to have asymptomatic stones by renal imaging. Of the 49 patients that were evaluated by a urologist, 14 (28.6%) underwent a urological procedure/operative intervention. Serum ionized calcium (P=0.031), serum 25-hydroxyvitamin D (P=0.025) and 24-hour urine calcium (P=0.002) were the only independent predictors of nephrolithiasis.

Conclusions:

This study identified a high prevalence of asymptomatic nephrolithiasis among PHPT patients, with a high proportion requiring urological intervention. Thus, highlighting the importance of screening for nephrolithiasis as part of the workup of PHPT patients.

Resident Competition: yes

Session Topic Area: Endocrine/Quality/Education / Session Number: 2 / Order of presentation: 4

Quality Improvement Lessons Learned From Thyroid and Parathyroid Surgery Legal Judgements

Authors: Christina L. Schweitzer(1), Ivneet Garcha(2), Sam M. Wiseman(1)

Institutions: (1) University of British Columbia Division of General Surgery and St. Paul's Hospital, Vancouver, British Columbia; (2) Queen's University School of Medicine, Kingston, Ontario

Presenter: Christina L. Schweitzer, MD MPH MPhil

Background:

Areas requiring quality improvement in surgical practice can be identified through review of malpractice case law. This is the first study reporting on Canadian thyroid and parathyroid surgery legal judgements. This study aimed to identify areas for quality improvement, to increase patient safety and satisfaction, and reduce risk of regulatory college complaints and malpractice litigation.

Methods:

All legal judgements relating to thyroid and parathyroid surgery in the Canadian Legal Information Institute (CanLII) database were screened. Cases were included if a surgeon was listed as the applicant or respondent; the case was related to pre-, intra-, or post-operative management of thyroid or parathyroid disease; and malpractice was alleged. Cases were excluded if surgery was mentioned only incidentally, or if the case focused on non-surgical management.

Results:

A total of 347 relevant legal judgements were screened. Of the 14 cases included between 1978 and 2017, 13 related to thyroidectomy and 1 to parathyroidectomy. Mortalities occurred in 4 cases, and 1 patient required a permanent tracheostomy due to bilateral recurrent laryngeal nerve (RLN) injury. Most cases related to pre-operative decision making, investigations and consent discussions. Intra-operative decision making, and technical competence were at issue in several cases, including preservation of RLNs and hemostasis. Post-operative management issues included failure to recognize hematoma causing airway compression prior to respiratory arrest.

Conclusion:

Quality improvement lessons from this study include the importance of communication with patients and the healthcare team, documentation of risks discussed during consent, comprehensive pre-operative patient education, and in-person assessment when complications arise.

Resident Competition: yes

Session Topic Area: Endocrine/Quality/Education / Session Number: 2 / Order of presentation: 5

Home call in residency, a sustainable model. Debunking the myth that arduous call schedules are a requisite to excellent training.

Authors: Matthew Jacobsson, Austin Forbes, Jamie Whisler, Tommy Brown

Institutions: Virginia Mason Franciscan Health - Tacoma

Presenter: Matthew Jacobsson DO

Background

General surgery training has a notorious reputation for long hours and challenging call schedules with regular in-hospital call shifts throughout residency training. This is predicated on the need for the extensive training required for competency, but also to provide adequate service-level call coverage. Different residency programs implement various approaches to both adhere to duty-hour restrictions and reduce resident fatigue and burnout. The objective of this study is to report on resident performance and well-being at a community general surgery program that has exclusive home-call coverage throughout residency training.

Methods

This report was completed by obtaining resident case-log numbers, average resident hours worked, duty-hour log violations, and reviewing ACGME resident wellbeing surveys at our institution.

Results

Eight out of eight current residents voluntarily participated in this report. Residents averaged 60 hours per week and with 14 duty hours violations reported in the history of the program. Call coverage is shared between residents and advanced practice providers depending on the service with an average of 1-2 weekends worked per month and average every 2nd to 3rd night during the week. Average class performance on in-training ABSITE scores have all been above national average each year and resident case numbers are well on track to exceed case minimums. ACGME resident wellbeing surveys each year are consistently above the national mean.

Conclusions

At our community program, a home-call model allows for excellent resident wellness and adherence to duty-hour restrictions, yet maintains rigorous training evidenced by robust case-logs and above-average ABSITE scores.

Resident Competition: yes

Session Topic Area: Endocrine/Quality/Education / Session Number: 2 / Order of presentation: 6

Cultivating emotional intelligence in General Surgery residents through a patient-centered experience

Authors: Hayley Standage, MD

Institutions: Oregon Health and Science University

Presenter: Hayley Standage, MD

Background:

Emotional intelligence (EI) is important in patient-physician relationships and may contribute to decreased physician burnout. EI and burnout were assessed in surgical residents throughout participation in patient-centric resident conferences (PCRCs), a hybrid resident didactic conference with the incorporation of patients to promote meaning in work. We hypothesized PCRCs would improve EI and reduce burnout in residents.

