

Western Surgical Association

2018 ANNUAL SCIENTIFIC SESSION



November 3 – 6, 2018
JW Marriott Los Cabos Beach Resort & Spa
San Jose del Cabo, Mexico

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Western Surgical Association

**2018 ANNUAL
SCIENTIFIC
SESSION**

MEETING OBJECTIVES

1. Describe the use of neoadjuvant treatment for patients with cancer.
2. Review the environmental issues and screening involved in treating patients in today's health care environment
3. Learn more about the cost of surgical procedures
4. Explain the recent advances in the surgical treatment of acute bowel obstruction
5. Discuss new risk prediction strategies of trauma patients.

CONTINUING MEDICAL EDUCATION CREDIT INFORMATION

Accreditation

This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the American College of Surgeons and Western Surgical Association. The American College of Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

AMA PRA Category 1 Credits™

The American College of Surgeons designates this live activity for a maximum of **15.25** *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Of the *AMA PRA Category 1 Credits™* listed above, a maximum of **11.25** credits meet the requirements for Self-Assessment.



AMERICAN COLLEGE OF SURGEONS
Inspiring Quality:
Highest Standards, Better Outcomes



AMERICAN COLLEGE OF SURGEONS
DIVISION OF EDUCATION
Accredited with Commendation by the
Accreditation Council for Continuing Medical Education

DISCLOSURE STATEMENT

In compliance with the ACCME Accreditation Criteria, the American College of Surgeons, as the accredited provider of this activity, must ensure that anyone in a position to control the content of the educational activity has disclosed all relevant financial relationships with any commercial interest. All reported conflicts are managed by a designated official to ensure a bias-free presentation. Please see the insert to this program for the complete disclosure list.



SCHEDULE OF EVENTS

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SATURDAY, NOVEMBER 3, 2018

3:00pm – 6:00pm **Registration Open** | Mila South Foyer

5:30pm – 6:30pm **New Members Reception** | Nake Grill

6:30pm – 8:30pm **Welcome Reception** | Nake Grill

SUNDAY, NOVEMBER 4, 2018

6:00am – 12:00pm **Registration Open** | Mila South Foyer

6:00am – 7:00am **Continental Breakfast & Exhibits** | Mila North Foyer/
Mila I-II

6:15am – 7:00am **Women in Surgery Breakfast** | Matku 1

7:00am – 8:45am **Scientific Session 1** | Mila III-VI

8:00am – 10:00am **Spouse/Guest Hospitality and Breakfast** | Garden Foyer

8:45am – 9:10am **Introduction of New Members & J. Bradley Aust Award** |
Mila III-VI

9:10am – 9:20am **Morning Break, ePosters and Exhibit Viewing** |
Mila North Foyer/Mila I-II

9:20am – 10:20am **Scientific Session 2** | Mila III-VI

10:20am – 10:35am **American Board of Surgery Update** |
David R. Farley, MD | Mila III-VI

10:35am – 11:35am **Presidential Address** | **Mark S. Talamonti, MD** |
Mila III-VI

12:00pm **WSA Golf Outing** | Puerto Los Cabos

1:30pm **Margarita Tasting** | Library

SCHEDULE OF EVENTS

MONDAY, NOVEMBER 5, 2018

- 7:00am – 5:00pm **Registration Open** | Mila South Foyer
- 7:00am – 8:00am **Continental Breakfast, ePoster Session & Exhibits** |
Mila North Foyer/Mila I-II
- 8:00am – 10:00am **Spouse/Guest Hospitality and Breakfast** | Garden Foyer
- 8:00am – 10:20am **Scientific Session 3** | Mila III-VI
- 10:00am – 1:00pm **Spa & Smoothie Demo** | JW Spa
- 10:20am – 10:40am **Morning Break, ePosters & Exhibits** | Mila North Foyer/
Mila I-II
- 10:40am – 12:20pm **Scientific Session 4** | Mila III-VI
- 12:20pm – 1:30pm **—Lunch on own—**
- 1:30pm – 2:30pm **Leadership Perspectives on Surgery in Mexico** |
Mila III-VI
- 2:30pm – 2:50pm **Afternoon Break, ePosters and Exhibits** | Mila North Foyer
- 2:50pm – 4:10pm **Scientific Session 5** | Mila III-VI
- 4:10pm – 4:40pm **Nonie Lowry Oration | William C. Chapman, MD** |
Mila III-VI
- 4:40pm – 5:30pm **WSA Annual Business Meeting** | Mila III-VI
- 7:00pm – 11:00pm **President's Fiesta** | Mila Foyer & Ballroom

SCHEDULE OF EVENTS

TUESDAY, NOVEMBER 6, 2018

7:00am – 11:30am **Registration Open** | Mila South Foyer

7:00am – 8:00am **Continental Breakfast & ePoster Session** | Mila North Foyer

8:00am – 9:00am **Video Quick Shot Session** | Mila III-VI

9:00am – 10:40am **Scientific Session 6** | Mila III-VI

10:40am – 11:10am **Quick Shot Presentations** | Mila III-VI

Meeting Concludes

EXECUTIVE COMMITTEE

President	Mark S. Talamonti, MD
1st Vice President	John R. Potts, III, MD
2nd Vice President	James W. Fleshman, MD
Secretary	Leigh A. Neumayer, MD, MS
Treasurer	Margo C. Shoup, MD
Recorder	Karen J. Brasel, MD, MPH
Immediate Past President	Kelly M. McMasters, MD, PhD
Past President	R. James Valentine, MD
District Representative	Peter Rhee, MD, MPH
District Representative	Anees B. Chagpar, MD, MSc, MA, MPH, MBA
District Representative	Tyler G. Hughes, MD
District Representative	James A. Madura, MD

SOCIETY REPRESENTATIVES

ACS Board of Governors	Charles R. Scoggins, MD
ACS Advisory Council on Surgery	G. Edward Kimm, MD
American Board of Surgery	David R. Farley, MD

PROGRAM COMMITTEE

Maria B. Majella Doyle, MD, MBA Chair
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Carmen C. Solorzano, MD
Michael B. Ujiki, MD
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Tyler Hughes, MD Ex-Officio District Representative
Mark S. Talamonti, MD Ex-Officio President
Leigh A. Neumayer, MD, MS Ex-Officio Secretary
Karen J. Brasel, MD, MPH Ex-Officio Recorder

MEMBERSHIP COMMITTEE

Thomas A. Aloia, MD | Chair

Jayer Chung, MD, MSc

Charles R. Scoggins, MD

Katharine Yao, MD

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Representative

Peter Rhee, MD | Ex-Officio District Representative

Mark S. Talamonti, MD | Ex-Officio President

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2018 Local Arrangements

Bryan M. Clary, MD, MBA

LECTURE: PRESIDENTIAL ADDRESS



Impact, Insight, and Innovation: Our Legacy of Learning

Sunday, November 4, 2018

10:35am – 11:35am

Mark S. Talamonti, MD

NorthShore University HealthSystem

Mark S. Talamonti, M.D. is Professor of Surgery at the University of Chicago Pritzker School of Medicine and Chairman of the Department of Surgery at NorthShore University HealthSystem. Dr. Talamonti received his undergraduate education at John Carroll University in Cleveland, Ohio. He attended Northwestern University Medical School, graduating in 1983, and then completed a residency in General Surgery, also at Northwestern University Medical School. Following the completion of his general surgery residency, he completed a fellowship in Surgical Oncology in the Department of Surgery at the University of Texas, MD Anderson Cancer Center in Houston. Following fellowship at MD Anderson, Dr. Talamonti spent the next 16 years at Northwestern University's Feinberg School of Medicine where he rose through the ranks to become the Director of the Gastrointestinal Oncology Program, Chief of Surgical Oncology, and Professor of Surgery. In 2007, Dr. Talamonti moved to NorthShore University HealthSystem (formerly Evanston-Northwestern Health Care) to assume the position as Chairman of the Department of Surgery.

LECTURE: PRESIDENTIAL ADDRESS

Dr. Talamonti's clinical expertise focuses on the area of gastrointestinal surgical oncology with specific interests in pancreas, liver, and gastric cancers. Dr. Talamonti is the author of over 150 peer reviewed scientific publications, as well as 30 book chapters. He has authored two books on Liver Surgery and Gastrointestinal Oncology. He also serves on the Editorial Board for the Annals of Surgical Oncology and the Journal of Surgical Oncology. He has been honored with an Excellence in Teaching Award every year since his arrival as an attending surgeon at Northwestern University in 1992 and for the past 10 years as a faculty member at the Pritzker School of Medicine at the University of Chicago. He has had appointments as Chairman for the Medical Advisory Board for the Pancreatic Cancer Action Network (PanCAN) and to the Committee for the Pancreatic Cancer Guidelines of the National Comprehensive Cancer Center Network (NCCN). Dr. Talamonti also served as the President of the Chicago Surgical Association for 2015-2016, and he is currently the President of the Western Surgical Association for 2018. As Chairman at NorthShore, he leads a multi-faceted department which is clinically one of the most critical programs in a nationally recognized regional health system with over 900 employed physicians, four hospitals and 75 practice-entry sites.

LECTURE: NONIE LOWRY ORATION



Current Treatment Strategies for Liver Cancer: What Have We Learned?

Monday, November 5, 2018

4:10pm – 4:40pm

William C. Chapman, MD

Washington University School of Medicine

William Chapman, M.D., F.A.C.S., is a Professor of Surgery, the Chief of Abdominal Organ Transplant and the Eugene M. Bricker Chair and Executive Vice-Chair of Surgery at Washington University in St. Louis, as well as the Chief of the Division of General Surgery at Barnes Jewish Hospital. He has been an active member in many surgical societies, including President of the AHPBA for the 2013-2014 year and President of the Western Surgical Association for the 2015-2016 year. He is currently a director of the American Board of Surgery and is on the editorial board of six surgical journals, including the American Journal of Transplantation, Transplantation, Journal of the American College of Surgeons, Annals of Surgery, and Journal of Gastrointestinal Surgery. His clinical interest is adult and pediatric liver transplantation, adult kidney transplantation, and HPB surgery for both benign and malignant diseases.

PAST PRESIDENTS & MEETING LOCATIONS

PRESIDENT	PLACE	YEAR
Kenneth C. Sawyer*	Colorado Springs	1970
Raleigh R. White*	Portland	1971
Carl P. Schlicke*	Rochester	1972
Tom D. Throckmorton*	Houston	1973
Darrell A. Campbell*	San Francisco	1974
Chester B. McVay*	Colorado Springs	1975
William P. Mikkelsen*	Coronado	1976
Allen M. Boyden*	Las Vegas	1977
D. Emirick Szilagyi*	Scottsdale	1978
Harvey R. Butcher, Jr.*	Colorado Springs	1979
William H. ReMine*	Salt Lake City	1980
Paul E. Hodgson*	Albuquerque	1981
James J. Berens*	Kansas City	1982
Robert E. McCurdy*	Monterey	1983
George L. Jordan, Jr.*	Colorado Springs	1984
Martin A. Adson*	Rochester	1985
R. Dale Liechty*	Detroit	1986
Alexander J. Walt*	Dallas	1987
Melvin A. Block	Coronado	1988
J. Bradley Aust*	St. Louis	1989
David G. Ashbaugh	Scottsdale	1990
John L. Glover*	Colorado Springs	1991
Arthur J. Donovan	San Antonio	1992
George E. Block*	Seattle	1993
Basil A. Pruitt, Jr.	Palm Desert	1994
Norman W. Thompson*	Chicago	1995
Jon A. van Heerden	Portland	1996
Jack R. Pickleman	Colorado Springs	1997
Jay L. Grosfeld	Indianapolis	1998
Thomas V. Berne	Santa Fe	1999

PAST PRESIDENTS & MEETING LOCATIONS

PRESIDENT	PLACE	YEAR
Amilu S. Rothhammer	Dana Point	2000
J. David Richardson	San Antonio	2001
Claude H. Organ*	Vancouver, British Columbia	2002
Richard A. Prinz	Tucson	2003
Fabrizio Michelassi	Las Vegas	2004
Arthur S. McFee*	Rancho Mirage, CA	2005
Richard C. Thirlby	Los Cabos, México	2006
Merril T. Dayton	Colorado Springs, CO	2007
Bruce L. Gewertz	Santa Fe, NM	2008
Wayne H. Schwesinger	San Antonio, TX	2009
Michael B. Farnell	Chicago, IL	2010
Gregory J. Jurkovich	Tucson, AZ	2011
Raymond J. Joehl	Colorado Springs, CO	2012
Clive S. Grant	Salt Lake City, UT	2013
Steven C. Stain	Indian Wells, CA	2014
William C. Chapman	Napa, California	2015
R. James Valentine	Coronado, CA	2016
Kelly McMasters	Paradise Valley	2017

**Deceased*



SCIENTIFIC AGENDA



Aust Award Candidate

SCIENTIFIC AGENDA

Saturday, November 3, 2018

Sunday, November 4, 2018

SATURDAY, NOVEMBER 3, 2018

3:00pm – 6:00pm

Registration Open | Mila South Foyer

5:30pm – 6:30pm

New Members Reception | Nike Grill

6:30pm – 8:30pm

Welcome Reception | Nike Grill

SUNDAY, NOVEMBER 4, 2018

6:00am – 12:00pm

Registration Open | Mila South Foyer

6:00am – 7:00am

Continental Breakfast & Exhibits | Mila North Foyer/ Mila I-II

6:15am – 7:00am

Women in Surgery Breakfast | Matku 1

7:00am – 8:45am

Scientific Session 1 | Mila III-VI

Moderator: President, Mark S. Talamonti MD | NorthShore University HealthSystem

7:00am – 7:15am

Welcome & Introductory Remarks

7:15am - 7:25am

**QS1. VENOUS THROMBOEMBOLISM
CHEMOPROPHYLAXIS IN MASTECTOMY PATIENTS:
A FIVE-YEAR FOLLOW-UP STUDY**

*TND Vu, R El Melik, S Nehring, W Bergquist, T Hoskin, C Day,
JW Jakub*

Mayo Clinic Rochester

Presenter: Trang Vu MD

7:25am - 7:35am

**QS2. VARIATIONS IN SURGICAL INSTRUMENTATION
AND SUPPLY COSTS IN BARIATRIC SURGERY**

RF Alban, J Tseng, HC Sax
Cedars-Sinai Medical Center

Presenter: Harry Sax MD

7:35am - 7:45am

**QS3. CONDITIONAL RECURRENCE FREE SURVIVAL
AFTER RESECTION OF COLORECTAL LIVER METASTASIS:
PERSISTENT DELETERIOUS EFFECT OF RAS AND TP53
CO-MUTATION**

*Y Kawaguchi, HA Lillemoe, YS Chun, CD Tzeng, TA Aloia, S Kopetz,
J Vauthey*

University of Texas, MD Anderson Cancer Center

Presenter: Yoshikuni Kawaguchi MD, PhD

7:45am - 8:05am

1. A TALE OF TWO KIDNEYS: COMPARISON OF OUTCOMES IN SIMULTANEOUS LIVER-KIDNEY TRANSPLANT RECIPIENTS VERSUS RECIPIENTS OF THE PARTNER KIDNEY FROM THE SAME DONOR

RM Cannon, EG Davis, CM Jones

University of Louisville

Presenter: Robert Cannon MD

Member Closer: Christopher M Jones MD

Invited Discussant: Jason Wellen MD, MBA | St. Louis, MO

8:05am - 8:25am

2. EARLY POSTOPERATIVE RISK CALCULATOR FOR POST HEPATECTOMY LIVER FAILURE FOLLOWING MAJOR HEPATECTOMY

JY Liu, RJ Ellis, ME Cohen, DB Hoyt, AD Yang, CY Ko, KY Bilimoria, RP Merkow

American College of Surgeons

Presenter: Jessica Liu MD

Member Closer: Ryan Merkow MD, MS

Invited Discussant: Brian Badgwell MD | Houston, TX

8:25am - 8:45am

 **3. IMPROVED SURVIVAL WITH ADJUVANT COMBINED IMMUNOTHERAPY AND CHEMOTHERAPY FOLLOWING CURATIVE-INTENT RESECTION OF PANCREATIC ADENOCARCINOMA**

TB Tran, VK Maker, AV Maker

University of Illinois at Chicago

Presenter: Thuy Tran MD

Member Closer: Ajay V Maker MD

Invited Discussant: George B Kazantsev MD | Oakland, CA



SCIENTIFIC AGENDA

Sunday, November 4, 2018

8:00am – 10:00am

Spouse/Guest Hospitality and Breakfast | Garden Foyer

8:45am – 9:10am

Introduction of New Members & J. Bradley Aust Award | Mila III-VI

Welcome 2017 WSA New Members

2017 J. Bradley Aust Recipient | Nabil Wasif, MD, MPH

ATTENUATION OF THE VOLUME-OUTCOME
RELATIONSHIP FOR MAJOR CANCER SURGERY IN THE
UNITED STATES - IS A PUSH TOWARDS CONTINUED
REGIONALIZATION JUSTIFIED?

Mayo Clinic Arizona

9:10am – 9:20am

Morning Break, ePosters and Exhibit Viewing | Mila North Foyer/Mila
I-II

9:20am – 10:20am

Scientific Session 2 | Mila III-VI

Moderator: First VP, John R. Potts III MD | ACGME

9:20am - 9:40am

**4. COMPETING RISKS OF DEATH IN ELDERLY PATIENTS
WITH NEWLY DIAGNOSED STAGE I BREAST CANCER**

N Wasif, M Neville, RJ Gray, BA Pockaj

Mayo Clinic Arizona

Presenter: Nabil Wasif MD, MPH

Member Closer: Nabil Wasif MD, MPH

Invited Discussant: David Winchester MD | Evanston, IL

9:40am - 10:00am

**5. ROOM FOR IMPROVEMENT IN SURGICAL
COMPENSATION AS THE SURGICAL GENDER GAP
NARROWS**

SC Daly, B Sheehan, S Gambhir, NT Nguyen

University of California Irvine Medical Center

Presenter: Shaun Daly MD

Member Closer: Ninh T Nguyen MD

Invited Discussant: Mary T Hawn MD, MPH | Palo Alto, CA

10:00am - 10:20am

**6. 10-YEAR HEPATOCELLULAR CANCER SURVIVAL IN 1,016
PATIENTS DIAGNOSED DURING SCREENING OF 10,372
CHRONIC HEPATITIS B OR C VIRUS-INFECTED PATIENTS**

*MC Mason, F Izzo, EJ Silberfein, NN Massarweh, HS Tran Cao, C Hsu,
SA Curley*

Baylor College of Medicine

Presenter: Meredith C Mason MD

Member Closer: Steven A Curley MD

Invited Discussant: Victor Zaydfudim MD, MPH | Charlottesville,
VA

10:20am – 10:35am

American Board of Surgery Update

David R. Farley, MD | Mayo Clinic

Mila III-VI

SCIENTIFIC AGENDA

Sunday, November 4, 2018

10:35am – 11:35am

Introduction

John R. Potts III, MD | Accreditation Council for Graduate Medical Education (ACGME)

Presidential Address

Mark S. Talamonti, MD | NorthShore University HealthSystem

Impact, Insight, and Innovation: Our Legacy of Learning

Mila III-VI

12:00pm

WSA Golf Outing | Puerto Los Cabos

1:30pm

Margarita Tasting | Library

MONDAY, NOVEMBER 5, 2018

7:00am – 5:00pm

Registration Open | Mila South Foyer

7:00am – 8:00am

Continental Breakfast, ePoster Session & Exhibits | Mila North Foyer/
Mila I-II

ePoster Kiosk #1

Moderator: Tyler Hughes MD | University of Kansas School of Medicine
Salina

P1. PARATHYROID CRYOPRESERVATION: TECHNIQUE AND ESTABLISHING AN INSTITUTIONAL PROGRAM

*IY Nwaogu, K Chomsky-Higgins, R Sukpanich, Y Chen, M Sedaghati,
C Seib, I Suh, WT Shen, Q Duh, JE Gosnell*

University of California San Francisco, Fresno

Presenter: Iheoma Nwaogu MD

P2. LEGACY OPERATIONS: THE FINNEY AND JABOULAY GASTRODUODENOSTOMIES

GR Marshall, FG Rocha

Virginia Mason Medical Center

Presenter: Flavio Rocha MD

P3. SAFETY OF POSTOPERATIVE TELEPHONE SCREENING FOR SIMPLE EMERGENCY GENERAL SURGERY PROCEDURES - IMPLICATIONS FOR HEALTH CARE RESOURCE USE

*T Carlock, J Barrett, J Kalvelage, J Young, M McCrum, J Nunez,
A Colonna, T Enniss, R Nirula*

University of Utah

Presenter: Tanner Carlock BSc

**P4. DEVELOPMENT OF A NOVEL RISK SCORE TO PREDICT
NEED FOR COLECTOMY AT TIME OF ADMISSION FOR
ACUTE ULCERATIVE COLITIS FLARE**

*NP McKenna, KA Bews, KT Hanson, AL Lightner, DW Larson,
EB Habermann*

Mayo Clinic Rochester

Presenter: Nicholas McKenna MD

**P5. FOR PATIENTS UNDERGOING ONCOLOGIC LIVER
RESECTION, PREOPERATIVE PATIENT-REPORTED
SYMPTOM ASSESSMENT IS MORE PREDICTIVE OF
RECOVERY THAN SARCOPENIA**

*HA Lillemoe, RK Marcus, BJ Kim, N Narula, CH Davis, XS Wang,
YS Chun, CW Tzeng, JN Vauthey, TA Aloia*

University of Texas MD Anderson Cancer Center

Presenter: Heather Lillemoe MD

**P6. WHO DESERVES A DAMAGE CONTROL LAPAROTOMY
IN EMERGENCY GENERAL SURGERY? POST-HOC ANALYSIS
RESULTS OF THE SHAPES STUDY**

*MC Hernandez, BR Bruns, EJ Finnesgard, H Phelan, T Enniss,
DS Morris, ML Lauerma, JM Aho, TM Scalea, MD Zielinski*

Mayo Clinic Rochester

Presenter: Matthew Hernandez MD

**P7. ROUTINE BRONCOSCOPY WITH URGENT
INTUBATIONS: SAFER, FASTER, BETTER**

MB Bloom, C Colovos, J Borgella, DR Margulies, G Berci

Cedars-Sinai Medical Center

Presenter: Matthew Bloom MD

P9. SURGICAL FACULTY DIVERSITY AT SURGICAL MEETINGS

HS Al-Lami, PE Skaran, J Bingener-Casey

Mayo Clinic Rochester

Presenter: Juliane Bingener-Casey MD

P11. DUODENAL GISTS: IS AGGRESSIVE SURGICAL RESECTION ALWAYS NECESSARY?

A Uppal, M Wang, T Fischer, M Goldfarb

John Wayne Cancer Institute at Providence Saint John

Presenter: Abhineet Uppal MD

ePoster Kiosk #2

Moderator: Michael Ujiki MD | NorthShore University HealthSystem

P12. FUNCTIONAL PROTEOMIC ANALYSIS OF COLORECTAL LIVER METASTASES PREDICTS RESPONSE TO OXALIPLATIN

YS Chun, MN Lam

University of Texas MD Anderson Cancer Center

Presenter: Yun Shin Chun MD

P13. EARLY GOALS OF CARE DISCUSSION IS WARRANTED IN ELDERLY TRAUMA PATIENTS WITH HIGH GRADE BLUNT LIVER INJURY

EM Warnack, M Bukur, SG Frangos, CJ DiMaggio, RA Kozar,

M Klein, CD Berry

New York University School of Medicine

Presenter: Cherisse Berry MD

P14. MICROCHIPPING THE BREAST: AN EFFECTIVE NEW TECHNOLOGY FOR LOCALIZING NON-PALPABLE BREAST LESIONS FOR SURGERY

ML DiNome, AM Kusske, DJ Attai, CP Fischer, AC Hoyt

University of California Los Angeles

Presenter: Maggie DiNome MD

P15. ROBOTIC LEARNING CURVES APPEAR TO MATTER LITTLE IN A EDUCATIONAL INSTITUTION

J Crippa, SR Kelley, A Merchea, D Colibaseanu, WS Harmsen, DW Larson

Mayo Clinic Rochester

Presenter: Jacopo Crippa MD

P17. CAPITALIZING ON COMPETITION: SHARING DATA AMONG SURGEON PEERS REDUCES OPERATING ROOM COSTS

JA Weinberg, KM Chapple, TL Gillespie, P Drotar, S Israr, KP McGeever, RA Gagliano

Saint Joseph Hospital

Presenter: Jordan Weinberg MD

P20. UTILIZATION AND EFFICACY OF NEO-ADJUVANT CHEMOTHERAPY IN THE MULTI-MODALITY MANAGEMENT OF GASTRIC CANCER

R Day, RJ Gray, CC Stucky, BA Pockaj, N Wasif

Mayo Clinic Arizona

Presenter: Nabil Wasif MD, MPH

P21. SURGEON EXPERIENCE PREDICTS RECURRENCE FOLLOWING LAPAROSCOPIC INGUINAL HERNIA REPAIR IN 1378 PATIENTS

MB Ujiki, M Denham, K Donovan, N Wetoska, K Kuchta, J Carbray, SP Haggerty, W Denham, JG Linn

NorthShore University HealthSystem

Presenter: Merritt Denham BS

P22. REGIONAL DISSECTION FOR MELANOMA: DOES OBSERVATION LEAD TO LOSS OF REGIONAL CONTROL?