Methods:

This was a single institution prospective cohort study of General Surgery residents from 2018-2019. Residents participated in standard didactic conferences and PCRCs. Post-conference surveys evaluated residents' satisfaction with teaching conferences and perceived meaning in work. The Trait Emotional Intelligence Questionnaire-Short Form (TEIQue-SF) survey and an ACGME burnout survey were administered at three time points in the conference series.

Results:

Forty-four residents completed ninety TEIQue-SF and burnout surveys. Higher EI scores correlated with lower burnout scores over three survey distributions (R2 0.35, 0.39, and 0.68, respectively). Given EI and burnout scores were unchanged over time, survey scores were combined (R2 0.41). There was no association of EI and burnout scores with conference attendance, rating of conference satisfaction or conference's contribution to meaning in work.

Conclusions:

General Surgery resident EI and burnout scores were inversely associated, consistent with previous research. Although prior work demonstrated that PCRCs were associated with increased resident meaning in work, there was not a significant effect on measures of resident EI and burnout. EI and burnout are influenced by multiple factors, and further research is needed to determine effective methods to improve EI and burnout in resident physicians.

Resident Competition: yes

Session Topic Area: Endocrine/Quality/Education / Session Number: 2 / Order of presentation: 7

Disparity within the geographic distribution of abdominal solid-organ transplant centers in the Pacific Northwest: A case for a transplant center in Boise, Idaho

Authors: Austin Forbes, Vitas Wagner, Matthew Jacobsson, Blake Breaux, Jamie Whisler, Kiefer Starks, Tommy Brown

Institutions: Virginia Mason Franciscan Health

Presenter: Austin Forbes, DO

Introduction: A disparity exists in the distribution of abdominal solid-organ transplant centers across the Pacific Northwest creating barriers to access for Idaho residents. Three contiguous states Idaho, Montana, and Wyoming (IMW) represent the largest geographic area within the lower 48 states without a transplant center. Of these states, Idaho has the greatest population and largest metropolitan area, Boise. Despite having a major metropolitan area, residents of Idaho must travel significant distances to reach transplant centers.

Methods: Data from the United Network for Organ Sharing was used to identify centers performing transplants on Idaho residents from 1988-2023. This was compared with National Census data.

Results: 2860 liver, kidney, pancreas, and kidney/pancreas transplants were performed on Idaho residents from 1988-2023. Centers within three neighboring states (Washington, Oregon, and Utah) accounted for 87% (2493/2860) of all transplants. The two closest centers, in Utah, performed 52% (367/668) of liver transplants. The three closest centers, in Utah and eastern Washington, performed 74% (1519/2051) of renal transplants. These centers are 339, 345, and 417 miles from Boise by car.

Discussion: Idaho residents requiring abdominal solid-organ transplantation must travel at least 339 miles by car from Idaho's largest city for care. This presents a significant barrier when compared to Oregon residents (with three) and Washington residents (with four) transplant centers within their state. The greater Boise metropolitan area comprises 900,000 residents with two large regional hospitals. A transplant center in Boise could benefit Idaho residents locally and IMW residents regionally by increasing access to transplant related care.

Resident Competition: yes

Session Topic Area: Endocrine/Quality/Education / Session Number: 2 / Order of presentation: 8

Multiple Positive Imaging Tests are Often Redundant when Diagnosing Acute Appendicitis: A Real-World Analysis of More Than 27,000 Cases

Authors: Akie Watanabe, Michael Y. Guo, Christina L. Schweitzer, Sam M. Wiseman

Institutions: University of British Columbia

Presenter: Akie Watanabe, MD

Background: This study evaluates the utility of multiple (>1) positive imaging tests (MPIT) when diagnosing acute appendicitis.

Methods: Patients undergoing emergency appendectomy diagnosed with ultrasound, CT, and/or MRI were included from the American College of Surgeons National Surgical Quality Improvement Program (2016-2019). Associations between number of positive imaging tests (only 1 positive (1PIT) vs. MPIT), demographics, and final pathology (acute appendicitis, normal appendix, other pathology including appendiceal tumour, etc.) were explored using binary or multinomial logistic regression. MPIT costs were estimated using Medicare data.

Results: Amongst 27,516 patients undergoing appendectomy, 2% had MPIT, of which 2% had a normal appendix and 4% had other final pathology. Adjusting for baseline characteristics, those who underwent MPIT (vs. 1PIT) had similar odds of having a normal appendix (OR 1.53, 95% CI 0.83-2.82, p=0.17), but significantly higher odds of other pathology (OR 2.74, 95% CI 1.72-4.33, p<0.001), compared to acute appendicitis, on final pathology. MPIT was more common amongst patients who were younger (OR 0.98, 95% CI 0.98-0.99, p<0.001) and female (OR 0.61, 95% CI 0.51-0.73, p<0.001) but other final pathology was more likely in patients who were older (OR 1.01, 95% CI 1.00-1.01, p=0.001) and female (OR 0.59, 95% CI 0.50-0.69, p<0.001). MPIT was associated with an additional cost of $209.41 USD per patient.

Conclusion: MPIT may add value for older female patients suspected to have other appendiceal pathology; however, careful consideration should be given to balance diagnostic yield with unnecessary resource utilization from redundant imaging.

Resident Competition: yes

Session Topic Area: Oncology/Breast/HPB / Session Number: 3 / Order of presentation: 1

Preoperative depression and anxiety associated with younger age and receipt of immediate breast reconstruction in patients awaiting breast cancer surgery

Authors: Katelynn Tang, Jason Sutherland, Guiping Liu, Rebecca Warburton, Carol Dingee, Jin-Si Pao, Amy Bazzarelli, Elaine McKevitt

Institutions: University of British Columbia and Providence Health Care

Presenter: Katelynn Tang

Background:

There is a trend to increasing mastectomy for treatment of breast cancer despite studies demonstrating equivalent survival and better postoperative outcomes with lumpectomy (BCS). Studies looking at patient reported outcomes (PROs) are heterogeneous and there is a need to better understand physical and mental health in the preoperative period to optimize surgical decision making and patient supports.

Methods:

Consecutive patients scheduled for breast cancer surgery 2016-2020 were prospectively recruited. Pre and postoperatively, participants completed a survey which included the PHQ-9 for depression, the GAD-7 for anxiety, the Breast-Q, and the EQ-5D(5L) for health status. Patients having surgery first for initial treatment of breast cancer were included. Scores were compared for mastectomy alone (TM), mastectomy with reconstruction (IBR) and BCS. Association with clinical variables was assessed with multivariate analysis.

Results:

We identified 488 participants (352BCS, 85IBR, 47TM). Patients scheduled for IBR reported higher levels of anxiety and depression. In all three procedure groups most higher PROs scores were not associated with more aggressive tumor features (size, grade, biomarkers) but higher preoperative anxiety and depression was associated with pathologically positive nodes. On multivariate analysis anxiety and depression was associated with younger age and receipt of IBR. On the Breast-Q higher psychosocial scores were seen with BCS and lower physical scores were seen with TM.

Conclusion:

Patients scheduled for IBR and younger patients reported more severe symptoms of depression and anxiety, regardless of clinical variables. This information will help in discussing surgical options and which patients may benefit from additional perioperative supports.

Resident Competition: yes

Session Topic Area: Oncology/Breast/HPB / Session Number: 3 / Order of presentation: 2

Axillary Surgery in Invasive Breast Cancer

Authors: Karen Jiang, Crystal Ma, Yuwei Yang, Elaine McKevitt, Jin-Si Pao, Rebecca Warburton, Carol Dingee, Jieun Newman-Bremang, Melina Deban, Amy Bazzarelli

Institutions: University of British Columbia, Providence Health Care

Presenter: Karen Jiang, Crystal Ma; UBC medical students

Background

Among women with clinical T1/T2 invasive breast cancer and involvement of 1-2 positive sentinel nodes, sentinel lymph node biopsy (SLNB) is non-inferior in overall and disease-free survival compared to axillary lymph node dissection (ALND). However, axillary ultrasound (AxUS) may not be sensitive enough to distinguish between minimal and heavy nodal metastasis in early, clinically node negative disease, potentially leading to overtreatment. This study compares axillary operation rates in patients who did and did not receive preoperative AxUS, to assess its utility and risks for overtreatment.

Methods

This is a retrospective cohort study of patients with T1/T2 invasive breast tumors that were clinically node negative between January 2016-July 2020 and underwent an axillary operation. Two-sample t-tests or Wilcoxon rank sum tests were used for continuous data analysis while Fisher exact tests were used for categorical variables.

Results:

Of 1437 cases analyzed, 746 had preoperative AxUS and 691 did not. Age, tumor biomarkers, histology, and nodal stage were not statistically different between groups. 1385 cases received SLNB or targeted axillary dissection and 52 received ALND or SLNB converted to ALND. Patients who had preoperative AxUS received more ALND compared to patients who did not (5.6% vs. 1.4%, $p<0.001$). There was no significant difference in the number of additional axillary surgeries, including completion ALND (2.0% vs. 2.3%, $p=0.77$).

Conclusion:

Eliminating preoperative AxUS was associated with fewer ALND procedures, yet there was no significant difference in the number of additional axillary surgeries pursued postoperatively.