A Uppal, M Fujita, JF Thompson, N Mozzillo, OE Nieweg, HJ Hoekstra, DF Roses, VK Sondak, M Kashani-Sabet, BJ Coventry, M Sim-Shin, DE Elashoff, R Elashoff, AJ Cochran, MB Faries

Cedars-Sinai Medical Center

Presenter: Abhineet Uppal MD

P25. THROMBOELASTOGRAPHY AFTER CARDIOPULMONARY BYPASS, DOES IT SAVE BLOOD PRODUCTS?

H Freeman, O Hasan, R Tung, W Taylor, SD Helmer, J Reyes, B Grizzell

University of Kansas School of Medicine at Wichita

Presenter: Hadley Freeman MD

ePoster Kiosk #3

Moderator: Erin Maynard MD | Oregon Health & Science University

P26. WHEN RURAL IS NO LONGER RURAL: DEMAND FOR SUB-SPECIALTY TRAINED SURGEONS INCREASES WITH INCREASING POPULATION OF A NON-METROPOLITAN AREA

MR Cook, D Hughes, SB Deal, MD Sarap, TG Hughes, KE Deveney, KJ Brasel, AA Alseidi

Oregon Health & Science University

Presenter: Dorothy Hughes MHSA

P27. CHANGING TRENDS IN NON-OPERATIVE MANAGEMENT OF MICROPAPILLARY THYROID CANCER

SA Holoubek, H Yan, DJ Winchester, TA Moo-Young, RA Prinz

NorthShore University HealthSystem

Presenter: Simon Holoubek DO, MPH

P28. ENDOSCOPIC VACUUM ASSISTED WOUND CLOSURE (EVAC) DEVICE TO TREAT ESOPHAGEAL AND GASTRIC LEAKS: ASSESSING TIME TO PROFICIENCY AND COST

MA Ward, T Hassan, E Ontiveros, JS Burdick, SG Leeds

Baylor Scott & White Healthcare

Presenter: Marc Ward MD

P29. PRIMARY CARE PHYSICIANS' PERCEPTIONS OF BARIATRIC SURGERY AND MAJOR BARRIERS TO REFERRAL

EA Conaty, W Denham, SP Haggerty, JG Linn, R Joehl, MB Ujiki

NorthShore University HealthSystem

Presenter: Eliza Conaty BS

**P30. COMPARATIVE EFFECTIVENESS OF
LYMPHADENECTOMY STRATEGIES DURING CURATIVE
RESECTION FOR GASTRIC ADENOCARCINOMA**

Y Hu, BJ Goudreau, KM Leick, TM Le, VM Zaydfudim

University of Virginia

Presenter: Victor Zaydfudim MD, MPH

**P31. SUCCESSFUL GENERATION OF TWO PANCREATIC
ACINAR CELL PATIENT-DERIVED XENOGRAFTS
DEMONSTRATE IN VITRO AND IN VIVO SENSITIVITY TO
SINGLE AGENT OXALIPLATIN**

*MC Hernandez, JL Leiting, L Yang, T Ivanics, JR Bergquist, R Graham,
S Murphy, RL Smoot, DM Nagorney, MJ Truty*

Mayo Clinic Rochester

Presenter: Matthew Hernandez MD

**P32. IS THE AMERICAN COLLEGE OF SURGEONS ONLINE
COMMUNITIES A SAFE AND EFFECTIVE VENUE TO ASK
FOR SURGICAL ADVICE?**

*K Bernardi, P Shah, EP Askenasy, C Balentine, MM Crabbe, MA
Cerame, JA Harvin, L Huang, SG Millas, P Molt, TE Saunders, SK Shah,
J Schwartz, TC Ko, TG Hugher, MK Liang*

McGovern Medical School at the University of Texas Health Science
Center at Houston

Presenter: Karla Bernardi MD

**P33. RISK-ADJUSTED READMISSIONS FOLLOWING
MEDICARE ELECTIVE COLORECTAL SURGERY**

DE Fry, SM Nedza, M Pine, AM Reband, G Pine

MPA Healthcare Solutions

Presenter: Donald Fry MD

P36. GENDER AND GEOGRAPHIC DISPARITIES LIMIT ACCESS TO LIVER TRANSPLANTATION

B Anderson, L Dageforde, N Vachharajani, SH Chang, Y Park, V Subramanian, J Wellen, MB Doyle, WC Chapman, AS Khan
Washington University in Saint Louis

Presenter: Adeel Khan MD, MPH

P37. POINT OF CARE VISCOELASTIC (ROTEM®)-BASED RESUSCITATION: WORKING SMARTER OR WORKING HARDER?

CL Luppens, S Lombardo, M McCrum, JM Nunez, JB Young, AL Colonna, TM Enniss, R Nirula
University of Utah

Presenter: Carolyn Luppens MD

ePoster Kiosk #4

Moderator: Charles Scoggins MD | University of Louisville

P39. SURGICAL MANAGEMENT OF BREAST CANCER: A RURAL-METROPOLITAN DIVIDE

LE Williams, JD Sonn, MB Thomas, A Madrigano, JM Velasco
Rush University Medical Center

Presenter: Lauren Williams MD

P40. CAN WE PREDICT COMPLICATIONS IN REAL-TIME? DEVELOPMENT OF A NOVEL GROUP BASED TRAJECTORY MODEL

AJ Williamson, U Ravichadran, J Grant, R Padman, N Shah, MS Talamonti, JL Paruch
University of Chicago

Presenter: Ashley Williamson MD

7:10am - 7:15am

P43. DISPARITIES IN COLORECTAL CANCER MORTALITY FOR RURAL POPULATIONS: DOES SCREENING MATTER?

HE Carmichael, ML Cowan, RC McIntyre, CG Velopulos

University of Colorado School of Medicine

Presenter: Heather Carmichael MD

7:15am - 7:20am

P44. FACTORS ASSOCIATED WITH INCREASED RISK OF RECURRENCE REQUIRING REOPERATION FOLLOWING LAPAROSCOPIC HIATAL HERNIA REPAIR

R Ellis, G Garwood, M Harmouch, K Mueck, CC Miller, F Banki

McGovern Medical School at the University of Texas Health Science Center at Houston

Presenter: Maamoun Harmouch MD

7:20am - 7:25am

P45. DRAINAGE OF PANCREATIC FLUID COLLECTIONS AFTER DISTAL PANCREATECTOMY: COMPARISON OF PERCUTANEOUS VS. ENDOSCOPIC DRAINAGE TECHNIQUES

P Bhurtel, BJ Borah, JP Moriarty, RL Smoot, SP Cleary, MJ Truty,

DM Nagorney, TE Grotz, ML Kendrick

Mayo Clinic Rochester

Presenter: Partha Bhurtel MD

P47. REVISITS FOLLOWING ADRENALECTOMY: A STATE INPATIENT AND EMERGENCY DEPARTMENT DATABASE ANALYSIS

IY Nwaogu, M Olsen, K Chomsky-Higgins, Y Chen, R Sukpanich,

M Sedaghati, C Seib, I Suh, WT Shen, JE Gosnell, Q Duh

University of California San Francisco

Presenter: Iheoma Nwaogu MD

P48. PTSD IN TRAUMA: DOES MECHANISM MATTER?

MK Bobbs, TB Coopwood, I Tabas, S Ali, S Manser, CVR Brown

Dell Seton Medical Center

Presenter: Melanie Bobbs MD

P49. SEVERE TRAUMATIC BRAIN INJURY AND SHOCK ARE ASSOCIATED WITH WORSE ACUTE TRAUMATIC COAGULOPATHY: A REVIEW OF THE PRAGMATIC, RANDOMIZED OPTIMAL PLATELET AND PLASMA RATIOS DATABASE

SG Smith, JM Murphy, EN Dewey, JB Holcomb, EM Bulger, BA Cotton, K Inaba, MR Cook, MA Schreiber

Oregon Health & Science University

Presenter: Sawyer Smith MD

P50. PROLONGED PARTIAL RESUSCITATIVE ENDOVASCULAR BALLOON OCCLUSION OF THE AORTA (REBOA) FOR MANAGEMENT OF A HIGHLY LETHAL AORTIC INJURY USING A NOVEL PREBOA-PRO CATHETER

BJ Behrens, BH McCully, E Dewey, SG Smith, JM Murphy, A Goodman, SJ Underwood, E Rick, B Madtson, JB Holcomb, MA Schreiber

Oregon Health & Science University

Presenter: Brandon Behrens MD

8:00am – 10:00am

Spouse/Guest Hospitality and Breakfast | Garden Foyer

SCIENTIFIC AGENDA

Monday, November 5, 2018

8:00am – 10:20am

Scientific Session 3 | Mila III-VI

Moderator: President, Mark S. Talamonti MD | NorthShore University HealthSystem

8:00am - 8:20am

7. RISK PREDICTION ACCURACY DIFFERS FOR TRANSFERS AND NON-TRANSFERS EMERGENCY GENERAL SURGERY CASES IN ACS-NSQIP

M Castillo-Angeles, M Jarman, T Uribe-Leitz, A Salim, JM Havens
Brigham and Women's Hospital

Presenter: Manuel Castillo-Angeles MD, MPH

Member Closer: Ali Salim MD

Invited Discussant: Eric Ley MD | Los Angeles, CA

8:20am - 8:40am

8. 10-YEAR NATIONWIDE OUTCOMES OF CAROTID REVASCULARIZATION SHOW THAT FEMALES HAVE A HIGHER RISK OF STROKE FOR SYMPTOMATIC BUT NOT ASYMPTOMATIC CAROTID ARTERY STENOSIS

JM Mayor, JL Salemi, D Dongarwar, HM Salihu, M Montero-Bake, JL Mills, J Chung

Baylor College of Medicine

Presenter: Jessica Mayor MD

Member Closer: Jayer Chung MD, MSc

Invited Discussant: Ashraf Mansour MD, MBA | Grand Rapids, MI

8:40am - 9:00am

9. COMPARISON OF LIQUID BIOPSY AND HISTOPATHOLOGIC RESULTS WITH CLINICAL OUTCOMES IN NON-SMALL CELL LUNG CANCER PATIENTS

S Zhang, J Harris, T Boyle, S Antonia, A Chiappori, B Creelan, J Gray, E Haura, M Shafique, T Tanvetyanon, CC Williams, JP Fontaine, R Keenan, LA Robinson, J Cox, F Kaszuba, V Nair, EM Toloza
Moffitt Cancer Center

Presenter: Sherry Zhang BS

Member Closer: TBD

Invited Discussant: Ashwani Rajput MD | Albuquerque, NM

9:00am - 9:20am

10. HARTMANN'S VERSUS PRIMARY ANASTOMOSIS WITH DIVERTING ILEOSTOMY FOR ACUTE DIVERTICULITIS: A NATIONWIDE ANALYSIS OF 3,100 EMERGENCY SURGERY PATIENTS

J Lee, JP Chang, N Kongkaewpaisan, AI Eid, N Kokoroskos, MG Rosenthal, AE Mendoza, NN Saillant, DR King, PJ Fagenholz, G Velmahos, HMA Kaafarani
Massachusetts General Hospital

Presenter: Jae Moo Lee BA

Member Closer: Haytham Kaafarani MD, MPH

Invited Discussant: Joseph Muldoon MD | Evanston, IL

9:20am - 9:40am

**11. INSTITUTIONAL PATHWAYS FOR SURGICAL
DIAGNOSES REDUCE HEALTHCARE COSTS, LENGTH
OF STAY, AND READMISSIONS**

JL Martinolich, RA Malizia, KK Williams, A Ata, BT Valerian,

DP McKenna, SC Stain, EC Lee

Albany Medical College

Presenter: Jessica Martinolich MD

Member Closer: Steven Stain MD

Invited Discussant: James Robbins MD | Royal Oak, MI

9:40am - 10:00am

**12. PERSISTENTLY ELEVATED GLUCAGON-LIKE PEPTIDE 1
LEVELS AFTER SEPSIS AMONG CRITICALLY-ILL SURGICAL
PATIENTS PREDICTS THE DEVELOPMENT OF CHRONIC
CRITICAL ILLNESS AND DISMAL LONG-TERM OUTCOMES**

SC Brakenridge, Q Wu, Z Wang, G Ghita, A Bihorac, PE Efron,

LL Moldawer, FA Moore, RS Smith

University of Florida

Presenter: Scott Brakenridge MD, MS

Member Closer: R Stephen Smith MD, RDMS

Invited Discussant: John Fildes MD | Las Vegas, NV

10:00am - 10:20am

**13. TUMOR-SPECIFIC FLUORESCENCE IMAGING OF
HUMAN PANCREATIC CANCER USING A SITE-SPECIFIC
NEAR-INFRARED NANOBODY PROBE IN AN ORTHOTOPIC
MOUSE MODEL**

TM Lwin, S Hernot, N Devoogdt, RM Hoffman, M Bouvet

University of California, San Diego

Presenter: Thinzar Lwin MS MD

Member Closer: Michael Bouvet MD

Invited Discussant: Flavio Rocha MD | Seattle, WA

SCIENTIFIC AGENDA

Monday, November 5, 2018

10:00am – 1:00pm

Spouse/Guest Activity: Spa & Smoothie Demo | JW Spa

10:20am – 10:40am

Morning Break, ePosters & Exhibits | Mila North Foyer/ Mila I-II

10:40am – 12:20pm

Scientific Session 4 | Mila III-VI

Moderator: Second VP, James Fleshman MD | Baylor University Medical Center Dallas

10:40am - 11:00am

14. PANCREATIC FLUID INTERLEUKIN-1 β COMPLEMENTS PROSTAGLANDIN E2 AND SERUM CA19-9 IN PREDICTION OF IPMN DYSPLASIA

RE Simpson, MT Yip-Schneider, KF Flick, H Wu, CL Colgate, CM Schmidt

Indiana University School of Medicine

Presenter: Katelyn Flick MD

Member Closer: C Max Schmidt MD, PhD, MBA

Invited Discussant: Marshall S Baker MD | Chicago, IL

11:00am - 11:20am

15. PREDICTING POST-OPERATIVE HYPOCALCEMIA AFTER TOTAL THYROIDECTOMY TO ALLOW SAME DAY DISCHARGE

BM Dy, V Strajina, GB Thompson, T McKenzie, DR Farley, ML Lyden
Mayo Clinic Rochester

Presenter: Veljko Strajina MD

Member Closer: David Farley MD

Invited Discussant: Melanie Goldfarb MD, MSc | Santa Monica, CA

11:20am - 11:40am

16. MEDICINE CABINET ONCOLOGY: DISULFIRAM AND COPPER GLUCONATE SHOW IN VITRO AND IN VIVO EFFICACY IN A PRECLINICAL PATIENT-DERIVED XENOGRAFT MODEL SYSTEM OF CHOLANGIOCARCINOMA

JL Leiting, MC Hernandez, MJ Truty

Mayo Clinic Rochester

Presenter: Jennifer Leiting MD

Member Closer: Mark J Truty MD, MS

Invited Discussant: Erin Maynard MD | Portland, OR

11:40am - 12:00pm

17. THE IMPACT OF THE AFFORDABLE CARE ACT MEDICAID EXPANSION IN MINIMALLY INVASIVE SURGERY

E Eguia, B Chand, M Baker, PC Kuo

Loyola University Medical Center

Presenter: Emanuel Eguia MD, MHA

Member Closer: Marshall Baker MD, MBA

Invited Discussant: Julianne Bingener MD | Rochester, MN

12:00pm - 12:20pm

18. NEOADJUVANT SYSTEMIC CHEMOTHERAPY FOR COLORECTAL LIVER METASTASES DOES NOT INCREASE POSTOPERATIVE MORBIDITY OR MORTALITY FOLLOWING HEPATECTOMY

FA Guzman-Pruneda, D Xourafas, AZ Paredes, ME Dillhoff,

S Abdel-Misih, TM Pawlik, JN Vauthey, JM Cloyd

The Ohio State University Wexner Medical Center

Presenter: Francisco Guzman MD

Member Closer: Jean-Nicholas Vauthey MD

Invited Discussant: Margo Shoup MD | Warrenville, IL

SCIENTIFIC AGENDA

Monday, November 5, 2018

12:20pm – 1:30pm

—Lunch on own—

1:30pm – 2:30pm

Leadership Perspectives on Surgery in Mexico | Mila III-VI

Moderators:

Mark S. Talamonti MD | NorthShore University HealthSystem;

Carlos Chan MD | INCMNSZ

Safe teaching of Bariatric Surgery

Miguel Herrera MD | INCMNSZ

Discussant: James Madura MD | Mayo Clinic Arizona

Chairman of the Department of Surgery in Mexico Miguel Angel

Mercado MD | INCMNSZ

Discussant: Mark S. Talamonti MD | NorthShore University HealthSystem

Surgical Education in Mexico

Carlos Chan MD | INCMNSZ

Discussant: Karen Brasel MD | Oregon Health and Science University

2:30pm – 2:50pm

Afternoon Break, ePosters and Exhibits | Mila North Foyer

2:50pm – 4:10pm

Scientific Session 5 | Mila III-VI

Moderator: Local Arrangements Chair, Bryan Clary MD, MBA | University of California, San Diego

2:50pm - 3:10pm

19. SOCIOECONOMIC DISTRESSED COMMUNITIES INDEX IS ASSOCIATED WITH LONG-TERM SURVIVAL FOLLOWING BARIATRIC SURGERY

EJ Charles, RB Hawkins, JH Mehaffey, MC Tracci, BD Schirmer, PT Hallowell

University of Virginia

Presenter: J. Hunter Mehaffey MD, MSc

Member Closer: Peter Hallowell MD

Invited Discussant: James Madura MD | Scottsdale, AZ

3:10pm - 3:30pm

20. LONG-TERM ONCOLOGICAL OUTCOMES FOLLOWING ANASTOMOTIC LEAK IN RECTAL CANCER SURGERY

J Crippa, E Duchalais, N Machairas, A Merchea, SR Kelley, DW Larson
Mayo Clinic Rochester

Presenter: Jacopo Crippa MD

Member Closer: David W Larson MD, MBA

Invited Discussant: Steven A Curley MD | Tyler, TX

3:30pm - 3:50pm



21. A SYSTEMS APPROACH TO REDUCE DEEP VENOUS THROMBOSIS AND PULMONARY EMBOLISM IN TRAUMA PATIENTS

NK Dhillon, G Barmparas, NT Linaval, AR Yang, HK Sekhon, DR Margulies, BL Gewertz, EJ Ley
Cedars-Sinai Medical Center



Presenter: Navpreet Dhillon MD

Member Closer: Eric Ley MD

Invited Discussant: Jasmeet Paul MD | Albuquerque, NM

3:50pm – 4:10pm



22. INCREASING INCIDENCE OF COLON CANCER IN THE YOUNG; ASSESSING THE TUMOR BIOLOGY

VN Nfonsam, D Chen, P Omesiete, A Cruz, A Ewongwo, J Jandova

University of Arizona

Presenter: Valentine N. Nfonsam MD, MS

Member Closer: Valentine N. Nfonsam MD, MS

Invited Discussant: James Spitz MD | Glenview, IL

4:10pm – 4:40pm

Introduction

Mark S. Talamonti, MD | NorthShore University HealthSystem

Nonie Lowry Oration

William C. Chapman, MD | Washington University School of Medicine

Current Treatment Strategies for Liver Cancer:

What Have We Learned?

Mila III-VI

4:40pm – 5:30pm

WSA Annual Business Meeting | Mila III-VI

7:00pm – 11:00pm

President's Fiesta | Mila Foyer & Ballroom



TUESDAY, NOVEMBER 6, 2018

7:00am – 11:30am

Registration Open | Mila South Foyer

7:00am – 8:00am

Continental Breakfast & ePoster Session | Mila North Foyer

ePoster Kiosk #1

Moderator: Anton Bilchik MD, PhD, MBA | John Wayne Cancer Institute

P52. CORE7: DEVELOPMENT OF A COMPREHENSIVE WELLNESS CURRICULUM FOR GENERAL SURGERY RESIDENTS AT A SAFETY-NET ACADEMIC MEDICAL CENTER

RL Williams-Karnesky, AA Greenbaum, EC Lawrence, JS Paul
University of New Mexico Hospital

Presenter: Rebecca Williams-Karnesky MD, PhD

P53. OUTPATIENT PARATHYROIDECTOMY - THE NEW STANDARD

HA Reinhart, SK Snyder, SV Stafford, VE Wagner, CW Graham, MD Bortz, X Wang

University of Texas Rio Grande Valley School of Medicine

Presenter: Henry Reinhart MD

P55. THE COMBINATION OF PYLOROPLASTY AND GASTRIC ELECTRICAL STIMULATION IMPROVES BOTH GASTRIC EMPTYING TIME AND SYMPTOMS IN PATIENTS WITH GASTROPARESIS

KR Van Sickle, D Al Najjar, M Eastridge

University of Texas Health Science Center, San Antonio

Presenter: Kent Van Sickle MD

P56. INSTITUTIONAL EXPERIENCE WITH VARIABLE OPIOID USE FOR GENDER AFFIRMING BREAST SURGERY, ONCOLOGICAL MASTECTOMY, AND MAMMOPLASTY

KA Robinson, S Duncan, A Fleishman, GA Brat

Beth Israel Deaconess Medical Center

Presenter: Kortney Robinson MD

P57. DO DRAINS REALLY SUCK? A PROPENSITY SCORE ANALYSIS OF CLOSED-SUCTION VERSUS CLOSED-GRAVITY DRAINAGE ON FISTULA AND OUTCOMES AFTER PANCREATECTOMY

LB Kone, VK Maker, M Banulescu, AV Maker

University of Illinois at Chicago

Presenter: Lyonell Kone MD

P58. LINITIS PLASTICA: A DISTINCT TYPE OF GASTRIC CANCER THAT NEEDS A CLEAR DEFINITION

N Ikoma, A Agnes, HC Chen, X Wang, MM Blum, P Das, B Minsky, JS Estrella, KF Fournier, P Mansfield, JA Ajani, BD Badgwell

University of Texas MD Anderson Cancer Center

Presenter: Naruhiko Ikoma MD, MS

P60. NOT JUST RACE OR INCOME: USING THE SOCIAL VULNERABILITY INDEX TO EXAMINE DISPARITIES IN VIOLENT DEATH

HE Carmichael, GM Borst, EC Jamison, KA Bol, RC McIntyre, CG Velopulos

University of Colorado School of Medicine

Presenter: Heather Carmichael MD

P61. RISK FACTORS FOR AND ASSOCIATIONS OF PROLONGED AIR LEAK AFTER ROBOTIC-ASSISTED PULMONARY LOBECTOMY

RL Gerard, RA Patel, DT Nguyen, FO Velez-Cubian, MH Amaral, CC Moodie, JR Garrett, JP Fontaine, EM Toloza

Moffitt Cancer Center

Presenter: Roger Gerard BS

P62. HIGH-VOLUME SURGEONS HAVE DECREASED POSTOPERATIVE COMPLICATIONS IN NIPPLE-SPARING MASTECTOMY

A Bartholomew, M Sosin, G Lassiter, I Perez-Alvarez, S Cox, S Tung, L Bozzuto, K Griffith, S Willey, E Tousimis

Georgetown University School of Medicine

Presenter: Alex Bartholomew MS

P63. LAPAROSCOPIC EXTRACORPOREAL VERSUS ROBOTIC-ASSISTED INTRACORPOREAL ANASTOMOSIS FOR SIGMOID COLECTOMY

R Gamagami, CA Santiago, L Giordano, AA Kassir, H Lujan, G Plasencia

Silver Cross Hospital

Presenter: Reza Gamagami MD

ePoster Kiosk #2

Moderator: T. Mark Earl MD | University of Mississippi Medical Center

**P64. A TWENTY-FIVE YEAR EXPERIENCE WITH PERINEAL
HERNIA REPAIR**

NP McKenna, EB Habermann, DW Larson, SR Kelley, KL Mathis
Mayo Clinic Rochester

Presenter: Nicholas McKenna MD

**P65. RECTAL CANCER OPTIMIZATION AT A SINGLE
INSTITUTION: EVALUATION WITH OSTRICH CRITERIA**

JL Martinolich, CP Miller, EC Lee, BT Valerian
Albany Medical College

Presenter: Claire Miller BS, MS

**P66. APPENDICEAL NEUROENDOCRINE TUMORS: DOES
COLON RESECTION IMPROVE OUTCOMES?**

*A Crown, AG Lopez-Aguilar, M Dilhoff, EW Beal, GA Poultides,
E Makris, K Idrees, P Marincola Smith, H Nathan, M Beems, D Abbott,
J Barrett, RC Fields, J Davidson, SK Maithel, FG Rocha*
Virginia Mason Medical Center

Presenter: Angelena Crown MD

**P67. ADVANCED STATISTICAL METHODS USING
ARTIFICIAL INTELLIGENCE: DO THEY OFFER BETTER
PREDICTIVE POWER IN MODELING CLINICALLY
RELEVANT POSTOPERATIVE PANCREATIC FISTULA?**

E Eguia, H Janjua, M Afshar, G Abood, GV Aranha, PC Kuo, MS Baker
Loyola University Medical Center

Presenter: Emanuel Eguia MD, MHA

**P69. A DESCRIPTIVE ANALYSIS OF MOTORIZED
WATERCRAFT INJURIES**

J Crosby, M Trust, B Coopwood, P Teixeira, J Aydelotte, S Ali, C Brown
Dell Seton Medical Center

Presenter: Joshua Crosby MD

**P70. THE LETHAL EFFECT OF OBESITY ON TRAUMA
LAPAROTOMY**

C Fu, F Bokhari, F Bajani
Stroger Hospital of Cook County

Presenter: Faran Bokhari MD

**P71. PENETRATING THORACOABDOMINAL INJURIES:
INDEPENDENT PREDICTORS OF MORTALITY**

*KL Chow, A Murillo, L Schwarzman, A Tully, HN Mashbari, M Hemdi,
E Smith-Singares, EC Omi, JM Santaniello*

University of Illinois at Chicago

Presenter: Kevin Chow MD

**P73. INCISIONAL SURGICAL SITE INFECTIONS IN OPEN
ABDOMEN: DOES CLOSURE TECHNIQUE MATTER?**

*S Bou Zein Eddine, CM Dodgion, RT DeAngelis, HA Han, TP Webb,
TW Carver, CM Trevino, PA Codner*

Medical College of Wisconsin

Presenter: Savo Bou Zein Eddine MD

ePoster Kiosk #3

Moderator: Valentine Nfonsam MD, MS | University of Arizona

P77. POSTOPERATIVE VENOUS THROMBOEMBOLISM IN THE INCARCERATED PATIENT POPULATION

TD Beyer, AI Gillis, L Strait, A Ata, SC Stain, MK Applewhite

Albany Medical College

Presenter: Andrea Gillis MD

P78. TRAUMATIC ABDOMINAL WALL HERNIAS: A CASE SERIES EVALUATING INJURY PATTERNS

KL Chow, EC Omi, JM Santaniello, JK Lee, DP McElmeel, YM Thomas, TJ Cartolano, JC Doherty E Smith-Singares

University of Illinois at Chicago

Presenter: Kevin Chow MD

P79. EFFECT OF NODAL SKIP METASTASIS ON POSTOPERATIVE OUTCOMES AFTER ROBOTIC-ASSISTED PULMONARY LOBECTOMY FOR NON-SMALL CELL LUNG CANCER

RL Gerard, DT Nguyen, FO Velez-Cubian, MH Amaral, CC Moodie, JR Garrett, JP Fontaine, EM Toloza

Moffitt Cancer Center

Presenter: Roger Gerard BS

P80. HOW WELL DOES PREOPERATIVE IMAGING PREDICT TUMOR SIZE IN BREAST CANCER PATIENTS?