Resident Competition: no

Session Topic Area: Oncology/Breast/HPB / Session Number: 3 / Order of presentation: 3

Paget's disease of the breast: presentation, treatment, and outcomes in a modern cohort

Authors: Elaine McKevitt

Institutions: Providence Health

Presenter: Dorsa Mousa-Doust, MD

Paget's disease of the breast is an uncommon form of breast cancer and optimal surgical management is controversial. The objective of this study was to assess survival and recurrence outcomes of patients with Paget's disease and to evaluate the reliability of pre-operative measures in predicting disease extent to guide surgery.

A retrospective review of patients who underwent surgery for Paget's disease from 2009-2022 was performed. Pre-operative imaging size (PIS) was compared to post-operative pathology size (PPS) looking at correlation and concordance.

We identified 26 patients with pre-operative diagnosis of Paget's disease, 18 of which underwent total mastectomy (TM) and 8 breast-conserving surgery (BCS). Only 1 out of 8 BCS patients had completion mastectomy due to positive margins. Fourteen patients had a palpable mass or an imaging abnormality at presentation, all in the mastectomy group. Twelve patients (46%) had negative mammogram and ultrasound. Out of 14 patients with positive findings on ultrasound or mammogram, 4 (28.5%) had concordance between PIS and PPS. Only 10 out of 26 patients had pre-operative MRI with findings on 3 of 7 patients in the BCS group. 14 patients had a final diagnosis of invasive cancer (11 TM, 3 BCS). There were no breast/chest wall recurrences. Three patients treated with mastectomy died, one of which was from metastatic breast cancer.

Patients with nipple changes characteristic of Paget's disease and no other alarming clinical or radiological features can be considered for breast-conserving surgery. In patients with negative ultrasound and mammogram, MRI may help guide management decisions.

Resident Competition: yes

Session Topic Area: Oncology/Breast/HPB / Session Number: 3 / Order of presentation: 4

Preoperative Chemoradiation (Modified Eilber Protocol) versus Neoadjuvant/ Adjuvant Radiotherapy for Soft Tissue Extremity Sarcomas: A Population Based Analysis in Alberta

Authors: Greg M. Padmore, Shannon Puloski, Mack Jacobson, Shontelle Millar, Golpira Elmi Assadzadeh, Elizabeth C. Kurien, Jordan Stosky, Jan-Willem Henning, Michael Monument, Omar F. Khan, Mara Caragea, Lloyd Mack, Antoine Bouchard-Fortier

Institutions: University of Calgary, Canada University of the West Indies Cave Hill Campus Barbados

Presenter: Greg M Padmore MBBS, DM, FCCS

Background: Sarcomas are rare tumours of mesenchymal origin which most often arise in the bones and soft tissues of the extremities (1). It has been previously demonstrated that the local recurrence rates for STS after treatment can range from 15% to 30% which is unacceptable (3). The modified Eilber protocol has been reported to have excellent local control rates for patients with both localized and locally advanced extremity sarcomas with minimal major wound complications (3–5). The aim of this study was to determine if the modified Eilber protocol has equivalent oncology outcomes in patients with extremity STS compared to neoadjuvant and adjuvant radiotherapy in Alberta Canada.

Methods: The study was a retrospective multi-centre cross-sectional survey which spanned 12 years (2004-2016). Data was collected from the Cancer Alberta database for all eligible patients. Descriptive statistics were computed and specific statistical tests used to evaluate for correlations among select variables.

Results: Charts were reviewed for 260 patients who met the inclusion criteria. A total of 39.2% patients underwent treatment with the modified Eilber protocol. Local recurrence was 11.8% for the modified Eilber group, 8.4% in the neoadjuvant RT group and 9.6% in the adjuvant RT group with p values all > 0.05. The median follow-up years or until death was 4.91 years. The 30-day mortality rate was 0.8%.

Conclusion: This study demonstrated that the use of the Modified Eilber protocol has equivalent oncologic outcomes compared to neoadjuvant and adjuvant RT.

Resident Competition: no

Session Topic Area: Oncology/Breast/HPB / Session Number: 3 / Order of presentation: 5

Long-term Outcomes after Amputation with Sentinel Node Biopsy in a Single-Institutional Subungual Melanoma Series

Authors: Cristian D. Valenzuela, MD

Institutions: Oregon Health & Science University

Presenter: Cristian D. Valenzuela, MD

Background

Subungual melanomas (SMs), represent less than three percent of cutaneous melanomas. Thus, little data exists on optimal treatment and long-term outcomes. We present our longitudinal institutional series of SMs treated operatively with digital amputation and sentinel node biopsy.

Methods

We performed a retrospective review of our prospectively-maintained melanoma database at Oregon Health & Science University, including SM patients treated with digital amputation and sentinel lymph node biopsy between January 2020 and January 2022. Median follow-up was 8.9 years. Primary endpoints were overall survival (OS) and recurrence free survival (RFS). Kaplan-Meier analyses with log-rank testing was performed.