AB Chagpar, NR Horowitz, TN Tsangaris, DR Lannin

Yale University School of Medicine

Presenter: Anees Chagpar MD, MSc, MPH, MA, MBA

P82. RIGHT SIDED DISPLACEMENT OF THE THORACIC AORTA BY TYPE IV HIATAL HERNIA: AN ANATOMIC CONSIDERATION AT THE TIME OF LAPAROSCOPIC HERNIA REPAIR

G Garwood, R Ellis, N Saqib, A Khanna, F Banki

McGovern Medical School at the University of Texas Health Science Center at Houston

Presenter: Grant Garwood BS

P83. PREDICTORS FOR RECURRENCE AFTER LAPAROSCOPIC PARAESOPHAGEAL HERNIA REPAIR

SM Novak, K Kuchta, T Hall, W Denham, J Linn, S Haggerty, R Joehl, MB Ujiki

NorthShore University HealthSystem

Presenter: Stephanie Novak MS

P84. RESUSCITATIVE ENDOVASCULAR BALLOON OCCLUSION OF THE AORTA (REBOA): A BRIDGE, BANDAID, OR BOTH? RESULTS FROM A NATIONAL TRAUMA DATABASE

M Brenner, D Tatum, J Duchesne

Tulane University

Presenter: Megan Brenner MD, MS

P85. MALE BREAST CANCER: A RETROSPECTIVE LOOK AT THE NATIONAL CANCER DATA BASE FROM 2008-2015

JD Son, LL Mulder, A Madrigano

Rush University Medical Center

Presenter: Jennifer Son MD

**P86. TRAUMA TO THE EYE: AN IMPORTANT CAUSE
OF TRAUMA MORBIDITY**

RN Smith, KN Williams, CC Mehta, A Minihan, GD O'Keefe

Emory University

Presenter: Stephanie Busby MD

ePoster Kiosk #4

Moderator: Thomas A. Aloia MD | The University of Texas, MD Anderson
Cancer Center

**P87. WHY, WHEN AND WHERE PATIENTS WHO UNDERGO
TRAUMA LAPAROTOMY DIE**

*P Rhee, R Gelbard, C Fitzgerald, B Morse, B Joseph, J Nguyen, A Taha,
L Matthews, O Danner, M Shapiro*

Grady Memorial Hospital

Presenter: Peter Rhee MD, MPH

**P88. MORBIDITY AND MORTALITY FROM GUNSHOT
WOUNDS OF THE ESOPHAGUS: MULTIVARIATE ANALYSIS
OF PERIOPERATIVE RISK FACTORS ON CLINICAL
OUTCOMES**

*KL Chow, E Fernandes, B Glazier, A Mudreac, J Rivera, M Tiwana,
EO Smith-Singares, JM Santaniello, EC Omi*

University of Illinois at Chicago

Presenter: Kevin Chow MD

P89. LUNG TUMOR HISTOLOGY AS A PROGNOSTIC FACTOR FOR SHORT- AND LONG-TERM POSTOPERATIVE OUTCOMES

RL Gerard, FO Velez-Cubian, CC Moodie, JR Garrett, JP Fontaine, EM Toloza

Moffitt Cancer Center

Presenter: Roger Gerard BS

P90. A NOVEL BIOSYNTHETIC SCAFFOLD MESH REINFORCEMENT AFFORDS THE LOWEST HERNIA RECURRENCE IN THE HIGHEST-RISK PATIENTS

MJ Parker, MG House, J Socas, RL Reed, A Nakeeb, EP Ceppa

Indiana University School of Medicine

Presenter: Eugene Ceppa MD

P91. REDO SENTINEL LYMPH NODE SURGERY IN RECURRENT BREAST CANCER: PERITUMORAL VS. SUBAREOLAR INJECTIONS

JW Jakub, SD Guru, TL Hoskin

Mayo Clinic Rochester

Presenter: Swadha Guru MBBS

P93. OVERCOMING CHALLENGES OF HIPEC IN PATIENTS WITH MASSIVE ASCITES

TM Barry, JD McDonald, S Dessureault

University of South Florida

Presenter: Tara Barry MD

**P94. A CASE SERIES OF SUCCESSFUL REPAIR
TRANSECTION OF THE SUPRAHEPATIC INFERIOR VENA
CAVA AFTER BLUNT TRAUMA: NO LONGER A FATAL
INJURY?**

EC Maynard, KC Enestvedt, R Miskimins, SL Orloff, AC Gee

Oregon Health & Science University

Presenter: Erin Maynard MD

**P95. BILATERAL NEPHRECTOMY OF MASSIVE POLYCYSTIC
KIDNEYS FOR UNCONTROLLED HYPERTENSION**

EA Espinoza, FJ Yanquez, RC Harland

University of Arizona

Presenter: Eduardo Espinoza MD

**P96. FATAL HYPERAMMONEMIC ENCEPHALOPATHY
FOLLOWING ROUX-EN-Y GASTRIC BYPASS: A COMPLEX
AND DEVASTATING COMPLICATION OF BARIATRIC
SURGERY**

LE McGuire, JC Russell, RH Glew

University of New Mexico Hospital

Presenter: Lauren McGuire BS

SCIENTIFIC AGENDA

Tuesday, November 6, 2018

8:00am – 9:00am

Video Quick Shot Session | Mila III-VI

Moderator: Maria B. Majella Doyle MD, MBA | Washington University
School of Medicine

8:00am - 8:15am

V1. RECOGNITION OF VASCULAR ANOMALIES AND RELATIONSHIPS IS CRITICAL FOR SUCCESSFUL HILAR CHOLANGIOCARCINOMA RESECTION AND BILIARY RECONSTRUCTION

*TJ Vreeland, GW Krampitz, HA Lillemoe, CW Tzeng, YS Chun,
JN Vauthey, TA Aloia*

University of Texas MD Anderson Cancer Center

Presenter: Heather Lillemoe MD

8:15am - 8:30am

V2. LAPAROSCOPIC REDUCTION OF STRANGULATED PARAESOPHAGEAL HIATAL HERNIA WITH REPAIR OF GASTRIC NECROSIS AND PERFORATION

T Cobb, F Banki

McGovern Medical School at the University of Texas Health Science
Center at Houston

Presenter: Tyler Cobb MD

8:30am - 8:40am

QS4. A COMPREHENSIVE, MULTI-INSTITUTIONAL APPROACH FOR QUANTIFYING ACTUAL COSTS OF POSTOPERATIVE COMPLICATIONS

RP Merkow, Y Shan, C Quinn, JW Chung, KY Bilimoria

Northwestern Memorial Hospital

Presenter: Ryan Merkow MD, MS

8:40am - 8:50am

**QS5. THE PROTECTIVE EFFECTS ALTERNATIVE
PLATELET PRODUCTS ON INJURY INDUCED VASCULAR
PERMEABILITY AND COMPROMISE**

BY Miyazawa, DR Potter, A Mahuvakar, M Fitzpatrick, S Pati

University of California San Francisco, Fresno

Presenter: Shibani Pati MD, PhD

8:50am - 9:00am

**QS6. SURGICAL RESECTION IS ASSOCIATED WITH AN
OVERALL SURVIVAL ADVANTAGE FOR SMALL (1-2 CM),
MODERATE AND WELL DIFFERENTIATED PANCREATIC
NEUROENDOCRINE TUMORS**

*W Lutfi E Eguia, S Sharpe, G Abood, G Aranha, CV Godellas, PC Kuo,
MS Baker*

Loyola University Medical Center

Presenter: Emanuel Eguia MD, MHA

9:00am – 10:40am

Scientific Session 6 | Mila III-VI

Moderator: President Elect (TBD)

9:00am - 9:20am

**23. ELEVATED FIBRIN DEGRADATION PRODUCTS WITH
LOW FIBRINOLYTIC ACTIVITY MEASURED BY TEG IN
SEVERELY INJURED PATIENTS DOES NOT WARRANT
TRANEXAMIC ACID TO IMPROVE CLOT STRENGTH**

*HB Moore, EE Moore, MP Chapman, KC Hansen, MJ Cohen,
FM Pieracci, J Chandler, A Sauaia*

University of Colorado School of Medicine

Presenter: Hunter Moore MD, PhD

Member Closer: Ernest E Moore MD

Invited Discussant: John Santaniello MD | Oak Lawn, IL

9:20am - 9:40am

**24. IMPACT OF THE SSO/ASTRO MARGIN GUIDELINES
ON BREAST CONSERVING SURGERY AND MASTECTOMY
TRENDS**

*O Kantor, C Pesce, K Kopkash, E Barrera, DJ Winchester, P Thakkar,
K Kuchta, K Yao*

NorthShore University HealthSystem

Presenter: Olga Kantor MD

Member Closer: Katharine Yao MD

Invited Discussant: Ingrid Meszoely MD | Nashville, TN

9:40am - 10:00am

**25. ADRENAL VENOUS SAMPLING FREQUENTLY
ALTERS MANAGEMENT IN PATIENTS WITH PRIMARY
ALDOSTERONISM INDEPENDENT OF LATERALIZATION
ON CROSS-SECTIONAL IMAGING**

*RA Campbell, DS Young, SV Stafford, CK Shaver, SA Milan,
TC Lairmore, DN McDonald*

Baylor Scott & White Healthcare

Presenter: Rebekah Campbell MD

Member Closer: Terry Lairmore MD

Invited Discussant: Quan-Yun Duh MD | San Francisco, CA

10:00am - 10:20am

26. ESTABLISHMENT OF A NEW PEDIATRIC SURGERY FELLOWSHIP PROGRAM RESULTS IN A SIGNIFICANT REDUCTION OF PEDIATRIC SURGERY CASES PERFORMED BY RESIDENTS IN THE ASSOCIATED GENERAL SURGERY PROGRAM

JR Potts

Accreditation Council for Graduate Medical Education (ACGME)

Presenter: John R. Potts III MD

Member Closer: John R. Potts III MD

Invited Discussant: Benjamin Jarman MD | La Crosse, WI

10:20am - 10:40am

27. LONG-TERM FOLLOW-UP AND PREDICTORS OF CLINICAL SUCCESS IN 105 PERORAL ENDOSCOPIC MYOTOMY (POEM) PROCEDURES

NJ Bonamici, T Hall, K Kuchta, J Carbray, MB Ujiki

NorthShore University HealthSystem

Presenter: Michael Ujiki MD

Member Closer: Michael Ujiki MD

Invited Discussant: Erica Sutton MD | Louisville, KY

SCIENTIFIC AGENDA

Tuesday, November 6, 2018

10:40am – 11:10am

Quick Shot Presentations | Mila III-VI

Moderator: President Elect (TBD)

10:40am - 10:50am

QS7. SHOULD I STAY OR SHOULD I GO: THE COMMUNITY PATIENT'S DECISION-MAKING PROCESS IN CHOOSING WHERE TO HAVE HEPATO-PANCREATO-BILIARY SURGERY

G Munene, J Chou, V Somnay, A Woodwyk

Western Michigan Homer Stryker School of Medicine

Presenter: Jesse Chou MA

10:50am - 11:00am

QS8. PANCREATICOASTROSTOMY AS A FISTULA MITIGATING STRATEGY FOR HIGH RISK PANCREATIC ANASTOMOSIS DURING PANCREATODUODENECTOMY

GB Kazantsev, M Huyser, AL Spitzer, RM Ramirez, PD Peng, CK Chang

Kaiser Oakland Medical Center

Presenter: Michelle Huyser MD

11:00am - 11:10am

QS9. PULSELESS ELECTRICAL ACTIVITY (PEA) FOLLOWING TRAUMATIC CARDIAC ARREST: SIGN OF LIFE OR DEATH?

S Israr, AD Cook, KP McGeever, SP Schultz, SR Petersen, JA Weinberg

Saint Joseph Hospital

Presenter: Sharjeel Israr MD

Meeting Concludes



ORAL ABSTRACTS



Aust Award Candidate

ORAL ABSTRACTS

1. A TALE OF TWO KIDNEYS: COMPARISON OF OUTCOMES IN SIMULTANEOUS LIVER-KIDNEY TRANSPLANT RECIPIENTS VERSUS RECIPIENTS OF THE PARTNER KIDNEY FROM THE SAME DONOR

RM Cannon, EG Davis, CM Jones

University of Louisville

Presenter: Robert Cannon MD

Invited Discussant: Jason Wellen MD, MBA, St. Louis, MO

Background: The renal graft lifespan in simultaneous liver kidney transplant (SLK) is generally thought to be shorter than if it were allocated to kidney transplant alone, raising questions about the utility of SLK. This study aims to estimate what would be the outcome for a kidney allocated to SLK were it instead allocated to KT by comparison to the fate of the partner kidney.

Methods: Using UNOS data, recipients of SLK between 2003 and 2012 were paired with the recipient who received the partner kidney from the same donor in a kidney or kidney-pancreas transplant (KT) for analysis. Recipients of SLK for which a paired recipient was unavailable (the partner kidney was either not placed or was allocated to transplant in concert with another solid organ) were excluded. Recipient demographics, short term outcomes, and patient and renal graft survival were compared using standard statistical methods for paired data. The beginning time point was chosen to coincide with the MELD era, while the end time point was chosen to allow for a minimum of 5 years followup for all patients.

Results: There were 3721 recipients in each group. Mean donor KDPI was 35.7%. By definition, donor characteristics were identical for each group. SLK recipients were older (52.6 vs. 46.6; $p<0.001$), more likely to be male (65.0% vs. 59.4%; $p<0.001$), less likely to have diabetes (36.4% vs. 49.9%; $p<0.001$) and less likely to be on dialysis (58.7% vs. 78.3%; $p<0.001$). Only 61.4% of SLK recipients were at home (versus hospitalized) at the time of transplant offer vs. 98.9% of KT recipients ($p<0.001$). The partner kidney was more likely to be allocated as a regional (9.0%) or national (17.9%) share than the SLK kidney (11.6% regional, 1.2% national; $p<0.001$). Waiting time was significantly shorter in the SLK group (134 vs. 744 days; $p<0.001$). Cold ischemia time was shorter for the SLK kidney (11.8 vs. 16.1 hours; $p<0.001$). Ninety day mortality was 8.0% for SLK vs. 1.9% for KT recipients ($p<0.001$).

Patient survival at 1, 3, 5, and 10 years was 85.2%, 77.3%, 71.5%, and 55.0% for the SLK group (median 11.5 years) vs. 96.4%, 92.1%, 85.7%, and 62.1% (median 12.5 years) for the KT group ($p<0.001$). Kidney graft survival (non-death censored) in the SLK vs. KT groups was 82.9%, 74.9%, 68.8%, and 53.1% (median 11.0 years) vs. 93.1%, 85.5%, 76.6%, and 52.0% (median 10.5 years) at 1, 3, 5, and 10 years, respectively. With patient death treated as a competing risk, the cumulative incidence of renal graft failure for the SLK vs. KT groups at 1, 3, 5, and 10 years was 4.5%, 6.0%, 7.2%, and 11.1% vs. 3.8%, 7.8%, 12.0%, and 21.0%

The unadjusted hazard ratio for death associated with SLK vs. KT was 2.73, 1.95, 1.39, and 0.59 ($p<0.001$) at 1, 3, 5, and 10 years. The unadjusted hazard ratio for kidney graft failure at 1, 3, 5, and 10 years was 1.72, 1.30, 0.98, and 0.49 ($p<0.001$). Adjusted for recipient factors, the hazard ratios for death and kidney graft failure associated with SLK at 1, 3, 5, and 10 years were 2.56, 1.82, 1.29, 0.55 and 1.78, 1.34, 1.02, 0.50, respectively.

Conclusion: Surprisingly, kidneys allocated to SLK survive longer than their partner organs allocated to KT. This survival advantage could be further improved by recipient selection efforts aimed to reduce early deaths in SLK recipients.

ORAL ABSTRACTS

2. EARLY POSTOPERATIVE RISK CALCULATOR FOR POST HEPATECTOMY LIVER FAILURE FOLLOWING MAJOR HEPATECTOMY

JY Liu, RJ Ellis, ME Cohen, DB Hoyt, AD Yang, CY Ko, KY Bilimoria, RP Merkow

American College of Surgeons

Presenter: Jessica Liu MD

Invited Discussant: Brian Badgwell MD | Houston, TX

Background: Post hepatectomy liver failure (PHLF) is a dreaded complication that is associated with significant perioperative morbidity and mortality. After liver resection, a tool to accurately identify patients at risk for PHLF may allow for earlier intervention to mitigate its severity and help guide clinicians when counseling patients in the postoperative setting. No validated risk assessment tool for PHLF currently exists. Our objective was to develop a PHLF risk calculator including preoperative and intraoperative variables to allow surgeons to estimate the risk of PHLF.

Methods: Patients who underwent hepatectomy for any indication from 2014-2017 were identified from the American College of Surgeons National Surgical Quality Improvement Program. A multivariable logistic regression model was developed that included preoperative and intraoperative variables. All statistically significant beta coefficients were used to construct a risk calculator. Model fit was assessed for discrimination using the C-statistic (the closer the C-statistic is to 1.0 the better the discrimination), and calibration using Hosmer and Lemeshow (HL) chi-square (any chi-square that does not meet statistical significance with $p < 0.05$ demonstrates good calibration). Validation of the calculator was performed utilizing 10-fold cross validation.

Results: Of 15,748 hepatectomy patients analyzed, the overall rate of clinically significant PHLF was 2.9%. The mean age was 59 years old, the most common procedure performed was partial lobectomy (66.1%), and most operations were performed to resect metastatic disease (45.9%). Preoperative factors associated with increased PHLF were age (65-74: OR 1.7, 95%CI 1.1 – 2.5; 75-84: OR 1.9, 95%CI 1.3 – 3.0; >85: OR 2.7, 95% CI 1.1 – 6.8), male gender (OR 1.3, 95%CI 1.1 – 1.6), AST > 40 (OR 1.6, 95%CI 1.3 – 2.0), total bilirubin > 1.2 mg/dL (OR 1.4, 95%CI 1.1 – 1.9), ASA class (ASA 3: OR 1.3, 95%CI 1.01 – 1.7; ASA 4-5: OR 2.3, 95%CI 1.6 – 3.3), ascites (OR 3.7, 95%CI 1.9 – 7.2), neoadjuvant chemotherapy (OR 1.4, 95%CI 1.2 – 1.8), and history of viral hepatitis (OR 1.4, 95%CI 1.01 – 1.8). Intraoperative factors associated with PHLF were extent of resection (trisegmentectomy: OR 4.4, 95%CI 3.3 – 5.9, total right hepatectomy: OR 4.2, 95%CI 3.2 – 5.3), biliary reconstruction (OR 3.3, 95%CI 2.5 – 4.2), and abnormal liver texture (OR 1.8, 95%CI 1.4 – 2.2). Patients were less likely to develop PHLF in hepatectomies that were performed with a laparoscopic approach (OR 0.5, 95%CI 0.3 – 0.7), had 1-5 concurrent partial resections (OR 0.7, 95%CI 0.6 – 0.9), and underwent intraoperative ablation (OR 0.6, 95%CI 0.4 – 0.9). The calculator's C-statistic was 0.83 and the HL chi-square was 10.9 ($p = 0.21$) demonstrating excellent discrimination and calibration. On 10-fold cross validation, the mean test group C-statistic was 0.82 and the HL was 12.4 ($p = 0.13$).

Conclusion: We present the first multi-institutional early postoperative PHLF risk calculator, which demonstrates excellent discrimination and calibration. This tool can be used to help identify high risk patients to facilitate earlier interventions. Further external validation is required to demonstrate generalizability of the calculator.

ORAL ABSTRACTS

3. IMPROVED SURVIVAL WITH ADJUVANT COMBINED IMMUNOTHERAPY AND CHEMOTHERAPY FOLLOWING CURATIVE-INTENT RESECTION OF PANCREATIC ADENOCARCINOMA

TB Tran, VK Maker, AV Maker

University of Illinois at Chicago

Presenter: Thuy Tran MD

Invited Discussant: George B Kazantsev MD | Oakland, CA

Background: Surgical resection is the standard of care for patients with pancreatic adenocarcinoma (PDAC), however, survival outcomes of all stages remains poor. Adjuvant chemotherapy (CTx) has been established to improve survival compared to observation alone after complete, curative-intent resection of PDAC. Recently, the addition of adjuvant immunotherapy has improved survival in patients with advanced melanoma, breast cancer, and renal cell carcinoma; however, the potential benefit for patients with PDAC remains unknown. The objective of this study is to determine the impact of adjuvant combined chemotherapy and immunotherapy (CTx-IT) compared to CTx alone on patient survival following surgical resection for PDAC.

Methods: Patients undergoing curative intent resection followed by adjuvant systemic therapy for PDAC between 2004 and 2015 were identified using the National Cancer Database. Kaplan-Meier method was used to estimate overall survival. Univariate and multivariate Cox proportional hazards models were utilized to determine outcomes and predictors of survival based on the type of adjuvant systemic therapy received. Propensity score matching was performed through one-to-one matching based on the nearest neighbor method with a caliper width 0.01 of the standard deviation of the logit of the propensity score.

Results: Of 21,313 patients that received curative intent resection for PDAC followed by adjuvant systemic therapy, 269 patients (1.3%) were treated with adjuvant CTx-IT. Patients who received adjuvant CTx-IT tended to be slightly younger (median 62 vs. 65 years, $P<0.001$) and more commonly treated in academic centers (78% vs. 48.9%, $P<0.001$) compared with the CTx only group. T-stage, N-stage, number of lymph nodes retrieved, lymphovascular invasion, and margin status were comparable between the two groups. The 5-year OS was significantly higher in patients treated with CTx-IT compared to CTx alone (30.3% vs. 20.6%, $P=0.003$). When stratified by stage, 5-year OS after adjuvant CTx-IT was similar in Stage I disease (38.5 vs. 37.4%, $P=0.534$), but was associated with improved OS in Stage II (27.6% vs. 18.6%, $P=0.0011$) and approached significance for stage III disease (41.7% vs. 12%, $P=0.08$). After adjusting for patient, pathology, and surgery characteristics, CTx-IT was associated with improved survival (HR 0.72, 95% CI 0.54-0.96, $P=0.028$) on multivariate analysis. To account for patient differences between the treatment groups, propensity score matching was performed resulting in a cohort consisting of 464 patients (216 CTx only, 248 CTx-IT). The 5-year OS remained significantly higher in the CTx-IT group compared with adjuvant CTx alone (29.2% vs. 19.3%, $P=0.016$). On multivariate analysis, R1 margin status and advancing stage were associated with poor survival, while immunotherapy was associated with a nearly 30% reduction in mortality.