Results

Of 25 patients with SM, 56% were female; 36% were toe and 64% were finger. Median age was 60.3 years and mean Breslow thickness was 3.4mm. Mean OS and RFS were 14.4 and 16.8 years respectively; medians were not reached. RFS was significantly longer for patients older than 60 versus younger patients ($p=0.044$). Sentinel node positivity rate was 8%. Amputations at the distal-most joint ($n=20$) had significantly better mean OS compared to more extensive proximal amputations ($n=5$): 16.8 vs 5.2 years ($p<0.002$), and significantly better mean RFS: 18.1 vs 6.2 years, respectively ($p=0.029$), despite comparable Breslow thicknesses between these groups (3.6mm vs 2.3mm, $p=0.14$).

Conclusions

SMs were well-treated with distal amputations, and had lower rates of recurrence in older patients. SM can be treated in the same fashion as cutaneous melanoma with good outcomes.

Resident Competition: no

Session Topic Area: Oncology/Breast/HPB / Session Number: 3 / Order of presentation: 6

Impact of extra-nodal extension versus AJCC lymph node staging in predicting recurrence following lymphadenectomy in patients with melanoma

Authors: Julia Downey, Sandra MacDonald, Jeremy Hamm, Chris Baliski

Institutions: BC Cancer, University of British Columbia, Cancer Surveillance and Outcomes

Presenter: Julia Downey, BSc

Background: Regional lymphadenectomy has traditionally been recommended in patients with melanoma found to have clinical lymphadenopathy or a positive sentinel lymph node biopsy (SLNB). Regional control of disease is still a relevant issue for patients, even after undergoing lymphadenectomy. The goal of this study was to identify regional recurrence rates in a contemporary group of patients, as well as clinicopathologic characteristics impacting recurrence in patients undergoing either therapeutic lymph node dissection (TLND) or completion lymph node dissection (CLND) following SLNB.

Methods. Retrospective review of population-based cohort of patients with melanoma lymph node metastasis from the years 2005 to 2015. Multivariate, proportional hazards regression analysis was performed to determine factors predicting nodal recurrence.

Results. 586 patients underwent a regional lymphadenectomy, with a median follow up of 35 months. Overall, in-basin recurrence rates in the axilla, groin, and head/neck were 7.7%, 8.7% and 9.2%, respectively. Higher unadjusted recurrence rates occurred following CLND than TLND of the groin (11.3% vs 4.5%) and neck (10.0% vs 9.0%) but not the axilla (7.5% vs 8.0%). Multivariate analysis revealed, ENE (HR 2.77; p=<0.0001) and AJCC nodal stage (N2 vs N1) (HR 1.605; p=0.1285) were predictive of regional recurrence.

Conclusions. AJCC nodal stage and extranodal extension were the only variables impacting regional recurrence following regional lymphadenectomy for melanoma. While clinical observation following SLNB has primarily replaced CLND, TLND is still a commonly required procedure. These pathologic factors have potential implications for evaluating recurrence rates and surveillance in contemporary patients following SLNB, as well as impacting treatment strategies.

Resident Competition: no

Session Topic Area: Oncology/Breast/HPB / Session Number: 3 / Order of presentation: 7

Hepatic cytoreduction for lung and renal neuroendocrine tumor metastases

Authors: Kathryn Fowler, Janet Li, Rodney Pommier

Institutions: Oregon Health & Science University

Presenter: Kathryn Fowler, MD

Background:

Neuroendocrine tumors (NETs) frequently metastasize to liver and liver failure is the overwhelming cause of death. Hepatic debulking offers improved survival and recent studies have lowered the debulking threshold for gastroenteropancreatic NETs (GEPNETs) from 90% to 70%. Outcome data for debulking rare lung or renal NET liver metastases are lacking. We analyzed the results of debulking operations for lung and renal NETs to determine outcomes and prognostic factors.

Methods:

Patients with lung and renal NETs undergoing liver debulking with a threshold of 70% were reviewed. Extrahepatic metastases and positive margins by enucleation were allowed. Liver progression-free survival (LPFS) and overall survival (OS) were calculated by the Kaplan-Meier method and compared by log rank. Multivariate regression was performed to identify possible prognostic factors.

Results:

Twenty-one patients were identified. Twelve (57%) had lung primaries and 19 (90%) had extrahepatic disease. Ten patients had 100% debulking. Five-year LPFS was 56%. Five-year OS was 65% and 7/8 deaths were due to liver failure. There were no significant differences in LPFS or OS based on the number or size of metastases, tumor grade, percent debulked, or extra-hepatic disease.

Conclusion:

Patients with lung and renal NETs also die chiefly from liver failure. Outcomes for liver debulking of lung and renal NETs are not as good as reported for GEPNETs (5-year OS 88% and LPFS 64%), but are considerably better than for complete resection of colorectal liver metastases (five-year OS 17%). No prognostic factor is identified. Hepatic debulking is worthwhile in metastatic renal and lung NET.