Conclusion: Adjuvant CTx-IT is associated with improved survival compared to CTx alone after curative intent resection of pancreatic adenocarcinoma. These results justify further clinical trials on the feasibility and long-term efficacy of adjuvant combined chemotherapy and immunotherapy after complete resection of PDAC.

ORAL ABSTRACTS

4. COMPETING RISKS OF DEATH IN ELDERLY PATIENTS WITH NEWLY DIAGNOSED STAGE I BREAST CANCER

N Wasif, M Neville, RJ Gray, BA Pockaj

Mayo Clinic Arizona

Presenter: Nabil Wasif MD, MPH

Invited Discussant: David Winchester MD | Evanston, IL

Background: The majority of newly diagnosed breast cancer in the United States is in women older than 65 years with other co-morbidities. Balancing the risks and benefits of treatment should take into account these competing risks of death.

Methods: The SEER-Medicare database was used to identify women with Stage I breast cancer with at least 8 years of follow up. Using neural network analysis, co-morbidities associated with mortality were grouped into clinically relevant categories. The association of age, race, co-morbidity groupings and tumor variables with mortality risk was quantified by using Fine and Gray competing risk regression to predict the probability of three competing mortality outcomes: dead of disease (DOD), dead of other cancers (DOC) and non-cancer death (NCD).

Results: The median age of the 17,961 patients included was 75 years (IQR 70-81). The overall cumulative incidence of mortality was 6.4% for DOD, 4.4% for DOC and 25.9% for NCD. Although with increasing age the incidence of DOD increased slightly (5 year mortality of 3.0% vs. 6.8% for patients aged 65-70 vs. >81), the contribution of NCD increased dramatically (5 year mortality of 5.4% vs. 31.6% for patients aged 65-70 vs. >81). The presence of any major co-morbidity (e.g. cardiovascular or neurological disorders) significantly increased the probability of a NCD. Estrogen receptor status was the strongest predictor of DOD for cancer related variables (5 and 8 year mortality 3.7% vs. 9.8% and 5.2% vs. 12.4% respectively for ER+ vs. ER-, $p < 0.001$). A risk calculator incorporating probabilities of mortality given patient age, co-morbidity and tumor characteristics gives an estimate of competing risks of death from DOD, DOC and NCD in patients with Stage I breast cancer.

Conclusion: Effective decision making in the management of Stage I breast cancer in elderly patients requires trade-off calculations. In order to aid clinical decision making we quantify competing risks of death by taking into account patient age, co-morbidity and tumor characteristics.

ORAL ABSTRACTS

5. ROOM FOR IMPROVEMENT IN SURGICAL COMPENSATION AS THE SURGICAL GENDER GAP NARROWS

SC Daly, B Sheehan, S Gambhir, NT Nguyen

University of California Irvine Medical Center

Presenter: Shaun Daly MD

Invited Discussant: Mary T Hawn MD, MPH, Palo Alto, CA

Background: Female representation in general surgery and surgical subspecialties has increased. When controlling for job title, female compensation was 98.7 cents to the dollar compared to male compensation in the business sector in 2016. The salary gap has been less extensively studied in healthcare, more specifically surgery, as the surgical gender gap narrows.

Methods: Physician salaries from a large university healthcare system for academic year 2016 were obtained from public records. The gender-neutral base pay, and the more negotiable, and stipend driven, gross pay were compared between male and female surgeons. To decrease variability, only full-time appointments were considered.

Results: The study included 199 surgeons in 10 subspecialties, 28% were female. The gender gap narrowed in our study population; 19% of professors were female, 37% of Associate Professors and 43% Assistant Professors. In terms of median base pay, female surgeons received 99%, 95% and 98% at the Assistant, Associate and Professor levels, respectively when compared to their male counterparts. The difference in median gross salary between genders was more pronounced with female surgeons receiving 80%, 90% and 73% the gross salary of their male counterparts at the Assistant, Associate and Professor levels, respectively.

Conclusion: Female compensation was 79.6 cents to the dollar compared to male compensation in the surgical sector of healthcare in a large university system in 2016 when controlling for job level. When controlled for job title and promotional level, the salary gap remains much larger in surgery and its subspecialties than in the business sector. A demonstrable improvement from the Professor to the Associate Professor level was shown; however, a larger salary gap between the Associate to Assistant Professor level was demonstrated. Clearly, more progress is needed in narrowing the gender salary discrepancy in surgery and the surgical subspecialties as the gender gap continues to narrow.

ORAL ABSTRACTS

6. 10-YEAR HEPATOCELLULAR CANCER SURVIVAL IN 1,016 PATIENTS DIAGNOSED DURING SCREENING OF 10,372 CHRONIC HEPATITIS B OR C VIRUS-INFECTED PATIENTS

MC Mason, F Izzo, EJ Silberfein, NN Massarweh, HS Tran Cao, C Hsu, SA Curley
Baylor College of Medicine

Presenter: Meredith C Mason MD

Invited Discussant: Victor Zaydfudim MD, MPH | Charlottesville, VA

Background: Hepatocellular cancer (HCC) is a leading cause of cancer-related mortality across the world, in large part due to late stage disease at diagnosis in the majority of patients. In most countries, less than 10% of HCC patients are diagnosed with early stage disease amenable to potentially curative treatment. Patients with chronic hepatitis B or C virus infection are at increased risk to develop HCC. We initiated a prospective screening trial in hepatitis virus-infected patients to diagnose more patients with early stage HCC permitting treatment with curative intent (resection, transplantation, or tumor ablation), and to evaluate the impact on long-term survival.

Methods: From 1993-2006, 10,372 patients with chronic hepatitis B (14%), hepatitis C (81%), or both (5%) virus infection were enrolled in an HCC screening program. All patients underwent liver biopsy at enrollment to assess the severity of liver injury. Transabdominal ultrasonography and serum alpha-fetoprotein were evaluated every 6 months. Abnormal results from screening led to axial imaging and tumor biopsy.

Results: Cirrhosis was confirmed on liver biopsy in 2,074 (20%). HCC was diagnosed in 1,016 patients (9.8% of those included in the screening program), all of whom had cirrhosis (49.0% HCC incidence in patients with cirrhosis). HCC was diagnosed at initial screening in 165 (16.2%) and on follow-up in 851 (83.8%). The median time to diagnosis of HCC on follow up screening was 6 years (range 4-10 years). Curative-intent treatment (resection, ablation, or transplant) was performed in 713 patients (70.2%). Overall survival at 5- and 10- years in these 713 patients was 30% and 4%, respectively, compared to no 5-year survivors in the 303 patients with advanced stage disease ($p < 0.001$ ANOVA). Cause of death at 5 years in the 713 treated with curative intent was HCC in 371 (52%), progressive cirrhosis in 116 (16%), and other causes in 14 (2%), leaving 30% alive. At 10 years, 456 patients (64%) had died from HCC, 171 (24%) from progressive cirrhosis, and 57 (8%) from other causes, leaving 4% alive.

Conclusion: Cirrhotic patients with chronic hepatitis B or C virus should undergo HCC screening. Our screening program diagnosed early stage HCC permitting curative intent treatment in 70%, but the 10-year survival rate is 4% due to HCC recurrence and progressive cirrhosis. Future work is needed to measure HCC risk reduction given recent effective hepatitis treatments, and active adjuvant therapies must be developed.

ORAL ABSTRACTS

7. RISK PREDICTION ACCURACY DIFFERS FOR TRANSFERS AND NON-TRANSFERS EMERGENCY GENERAL SURGERY CASES IN ACS-NSQIP

M Castillo-Angeles, M Jarman, T Uribe-Leitz, A Salim, JM Havens

Brigham and Women's Hospital

Presenter: Manuel Castillo-Angeles MD, MPH

Invited Discussant: Eric Ley MD, Los Angeles, CA

Background: Emergency General Surgery (EGS) patients are at increased risk of death and complications when compared to elective surgery patients. Risk prediction accuracy of the American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) Surgical Risk Calculator has been shown to differ between EGS and elective surgery. Benchmarking methods of clinical performance require accurate risk estimation, and current methods rarely account for admission source, therefore our goal was to assess whether the ACS-NSQIP predicts mortality comparably between transferred (TF) and non-transferred (NT) EGS cases.

Methods: This is a retrospective study using 2005-2014 ACS-NSQIP Database including all inpatients who underwent one of 7 EGS procedures shown to represent 80% of EGS volume, complications, and mortality nationally. Admission source was classified as directly admitted versus transferred from an outside emergency room or an acute care facility. We compared the accuracy of ACS-NSQIP predicted mortality probabilities using the observed-to-expected ratio (O:E) and Brier Score, which assesses calibration and discrimination of a model (scores closer to zero reflect higher accuracy). A subgroup analysis was performed to compare accuracy of high-risk (partial excision of large intestine, excision of small intestine, control of hemorrhage and suture of ulcer of stomach or duodenum, lysis of peritoneal adhesions and laparotomy) and low-risk (appendectomy and cholecystectomy) procedures.

Results: A total of 619,174 EGS admissions were identified, of which 31,173 (5%) were transfers. Mean age was 55.8 years and 52% were female. Overall mortality rate was 2.8% for the entire cohort and 10.1% within the transfer group. The observed and expected mortality rates for TF (10.0% and 14.0%, respectively) were greater than for NT patients (2.4% and 2.7%, respectively). The O:E ratios generated by ACS-NSQIP models differed between TF patients (O:E = 0.714) and NT patients (O:E = 0.888). The Brier score for TF patients was greater than for NT patients (0.094 vs. 0.019, respectively) showing higher accuracy for NT patients. After subgroup analysis: within the transfer group, the Brier score for high-risk procedures was 0.116 and for low-risk procedures was 0.022; showing that the drop in accuracy is mainly due to the high-risk procedure group. Within the non-transfer group, Brier score for high-risk procedures was 0.047 and for low-risk procedures was 0.003, showing that accuracy decreases in the high-risk procedure group.

Conclusion: ACS-NSQIP risk estimates used for benchmarking differ between transferred and non-transferred EGS cases. Analyses of the Brier Score for the ACS-NSQIP risk calculator demonstrated inferior prediction for transferred patients. This increased burden on accepting institutions will have an impact on quality metrics and should be considered for benchmarking of clinical performance.

ORAL ABSTRACTS

8. 10-YEAR NATIONWIDE OUTCOMES OF CAROTID REVASCULARIZATION SHOW THAT FEMALES HAVE A HIGHER RISK OF STROKE FOR SYMPTOMATIC BUT NOT ASYMPTOMATIC CAROTID ARTERY STENOSIS

JM Mayor, JL Salemi, D Dongarwar, HM Salihu, M Montero-Bake, JL Mills, J Chung
Baylor College of Medicine

Presenter: Jessica Mayor MD

Invited Discussant: Ashraf Mansour MD, MBA | Grand Rapids, MI

Background: Data from prospective randomized controlled trials suggest that men derive greater benefit from carotid revascularization, due to a decreased perioperative risk of stroke and/or death. Retrospective cohort data are equivocal regarding the risk of perioperative complications following carotid revascularizations in women. We aim to quantify the rate of perioperative complications between men and women, stratified by symptomatic status and procedure type (carotid endarterectomy (CEA) or carotid artery stent (CAS)).

Methods: Data from the Nationwide Inpatient Sample (NIS) were analyzed employing the International Classification of Diseases, 9th Revision (ICD-9) codes for CEA and CAS. Gender, age, medical comorbidities, socioeconomic variables, and hospital characteristics were collected. Crude and propensity-matched rates of the composite outcome and stroke, death, and MI individually were quantified. Multivariable logistic regression was utilized to quantify the risk of stroke/death/MI associated with gender.

Results: Between 2005 and 2015, there 1,242,688 carotid interventions performed (1,083,912 CEA; 158,776 CAS). There were 726,899 (58.5%) procedures performed among males, and 515,789 (41.5%) for females. The median age was 72 (IQR 65, 78), with no significant difference between genders. Symptomatic admissions comprised 11.3% of the cohort. Annually, a higher proportion of males versus females presented with symptomatic carotid lesions (11.8% vs 10.7%; $p < 0.01$), coronary artery disease (49.3% vs 37.0%; $p < 0.01$), hyperlipidemia (58.3% vs 57.5%, $p < 0.01$), and chronic kidney disease (9.6% vs 7.8%; $p < 0.01$). Males versus females underwent CAS more frequently (13.4% vs 11.9%; $p < 0.01$). More women presented with hypertension (81.9% vs 79.4%; $p < 0.01$), congestive heart failure (8.3% vs 7.9%, $p < 0.01$), and chronic obstructive pulmonary disease (19.1% vs 17.3%; $p < 0.01$). In hospital stroke/death/MI rates were statistically significantly more prevalent in men compared to women (4.2% vs 3.9%; $p < 0.01$). When splitting the composite endpoint, stroke was more prevalent in women than men (1.2% vs 1.0%; $p < 0.01$). In-hospital mortality (0.5% vs 0.5%; $p = 0.16$) was not statistically different between men and women. MI occurred most frequently in males (3.1 vs 2.6%; $p < 0.01$). Subgroup analysis revealed symptomatic women versus men had higher rates of stroke after CEA (7.7% vs 6.2%, $p < 0.01$) and CAS (9.9% vs 7.6%, $p < 0.01$). Asymptomatic women exhibited the same rates of stroke after either CEA (0.3% vs 0.3%, $p = 0.051$) or CAS (0.4% vs 0.5%, $p = 0.09$). Symptomatic women had higher rates of composite major adverse events after CEA (11.3% vs 9.8%, $p < 0.01$). Asymptomatic men had higher rates of MI (2.9% vs 2.4%, $p < 0.01$) and composite major adverse events (3.3% vs 2.8%, $p < 0.01$) after CEA. Propensity-matched logistic regression models revealed that symptomatic males versus females had a lower risk of stroke after CEA (Odds ratio (OR) 0.81 (0.72, 0.91)) and CAS (OR 0.72 (0.57, 0.90)). Asymptomatic men and women had similar odds of stroke after both CEA (OR 0.95 (0.79, 1.14)) and CAS (OR 0.70 (0.43, 1.13)).

Conclusion: This is the largest cohort study to date, showing that asymptomatic women undergoing CEA or CAS do not have a higher risk of perioperative stroke, death, or MI when studied individually or as a composite. Symptomatic men experience lower rates of stroke after CEA or CAS.

ORAL ABSTRACTS

9. COMPARISON OF LIQUID BIOPSY AND HISTOPATHOLOGIC RESULTS WITH CLINICAL OUTCOMES IN NON-SMALL CELL LUNG CANCER PATIENTS

S Zhang, J Harris, T Boyle, S Antonia, A Chiappori, B Creelan, J Gray, E Haura, M Shahtique, T Tanvetyanon, CC Williams, JP Fontaine, R Keenan, LA Robinson, J Cox, F Kaszuba, V Nair, EM Toloza

Moffitt Cancer Center

Presenter: Sherry Zhang BS

Invited Discussant: Ashwani Rajput MD | Albuquerque, NM

Background: Detecting mutations in tumor DNA identifies patients who may benefit from or whose tumors are resistant to targeted therapy. Genetic or proteomic profiles may also help identify treatments that may benefit or else that may be futile in these cancer patients. When tumor biopsies are unavailable or else insufficient, liquid biopsy of peripheral blood circulating tumor DNA (ctDNA) and protein has been shown to easily and noninvasively capture genetic and proteomic data that represent the entire tumor burden of each cancer patient. We sought to investigate whether liquid biopsy can correlate histopathologic factors, treatment, or outcomes with peripheral blood ctDNA mutations and proteomic signatures.

Methods: We retrospectively analyzed data from all non-small cell lung cancer (NSCLC) patients who underwent commercially available liquid biopsy analysis of ctDNA and proteins on peripheral blood samples from August 2016 to February 2018. The results of this liquid biopsy ctDNA analysis detected absence or presence of targetable mutations, and proteomic analysis grouped patients into either Good or Poor status. For this study, patients with presence of targetable mutations were excluded. Liquid biopsy results were then correlated with histopathologic factors, such as tumor histopathology, grade of differentiation, tumor (T) status, nodal (N) status, metastasis (M) status, and pathologic stage, and with treatment. Student's t-test, Kruskal-Wallis test, or Chi-square test were used to statistically compare these factors between groups, and Kaplan-Meier curves were used to compare survival. Statistical differences were significant at $p \leq 0.05$.

Results: A total of 387 patients were analyzed by liquid biopsy, with 111 (28.7%) mutation-positive patients excluded from this study. Of the 276 (71.3%) mutation-negative patients, 240 (87.0%) had proteomic Good status, and 36 (13.0%) had proteomic Poor status. Mean age did not differ between Good and Poor groups (68.4 yr vs. 66.1 yr; $p=0.295$). Mean primary tumor size also did not differ between Good and Poor groups ($p=0.215$). Histology (i.e. adenocarcinoma, squamous cell carcinoma, neuroendocrine carcinoma, etc.) did not differ between Good and Poor groups ($p=0.209$). However, tumor grade of differentiation, lymph node involvement (N status), and distant metastases (M status) differed between Good and Poor groups, with the Poor group having proportionately more patients with poorly-differentiated (G3) tumors ($p=0.019$), with mediastinal lymph node (N2 and N3) involvement ($p<0.01$), and with distant metastasis (M1) ($p<0.01$). Correspondingly, treatment differed between Good and Poor groups, with the Good group more likely to undergo surgery or radiation alone, while the Poor group were more likely to undergo systemic therapy ($p=0.001$). In Kaplan-Meier survival analysis, the Good group had 1-year overall survival (1-yr OS) of 87.6% compared to a 1-yr OS of 63.3% for the Poor group ($p<0.01$).

Conclusion: Using a commercially-available peripheral blood liquid biopsy kit, mutation-negative NSCLC patients were identified by ctDNA analysis and as Good or Poor status by proteomic analysis. While age, tumor size, or T status did not correlate with Good versus Poor status, the Poor group had significantly more poorly-differentiated tumors, more mediastinal (N2 and N3) involvement, and more distant metastases, required systemic therapy more often, and had significantly worse 1-yr OS than proteomic-Good patients.

ORAL ABSTRACTS

10. HARTMANN'S VERSUS PRIMARY ANASTOMOSIS WITH DIVERTING ILEOSTOMY FOR ACUTE DIVERTICULITIS: A NATIONWIDE ANALYSIS OF 3,100 EMERGENCY SURGERY PATIENTS

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Presenter: Jae Moo Lee BA

Invited Discussant: Joseph Muldoon MD, Evanston, IL

Background: Recent small randomized trials have suggested that primary anastomosis with a diverting proximal ileostomy (PADLI) is a safe alternative to Hartmann's™ procedure (HP) for patients with acute diverticulitis necessitating emergent surgery. We sought to examine the 30-day outcome of patients undergoing emergent HP vs. PADLI.

Methods: Using the ACS-NSQIP Colectomy Procedure Targeted Database from 2012-2016, all patients with acute diverticulitis who underwent emergency surgery were identified. Using a comprehensive algorithm combining the principal and secondary procedure CPT codes, patients who underwent HP or PADLI were systematically identified. Multivariable logistic models were constructed to compare the 30-day mortality, overall morbidity and individual postoperative complications (e.g. surgical site infection, bleeding, sepsis) of the 2 procedures, controlling for all preoperative variables (e.g. demographics, comorbidities, laboratory values, illness severity), as well as intraoperative and procedure-specific variables (e.g. wound classification).

Results: Out of a total of 130,963 patients, 3,100 patients were included. The median age was 64 years, and 47.8% were male; 92.3% underwent HP and 7.7% underwent PADLI. HP patients were overall more comorbid [e.g. COPD (10.3% vs. 5.4%, $p=0.015$), steroid use 1(17.0 vs. 9.2%, $p=0.002$), functional dependence (6.2% vs. 2.9%, $p=0.041$)] and sicker [e.g. ventilator dependent >48 hours (2.5% vs. 0.4%, $p=0.039$), preoperative systemic sepsis (69.1% vs. 60.8%, $p=0.008$)] than PADLI patients. Most procedures were wound classified as dirty/infected (83.3% for HP and 82.9% for PADLI, $p=0.671$). The 30-day mortality rates for HP vs. PADLI were 7.6% and 3.3%, respectively ($p=0.015$). The overall 30-day morbidity rates were 55.0% and 50.0%, respectively ($p=0.135$). In multivariable analyses, compared to HP, PADLI did not result in increased rates of mortality (OR=0.57, 95% CI 0.21-1.55, $p=0.271$) or morbidity (OR=1.09, 95% CI 0.76-1.55, $p=0.639$). The risks of all major postoperative complications (e.g. systemic sepsis, surgical site infection, postoperative blood transfusion) and the hospital length of stay were also similar across both procedures.

Conclusion: At present, surgeons are performing PADLI on patients who are less comorbid and less sick than those undergoing HP. However, when controlling for the patient population differences, PADLI appears to be a safe alternative to HP and should be more often entertained as the treatment of choice.

ORAL ABSTRACTS

11. INSTITUTIONAL PATHWAYS FOR SURGICAL DIAGNOSES REDUCE HEALTHCARE COSTS, LENGTH OF STAY, AND READMISSIONS

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Presenter: Jessica Martinolich MD

Invited Discussant: James Robbins MD | Royal Oak, MI

Background: Standardization of healthcare delivery has the potential to improve patient care. Retrospective analyses have demonstrated initial admission of surgical disease to surgical services is associated with decreased hospital length of stay (LOS), overall cost, and complications. After a 6 month transition, in January 2017, we defined institution pathways (IP) for Emergency Department admissions mandating all small bowel obstruction (SBO) and gallstone diagnoses (GS) be admitted to the surgical service. We hypothesized that surgical admission standardization will decrease LOS, hospital costs (overall, direct and indirect), and readmission rates.

Methods: Patients with emergency department visits with primary ICD-10 diagnoses of SBO and GS from January 2016- June 2016 (unstandardized, control cohort) were compared to patients admitted between January 2017- December 2017 (post-implementation of surgical admission policy, IP cohort). Admission demographics (age, sex, ethnicity, insurance provider) were assessed. Both non-operative and operative management were assessed for SBO; while operative management was assessed for biliary disease. Primary outcomes included length of stay, readmission rate, overall, direct and indirect hospital costs. Student's two tailed t-test and Chi-square analyses were utilized, with statistical significance of $P < 0.05$.

Results: One-hundred and eighteen patients with SBO were admitted in the control group and 135 after initiation of the institutional pathway. Non-operative management occurred in 72% of the control group and 67% of IP. Patient demographics were not statistically different between control and IP cohorts. Non-operative IP patients admitted to a surgical team showed a decreased hospital LOS (5.05 vs. 3.62 days; $p < 0.01$), decreased direct cost (\$3536.62 vs. \$2484.26; $p < 0.01$), and overall cost reduction (\$7199.80 vs. \$5687.85, $p < 0.04$). Readmission rates were comparable between control and non-operative IP cohorts at 15% and 22% ($p < 0.26$), respectively. Operative intervention for SBO did not significantly influence hospital LOS or cost between the cohorts.

Sixty-three GS patients were admitted in the control (30 surgical, 33 medical), and 126 patients were admitted to the IP group. There were no statistically significant differences in demographics. A significant decrease in hospital LOS was observed when comparing patients admitted to a surgical service versus control (4.19 vs. 6.07, $p < 0.008$). There was no difference in cost (\$12,346.43 vs. \$13,830.70, $p < 0.273$), but readmission rates were significantly reduced in the IP cohort (17.5% vs. 7.1%; $p < 0.03$).

Conclusion: Strategic implementation of institutional policy mandating initial admission for patients presenting with SBO or GS to a surgical service significantly reduced healthcare resource utilization. Overall hospital costs were reduced by roughly \$1500 per admission for each disease, with comparable or decreased readmission rates, respectively. Surgical admissions for surgical disease should be the standard.

ORAL ABSTRACTS

12. PERSISTENTLY ELEVATED GLUCAGON-LIKE PEPTIDE 1 LEVELS AFTER SEPSIS AMONG CRITICALLY-ILL SURGICAL PATIENTS PREDICTS THE DEVELOPMENT OF CHRONIC CRITICAL ILLNESS AND DISMAL LONG-TERM OUTCOMES

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University of Florida

Presenter: Scott Brakenridge MD, MS

Invited Discussant: John Fildes MD | Las Vegas, NV

Background: While inpatient mortality continues to decline after sepsis, those that previously died from early refractory organ failure now survive to a state of chronic critical illness (CCI; ICU LOS \geq 14 days with persistent organ dysfunction), with a dysfunctional innate immune state, persistent organ dysfunction, and poor long-term outcomes. Glucagon-like peptide 1 (GLP-1) is a gut derived incretin hormone that stimulates insulin secretion, promotes cellular glucose uptake and has immune-regulatory functions. GLP-1 levels are markedly altered following trauma and sepsis, but the implications remain unclear. We hypothesized that changes in GLP-1 levels during sepsis in critically-ill surgical patients are predictive of persistent organ dysfunction, the development of CCI, and dismal long-term outcomes.