Resident Competition: yes

Session Topic Area: Oncology/Breast/HPB / Session Number: 3 / Order of presentation: 8

Pancreas-Preserving Duodenectomy

Authors: Christine Chung DO, Stephanie Stovall MD, Thomas Biehl MD

Institutions: Virginia Mason Medical Center

Presenter: Christine Chung, DO

Background: Non-ampullary duodenal neoplasms are increasingly common, but rare clinical entities (0.5-1% of all gastrointestinal tumors). Historically, the Whipple procedure was the standard of care for managing duodenal neoplasms due to higher lymph node retrieval and the concept that portions of the duodenum cannot be resected without concomitant pancreatectomy, but recent studies show similar overall and disease-specific survival after pancreas-preserving duodenectomy (PPD).

Methods: We evaluated postoperative outcomes in adult patients undergoing PPD with curative intent for neoplasms involving the duodenum at our institution from 2012-2022. Tumors involving the Ampulla of Vater, invading the pancreas, or other contraindications to segmental resection were excluded.

Results: From 2011-2022, 30 patients underwent PPD. The most common tumor subtypes were adenocarcinoma (36%), gastrointestinal stromal tumors (23%), and leiomyosarcoma (6%) and typically arose from D2 (40%) or D3 (60%). More patients presented with late (III/IV, 33%) than early stage disease (I/II, 27%). R0 resection was achieved in 93% of patients. One-third of patients experienced postoperative complications (Clavien-Dindo III-V: 17%) and 23% were readmitted. Charlson-comorbidity index (CCI,p=0.03), surgeon (p=0.04), and subtype (p=0.02) were associated with post-operative complications.

Discussion: In this case series, we show that PPD is safe and effective, with a high rate of complete oncologic resection and major complication rate half that of the Whipple. CCI, surgeon, and tumor subtype were associated with complications. In addition, we will include techniques and illustrations. Future studies should evaluate long-term outcomes following PPD across a spectrum of disease.

Resident Competition: no

Session Topic Area: Trauma / Session Number: 4 / Order of presentation: 1

Complication Reporting in Trauma: A National Environmental Scan and Comparison of Trauma Registries

Authors: Alex Lee, Jenna Kroeker, David C Evans

Institutions: University of British Columbia

Presenter: Alex Lee, MD

Background: Quality assurance across trauma systems depends on reliable complication reporting that allows for performance measurement and benchmarking. Whether complications are recorded consistently using standardized definitions and methodology is unknown. We aimed to compare complication definitions and data collection methodology across trauma registries in Canada.

Methods: A literature search from bibliographic databases was performed to identify studies that used data from a trauma registry in a Canadian hospital. Data dictionaries for each active registry containing their reported complications and definitions were evaluated. The presence of each complication, their definitions, and collection methodology were compared.

Results: Of the 9 included registries, in-hospital complications were recorded by a non-health professional data registrar in all but 1 registry. One registry recorded up to any 10 diagnoses (including complications) during the patient's hospital stay and was excluded from further analysis. Across registries, 53 (18-41) individual complications were collected. Severity of complications were not recorded. Twenty-one complications (39.6%) were recorded by only one registry whereas 5 (9.4%) were collected by all. Among the 32 complications that were collected by >1 registry, 14 (43.8%) shared the same definition. Of the 18 complications with different definitions, 12 (66.7%), 5 (27.8%), and 1 (5.6%) had 2, 3, and 4 different definitions across registries, respectively.

Conclusions: Complications reported by trauma registries are variable. Even when complications are shared, definitions vary more than half the time. Reliable comparisons of system performance are likely challenging, and efforts to standardize complication reporting may be a valuable undertaking for improving quality assurance.

Resident Competition: yes

Session Topic Area: Trauma / Session Number: 4 / Order of presentation: 2

Real-Time Attending Trauma Surgeon Assessment of Direct to OR Trauma Resuscitations: Results from a Prospective Observational Study

Authors: Heewon Lee, BS; Joshua Dilday, DO; Amelia Johnson, PA-C; Andrea Kuchler, PA-C; Emma Williams, PA-C; Michael Rott, PA-C; Frederick Cole, MD; Ronald Barbosa, MD; William Long, MD; Matthew Martin, MD

Institutions: Legacy Emanuel Medical Center, Portland, Oregon; Los Angeles County + USC Medical Center, Los Angeles, California

Presenter: Heewon Lee, BS

Background

Direct-to-operating room (DOR) resuscitation expedites interventions for trauma patients. Perceived benefit from the surgeon's perspective is not well known. This study assesses the integration of a real-time surgeon assessment tool (SAT) into a DOR protocol.

Methods

SAT results from a prospective study of DOR cases were analyzed. Analysis assessed patient factors and surgeon perception for appropriateness and benefit of DOR. Multivariate analysis identified independent factors associated with perceived DOR benefit.

Results

104 trauma patients underwent DOR resuscitation; 84% were perceived as appropriate triage and 48% as beneficial. Patients with ISS>15 (50% v. 28%), SBP <90 (24% v. 9%), and severe abdominal injury (28% v. 9%) had higher perceived DOR benefits (all $p < 0.05$). Patients deemed to benefit from DOR underwent more emergent interventions or truncal surgery (44% v. 92%, $p<0.01$). No difference in benefit was seen based on age, gender, GCS< 9, or injury mechanism. 44% had perceived benefit from DOR resuscitation despite requiring imaging after initial evaluation. Patients with perceived benefit had a higher rate of unplanned return to the OR (16% v. 2%, $p < 0.05$), but no differences in complication rates, Glasgow Outcome Score, or mortality. ISS>15 was the only independently associated variable with a perceived benefit on SAT (OR 3.5, $p<0.05$).

Conclusion

The majority of DOR resuscitations were deemed as appropriately triaged and approximately half had a perceived benefit. Benefit was associated with higher injury severity and the need for urgent interventions but was not predicted by injury mechanism or other triage variables.

Resident Competition: yes

Session Topic Area: Trauma / Session Number: 4 / Order of presentation: 3

To the Point: Utility of Laparoscopy for Operative Management of Penetrating Abdominal Trauma

Authors: Bryan R. Campbell DO, Alexandra S. Rooney MPH, Andrea Krzyzaniak MA, Joseph J. Lee MD, Alyssa N. Carroll MPH, Richard Y. Calvo PhD, Kimberly A. Peck MD, Matthew J. Martin MD, Vishal Bansal MD, Michael J. Krzyzaniak MD, Michael J. Sise MD

Institutions: Scripps Mercy Hospital, San Diego

Presenter: Bryan R. Campbell, DO

Background: Existing algorithms for managing penetrating abdominal trauma are conflicting or unclear regarding the role of laparoscopy. We hypothesized that laparoscopy (LAP) is underutilized among hemodynamically stable patients with abdominal stab wounds.

Methods: Trauma Quality Improvement Program data (2016-2019) were used to identify stable (SBP≥110 and GCS≥13) patients ≥16yrs with stab wounds and an ICD-10 abdominal procedure within 24hr of admission. Patients with a non-abdominal AIS≥3 or missing outcome information were excluded. Patients were analyzed based on index abdominal procedure technique: open, therapeutic LAP, or immediate LAP-conversion to open. Clinical characteristics and outcomes were compared according to surgical technique using non-parametric analysis.

Results: 6,031 patients met inclusion criteria with 7% and 8% receiving therapeutic LAP and conversion to open, respectively. The conversion rate for patients initially treated with LAP was 54%. Compared to conversion or open, therapeutic LAP patients were younger (30yr v. 33 or 34yr), less injured (ISS 5 v. 6 or 8), with better outcomes including fewer subsequent procedures, shorter hospital stays, and less frequent mechanical ventilation. All patients had comparable abdominal AIS, ICU and vent days, and postoperative infection, sepsis and mortality rates. At time of admission, 17% of open patients met criteria for initial LAP opportunity as indicated by comparable clinical presentation to therapeutic laparoscopy patients.

Conclusion: In clinically stable patients, laparoscopy remains infrequently utilized despite its increasing inclusion in current guidelines. Additional opportunity exists for therapeutic laparoscopy in trauma, which appears to be a viable alternative to open surgery for abdominal stab wounds.

Resident Competition: yes

Session Topic Area: Trauma / Session Number: 4 / Order of presentation: 4

Two-Center Analysis of Cannabis on Venous Thromboembolism Risk After Traumatic Injury

Authors: Casey Erwin

Institutions: Scripps Mercy Hospital, San Diego

Presenter: Casey Erwin MD

Background: Several large database analyses suggest an association between cannabis (TCH) and post-traumatic venous thromboembolism (VTE). We assessed this association, along with other common intoxicants, using data from two adjacent urban trauma centers.

Methods: Retrospective analysis (2014-2018) was performed with patients >15yrs from two Level I trauma centers with robust VTE surveillance and prophylaxis protocols. Admission toxicology identified THC+ patients and duplex scanning (>1x/week) identified DVT diagnosis. THC+ and THC- patients were matched on demographics, HLOS, ISS, and VTE risk score, then evaluated in mixed-effects logistic regression models.

Results: Of 1,434 patients, 1,133 (79%) were male, and 88% suffered blunt trauma. Median ISS was 10 (IQR 5-17), with 550 (38%) requiring an ICU stay. The overall VTE rate was 5%. A total of 384 THC+ patients were matched demographically and by injury severity to 1,050 THC- patients without any significant differences. In an adjusted model, THC was not independently associated with VTE in the overall population (OR 0.71, CI95 0.38-1.34, p=0.29). Additional adjusted models in patients with various high-risk injury patterns (lower extremity fracture, brain injury, requiring mechanical ventilation, ISS>15) consistently showed that neither THC nor any other intoxicants were independently associated with an increased risk of DVT or VTE. There was no modification of this relationship by individual center or chemoprophylactic agent.