Methods: We performed an analysis of a prospective, longitudinal cohort of critically-ill surgical patients that were admitted with or subsequently developed sepsis. Patient characteristics and electronic health record data were collected, as well as peripheral blood sampling for biomarker analysis (including GLP-1 and IL-6) between 0.5 and 21 days after sepsis onset. Sepsis diagnosis, severity, and clinical outcomes were adjudicated prospectively. Patients surviving index hospitalization underwent prospective follow-up 6-months after sepsis onset.

Results: The cohort included 157 septic surgical ICU patients with evidence of significant physiologic derangement (Max. SOFA score 8, IQR 4-11), a high rate of multiple organ dysfunction (n=50.3%) and a significant proportion with septic shock (24.2%). Despite high disease severity, both early death from refractory shock (n=4, 2.9%) and overall inpatient mortality was low (n=12, 7.6%). However, post-discharge 6-month mortality was nearly 3-fold higher (n=31, 19.7%). Both GLP-1 and IL-6 levels were significantly elevated out to 21 days ($p\leq 0.01$) in patients with early death (<14 days) or that developed CCI, as compared to patients with a rapid recovery. However, elevated GLP-1 was a significantly independent and better predictor compared to IL-6 at 24 hours for the development of CCI (AUC 0.601 vs 0.565, $p<0.0001$), and at day 14 for death or severe functional disability at 6 months (WHO/Zubrod score 4-5, AUC 0.666 vs 0.616, $p<0.001$).

Conclusion: GLP-1 levels are significantly and persistently altered after sepsis. Elevated GLP-1 levels within 24 hours of sepsis are an early predictor of death or persistent organ dysfunction. Among early sepsis survivors, persistently elevated GLP-1 levels at day 14 are strongly predictive of death or severe functional disability at 6-months. Persistently elevated GLP-1 levels may be a marker of a non-resolving catabolic state which has been shown to be associated with muscle wasting and dismal outcomes after surgical sepsis and chronic critical illness.

ORAL ABSTRACTS

13. TUMOR-SPECIFIC FLUORESCENCE IMAGING OF HUMAN PANCREATIC CANCER USING A SITE-SPECIFIC NEAR-INFRARED NANOBODY PROBE IN AN ORTHOTOPIC MOUSE MODEL

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University of California, San Diego

Presenter: Thinzar Lwin MS MD

Invited Discussant: Flavio Rocha MD, Seattle, WA

Background: Fluorescence-guided imaging using fluorescent antibodies can enhance delineation and resection of tumors. However, the large size of antibodies at (~150kDa) can lead to limitations in penetration efficiency and delay peak signal detection. Nanobodies are camelid-derived antibodies made of only heavy chains. They are the smallest biologic antigen-binding fragments (~15kDa) and have the ability to penetrate tumors with greater efficacy than classical antibodies. Fluorophore-conjugated nanobodies have a peak signal of 2-3 hours after administration. The present study evaluates the efficacy of an anti-CEA nanobody conjugated to the NIR fluorophore LICOR-IRDye800CW in an orthotopic mouse model for its potential in fluorescence guided surgery of pancreatic cancer.

Methods: Anti-CEA or control nanobodies were conjugated with IRDye800CW using cysteine-maleimide chemistry. Tumor fragments of BxPC3 human pancreatic cancer were implanted into pancreatic tail of nude mice to establish orthotopic models. After tumors reached 7-10 mm in size, 2 nmol of anti-CEA or control cys-nanobody-IRDye800CW was delivered intravenously. Mice were imaged 3 hours post-injection using the following imaging systems: the CRI Maestro small animal imaging system with spectral separation (Perkin Elmer, Waltham, MA), the da Vinci Firefly robotic laparoscope (Intuitive Surgical, Sunnyvale, CA), and the Stryker Aim laparoscope (Stryker Corp, Kalamazoo, MI).

Results: Pancreatic orthotopic tumors were fluorescently labeled with aCEA-cnb-800 within 3 hours of dye injection. The fluorophore-conjugated nanobody specifically co-localized with the GFP tagged orthotopic tumor while the control nanobody did not show a tumor-specific signal using the CRI Maestro. Both nanobodies had strong kidney signals as expected for relatively small molecular probes. The fluorescence signal was detectable using the da Vinci Firefly and the Stryker Aim.

Conclusion: Nanobody-based probes binding to CEA were rapidly and successfully able to detect pancreatic orthotopic tumors within 3 hours. The fluorescence signal was detectable using two clinically FDA approved 800 nm fluorescence imaging devices as well as a small animal imaging system with spectral separation. Fluorescent anti-CEA nanobodies have kinetics that approach the speed of non-specific dyes such as indocyanine green, but with the specificity of antibodies. In contrast, the use of fluorescently-labeled intact antibodies leads to a necessary delay of 48-96 hours between probe administration and surgery which can be avoided with nanobodies. With a fluorescence signal detected within 3 hours, the kinetics of a nanobody-based probe makes it a practical agent for same day patient administration and imaging. The anti-CEA-IRDye800 probe is a promising molecule for FGS of pancreatic cancer.

ORAL ABSTRACTS

14. PANCREATIC FLUID INTERLEUKIN-1 COMPLEMENTS PROSTAGLANDIN E2 AND SERUM CA19-9 IN PREDICTION OF IPMN DYSPLASIA

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Indiana University School of Medicine

Presenter: Katelyn Flick MD

Invited Discussant: Marshall S Baker MD, Chicago, IL

Background: Distinguishing between high- and low-risk intraductal papillary mucinous neoplasms (IPMN) is an important but challenging task when determining an optimal treatment strategy. Previous work has suggested an inflammatory mechanism of chronicity and potential progression of neoplastic diseases of the pancreas. Two inflammatory biomarkers found in pancreatic cyst fluid, interleukin-1 β (IL-1 β) and prostaglandin E2 (PGE2), have been individually suggested as indicators of IPMN dysplasia. We sought to determine if these two cyst fluid biomarkers when considered together with currently used serum tumor marker CA19-9 could more accurately predict high-grade (HGD) or invasive IPMN.

Methods: Pancreatic cyst fluid was gathered from consenting patients (n=93) at the time of endoscopy or surgery (2006-2016). All patients underwent surgical resection with pathology-proven IPMN. Samples were analyzed for PGE2 and IL-1 β using enzyme-linked immunosorbent assay (ELISA), and biomarker levels were correlated with dysplastic grade. Sensitivity(Sn), specificity(Sp), accuracy(Acc), positive(PPV) and negative(NPV) predictive values were calculated for threshold values of PGE2 (>1,100pg/mL), IL-1 β (>20pg/mL), and serum CA 19-9 (≥ 37 U/mL). Biomarker levels were compared using the Wilcoxon rank-sum test and receiver operating characteristic (ROC) curve analysis.

Results: PGE2 was significantly greater in patients with HGD/Invasive-IPMN (n=46) compared to Low/Moderate-IPMN (n=47) (mean \pm SEM: 4,026 \pm 677pg/mL vs. 1,235 \pm 393pg/mL; P<0.001) with AUC 0.75. Similarly, levels of IL-1 β were significantly greater in patients with HGD/Invasive-IPMN (n=42) compared to Low/Moderate-IPMN (n=37) (mean \pm SEM: 329 \pm 103pg/mL vs. 31 \pm 21pg/mL) with AUC 0.77. Alone, PGE2 and IL-1 β provided respective Sn (61%, 64%), Sp (79%, 84%), Acc (70%, 73%), PPV (74%, 82%), and NPV (67%, 67%). The combination of elevated PGE2 AND IL-1 β revealed lower Sn (43%), Acc (65%) and NPV (58%) but greater Sp (89%) and equal PPV (82%) for predicting HGD/Invasive-IPMN. Together, PGE2 and IL-1 β provided an AUC 0.79, above the individual components. Elevation of either PGE2 OR IL-1 β was highly Sn (80%), Acc (75%) and provided good PPV (76%) and NPV (75%), but sacrificed a degree of Sp (69%) for HGD/Invasive-IPMN. Currently employed serum CA19-9 was least predictive of HGD/Invasive-IPMN (AUC 0.62) on its own and did not differ significantly between HGD/Invasive-IPMN (n=42) (390 \pm 281U/mL) and Low/Moderate-IPMN (n=35) (45 \pm 16U/mL) (P=0.080). However, when combined with PGE2 AND IL-1 β , elevated levels of all 3 biomarkers provided optimal Sp (100%) and PPV (100%) for HGD/Invasive-IPMN, but with lower Sn (15%), Acc (51%), and NPV (46%) than when CA 19-9 is not included. The presence of elevated PGE2 OR IL-1 β OR CA19-9 provided the greatest Sn (89%) and NPV (78%), but with lower Sp (46%), Acc (69%), and PPV (66%).

Conclusion: The presence of either elevated IL-1 β or PGE2 optimizes Sn and Acc, allowing for detection of the majority of HGD/Invasive-IPMN pre-operatively, and most frequently categorizes lesions into risk-categories correctly. As the number of elevated biomarkers accumulate (PGE2, IL-1 β , serum CA19-9), Sp and PPV for HGD/Invasive-IPMN increase, and clinicians can be more certain of the presence of a high-risk lesion requiring resection. These biomarkers may serve as the beginning of a panel of markers to predict pathology, and better direct individual patients to surgery for high-risk lesions versus surveillance for low-risk disease.

ORAL ABSTRACTS

15. PREDICTING POST-OPERATIVE HYPOCALCEMIA AFTER TOTAL THYROIDECTOMY TO ALLOW SAME DAY DISCHARGE

BM Dy, V Strajina, GB Thompson, T McKenzie, DR Farley, ML Lyden

Mayo Clinic Rochester

Presenter: Benzon Dy MD

Invited Discussant: Melanie Goldfarb MD, MSc, Santa Monica, CA

Background: Hypoparathyroidism and associated hypocalcemia are common and potentially highly morbid sequelae of total thyroidectomy and serve as a barrier to outpatient total thyroidectomy. Postoperative parathyroid hormone (PTH) level measurement has been used to identify the patients at risk for this complication and tailor postoperative calcium and vitamin D supplementation. However, a recent meta-analysis has brought into question the ability of postoperatively measured PTH to predict post-thyroidectomy hypocalcemia. Therefore, we aimed to explore the value of postoperative PTH measurement to determine the optimal timing of blood sampling and cutoff values.

Methods: Retrospective review of patients who underwent total or near-total thyroidectomy at our institution between 2008 and 2018 was performed. Parathyroid hormone levels measured within first 24 h after thyroidectomy and total Ca levels were extracted from the medical record. Nominal logistic regression model was built to test the ability of postoperative PTH to predict the occurrence of postoperative hypocalcemia, defined as Ca level 1 g below the lower end of normal range (8.9-10.1 mg/dl) within 30 days of operation. ROC curves were then constructed to determine the cutoff of PTH level optimally predicting the postoperative hypocalcemia.

Results: Inclusion criteria were met by 1883 patients. Hypocalcemia with $\text{Ca} < 8.0$ was detected in 296 patients (16%), and was associated with postoperative PTH level ($p < .01$). There was an inverse correlation between time of blood draw and PTH level ($p = .01$). Both the optimum cutoff value and the AUC varied according to the timeline of blood sampling. The AUC was highest (0.82) if the blood draw occurred between 3-6 h postoperatively, and the optimum cutoff was 13 pg/ml. However, this had the sensitivity of 75% and specificity of 81%. Utilizing the cutoff of 34 pg/ml maximized the sensitivity (98%), with specificity of only 30%.

Conclusion: Postoperative PTH drawn at 3-6 hours after total thyroidectomy is sensitive for detecting hypocalcemia. The optimum time for blood draw is 3-6 h postoperatively, and PTH level < 34 pg/ml has a high sensitivity.

ORAL ABSTRACTS

16. MEDICINE CABINET ONCOLOGY: DISULFIRAM AND COPPER GLUCONATE SHOW IN VITRO AND IN VIVO EFFICACY IN A PRECLINICAL PATIENT-DERIVED XENOGRFT MODEL SYSTEM OF CHOLANGIOCARCINOMA

JL Leiting, MC Hernandez, MJ Truty

Mayo Clinic Rochester

Presenter: Jennifer Leiting MD

Invited Discussant: Erin Maynard MD, Portland, OR

Background: Cholangiocarcinoma (CCA) is a devastating malignancy with poor overall outcomes. Resection is the only potential cure and most patients are found to be unresectable at diagnosis. There are limited treatment options available and these have only been shown to have a small benefit. Disulfiram (DSF) is known to have anti-cancer effects in a number of different cancers. These effects have recently been shown to be potentiated by Copper Gluconate (Cu) in a variety of other solid malignancies. Currently, there have not been any investigations into the effects of DSF and Cu on CCA. We sought to explore whether DSF alone or in combination with Cu was effective in a preclinical CCA patient-derived xenograft (PDX) model both in vitro and in vivo.

Methods: Tumor tissues were obtained from our large repertoire of human CCA PDX models developed from either resected or biopsied tumor specimens. Tumor tissue was dissociated and plated onto 96-well plates. After 24 hours, cells were treated with increasing concentrations of DSF, Cu, or DSF and Cu (DSF+Cu). Cell viability was assessed after 48 hours of treatment. With IRB and IACUC approval, male NOD/SCID mice were implanted with PDX tumor tissue in the subcutaneous flank. Treatment was begun with either vehicle, DSF, Cu, or DSF+Cu. Mice were weighed and tumors were measured twice a week. At the end of four weeks, mice were sacrificed and final mouse weight, tumor volume and tumor weight was recorded.

Results: When compared to control, DSF-treated cells had marked reduction in relative viability from 84.2% at 0.1 uM to 10.8% at 0.5 uM. Similar viability reduction was found with DSF+Cu-treated cells (87.9% at 0.1 uM to 6.2% at 0.5 uM). Cells treated with copper alone had minimal cell death with 67.6% relative viability at 10 uM, the highest concentration tested. In our in vivo tumor bearing model, mice that were treated with DSF had significant reduction in tumor size when compared to the control group after only four weeks of treatment (2457.0 mm³ vs. 1075.2 mm³, p=0.012). The DSF+Cu group also had significantly smaller tumors than control (2457.0 mm³ vs. 672.3 mm³, p=0.012) as well as smaller tumors than the Cu group (1706.3 mm³ vs. 672.3 mm³, p=0.037). There were no deaths during the course of the experiment and final mouse weights were not significantly different between the four groups at the end of the experiment (p=0.068).

Conclusion: The widely available drug, DSF, both alone and with Cu, proved to be effective in vitro and in vivo in a CCA PDX. Given the limited benefit of current treatments for CCA, DSF+Cu may prove to be a promising potential treatment regimen that is already known to be well tolerated by patients. Additional experiments are needed to explore their efficacy in additional cholangiocarcinoma PDX model systems as well as its role as an adjunct to traditional chemotherapeutic agents in the clinical setting.

ORAL ABSTRACTS

17. THE IMPACT OF THE AFFORDABLE CARE ACT MEDICAID EXPANSION IN MINIMALLY INVASIVE SURGERY

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Loyola University Medical Center

Presenter: Emanuel Eguia MD, MHA

Invited Discussant: Julianne Bingener MD | Rochester, MN

Background: Several provisional changes implemented by the Affordable Care Act (ACA) have had the potential to profoundly affect the care of surgical patients. This study aims to evaluate the trends in minimally invasive surgery (MIS) after the ACA Medicaid expansion.

Methods: We used the Healthcare Cost and Utilization Project State Inpatient Database to evaluate rates of utilization of MIS approaches to and costs of care associated with several common general surgical procedures pre (2010 to 2013) and post (2014) Medicaid expansion comparing states that participated in Medicaid Expansion (IA, MD, WA and NY) to those that did not (FL and NC). Procedures included in the comparison were: (1) gastric bypass, (2) sleeve gastrectomy, (3) Nissen fundoplication, (4) inguinal hernia, (5) umbilical hernia, (6) distal pancreatectomy, (7) cholecystectomy, and (8) sigmoidectomy. Poisson regression was used to assess differences in incidence rate ratios (IRR) and difference-in-differences (DID). Variance in cost of hospital care pre and post- ACA Medicaid expansion was assessed by risk adjusted linear regression.

Results: There were a total of 159,526 patients that met our inclusion criteria. Use of MIS approaches increased among Medicaid and self-pay patients for gastric bypass (IRR 1.04; $p < 0.05$) and umbilical hernia repair (IRR 1.97; $p < 0.001$) in Expansion states compared to Non-Expansion states. There was also an increase in open compared to laparoscopic sigmoid colectomy in Medicaid and self-pay patients (IRR 1.27 vs. 1.24; $P < 0.05$) in Expansion states compared to Non-Expansion states.

In our risk-adjusted cost analysis, we found that there was a decrease in costs of care associated with laparoscopic gastric bypass in Expansion states following ACA implementation (-\$1,794; $p < 0.001$). The cost of providing care to Medicaid patients undergoing open gastric bypass (+\$7,176; $p < 0.001$), open unilateral inguinal hernia repair (+\$15,028; $p = 0.04$) and laparoscopic cholecystectomy (+\$2,686; $p < 0.001$) following ACA implementation were, however, higher in expansion states compared to non-expansion states. Average costs of care for commercially insured patients in Expansion states were higher (+\$501; $p < 0.001$) than commercially insured patients in Non-Expansion states. Costs of caring for uninsured patients in Expansion states were higher (+\$1,705 $p < 0.001$) compared to uninsured patients in non-expansion states.

Conclusion: In states that expanded Medicaid coverage under the ACA, the rate of utilization of MIS approaches to gastric bypass and umbilical hernia repair increased among Medicaid and self-pay patients. There was an associated increase in in-hospital cost of care for both commercially insured and uninsured/self-pay patients in states that expanded Medicaid. The increase in MIS procedures is likely driven by states expanding access to care. Increased cost of care across populations may reflect an attempt by providers to share costs of care across those populations.

ORAL ABSTRACTS

18. NEOADJUVANT SYSTEMIC CHEMOTHERAPY FOR COLORECTAL LIVER METASTASES DOES NOT INCREASE POSTOPERATIVE MORBIDITY OR MORTALITY FOLLOWING HEPATECTOMY

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The Ohio State University Wexner Medical Center

Presenter: Francisco Guzman MD

Invited Discussant: Margo Shoup MD, Warrenville, IL

Background: The role of neoadjuvant chemotherapy in the management of colorectal liver metastases (CRLM) remains controversial. Previous research has suggested that extended durations of neoadjuvant chemotherapy may contribute to chemotherapy-associated liver injury. We sought to investigate whether neoadjuvant systemic chemotherapy contributes to clinically significant increases in postoperative morbidity and mortality using a population-based cohort.

Methods: The ACS NSQIP targeted hepatectomy database from 2014-2016 was queried to identify all patients with CRLM who underwent liver resection. Patients were stratified based on the receipt of neoadjuvant chemotherapy using 1:1 propensity score matching based on age, concurrent colectomy, type of resection, number of tumors, and maximum tumor size. Univariate and multivariate regression models were used to characterize the effect of neoadjuvant chemotherapy on perioperative morbidity and mortality.

Results: After propensity score matching, 1417 patients (50%) received neoadjuvant chemotherapy prior to hepatectomy and 1417 (50%) underwent liver resection without neoadjuvant chemotherapy. There were no statistically significant differences in age (61 vs 62 years), number of tumors (2.2 vs 2.0), maximum tumor size (≤ 2 cm: 27 vs 23%, 2- ≤ 5 cm: 52 vs 57%, > 5 cm: 21 vs 20%), resection type (partial: 70 vs 70%; left hepatectomy: 8 vs 7%; right hepatectomy: 17 vs 18%; trisegmentectomy: 6 vs 6%), simultaneous colectomy (9 vs 9%), use of preoperative portal vein embolization (5 vs 5%), use of minimally invasive approaches (21 vs 24%) or placement of a surgical drain (37 vs 38%), (all $p > 0.05$). Overall 30 day postoperative morbidity (18 vs 16%), including rates of biliary fistula (6 vs 6%) and post-hepatectomy liver failure (5 vs 4%), and mortality rates (0.8 vs 0.7%) were similar between patients who received neoadjuvant chemotherapy and those who did not (all $p > 0.05$). On multivariate logistic regression, the receipt of neoadjuvant chemotherapy was not associated with increased morbidity (OR 1.2 [95% CI 0.92, 1.48], $p = 0.21$) or mortality (OR 2.77 [95% CI 0.73, 10.51], $p = 0.13$).

Conclusion: In this propensity matched population based cohort study, the use of neoadjuvant systemic chemotherapy was not independently associated with higher rates of complications, biliary fistula, posthepatectomy liver failure, or mortality among patients with CRLM undergoing liver resection.

ORAL ABSTRACTS

19. SOCIOECONOMIC DISTRESSED COMMUNITIES INDEX IS ASSOCIATED WITH LONG-TERM SURVIVAL FOLLOWING BARIATRIC SURGERY

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University of Virginia

Presenter: J. Hunter Mehaffey MD, MSc

Invited Discussant: James Madura MD | Scottsdale, AZ

Background: Surgical outcomes are affected by socioeconomic status, yet these factors are poorly accounted for in clinical databases. We sought to determine if the Distressed Communities Index (DCI), a composite ranking by zip code that quantifies socioeconomic risk, was associated with long-term survival following bariatric surgery.

Methods: All patients who underwent Roux-en-Y gastric bypass (1985-2004) at a single institution were paired with the DCI. Scores range from 0 (no socioeconomic distress) to 100 (severe distress) and account for unemployment, education, poverty, median income, housing vacancies, job growth, and business establishment growth. Severely distressed patients (top quartile, DCI score ≥ 75) were compared with all other patients. Logistic regression was used to evaluate the effect of DCI on 10-year bariatric outcomes, while Cox Proportional-Hazards and Kaplan-Meier were used for long-term survival analyses.

Results: Gastric bypass patients ($n=974$) came from more distressed communities compared with the general public (DCI 60.5 ± 23.8 vs. 50 ± 10 , $p < 0.0001$). A total of 315 patients (32.3%) came from severely distressed communities (DCI scores in the top quartile [≥ 75]). These patients had similar preoperative characteristics as all other patients, including BMI (53.1 ± 10.1 vs 53.5 ± 10.7 kg/m², $p=0.63$). Socioeconomic status did not affect 10-year bariatric outcomes, such as percent reduction in excess BMI (57.0% [33.6-79.4] vs. 57.9% [28.9-82.8], $p=0.93$). However, patients from severely distressed communities had decreased long-term survival (28.8 vs. 31.7 years, $p=0.04$), with higher DCI being significantly associated with increased mortality (HR 1.19 [1.00-1.41] per DCI quartile increase, $p=0.04$).

Conclusion: Based on the Distressed Communities Index, low socioeconomic status is associated with worse long-term survival after bariatric surgery. Additionally, patients undergoing bariatric surgery come from more distressed communities compared with the general public. Consideration should be given to incorporation of the DCI, an established metric for socioeconomic distress, into clinical databases and risk prediction models.

ORAL ABSTRACTS

20. LONG-TERM ONCOLOGICAL OUTCOMES FOLLOWING ANASTOMOTIC LEAK IN RECTAL CANCER SURGERY

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Mayo Clinic Rochester

Presenter: Jacopo Crippa MD

Invited Discussant: Steven A Curley MD | Tyler, TX

Background: Anastomotic leak remains a critical complication after restorative rectal cancer surgery and is associated with significant morbidity and mortality rates whereas reported rates range from 4% to 29%. Whether the occurrence of leak may have an impact on long-term oncological outcomes is under debate. The aim of the present study was to describe the oncologic impact of anastomotic leak on patients undergoing sphincter preserving surgery for rectal adenocarcinoma at our high volume institution.

Methods: A retrospective review of a prospectively maintained database of all patients who underwent restorative surgery for rectal adenocarcinoma from January 2000 until December 2013 at Mayo Clinic, Rochester, Minnesota was performed. Anastomotic leak was defined according to the classification proposed by the International Study Group of Rectal Cancer. Oncological outcomes included overall survival (OS), local recurrence (LR), disease free survival (DFS), and disease-specific survival (DSS).

Results: A total of 787 patients undergoing sphincter-preserving surgery for rectal cancer met the inclusion criteria. Forty-two (5.3%) patients presented an anastomotic leak. The median follow-up period was 64 months. Fifty-one (6.5%) patients suffered cancer related death, two (4.8%) in the leak group. Five year OS, DSS and DFS were 88%, 94.7% and 85.3%, respectively. LR rate was 1.5%. There was no difference in long-term survival for OS, DSS, DFS and LR rate between groups. On a multivariate analysis, anastomotic leak did not impact oncological outcomes.

Conclusion: The occurrence of AL after restorative resection for rectal cancer did not impact oncologic outcomes in term of LR, DFS, OS and DSS in our cohort of patients.

ORAL ABSTRACTS

21. A SYSTEMS APPROACH TO REDUCE DEEP VENOUS THROMBOSIS AND PULMONARY EMBOLISM IN TRAUMA PATIENTS

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Cedars-Sinai Medical Center

Presenter: Navpreet Dhillon MD

Invited Discussant: Jasmeet Paul MD | Albuquerque, NM

Background: Venous thromboembolism (VTE) in trauma patients is a preventable complication that carries significant morbidity and mortality. We previously described a strategy to titrate enoxaparin dosing by anti-Xa trough levels that was associated with a decrease in VTE rate. We combined this strategy with a higher initial enoxaparin dose for a majority of patients and changed the electronic medical record (EMR) to encourage immediate enoxaparin dosing. We sought to determine if these system changes implemented with minimal disruption were associated with a decrease in VTE rate.

Methods: A retrospective review was conducted of all trauma patients on prophylactic enoxaparin at an urban, academic, Level I Trauma Center from January 2013 to May 2014 (PRE) and August 2014 to February 2018 (POST). All patients in PRE were prescribed enoxaparin 30mg twice daily without dose adjustments. Most patients in POST received 40mg twice daily. Those who presented with head trauma, spinal cord injury, suspicion for ongoing bleeding or age greater than 65 years received 30mg twice daily. POST patients had enoxaparin titrated to maintain anti-Xa trough level 0.1 and 0.2 IU/mL. Imaging studies were ordered based on suspicion for VTE.

Results: There were 478 patients in the PRE and 1306 in the POST. Compared to PRE, POST patients were of similar age (PRE 45.6 ± 20.2 vs. POST 45.7 ± 20.4 years, $p=0.29$) and as likely to present after blunt trauma (90.2% vs. 91.4%, $p=0.41$). POST patients were less likely male (74.5% vs. 68.4%, $p=0.01$) and had lower injury severity scores (12.7 ± 10.8 vs. 11.1 ± 9.0 , $p<0.01$). The overall VTE rate was lower in POST (6.9% vs. 3.6%, $p<0.01$). In addition, POST patients had a lower rate of pulmonary embolism (1.3% vs. 0.2%, $p<0.01$), proximal extremity DVT (4.4% vs. 2.3%, $p=0.02$), and distal extremity DVT (4.0% vs. 1.5%, $p<0.01$). After controlling for confounding variables, the adjusted risk for VTE (AOR 0.61, adjusted $p=0.04$) was lower in POST and POST was independently protective for VTE (AOR 0.539; CI: 0.332-0.887, $p=0.01$).

Conclusion: By implementing system changes to how enoxaparin is dosed after trauma a significant reduction in VTE rate was observed. Starting most patients on enoxaparin 40 twice daily, introducing an EMR order set that encourages immediate dosing when possible, and titrating doses by anti-Xa trough level led to a reduction in VTE. Importantly, this is the first study to note a reduction in the rate of pulmonary embolism when an improved enoxaparin dosing protocol was instituted. Wider application of this strategy could be implemented with little disruption and should be considered.

ORAL ABSTRACTS

22. INCREASING INCIDENCE OF COLON CANCER IN THE YOUNG; ASSESSING THE TUMOR BIOLOGY

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University of Arizona

Presenter: Valentine Nfonsam MD, MS

Invited Discussant: James Spitz MD, Glenview, IL

Background: Colon Cancer is the second leading cause of Cancer related death. In the US, about 99,000 new cases of colon cancer (CC) were expected to be diagnosed in 2018. The overall incidence of CC has declined in the last several decades. However, the incidence of colorectal cancer has increased about 51% in the last two decades. The reason for this increase is clearly multifactorial. Younger patients present with advanced stage disease and tumors with more aggressive features. Our previous studies showed that several genes were uniquely upregulated in CC of young patients including Cartilage Oligomeric Matrix Protein (COMP). The aim of this study was to elucidate the role of COMP in tumor aggressiveness and correlate it to CEA levels and stage of disease.

Methods: Colon cancer tissues from 12 patients, 6 young and six old (stage I: n=3; stage II: n=4; stage III: n=4 and stage IV: n=1) were obtained from pathology archives. Three (each) matching non-involved tissue from young and old patients were also obtained. Deparaffinized tissues were macrodissected from FFPE sections, RNA isolated, and used for expression profiling of 770 cancer-related genes. Survival analysis was performed using the cBioPortal for cancer genomics using 367 CRC patients extracted as a subset of the TCGA COADREAD database. The data, gene-level transcription estimates, are shown as $\log_2(x+1)$ transformed RSEM normalized count. In vitro proliferation and transwell migration assays were performed on HT-29, a human colon adenocarcinoma cell line, either in the presence or absence of recombinant human COMP protein. COMP protein levels in serum (n=4) were measured using ELISA assay. We correlated this to CEA level.

Results: Gene expression profiling of 770 cancer related genes revealed increasing expression levels of COMP in young patients and also with increasing disease stage. Comparison between Stage I and Stage II tumors revealed higher COMP levels in Stage II and TLR2, IL8, RIN1, IRAK3 and CACNA2D2 as top 5 correlated genes in pairwise expression association with COMP. Comparison between Stage II T4 and Stage III tumors did not show significant change in expression of COMP. However, when Stage I and Stage III tumors were compared, there was almost seven times higher COMP expression in Stage III tumors than in Stage I with GAS1, VEGFC, MAP3K8, SFRP1 and PRKACA as top five correlated genes in pairwise expression association with COMP. HT-29 cells treated with recombinant human COMP protein showed significantly increased proliferation and migration through uncoated transwell inserts. Analysis of serum from four CC patients revealed positive correlation between COMP levels and stage of disease and CEA levels. The higher the COMP levels, higher the stage of disease and CEA levels.

Conclusion: COMP is significantly upregulated in young CC patients. Increasing COMP expression levels in CC are associated with higher disease stage. COMP can be detected in serum of CC patients and showed strong positive correlation with stage of disease and CEA levels. Treatment of CC cells with recombinant COMP revealed significantly increased proliferation and migration suggesting a significant role of COMP in CC tumorigenesis. COMP is a potential biomarker for CC especially CC in the young.

ORAL ABSTRACTS

23. ELEVATED FIBRIN DEGRADATION PRODUCTS WITH LOW FIBRINOLYTIC ACTIVITY MEASURED BY TEG IN SEVERELY INJURED PATIENTS DOES NOT WARRANT TRANEXAMIC ACID TO IMPROVE CLOT STRENGTH

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University of Colorado School of Medicine

Presenter: Hunter Moore MD, PhD

Invited Discussant: John Santaniello MD | Oak Lawn, IL

Background: Recent US and European studies have observed elevated fibrin degradation products (FDP) in injured patients with paradoxically low fibrinolysis activity measured by viscoelastic assays. These groups speculate that these patients have ongoing “occult” fibrinolysis that is undetected by these devices, concluding that viscoelastic assays cannot be used to guide tranexamic acid (TXA). However, an alternative explanation for these findings is that patients have previously activated their fibrinolytic system and have shut it down by the time of blood draw. Therefore, these patients would not obtain a hemostatic benefit with TXA. We hypothesize that TXA will not increase clot strength in severely injured patients with elevated FDP, depletion of fibrinolysis inhibitors (DFI), and low fibrinolytic activity [measured by rapid thrombelastography (rTEG)].

Methods: Trauma activation patients were evaluated with three TEG assays within one-hour postinjury [rTEG, tissue plasminogen activator (t-PA), functional fibrinogen (FF)]. The t-PA TEG quantifies the patient’s response to plasminogen activation, serving as a functional assay to quantify fibrinolysis inhibitors. DFI was defined using a t-PA TEG lysis at 30 minutes (LY30) greater than the cutoff value to predict massive transfusion based on a receiver operating characteristics curve. Proteomic data available on a nested cohort of 108 patients was used to confirm an elevated t-PA TEG LY30 was associated with DFI. Patients were then stratified by rTEG LY30 phenotype cutoffs: shutdown <0.9%; physiologic 0.9-2.9%; hyperfibrinolysis >3%. Response to TXA was evaluated with FF TEG by calculating % change in clot strength with the addition of exogenous TXA in the TEG cup compared to a standard FF assay.

Results: Of the 630 patients analyzed, 52% sustained blunt trauma, the median new injury severity score was 21, and 14% died. DFI was present in 118 (19%). DFI patients had significantly increased D-Dimer ($p<0.001$), lower fibrinogen ($p<0.001$), lower platelet counts ($p<0.001$) and higher INR ($p<0.001$) compared to patients without DFI. Proteomics confirmed that DFI was associated with depletion of fibrinolysis inhibitors (alpha-2 antiplasmin, thrombin activatable fibrinolysis inhibitor, coagulation factor XIII, vitronectin, all $p<0.001$). DFI patients had markedly increase rates of massive transfusion (34% vs 3.9% $P<0.001$) and mortality (40% vs 6.7% $p<0.001$). Among DFI patients, TXA significantly improved fibrin clot strength with hyperfibrinolysis (+20% clot strength $p<0.001$) but not with shutdown (+2%) or physiologic (-3%). In contrast, in the non-DFI group, TXA did not alter fibrin clot strength for any phenotype. In the DFI group, hyperfibrinolysis was associated with the highest mortality (46%), followed by physiologic (35%) and shutdown (32%) albeit not significantly ($p=0.472$). Among non-DFI patients, shutdown was associated with higher mortality (12 % vs 6% physiologic vs 3% hyperfibrinolysis; $p=0.02$).

Conclusion: DFI patients exhibited high rates of massive transfusion and mortality. While these patients have multiple abnormalities of their coagulation system, with evidence of prior activation of fibrinolysis, only DFI patients with hyperfibrinolysis have improved fibrin clot strength with TXA treatment. These data indicate that DFI is a risk factor for coagulopathy, but only patients with confirmed hyperfibrinolysis by rTEG experienced improvement in clot strength with an antifibrinolytic.

ORAL ABSTRACTS

24. IMPACT OF THE SSO/ASTRO MARGIN GUIDELINES ON BREAST CONSERVING SURGERY AND MASTECTOMY TRENDS

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NorthShore University HealthSystem

Presenter: Olga Kantor MD

Invited Discussant: Ingrid Meszoely MD, Nashville, TN

Background: The Society of Surgical Oncology and the American Society for Radiation Oncology published consensus guidelines for margins for breast conserving surgery (BCS) in 2014 for patients with stage I-II breast cancer. We hypothesized that repeat surgery rates have decreased after these guidelines were published and would be associated with a change in trends for breast conservation surgery (BCS) and mastectomy.

Methods: The National Cancer Data Base was used to identify women between the ages of 18-90 with unilateral AJCC Stage I-II breast cancer whose initial surgery was BCS. Neoadjuvant patients were excluded. Using a variable that defines days to first and definitive surgery, we were able to define those patients who started with BCS and eventually went on to either definitive BCS or mastectomy from 2004-2015. Multivariate analysis adjusting for patient and facility factors was used to identify predictors of repeat surgery.

Results: From 2004 to 2015, 580,915 patients underwent initial BCS for breast cancer; 79.5% underwent BCS alone, 14.5% underwent BCS followed by another BCS, 4.4% underwent BCS followed by unilateral mastectomy (UM) and 1.6% underwent BCS followed by bilateral mastectomy (BM). The overall repeat surgery rate decreased from 24.1% in 2004 to 15.5% in 2015 ($p<0.01$). BCS alone increased from 75.9% to 84.5% ($p<0.01$). BCS with repeat surgery decreased from 17.0% in 2004 to 11.1% in 2015, BCS followed by UM decreased from 6.0% to 3.0%, and BCS followed by BM increased from 1.0% to 2.0% from 2004 to 2013, then decreased to 1.5% in 2015 (all $p<0.01$). BM rates after initial BCS for women <50yo peaked at 5.9% in 2013 and decreased to 4.7% in 2015. Trends of repeat surgery were similar across all patient demographic factors, facility factors, and tumor characteristics. The highest repeat surgery rates were in women <50yo (26.8%), Her2+ tumors (27.3%), and for lobular histology (27.1%). Adjusted multivariate analysis found that the strongest independent predictors of repeat surgery after initial BCS were earlier year of diagnosis (OR 1.26-1.42, CI 1.22-1.50 for diagnosis prior to 2014), age (OR 1.35, CI 1.32-1.39 for age <50yo), Her2+ tumors (OR 1.28, CI 1.20-1.37), and lobular histology (OR 1.34, CI 1.30-1.38).

We additionally examined overall surgical trends in all patients, including those that had UM or BM as initial operations ($n=860,290$). The overall rate of BCS decreased from 66.7% in 2004 to 65.8% in 2013, then increased to 69.6% in 2015. The UM rate steadily decreased from 28.7% in 2004 to 18.9% in 2015, while the BM increased from 4.6% in 2004 to 12.6% in 2013, then decreased to 11.5% in 2015 (all $p<0.01$).

Conclusion: Repeat surgery rates are decreasing over the past decade. The rate of BCS for early stage breast cancer is increasing from 2014-2015 after a decade of decline and BM after initial BCS is decreasing. It appears that the margin guidelines are impacting surgical trends for early stage breast cancer.

ORAL ABSTRACTS

25. ADRENAL VENOUS SAMPLING FREQUENTLY ALTERS MANAGEMENT IN PATIENTS WITH PRIMARY ALDOSTERONISM INDEPENDENT OF LATERALIZATION ON CROSS-SECTIONAL IMAGING

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Baylor Scott & White Healthcare

Presenter: Rebekah Campbell MD

Invited Discussant: Quan-Yun Duh MD | San Francisco, CA

Background: Primary aldosteronism (PA) can be caused by either a unilateral aldosterone-producing adrenal adenoma, or bilateral idiopathic hyperaldosteronism (IHA). After confirming peripheral elevation in aldosterone related to renin, patients typically undergo imaging of the adrenal glands by computer tomography (CT) or magnetic resonance imaging (MRI). Adrenal venous sampling (AVS) is a useful adjunct to CT or MRI. It is utilized to lateralize aldosterone hypersecretion. Advocates for AVS believe that most patients with PA should undergo AVS prior to surgical management. Others argue that patients younger than 35 years old with a unilateral lesion consistent with an adrenal adenoma on imaging do not require AVS. Although studies have demonstrated the accuracy of AVS, few have evaluated how AVS alters management. Our study aimed to determine how often AVS changed the management of these patients.

Methods: Patient data was collected retrospectively from the electronic medical records at our institution. All patients over the age of 18 that received AVS from 2007-2016 were included. Bivariate analysis was preformed.

Results: A total of 86 patients underwent AVS during. Seventy-four patients had AVS that achieved successful selective cannulation of the adrenal veins. Of these 74 patients, 66 had a pre-procedural CT scan and 8 had an MRI. Four patients had no adrenal abnormalities on pre-procedural imaging. Nineteen patients had lateralization to the right, 44 to the left, and 7 had bilateral adrenal abnormalities on imaging. AVS results indicated no lateralization in 39 patients, lateralization to the right in 17, and to the left in 18. Thirty-two (43.24%) had AVS lateralization that was concordant with pre-procedural imaging. Forty-two (56.76%) had AVS lateralization that was not concordant with pre-procedural imaging. Of those patients that had non-concordance, the AVS did not lateralize in 37(86.05%) patients, lateralized unilaterally when the imaging was bilateral in 3 (6.98%) patients, lateralized to the contralateral side of imaging in 2 (4.65%) patients. Three patients in the concordant group were lost to follow up. We found that because of non-concordance, there was a change in management in 38 (51.35%) patients.

Conclusion: We found that over half of patients had AVS that was non-concordant with pre-procedural imaging. All of these patients had a change in management. The majority of these patients had AVS that did not lateralize, and thus had the IHA subtype despite having imaging suggestive of a unilateral adenoma. Therefore, these patients were treated medically rather than surgically. Five patients had AVS lateralization that was not suggested on imaging or was contralateral to imaging, and this information helped guide surgical management. Our results indicate that AVS frequently alters the management of PA, and therefore, should be routinely performed in PA patients at least 35 years old prior to adrenalectomy.

ORAL ABSTRACTS

26. ESTABLISHMENT OF A NEW PEDIATRIC SURGERY FELLOWSHIP PROGRAM RESULTS IN A SIGNIFICANT REDUCTION OF PEDIATRIC SURGERY CASES PERFORMED BY RESIDENTS IN THE ASSOCIATED GENERAL SURGERY PROGRAM

JR Potts

Accreditation Council for Graduate Medical Education (ACGME)

Presenter: John R Potts III, MD

Invited Discussant: Benjamin Jarman MD, La Crosse, WI

Background: The number of ACGME-accredited general surgery derivative subspecialty programs has increased by 20% over the last 15 years. The number of programs accredited by other organizations or not accredited is unknown. The effect of these subspecialty programs on associated general surgery (GS) programs is largely undocumented. This study examined the effect of establishing new pediatric surgery fellowship (PSF) programs on the operative pediatric surgery (PS) experience of residents in the associated GS programs.

Methods: ACGME GS residency graduate caseload data prior to 2002-3 is not available. Therefore, only PSF programs established after that year were considered. The academic year (AY) in which the first fellow completed each of the remaining PSF programs was recorded and the assumption made that the fellow entered the program two years before. The total number of PS cases reported by each completing resident as surgeon in the associated GS programs from AY2002-3 to AY2016-7 were recorded. The PS operative experience of residents in the GS programs affiliated with new PSF programs was examined prior to- and after- the entry of the first fellow into those programs, with a minimum 6 GS programs in each analysis. Regression analysis and ANOVA were performed with Excel Analysis ToolPak®.

Results: 17 PSF programs have been accredited by ACGME since the 2002-3 AY. Two of those 17 are sponsored by children's hospitals, are not associated with a core GS program and were eliminated from further analysis. Therefore, 15 GS residency programs associated with newly established PSF programs were available for review. Because the AY in which the first fellow entered each of the new PSF programs ranged from 2002-3 to 2013-14, the number of years that the GS caseloads were available prior to- and after- the entry of those fellows into associated programs was equally variable.

Over the 8 years prior to the entry of the first PS fellow (representing from 6 to 15 GS programs and from 29 to 88 residents), the mean number of PS cases recorded by each resident in the associated GS programs increased from 51.72 to 64.67 ($p < 0.01$). Over the 10 years after the entry of the first PSF fellow (representing from 6 to 15 GS programs and from 45 to 93 residents), the mean number of PS cases recorded by each resident in the associated GS programs decreased from 64.67 to 40.56 ($p = 0.001$).

While the number of programs in those analyses varied from year to year, there were 9 GS programs in which resident caseloads were available for each of the five years prior to the entry of the first fellow into their associated PSF programs. The mean number of PS cases reported by GS residents in those programs increased from 52.84 to 58.71 ($p = 0.045$). There were 12 GS programs in which resident caseloads were available for each of the first five years after the entry of the first fellow into their associated PSF programs. The mean number of PS cases reported by GS residents in those programs declined from 65.71 the year of the first PSF fellow to 42.45 five years later ($p = 0.0085$).

Conclusion: The establishment of new PSF programs significantly diminishes the PS operative experience of residents in the associated GS program. Further study is required to determine both the resident perception and the overall impact of that effect as well as to determine whether a similar effect is seen with the establishment of new programs in other subspecialties.

ORAL ABSTRACTS

27. LONG-TERM FOLLOW-UP AND PREDICTORS OF CLINICAL SUCCESS IN 105 PERORAL ENDOSCOPIC MYOTOMY (POEM) PROCEDURES

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Presenter: Michael Ujiki MD

Invited Discussant: Erica Sutton MD, Louisville, KY

Background: Peroral endoscopic myotomy (POEM) has been shown to be safe and effective in the treatment of achalasia. However, the long-term durability of the procedure remains unknown. This study reports postoperative clinical and quality of life data in patients after POEM, and to investigate predictors of poor outcomes.

Methods: Single-institution prospective review of consecutive POEMs from an institutional review board-approved protocol was performed on 105 procedures between 2011 and 2018. Preoperative, perioperative, and long-term postoperative follow-up data were collected, as well as Reflux Symptom Index (RSI), GERD Health related quality of life (GERD-HRQL), Dysphagia scores, and Short Form-36 Health Survey version 2 (SF-36v2). Esophageal distensibility was assessed pre and postoperatively in the operating room. Categorical data was summarized as frequency and percentage, while continuous data was displayed as mean \pm standard deviation or median and interquartile range. A statistical mixed effects model with a random intercept per surgery was used to identify predictors of poor outcomes. Statistical significance was established at 0.05.

Results: The average age at surgery was 63.8 years (\pm 17.1), with an average preoperative BMI of 26.8 (\pm 6.5). One hundred procedures (95%) were performed on patients diagnosed with achalasia, 27 (25.7%) with Type I, 42 (40%) with Type II, and 25 (23.8%) with Type III. Five patients (4.8%) were diagnosed with diffuse esophageal spasm, and one (0.9%) with jackhammer esophagus. Average procedure length was 89 minutes (IQR 68-125). The average patient spent 1.4 (\pm 2.6) days in the hospital, with 28 patients (26.7%) going home the same day. There were six (5.7%) perioperative complications, including a perforation, prolonged subcutaneous emphysema, Clostridium difficile colitis, and three upper GI bleeds. There was a single 30 day mortality unrelated to the POEM. At a median follow-up of 19 months (IQR 9-43), the average Eckardt score was 1.2 (\pm 1.7), with 84 patients (90.3%) in remission (Eckardt score \leq 3). At the same time point, 45.2% of patients were on a once daily proton-pump inhibitor (PPI). We found that higher preoperative BMI predicted higher postoperative Eckardt scores ($p=0.0007$) and worse RSI scores ($p=0.0012$). Patients diagnosed with sigmoid esophagus preoperatively also suffered from worse outcomes, with respect to Eckardt scores ($p=0.0002$), GERD-HRQL scores ($p=0.0021$), and Dysphagia scores ($p=0.0064$). Patients who received longer myotomies experienced worse RSI scores ($p=0.0302$).

Conclusion: POEM is effective at long-term resolution of achalasia symptoms. High preoperative BMI or sigmoid esophagus may be potential risk factors for dysphagia recurrence. Patients who require a longer myotomy may be at higher risk for reflux symptoms postoperatively.



QUICK SHOT ABSTRACTS

QUICK SHOT ABSTRACTS

QS1. VENOUS THROMBOEMBOLISM CHEMOPROPHYLAXIS IN MASTECTOMY PATIENTS: A FIVE-YEAR FOLLOW-UP STUDY

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Mayo Clinic Rochester

Presenter: Trang Vu MD

Background: To investigate the effects over the past five years of an institutional practice change resulting in routine venous thromboembolic event (VTE) chemoprophylaxis for all patients undergoing mastectomy for invasive breast cancer. Chemoprophylaxis administration was independent of patients' Caprini scores (i.e., VTE risk profiles). The primary aim was to assess the effect on rates of VTE and hematoma. The estimation of the distribution of Caprini scores in patients undergoing mastectomy for breast cancer was a secondary aim.

Method: This institution's 30 day rates of VTE and hematoma requiring reoperation for patients undergoing breast surgery for invasive breast cancer since initiation of routine chemoprophylaxis in 2012 were retrospectively collected from NSQIP and confirmed by manual chart review. Caprini scores were prospectively collected and extracted from the electronic medical record. The VTE incidence after this practice change was compared to historic (prior to practice change) NSQIP incidence for this institution. Additionally, 30-day nurse follow-up assessing complications including VTE and hematoma are standard for this practice. We utilized this 30-day nurse follow-up as a supplementary assessment of the incidence of these complications after the practice change for patients not included in the NSQIP sample.

Results: A total of 275 patients undergoing mastectomy for invasive breast cancer were analyzed through NSQIP. The median Caprini score was 6 (range 2-13). The percent of patients with Caprini score of 6 or less was 59.3%. Since the practice change, 243 (88.4%) patients received preoperative heparin prophylaxis, and 199 (72.4%) patients received postoperative heparin prophylaxis, with all of these patients receiving at least 1 dose on the day of surgery or POD#1. Prior to the practice change, 147/752 (19.5%) of patients received any perioperative heparin. After the practice change, there were 0/275 (0%, 95% CI: 0-1.38%) with VTE in the NSQIP sample, compared to 4/522 (0.77%, 95% CI: 0.30-1.95%) prior to 2012, $p=0.07$. After the practice change, there were 8/275 (2.91%, 95% CI: 1.48-5.63%) patients who required reoperation for hematoma compared with a rate of 2% prior to 2012 ($p=0.39$), which had included 3/147 (2.0%) for patients receiving heparin and 12/605 (2.0%) in patients who did not.

To supplement these findings and provide a greater sample size, data was also collected from this practice's 30-day nurse postoperative follow-up. From 2014 to 2017, there were an additional (not in the NSQIP sample) 790 patients who underwent mastectomy for invasive breast cancer, and 662/790 (84%) had a 30-day nurse follow-up documented. Among these 662, there were 2 VTE (0.3%, 95% CI: 0.08-1.09%) and 7 reoperations for hematoma (1.06%, 95% CI: 0.51-2.17%). The VTE were an acute thrombus involving the gastrocnemius and soleus veins and a small non-occlusive thrombus in the peroneal vein. Of the seven patients who underwent reoperations for hematoma, four received heparin preoperatively and postoperatively and the other three received heparin only preoperatively.

Conclusion: Initiation of the practice change resulted in a dramatic increase in chemical VTE prophylaxis administration, with an accompanying decrease in incidence of VTE. This was paired with a minimal change in incidence of hematoma. This indicates chemoprophylaxis can be administered on a standardized basis to prevent VTE at minimal risk to patients.