Conclusion: THC does not appear to impact VTE risk in patients with strict trauma chemoprophylaxis. Toxicology testing is useful for identifying substance abuse intervention opportunities, but not for identification of trauma patients likely to suffer from VTE.

Resident Competition: yes

Session Topic Area: Trauma / Session Number: 4 / Order of presentation: 5

Surgical Rib Fixation is Associated with Decreased Mortality in Trauma Patients with TBI

Authors: James Williams, MD, Luke Pumiglia, MD, Beau Prey, MD, Andrew Francis, MD, Jeffrey Conner, MD, Daniel Miller MD, Daniel Lammers, MD, John Kuckelman, DO, Jason Binghma, MD, Daniel Cuadrado, MD,

Institutions: Madigan Army Medical Center

Presenter: Luke Pumiglia

Introduction

25% trauma patients who present with rib fractures will have a concomitant traumatic brain injury (TBI); however, operative fixation is generally avoided in these patients. We hypothesized surgical stabilization of rib fractures (SSRF) would lead to better outcomes in adult patients with significant rib injuries and moderate to severe TBI when compared to patients managed non-operatively.

Methods

Using the 2017-2019 National TQIP Database, a retrospective review was performed of all adult trauma patients with severe rib injuries and concomitant TBI (GCS <14). Patients were further stratified by TBI severity: moderate (GCS 9-13) and severe (3-8). Subgroup analysis was performed between patients who underwent early (< 72 hours) vs. delayed SSRF. Multivariable logistic regression was performed to identify independent factors associated with mortality. The primary outcome was in hospital mortality, while ventilator days, ICU days, and length of stay (LOS) were secondary outcomes.

Results

A cohort of 33,118 patients, of which 102 (0.3%) underwent SSRF. Mortality was lower in the SSRF cohort (6.9% vs 24.4% p <0.01). ICU LOS (16.5 days vs 10.5, p<0.01), ventilator days (11.6 days vs 8.3, p=0.01), and hospital LOS (24.5 days vs. 15.9, p<0.01) were significantly longer in the SSRF group. SSRF was independently associated with improved survival on logistical regression analysis 0.19 (CI .09-.42).

Conclusion

SSRF was independently associated with lower mortality in patients with TBI and was also associated with increased ventilator days, ICU LOS, and hospital LOS. This data suggests there may be a role for SSRF in trauma patients with TBI.

Resident Competition: yes

Session Topic Area: Trauma / Session Number: 4 / Order of presentation: 6

Mortality in Hypotensive Combat Casualties Who Require Emergent Laparotomy in the Forward Deployed Environment

Authors: James Williams, Luke, Pumiglia, Marissa Beiling, Andrew Francis, Beau Prey, Daniel Lammers, John McClellan, Jason Bingham, Jennifer Gurney, Martin Schreiber

Institutions: Madigan Army Medical Center, Oregon Health & Science University

Presenter: Luke Pumiglia

Introduction: Damage control resuscitation (DCR) principles were incorporated into the Joint Trauma System Clinical Practice Guidelines (JTS CPG) for combat casualties in 2008. Despite subsequent wide scale acceptance of these practices by the civilian trauma network, mortality rates within hypotensive civilian trauma patients requiring damage control laparotomy remain high at ≥ 40%. We sought to examine military combat casualties requiring emergent laparotomy to better understand how mortality rates compare to civilian trauma.

Methods: Retrospective review of the DoD Trauma Registry (2002-2020) was conducted on all adult combat casualties who underwent an initial emergent laparotomy in the combat theater. Patients who were hypotensive (SBP <90) on arrival were compared to normotensive patients with mortality as the primary outcome of interest. Subgroup analysis was performed comparing mortality rates before (2002-2007) and after (2009-2020) implementation of the DCR CPG.

Results: 1051 patients (97.9% male, median ISS 26, and 80.9% penetrating) were studied. 773 patients (73.5%) arrived normotensive, 157 arrived hypotensive (14.9%) and 121 (11.5%) were missing arrival vitals. Overall mortality was 6.5% for the normotensive group, 28.7% for the hypotensive cohort, and 27.3% in the unknown vital sign cohort ($p<0.01$). Mortality decreased in normotensive patients (9.7% to 4.9%, $p=0.016$) but remained unchanged (24.2% to 27.3%, $p=0.706$) in hypotensive patients following the implementation of the DCR CPG.

Conclusion: Hypotensive combat casualties undergoing emergent laparotomy demonstrated improved survival when compared to historical civilian counterparts. Despite advancements in trauma management, mortality rates remain substantially high in hypotensive patients requiring emergent laparotomy.

Resident Competition: yes