QUICK SHOT ABSTRACTS

QS2. VARIATIONS IN SURGICAL INSTRUMENTATION AND SUPPLY COSTS IN BARIATRIC SURGERY

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Presenter: Harry Sax MD

Background: Minimally invasive weight loss surgery is frequently performed in the US, but the costs associated with surgical instrumentation and supplies are unclear. Factors that influence cost include the choice of surgical staplers and reloads, bioabsorbable staple line reinforcement materials, and the use of robotic technology. The goal of our study was to examine variations in costs for common weight loss surgeries.

Method: We identified all laparoscopic or robotic sleeve gastrectomies and roux-en-y gastric bypasses (RNYGB) in CY 2018. Intraoperative costs were quantified for each type of procedure and were further categorized by function. Two supply manufacturers were anonymized as "A" and "B". Average costs for each type of procedure and the proportion of cost represented by each supply type were calculated. Stapler handles, required reloads and staple line reinforcement materials were further analyzed separately. Cost comparisons between normally distributed variables were made using the student's T-test.

Results: A total of 174 laparoscopic sleeves, 54 robotic sleeves, 50 laparoscopic RNYGB, and 15 robotic RNYGB were performed. The mean intraoperative supply costs were $\$5690 \pm 1381$ for robotic RNYGB vs. $\$3363 \pm 837$ for laparoscopic RNYGB ($p < .001$), and $\$4269 \pm 1038$ for robotic sleeves vs. $\$2689 \pm 660$ for laparoscopic sleeves ($p < .001$). For laparoscopic sleeves, the majority of costs were attributed to stapler reloads (33%), staple line reinforcement (19%), and stapler handles (12%); for robotic sleeves, robot supplies (45%), stapler reloads (27%), staple line reinforcement (6%), and stapler handles (6%); for laparoscopic RNYGB, stapler reloads (61%) and stapler handles (9%); for robotic RNYGB, robot supplies (42%), stapler reloads (41%), and stapler handles (2%). Advanced energy sealing and dissecting instruments also accounted for a significant proportion of costs in laparoscopic sleeves and RNYGB (12% and 10%, respectively), but accounted for a small share of costs in robotic sleeves and RNYGB (0.4% vs 1.6%, respectively). Laparoscopic sleeves used fewer stapler reloads per case compared to robotic sleeves (5.9 vs 7.0, $p = .002$), but more staple line reinforcements (3.2 vs 1.7, $p < .001$). There were no significant differences in stapler reloads per case between laparoscopic and robotic RNYGB (13.4 vs 12.9, $p = .751$) or staple line reinforcements (0.1 vs 0.53, $p = .164$). When comparing costs between manufacturers A and B, stapler handles from manufacturer B were 20% lower in cost, but each stapler reload was 46% to 100% higher in cost.

Conclusion: Compared to robotic surgery, laparoscopic surgery is associated with lower intraoperative costs for both sleeve gastrectomies and roux-en-y gastric bypasses. Furthermore, fewer stapler reloads were used in laparoscopic sleeve gastrectomies. Stapler handles, stapler reloads, and staple line reinforcements represent the majority of costs in laparoscopic surgery, while robot-specific supplies accounted for the largest share of cost in robotic surgery. In this era of increased cost awareness, surgeons should be provided with the cost of their supplies to make informed decisions.

QUICK SHOT ABSTRACTS

QS3. CONDITIONAL RECURRENCE FREE SURVIVAL AFTER RESECTION OF COLORECTAL LIVER METASTASIS: PERSISTENT DELETERIOUS EFFECT OF RAS AND TP53 CO-MUTATION

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Presenter: Yoshikuni Kawaguchi MD, PhD

Background: Various clinicopathologic factors have been shown to be predictive of recurrence after liver resection for colorectal liver metastases (CLM). Traditionally, survival and prognostic factors are assessed once at the time of liver resection. However, the probability of recurrence and the risk factors associated with recurrence after CLM resection are not constant over time. The recurrence probability calculated after a given interval without recurrence (i.e., conditional recurrence free survival [RFS]) after resection of colorectal liver metastases (CLM) may better account for these changes compared to traditional survival estimates. We aimed to evaluate clinical factors and biologic markers that affect conditional RFS estimates for patients undergoing initial liver resection for CLM.

Method: Patients who underwent initial liver resection for CLM and had tumor mutational data were identified from a prospectively maintained database. RFS and risk factors for recurrence were evaluated for patients at the time of initial liver resection and repeated for patients who were 1-year recurrence-free and 2-year recurrence-free to assess the changes in RFS and risk factors depending on a pre-defined time of interest.

Results: Of 2226 total patients, 452 met the inclusion criteria. Of these, there were 191 patients without recurrence at one year (1-year recurrence-free group) and 97 patients without recurrence at two years (2-year recurrence-free group). The rates of 5-year RFS were 11.4%, 26.7%, 52.5% for all patients at the time of resection, the 1-year recurrence-free group, and the 2-year recurrence-free group, respectively. RAS/TP53 co-mutation was the only risk factor independently associated with increased risk of recurrence for all groups: all patients (hazard ratio, 1.86; $P < 0.001$), 1-year recurrence-free group (hazard ratio, 1.85, $P = 0.005$), 2-year recurrence-free group (hazard ratio, 3.35, $P = 0.008$). Clinicopathologic factors including nodal factor, tumor number and size, and number of cycles of preoperative chemotherapy were no longer the risk factors for recurrence for patients who were recurrence-free for two years after CLM resection, although they were associated with recurrence in the total cohort and in the 1-year recurrence-free group. Patients with RAS/TP53 co-mutation had significantly lower RFS vs. RAS/TP53 wild-type tumors in the 1-year recurrence-free group (median RFS, 1.6 year vs. 2.4 year; $P = 0.002$) and in the 2-year recurrence-free group (median RFS, 3.0 year vs. 5.5 year; $P = 0.003$).

Conclusion: Conditional RFS serves as a useful tool for updating prognosis after a given time interval without recurrence after CLM resection. Importantly, RAS/TP53 co-mutation exerts a persistent deleterious effect on recurrence for all patients irrespective of recurrence-free interval.

QUICK SHOT ABSTRACTS

QS4. A COMPREHENSIVE, MULTI-INSTITUTIONAL APPROACH FOR QUANTIFYING ACTUAL COSTS OF POSTOPERATIVE COMPLICATIONS

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Presenter: Ryan Merkow MD, MS

Background: In order to measure the value of surgical care, robust data on the actual cost of individual complications is required. However, currently available information on actual costs are limited as hospitals are reluctant to share their data, and Medicare payments are essentially set rates by Diagnosis-Related Group (DRG) thus masking any actual additional costs.. Our objective was to estimate the most robust data on the actual costs of individual 30-day postoperative complications to date.

Method: Using standardized ACS NSQIP clinical data for all surgical specialties, 30-day postoperative complications were assessed. Total direct and indirect cost information was obtained from a diverse group of hospitals including an academic medical center (AMC), large community (LC) hospital, and small community (SC) hospitals. Risk-adjusted independent actual costs were determined for 15 individual complications using multiple approaches, including multivariable logistic regression. Annual hospital specific cost for each complication was calculated by multiplying the cost of each complication by the number of complications that occurred.

Results: From 4 diverse hospitals, data were examined for 6,387 patients undergoing surgery from January 1, 2016 to December 31, 2016. The majority of operations were orthopedic (38.9%), general surgery (15.3%) or colorectal (13.9%). The most frequent complications were prolonged ileus (after colectomy; 18.8%), readmission (4.8%), anastomotic leak (after colectomy; 3.6%), surgical site infection (2.1%), and return to the OR (2.0%). The complications with the greatest risk-adjusted actual cost per event were prolonged ventilation (\$44,646, 95% CI \$21,981-\$67,312), return to the OR (\$29,561, 95% CI \$25,100-\$34,012), cardiac event (\$28,213, 95% CI \$20,078-\$36,347), unplanned intubation (\$23,016, 95% CI \$11,636-\$22,206), sepsis (\$16,903, 95% CI \$8,292-\$25,513), pneumonia (\$16,824, 95% CI \$11,441-\$22,206), anastomotic leak (\$16,185, 95% CI \$3,090-\$29,279) and prolonged ileus (\$11,723, 95% CI \$7,991-\$15,456). Surgical site infection was associated with an excess risk-adjusted cost of \$5,459 (95% CI \$2,191-\$8,727). The annual cost burden for the three most expensive complications by hospital type were return to the OR (range: \$1,768,225 [SC]-\$33,450,393 [AMC]), readmission (range: \$2,060,154 [SC]-\$22,488,693 [AMC]) and prolonged ventilation (range:\$589,117 [SC]-\$21,651,975).

Conclusion: Based on actual internal cost data from 4 diverse hospitals, these costs of postoperative complications represent the most robust estimates reported to date. Accurate cost data are critical to help focus quality improvement efforts and to calculate the value of improving surgical quality.

QUICK SHOT ABSTRACTS

QS5. THE PROTECTIVE EFFECTS ALTERNATIVE PLATELET PRODUCTS ON INJURY INDUCED VASCULAR PERMEABILITY AND COMPROMISE

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Presenter: Shibani Pati MD, PhD

Background: Platelets are critical regulators of hemostasis, inflammation and homeostatic vascular function. In US blood-banking practice, platelets (PLTs) are stored in incubators at 22°C for up to 5 days. Storage of PLTs at 22°C for 5 days is associated with a decline in hemostatic and vasculo-protective functions of PLTs as well as an increased risk of bacterial contamination. A freeze dried platelet product (FDP) can increase availability of PLTs in austere settings and also circumvent complications of storage by prolonging the shelf life of PLTs without cold storage and significantly enhancing the safety of transfused platelet units. Aside from hemostasis, PLTs maintain vascular stability in trauma and hemorrhage. In this project we sought to determine if a lyophilized or freeze dried platelet (FDP) can recapitulate the protective effects of fresh PLTs on vascular endothelial cell (EC) permeability. We hypothesized that lyophilization would not alter the vasculo-protective effects of PLTs.

Method: In vitro: Human lung microvascular endothelial cells (HMVEC-L) were utilized for assessment of endothelial barrier function by measuring changes in trans-endothelial electrical resistance (TEER) with and endothelial impedance system (ECIS). HMVEC-Ls were treated with PLTs and FDP (Thrombosomes from Cellphire Inc.) (10, 25 and 50x10⁶/ml). In vivo: Vascular Permeability: A Miles permeability assay was used to study the effects of test groups: Platelets (3x10⁸), FDP (3x10⁸) and vehicle control (200 ul) on vascular permeability induced by VEGF-A in immunodeficient NOD-SCID mice (n=5 mice/group).

Results: In vitro Endothelial Barrier Function: FDP treatment induced an increase in EC barrier resistance, in a dose dependent manner, very similar to the effect exhibited by fresh platelet treatment (32.4%, 34.2%, and 37.6% increase with PLT treatment; 20.8%, 30.3%, and 38.4% increase with FDP treatment). Challenge to EC barrier integrity with Thrombin, a known inducer of EC permeability, demonstrated that FDP can block Thrombin induced permeability (resistance decrease of 18.8% with thrombin alone, an increase of 8.8% after FDP treatment).

In vivo Vascular Permeability: In the Miles Assay of permeability, both IV FDP and Fresh PLTs treatment of mice significantly ($p < 0.05$) attenuated vascular permeability induced by VEGF-A by 9-fold.

Conclusion: Lyophilized platelets (FDP) have similar EC barrier protective properties to fresh PLTs. These results suggest that the lyophilization process does not affect the vasculo-protective properties of the platelets and that FDP may be a feasible alternative to fresh PLTs. FDP has numerous logistical and safety advantages. FDP has diminished risk of contamination and can be stored over long periods of time for use in remote and austere settings where PLT availability is limited.

QUICK SHOT ABSTRACTS

QS6. SURGICAL RESECTION IS ASSOCIATED WITH AN OVERALL SURVIVAL ADVANTAGE FOR SMALL (1-2 CM), MODERATE AND WELL DIFFERENTIATED PANCREATIC NEUROENDOCRINE TUMORS

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Presenter: Emanuel Eguia MD, MHA

Background: Histologic differentiation has increasingly been recognized to be the most important determinate of long term outcome in patients with pancreatic neuroendocrine tumors (PNETs). The vast majority of patients undergoing surgical resection for small, localized PNETs have well-differentiated tumors with limited malignant potential. The value of resection in these cases remains uncertain.

Method: The National Cancer Data Base was queried to identify all patients treated for non-metastatic PNETs ≤ 2 CM in size between 2004 and 2012. Kaplan-Meier (KM) analysis stratified by histologic differentiation and treatment type and cox proportional hazard modeling stratified by size and adjusted for age, Charlson-Deyo score, income, insurance, facility type, tumor location and treatment (surgery vs. observation) were used to determine the relative importance of surgical intervention in overall survival.

Results: 1,744 patients met inclusion criteria. 1,488 (85.3%) underwent resection; 256 (14.7%) underwent observation. 1,255 (72.0%) were 1.1-2.0 CM; 396 (22.7%) were 0.6-1.0 CM and 93 (5.3%) were 0-0.5 CM in size. 1,235 (70.8%) were well or moderately well differentiated; 26 (1.5%) were poorly differentiated; 483 (27.7%) had unknown histopathology. Median follow up was 43.3 months. Patients undergoing resection were less likely to be ≥ 65 years (31.0% vs. 49.2%, $p < 0.001$) than those undergoing observation. There were no other significant differences between patients undergoing resection and those undergoing observation with regard to demographics or comorbid disease characteristics. Five-year overall survival (OS) was 90.9% for patients undergoing resection and 68.9% for those undergoing observation ($p < 0.001$). On KM analysis stratified by histologic differentiation, resection was associated with improved OS for patients with well and moderately differentiated tumors (median OS: not reached vs 79.5 months, $p < 0.001$) but provided no survival advantage for patients with poorly differentiated tumors (median OS: 20.7 vs 26.9 months; $p = 0.365$). On risk adjusted Cox analysis, age ≥ 65 (HR 4.26, 95% CI [1.61, 11.29]), Charlson-Deyo index ≥ 2 (HR 2.15, 95% CI [1.41, 3.30]), community hospitals (HR 2.22, 95% CI [1.01, 4.87]), low income (HR 2.02, 95% CI [1.32, 3.09]), being uninsured (HR 2.96, 95% CI [1.46, 5.99]), and observation (HR 2.43, 95% CI [1.75, 3.38]) were associated with a significant increase in the risk of death (all $p < 0.050$). When cox analysis was stratified by size, surgical resection was a significant predictor of improved OS for tumors > 1.0 CM ($p < 0.001$) but not for tumors 0.6-1.0 CM ($p = 0.054$) or tumors ≤ 0.5 CM in size ($p = 0.168$).

Conclusion: The vast majority of patients undergoing resection for small PNETs have well differentiated tumors. Surgical resection is associated with improved overall survival in patients with PNETs 1-2 CM in size.

QUICK SHOT ABSTRACTS

QS7. SHOULD I STAY OR SHOULD I GO: THE COMMUNITY PATIENT'S DECISION-MAKING PROCESS IN CHOOSING WHERE TO HAVE HEPATO-PANCREATO-BILIARY SURGERY

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Presenter: Jesse Chou MA

Background: The factors patients consider when selecting a hospital, surgeon or deciding on traveling outside the community for cancer treatment remain poorly understood. Patient knowledge and perspectives towards regionalization and the burden associated with traveling are also poorly defined. The goal of this study is to evaluate awareness of the volume-outcome relationship and analyze factors in patient decision-making at a university-affiliated community hospital.

Method: Patients treated for HPB malignancies at West Michigan Cancer Center were asked to participate. A survey was constructed and completed either during post-operative clinic or by mail. The standardized evaluation instrument assessed the following domains: Awareness of the idea of the volume-outcome relationship, patient decision-making, and logistical considerations of care. Variables were measured using a Likert scale, and survey responses were compared using the Chi-square test of independence, or Fisher's exact test.

Results: Fifty-one patients with a cancer diagnosis participated in the study (85% response rate). Of those, 45% had pancreas resections and 55% had hepatobiliary resections. 60% of patients were unaware of the volume-outcome relationship. No demographic factors were found to significantly differ between patients who were and patients who were not aware of the importance of operative volume on outcomes ($P>0.05$). Furthermore, there were no statistically significant differences in patient preferences between those that were and those that were not aware of operation center volume ($P>0.05$). The majority of patients reported that the most important factor in selecting where to have surgery was their doctor's recommendation, followed by qualities such as reputation and confidence in their surgeon. Of those who responded, the majority (57.4%) of patients were willing to wait two to three weeks and only 24.8% of patients were willing to travel more than two hours to have an operation performed at a hospital with a high volume. Perceived burdens associated with traveling included distance to home or family, which 23.5% of patients cited as a significant factor.

Conclusion: A majority of patients in our community are unaware of the volume-outcome relationship in complex HPB surgeries. The recommendation from the patient's doctor, the perceived reputation of the surgeon, and the consequent confidence in the surgeon were the factors most influential in their decision-making. The majority of patients in our community were unwilling to travel >2hrs for care at a high volume center. Patients expressed financial difficulties, lack of family support and concerns with follow-up as impediments to traveling for care. While warranting further study, increased knowledge of how patients served by community hospitals make decisions to travel or stay may contribute to understanding impediments or limitations to regionalization of care, and may emphasize the importance of developing high quality cancer programs in the community to provide better patient centered care.

QUICK SHOT ABSTRACTS

QS8. PANCREATICOGASTROSTOMY AS A FISTULA MITIGATING STRATEGY FOR HIGH RISK PANCREATIC ANASTOMOSIS DURING PANCREATICODUODENECTOMY

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Presenter: Michelle Huyser MD

Background: Clinically relevant postoperative pancreatic fistula (CR-POPF) heavily dominates the spectrum of complications of pancreaticoduodenectomy (PD), leading to prolonged length of stay and increased rates of re-admission, re-operation, and mortality. It occurs more frequently in patients with “high risk” pancreas as defined by soft gland texture and small pancreatic duct. The consensus on the most effective fistula mitigating strategy in high risk pancreatic anastomosis is still lacking. We hypothesized that selective use of pancreaticogastrostomy (PG) in patients with high risk pancreas is associated with considerable decrease in the rate of CR-POPF compared with a standard two-layer pancreaticojejunostomy (PJ).

Method: An IRB-approved retrospective review of all PD’s performed at a single institution between 2009 and 2018 was conducted focusing on the type of procedure, clinical and biochemical parameters, intraoperative surgeon’s assessment of gland texture (soft or hard) and duct size (<3 mm was considered “small”). Primary end-points included morbidity, mortality and CR-POPF rates. The pancreatic remnant was classified as “high risk” if at least one risk factor was present (soft gland or small duct). The use of PG during the study period was restricted to patients with high risk remnants, while PJ was performed in the settings of both high risk and low risk, per surgeon’s discretion.

Results: A total of 222 patients underwent PD for benign (22.1%) and malignant (77.9%) disease. PDAC was the most common malignancy (61.6%). PJ was performed in 145 cases, including 110 low risk and 35 high risk gland remnants; PG was done in 77 (all high risk). There was no difference in the length of surgery, blood loss, transfusion requirements, re-operation, re-admission, overall morbidity (Clavien Grade III and above), and mortality. The rate of GI bleeding was significantly higher in PG group: 10.3% vs. none in PJ group ($P=0.002$), but only 2.6% required intervention. Overall CR-POPF rate was 13.5% with no difference between PJ and PG group: 13.8% vs. 12.9% respectively. Risk-stratified analysis revealed that the use of PJ in “low risk” group was associated with CR-POPF rate of 6.4%, however, there was a 6-fold increase in CR-POPF rate when PJ was used in patients with high risk gland: 37.1%, $p=0.0001$. The use of PG lead to significant decrease in CR-POPF rate compared to PJ in the similar group of patients: 12.9% vs. 37.1% respectively, $p=0.007$. Univariate analysis of 16 variables showed soft gland texture, affiliation with “high risk” group, and unfavorable histology (any etiology other than PDAC or chronic pancreatitis) were associated with increased risk of CR-POPF amongst PJ patients; duct size and blood loss did not reach significance. On multivariate analysis, soft gland texture remained the strongest independent predictor of CR-POPF (OR=11.25, 95% CI 3.035-41.7), while risk group and histology appeared collinear.

Conclusion: PJ is the anastomosis of choice after PD in patients with low risk pancreas (firm texture, duct >3 mm) as the rate of CR-POPF is quite low. PG can be used as a fistula mitigating strategy after PD in patients with high risk gland remnant as it leads to substantial reduction in the leak rate compared to PJ. Increased rate of GI bleeding after PG calls for further refinement in technique and postoperative management.

QUICK SHOT ABSTRACTS

QS9. PULSELESS ELECTRICAL ACTIVITY (PEA) FOLLOWING TRAUMATIC CARDIAC ARREST: SIGN OF LIFE OR DEATH?

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Presenter: Sharjeel Israr MD

Background: Considered a sign of life, pulseless electrical activity (PEA) is commonly encountered following pre-hospital traumatic cardiac arrest. As a result, attempted resuscitation is often performed for patients who present with PEA despite a prolonged duration of pre-hospital CPR with no return of spontaneous circulation. Some recommend cardiac ultrasound (CUS) to determine cardiac wall motion (CWM) prior to terminating resuscitation efforts. This purpose of this study was to evaluate the outcomes of patients with traumatic cardiac arrest presenting with PEA, with and without CWM.

Method: Trauma patients who underwent pre-hospital CPR were identified from the registries of two level-1 trauma centers within the same county over four years (2014-2017). Pre-hospital management by emergency medical transport services was guided by advanced life support protocols. The on-duty trauma surgeon directed the resuscitation and performed or supervised CUS and determined CWM. Western Trauma Association Resuscitative Thoracotomy (RT) guideline had been previously adopted as local practice RT guidelines for both trauma centers. Survival to hospital admission and survival to hospital discharge were determined for the cohort.

Results: Among 277 patients who underwent pre-hospital CPR, 20 had ROSC on arrival to the emergency department (ED) and four (20%) survived to hospital discharge. Among the remaining 257 patients, 147 had no vital signs without organized electrical cardiac activity (ASYSTOLE), and 110 patients had PEA. Rate of survival to admission was 3.4% for ASYSTOLE vs. 9.1% for PEA ($p = 0.054$). Rate of survival to hospital discharge was zero for ASYSTOLE, and 0.9% for PEA ($p = 0.43$). Among the 110 PEA patients, survival to discharge stratified by blunt vs. penetrating mechanism of injury was 0/69 patients for blunt vs. 1/41 patients for penetrating mechanism. Average CPR duration was 20.8 and 15.7 minutes for pre-hospital and ED, respectively. Duration of pre-hospital CPR was not associated with survival to admission for PEA patients (16.5 min vs. 21.2 min, $p = 0.08$). Twenty-five PEA patients (22.7%) underwent RT and none survived to admission. Seventy-nine PEA patients (71.8%) received CUS and 22 had CWM. CWM was significantly associated with survival to hospital admission (22.7% vs. 3.5%; $p = 0.016$), but not to hospital discharge (zero with or without CWM).

Conclusion: Following pre-hospital traumatic cardiac arrest, PEA and ASYSTOLE patients were observed to have similarly low rates of survival to hospital discharge, in contrast to the 20% rate of survival to discharge observed in patients with ROSC on arrival to the ED. Although CUS may be used to help distinguish PEA patients who are more likely to survive to admission, PEA on arrival following prehospital CPR is associated with dismal meaningful survival irrespective of CWM.



ePOSTER ABSTRACTS

ePOSTER ABSTRACTS

(Kiosk #1)

P1. PARATHYROID CRYOPRESERVATION: TECHNIQUE AND ESTABLISHING AN INSTITUTIONAL PROGRAM

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Presenter: Iheoma Nwaogu MD

Background: Institutions caring for patients with complex or re-operative parathyroid disease should have a plan for managing possible permanent hypoparathyroidism following parathyroid surgery. Parathyroid cryopreservation serves as one such insurance policy for high-risk patients. The technique was first described in humans in 1926 and later re-introduced, as utilized in modern practice, in 1974.

Methods: This video describes the experience of a single institution with a thriving parathyroid cryopreservation program maintained for over 2 decades. We present the technique of parathyroid cryopreservation as well as the regulatory hurdles involved in establishing and maintaining a cryopreservation program.

Results: Approximately 30 - 40 parathyroid glands are cryopreserved annually with 1 -2 glands re-implanted for permanent hypoparathyroidism. No major complications have been noted. Modest additional costs and documentation are required for establishing and maintaining a cryopreservation program.

Conclusion: Parathyroid cryopreservation remains a viable option in minimizing the risk of permanent hypoparathyroidism. Establishing and maintaining a program has modest cost and documentation requirements that are well compensated by the associated benefits. Further, establishing a clear protocol for patient selection, tissue handling, storage, and re-implantation is critical for the success of such a program.

ePOSTER ABSTRACTS

(Kiosk #1)

P2. LEGACY OPERATIONS: THE FINNEY AND JABOULAY GASTRODUODENOSTOMIES

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Presenter: Flavio Rocha MD

Background: With the advent of antisecretory medications and therapeutic endoscopy, operations to treat structured peptic ulcers are less frequently performed. Here we present two eponymous operations, the Finney and Jaboulay strictureplasties, along with relevant historical information about each pioneering surgeon.

Methods: Two patients presented to our clinic with obstructive symptoms and post-bulbar strictures which were demonstrated via imaging and endoscopy. In both cases, biopsies were negative for malignancy. Each patient failed multiple attempts at endoscopic dilation. Our first patient underwent an open Finney gastroduodenostomy, intended to rule out cancer via surgical biopsies and address symptoms via a widely-draining gastroduodenostomy that traverses the pylorus and stricture. Our second patient underwent a Jaboulay gastroduodenostomy, which diverts immediately around the stricture yet preserves gastroduodenal continuity. Both approaches were via upper midline laparotomy. Each anastomosis was completed in two layers of running suture.

Results: Patient one discharged from the hospital by the fourth postoperative day without incident. Her surgical pathology was benign. Patient two had self-limiting delayed gastric emptying, but otherwise did well and discharged by postoperative day five. At the time of outpatient follow-up, both patients were doing well clinically with no obstructive symptoms.

Conclusion: These operations are being performed with less frequency in the era of proton pump inhibitors and therapeutic endoscopy. However, they are still useful treatment modalities in cases refractory to medical and endoscopic interventions. The Finney operation is particularly useful in cases when there is concern for occult malignancy. Both operations preserve in-line gastroduodenal flow, which is often preferable to a gastrojejunostomy with respect to anatomic and physiologic factors.

Both surgeons were important pioneers during the late nineteenth and early twentieth centuries. Their legacies are enhanced by the ongoing use of these eponymous procedures.

ePOSTER ABSTRACTS

(Kiosk #1)

P3. SAFETY OF POSTOPERATIVE TELEPHONE SCREENING FOR SIMPLE EMERGENCY GENERAL SURGERY PROCEDURES - IMPLICATIONS FOR HEALTH CARE RESOURCE USE

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Presenter: Tanner Carlock BSc

Background: Replacing in-person follow-up visits with other methods of follow-up in emergency general surgery populations has not been well studied. We, therefore, measured the safety and efficacy of a simple telephone screening tool to reduce the need for postoperative follow-up visits for simple emergency general surgical procedures (sEGS).

Methods: Patients presenting to the Emergency Department requiring a sEGS (laparoscopic appendectomy, laparoscopic cholecystectomy, umbilical hernia repair, inguinal hernia repair) were screened for pain, bowel function, nausea/vomiting, wound drainage, jaundice, and fever/chills. Follow-up appointments were made if critical thresholds were reached. The rate of in-person visits avoided and missed complications attributable to the telephone screening was determined.

Results: Of 402 patients screened, 275 (68.4%) patients avoided an in-person visit, 62 (15.4%) were scheduled for a follow-up for threshold responses, 27 (6.7%) were scheduled for a follow-up per patient request despite not meeting thresholds, and 38 (9.5%) went to an Emergency Department before being screened. Of those who did not meet screening thresholds 82.2% had no complications, 3.1% required hospital readmission, 1.2% had a surgical site infection, 0.6% had a non-surgical site infection, 12.9% reported pain, or constipation requiring provider management and 3.1% reported unrelated complications.

Conclusion: Outpatient telephone follow-up for sEGS safely reduced the need for follow-up visits with a low rate of missed complications and need for readmission. This may lead to significant reduction in the cost of care delivery.

ePOSTER ABSTRACTS

(Kiosk #1)

P4. DEVELOPMENT OF A NOVEL RISK SCORE TO PREDICT NEED FOR COLECTOMY AT TIME OF ADMISSION FOR ACUTE ULCERATIVE COLITIS FLARE

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Presenter: Nicholas McKenna MD

Background: Up to 25% of patients with ulcerative colitis (UC) require hospitalization for a flare of their disease, and within those, up to 30% of patients require same hospitalization colectomy. Surgical intervention within 24 hours of admission results in decreased morbidity and total hospitalization costs, but existing predictive models for colectomy have focused on risk of colectomy following three days of inpatient medical management rather than upon admission. Therefore, we developed a scoring system to be used at the time of admission to identify individual patient risk of colectomy to inform earlier surgical consultation and potential intervention.

Methods: Patients admitted non-electively for ulcerative colitis were identified in the 2006-2014 Nationwide Inpatient Sample and grouped into either the surgical (total abdominal colectomy [TAC] on hospital day 3 or later) or medical group (no procedure code for TAC). TAC on hospital day 3 or later was chosen under the assumption that these patients had failed first-line medical therapy. Patients who had a TAC earlier than hospital day 3 were excluded. Multivariable logistic regression identified independent risk factors present on admission for requiring colectomy. Point values were assigned to these variables based on their maximum likelihood estimates to develop a risk score. Boot-strap validation (200 replications) was performed.

Results: We identified a total of 51,009 non-elective hospitalizations for UC, of which 1,226 (2.4%) were associated with TAC on or after hospital day 3. Using NIS weighting methodology to represent care across the United States as a whole, our data reflect an estimated 257,527 admissions and 5,965 operations nationwide over the same time period. Fifteen factors were independently associated with need for colectomy, in descending order of impact: weight loss, extent of colon involvement, hospital transfer status, hospital location/teaching status, *Clostridium difficile* infection, hospital bed size, coagulopathy, chronic blood loss anemia, fluid/electrolyte disorders, age, sex, obesity, deficiency anemia, tobacco use, and race/ethnicity. Assigned point values ranged from a maximum of 15 points for weight loss to a minimum of -9 points for African American race. Overall, individual patient hospitalization scores ranged from -9 to 90 points. The observed rate of TAC dramatically increased with increasing score, from a <1% average observed colectomy rate among patients with scores < 27 points, to an average rate of 40% among patients with scores 67 and higher ($p < 0.001$). The model showed excellent discrimination (c-statistic of 0.82) and excellent calibration (boot-strap validated c-index 0.81) for prediction of need for colectomy, which ranged from 0%-90%. When evaluating potential thresholds for clinical intervention, patients with scores <43 ($n=45,556$, 89% of studied patients) had a 5% expected rate of TAC, whereas patients with scores >54 ($n=1,077$, 2% of studied patients) had a 15% expected rate of TAC. This rose to 40% in patients with scores >68 ($n=116$, 0.2% of studied patients).

Conclusion: A validated risk score to predict failure of medical therapy and the need for same-hospitalization colectomy during non-elective hospitalization for UC was developed using data available upon admission. Utilization of this score will allow objective assessment of risk to guide the decision to pursue surgical consultation and allow for earlier surgical intervention with improved patient outcomes.

ePOSTER ABSTRACTS

(Kiosk #1)

P5. FOR PATIENTS UNDERGOING ONCOLOGIC LIVER RESECTION, PREOPERATIVE PATIENT-REPORTED SYMPTOM ASSESSMENT IS MORE PREDICTIVE OF RECOVERY THAN SARCOPENIA

HA Lillemoe, RK Marcus, BJ Kim, N Narula, CH Davis, XS Wang, YS Chun, CW Tzeng, JN Vauthey, TA Aloia

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Presenter: Heather Lillemoe MD

Background: Following oncologic liver surgery, adjuvant therapies are often required. The ability to Return to Intended Oncologic Treatment (RIOT) is associated with improved survival outcomes. Given those relationships, RIOT is used as a quality metric to objectively measure patient recovery after cancer surgery. Previous analyses have focused on age, patient comorbidities, and sarcopenia as preoperative predictors of delayed recovery, however, these are questionably correctable. The objective of this study was to compare the prognostic capability of preoperative patient distress measured with patient-reported outcomes (PRO) tools to the traditional predictive factors for postoperative outcomes and RIOT.

Methods: Anthropometric analysis was performed for consecutive patients undergoing oncologic liver resection from 2015-2017. Sarcopenia was defined as SKM (skeletal muscle) area of ≤ 38.9 cm²/m² for women and ≤ 55.4 cm²/m² for men per previous publications, and was determined from preoperative CT scans performed within 30 days of surgery. Other preoperative factors including patient-reported data from a validated MDASI-GI symptom assessment tool were collected. Univariate analysis was used to compare outcomes, including surgeon-determined readiness to RIOT. Multivariate analysis was then used to determine what preoperative factors were predictive of 'delayed RIOT' (defined as clearance to RIOT > 4 weeks postoperatively).

Results: Of 100 patients, 55% were sarcopenic. Compared to non-sarcopenic patients, sarcopenic patients were older (median age 57 vs. 53 years, $p=0.159$), more likely to be male (60% vs. 33%, $p=0.008$), and more likely to have received preoperative chemotherapy (62% vs. 44%, $p=0.083$). Thirty-four percent of non-sarcopenic patients reported severe symptoms or severe symptom interference to daily function preoperatively compared to 18% of sarcopenic patients ($p=0.102$). Perioperative factors were comparable between groups, including open-incision surgical approach (69% sarcopenic and 67% non-sarcopenic, $p=0.205$), major hepatectomy (25% sarcopenic and 33% non-sarcopenic, $p=0.388$), and concurrent multivisceral resection (11% sarcopenic vs. 20% non-sarcopenic, $p=0.205$). On univariate analysis, sarcopenia was not associated with significant differences in postoperative outcomes. Major complication rates were 7% for sarcopenic patients and 4% for non-sarcopenic patients ($p=0.534$). Wound infection rates (both 7%, $p=0.906$) and median length of stay (both 5 days, $p=0.671$) were similar. The number of patients with delayed RIOT was comparable between the sarcopenic and non-sarcopenic patients ($p=0.283$). Only the use of preoperative blood thinners (OR 3.7, 95% CI 1.01-14.02, $p=0.048$) and the presence of severe preoperative symptom burden on the PRO tool (OR 5.7, 95% CI 1.9-18.6, $p=0.002$) were predictive of delayed RIOT on multivariate analysis.

Conclusion: In this study of patients undergoing oncologic liver resection with high rates of sarcopenia, this factor was not associated with higher rates of adverse outcomes. Sarcopenia also had no impact on recovery/readiness to RIOT. When considering preoperative factors that predict recovery, patient-reported symptom assessment provides more predictive information about oncologically-relevant outcomes than do comorbidities, age, or body composition. This study highlights the importance of patient-reported measures and the opportunity to address preoperative symptom burden.

ePOSTER ABSTRACTS

(Kiosk #1)

P6. WHO DESERVES A DAMAGE CONTROL LAPAROTOMY IN EMERGENCY GENERAL SURGERY? POST-HOC ANALYSIS RESULTS OF THE SHAPES STUDY

MC Hernandez, BR Bruns, EJ Finnesgard, H Phelan, T Ennis, DS Morris, ML Lauerman, JM Aho, TM Scalea, MD Zielinski

Mayo Clinic Rochester

Presenter: Matthew Hernandez MD

Background: In emergency general surgery (EGS), indications for damage control laparotomy (DCL) remain unclear. Recently, the American Association for the Surgery of Trauma (AAST) generated an EGS grading system that standardizes disease severity classification. We aimed to evaluate the performance of the AAST EGS grade when used as a predictor of DCL utilization in patients undergoing urgent/emergent bowel resection and anastomosis hypothesizing that increasing grades would be predictive of DCL utilization.

Methods: A post-hoc analysis of data from the AAST-sponsored prospective multi-center SHAPES study, which evaluated EGS patients undergoing urgent/emergent bowel resection and anastomosis, was performed. AAST EGS grades were generated from operative findings. DCL was defined as any operative intervention where the abdomen was temporarily left open to facilitate resuscitation or for excessive contamination. Patients with and without DCL were compared. Multivariable logistic regression was used to identify factors predictive for DCL utilization and results were expressed as odds ratios (ORs) with corresponding 95% confidence intervals (CIs). The receiver operating characteristic (ROC) separately evaluated the predictive capacity of the AAST EGS grade for patients requiring DCL and reported as an AUC with 95% CI.

Results: There were 391 patients with a mean (\pm SD) age of 61 (\pm 16.8) years, 53% male. Disease severity distribution was grade I (n=0, 0%), II (n=106, 27%), III (n=113, 29%), IV (n=123, 31%), and V (n=49, 13%). Most common diagnoses were small bowel obstruction (n=162, 41%), perforated viscera (n=78, 20%), and mesenteric ischemia (n=74, 19%). Forty-four patients (11.2%) received DCL. DCL indications included resuscitation (n=35, 79%), or extensive contamination (n=9, 11%). Median [IQR] AAST EGS grade was increased in patients with DCL (4 [3-5] versus 3 [2-4], $p=0.001$). In patients with DCL and without, overall mortality was associated with AAST EGS grade II (25% vs 1.9%), III (42.9 vs 1.8%), IV (11.8% vs 4.7%) and V (43.8% vs 6.1%), $p=0.003$. On regression, independent predictors of DCL included AAST EGS grades IV and V (OR 2.2, 95%CI 1.3-5.4), hemoglobin <10 mg/dL (OR 2.6, 95%CI 1.1-6.1), lactate >2 mEq/L (OR 3.2, 95%CI 1.4-7.3), vasopressor use (OR 2.3, 95%CI 1.1-5.4), and hypothermia (OR 2.5, 95%CI 1.1-5.6) but not age or sex (model sensitivity was 0.79 and there was good fit ($p=0.86$)). As a single predictor for DCL, the AAST EGS grade provided excellent discrimination (AUC 0.81 (95%CI 0.74-0.86, $p=0.0001$)).

Conclusion: After disease severity stratification, incrementally poorer outcomes were demonstrated in patients who received DCL compared to those that did not. Increasing AAST EGS grade as a single predictor provided excellent discrimination for patients that required DCL utilization. The AAST EGS grading system may better identify and risk stratify patients that require DCL for several EGS conditions.

ePOSTER ABSTRACTS

(Kiosk #1)

P7. ROUTINE BRONCOSCOPY WITH URGENT INTUBATIONS: SAFER, FASTER, BETTER

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Presenter: Matthew Bloom MD

Background: Accidental bronchial intubation is the most common critical incident associated with emergency endotracheal intubation. Urgent intubation in the ICU has higher rates of complications than elective intubations. Auscultation, capnometry, and CXR are routinely employed to confirm proper tube placement after urgent intubation.

Methods: Prospectively collected data on patients of a Level I trauma center between July 2016 and January 2018 who were urgently intubated in the SICU were reviewed. Video assisted intubations were performed by surgical residents and fellows with a V-MAC, immediately followed by flexible bronchoscopy (FB). Endotracheal tube (ETT) distance to the carina was determined by bronchoscopy, and ETT repositioned under direct visualization as indicated. Intubations were characterized into 5 groups as right mainstem intubation (RM), critical (0-1cm), suboptimal (1.1-2.4cm), in range (2.5-5cm) and proximal (>5cm). Demographic, clinical, and intubation data including distance from the carina, quality of vocal cord visualization, assessment of performance, and time for STAT CXR to be performed and interpreted were recorded.

Results: A total of 101 patients met inclusion criteria. Mean age was 63.2 ± 15.6 years, 60% were male, and mean height was 166.6 ± 11.2 cm. Indications for intubation included hypoxemia in 55%, tachypnea in 27%, hemodynamic instability in 12%, and altered mental status in 41%. 4% were in C-spine precautions and 2% had active oropharyngeal bleeding. The quality of the vocal cord visualization was good in 66%, fair in 26%, and poor in 8%.

Intubations were performed by R2's, R5's, and fellows. 78% of attempts were successful on the first pass. The ETT was secured on average at 23.3 ± 1.6 cm at the teeth. The rate of inappropriate tube position was 31%, including 7% rate of RM placement and 7% within 0-1cm to the carina. No esophageal intubations were recorded. Rates were similar in both men and women. The ETT was adjusted 44% of the time under direct FB visualization, and debris was suctioned 66% of the time. The median time for an CXR to be obtained was 44 minutes, and for an official interpretation, 222 minutes. 69% of these CXR were obtained solely to verify ETT position and could have been eliminated. No adverse events were attributed to FB at the time of intubation.

Conclusion: Underappreciated, but consistent with published data, the rate of misplaced ETT during urgent intubation is very high. The use of a bronchoscope as an intubating adjunct allows for the immediate correction of tube placement, provides airway clearance, and eliminates the time and patient radiation exposure associated with post-intubation CXR. Given the difficulties of intubation under emergency circumstances, the performance of bronchoscopy at the time of intubation should be considered as an additional step to be performed routinely.

ePOSTER ABSTRACTS

(Kiosk #1)

P9. SURGICAL FACULTY DIVERSITY AT SURGICAL MEETINGS

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Presenter: Julianne Bingener-Casey MD

Background: Women are just one underrepresented group in surgical sciences. Previous research reported the under-representation of women in surgical authorship, along with short lived careers in surgical research. However, having a senior female co-author appeared to improve the publication frequency of junior female authors in some medical specialties. This study investigated if the presence of a female moderator/ co-chair during educational sessions of scientific surgical meetings is associated with higher representation of invited women speakers in that session.

Methods: Scientific sessions and educational panels from recent annual meetings of three large surgical societies were included. Business and industrial meetings, individual named lectures, presidential addresses, breakfast and lunch sessions were excluded from the study. The participant's gender was classified based on their first name. For unfamiliar or equivocal names, online search of the participants by name, institution, city, and country was used. If the gender of the presenter could not be determined using the online search, (e.g. international presenters without institutional website) it was labeled for the study as unknown. The data was collected by session. The frequency and distribution of invited women moderators, panelist, and speakers at the educational surgical conferences was evaluated. We also examined the female representation in the panel discussion sessions compared to the overall abstract/poster presentation sessions. JMP Pro was used to run univariate and multivariate logistic regression analysis.

Results: From 6 large annual surgical meetings in 2016, 2017 and 2018, 437 sessions were included in the analysis; 228 (52%) were panel discussions and 209 (48%) were abstract presentation or poster sessions. With respect to presentations, 2193 (66%) were given by men, 940 (28%) were given by women and in 6% of the presentations the gender could not be determined with our methods. As recorded in the scientific program, at least one female presenter was noted in 324, (74%) sessions; 161 sessions (37%) had at least one woman in the presiding group. Univariate analysis showed that the odds of having at least one female presenter is 2.11 ($p<0.0023$) when there is at least one female organizer. It also showed that the odds of having a female presenter is 3.62 ($p<0.0001$) in the abstract & poster presentations compared to panel discussion sessions. In multivariate analysis, the odds of having a female presenter is 2.49 ($p<0.0004$) when at least one of the organizers are female. On the other hand, the odds of having a female presenter is 4 ($p<0.0001$) times for abstract/poster sessions compared to panel discussion sessions.

Conclusion: During recent surgical conferences, one in 4 presentations was given by a woman surgeon. Women had higher odds of presenting an abstract and poster presentations than participating in panel discussions. Women had higher odds of presenting during a surgical panel when there were women in the organizing group. Understanding the reasons behind this distribution can address pathways to improve women participation in surgical research and education. Similar mechanisms may apply to other underrepresented groups.

ePOSTER ABSTRACTS

(Kiosk #1)

P11. DUODENAL GISTS: IS AGGRESSIVE SURGICAL RESECTION ALWAYS NECESSARY?

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John Wayne Cancer Institute at Providence Saint John

Presenter: Abhinreet Uppal MD

Background: Duodenal GISTs (GI stromal tumors) are rare tumors that pose a surgical challenge, even when confined to the duodenum. Long-term outcomes after resection have not been detailed outside of small case series. Therefore, this study examines the determinants of radical resection for duodenal GISTs as well as the impact of local vs. radical resection on overall survival (OS).

Methods: The NCDB was queried for non-metastatic duodenal GISTs from 2004 to 2014. Predictors of radical resection were determined using multivariate logistic regression for the entire cohort as well as in the subgroup of patients without extra-duodenal extension. Factors that decreased OS were identified with Cox proportional regression analysis.

Results: Of 1084 patients, 727 (67.1%) had a local excision, 147 (13.5%) had a radical resection, and 210 (19.4%) did not have their duodenal GIST resected. Treatment at an academic center (HR:1.78, $p<0.01$), T3 (HR: 6.38, $p=0.01$) or T4 (HR:12.06, $p<0.01$) stage, and extra-duodenal extension (HR: 3.05, $p<0.01$) were all associated with radical resections. After adjustment for demographics, other tumor features, and adjuvant therapy, radical resection decreased OS (HR:1.64, $p<0.03$) along with Black race (HR:1.55, $p<0.04$), non-private insurance (HR:3.42, $p<0.01$), treatment at a community hospital (HR:1.56, $p<0.01$), and extension into non-pancreaticobiliary organs (HR:1.64, $p<0.01$). Of the 845 (78%) patients with tumors confined to the duodenum, T3 (HR: 4.9, $p=0.02$) or T4 (HR:11.3, $p<0.01$) staged tumors and treatment at an academic center (HR:1.8, $p=0.03$) were associated with having a radical surgical resection. Radical resection (HR: 2.34, $p=0.002$) and lack of insurance (HR:4.75, $p<0.01$) were both associated with decreased OS in these patients. Grade, T stage, N stage, Mitoses and receipt of systemic therapy did not impact OS on univariate or multivariate analysis.

Conclusion: Patients that had a radical resection of a duodenal GIST with or without extra-duodenal extension had a decreased OS compared to those that had a local excision only. Tumor factors such as T stage and mitoses did not impact survival. Radical resection may not be necessary for duodenal GISTs, including those with aggressive tumor features, and especially when confined to the duodenum.

ePOSTER ABSTRACTS

(Kiosk #2)

P12. FUNCTIONAL PROTEOMIC ANALYSIS OF COLORECTAL LIVER METASTASES PREDICTS RESPONSE TO OXALIPLATIN

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Presenter: Yun Shin Chun MD

Background: First-line systemic therapy for colorectal liver metastases (CLM) includes oxaliplatin, for which reliable predictive biomarkers are lacking. The aim of this study was to identify proteins in CLM that predict response to oxaliplatin.

Methods: Reverse phase protein arrays were generated from CLM resected from 286 patients. Samples were probed with 186 validated antibodies. Pathologic response in resected liver metastases was quantified as percent viable tumor cells. Statistical analysis was performed using Pearson's correlations, and survival estimated using the Kaplan-Meier method and compared using the log-rank test.

Results: Twelve proteins were found to be strongly correlated with pathologic response to oxaliplatin, including proteins associated with metabolic dysregulation (IGF1R and p70-S6K1), cell cycle (cyclin B1), and epithelial-mesenchymal transition (N-cadherin). Mitochondrial transcription factor A (TFAM), a protein involved in mitochondrial DNA repair, had the highest correlation with pathologic response to oxaliplatin (Pearson $r=0.60$, $p<0.001$, Figure). Patients with low TFAM expression had significantly higher overall survival than those with high TFAM (median survival 81 versus 46 months, $p=0.028$). Cyclophilin F, involved in mitochondria-mediated cell death, was strongly correlated with TFAM levels ($r=0.69$, $p<0.001$) and with pathologic response to oxaliplatin ($r=0.53$, $p<0.001$).

Conclusion: Functional proteomic analysis in CLM identified TFAM and cyclophilin F as biomarkers that predict response to oxaliplatin, suggesting the importance of mitochondria-mediated DNA repair and cytotoxicity in oxaliplatin efficacy.

ePOSTER ABSTRACTS

(Kiosk #2)

P13. EARLY GOALS OF CARE DISCUSSION IS WARRANTED IN ELDERLY TRAUMA PATIENTS WITH HIGH GRADE BLUNT LIVER INJURY

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Presenter: Cherisse Berry MD

Background: The elderly population is the most rapidly expanding segment of the United States population. While the incidence of geriatric trauma continues to increase, outcomes following severe blunt liver injury (BLI) have not been well defined in this group. We sought to investigate independent predictors of mortality among elderly trauma patients who sustain severe BLI.

Methods: A retrospective study of the National Trauma Database (NTDB) identified patients with isolated, high-grade BLI from 2014-15. Patients were stratified into two age groups: non-elderly (<65 years) and elderly (≥ 65 years). Each age group was further stratified into two management groups: patients who received an operation in the first 24 hours of admission and patients who received non-operative management including embolization. Demographics, patient characteristics, and outcomes were compared. Multivariable logistic regression was used to determine independent predictors of mortality, controlling for Charlson Comorbidity Index Score, trauma center type, abbreviated injury score, systolic blood pressure and heart rate on admission, and need for operative intervention.

Results: A total of 1,133 patients with isolated, high-grade BLI were identified. Most patients were male (51.7%) and Caucasian (65.4%). Overall mortality was 2.6 %. Within the first 24 hours of admission, 107 patients required surgery, and 1,011 patients were managed non-operatively. In patients who required an operation within the first 24 hours of admission, mortality rate was 20.4% in the non-elderly group versus 42.9% in the elderly group ($p = .06$). In a multivariable logistic regression for mortality, age was an independent predictor for mortality (AOR 1.04, $p < .001$). For patients < 65 years, need for operative intervention was associated with a 55 times greater likelihood of death (AOR 55.1, $p < .001$). In patients ≥ 65 years, operative intervention was associated with a 122 times greater likelihood of death (AOR 122.09, $p = .005$).

Conclusion: Age is an independent predictor for mortality in patients with isolated high-grade BLI. Given the exceedingly high risk of death among elderly trauma patients who sustain severe BLI, a goals of care discussion is warranted early in the hospital course, particularly when surgery is required.

ePOSTER ABSTRACTS

(Kiosk #2)

P14. MICROCHIPPING THE BREAST: AN EFFECTIVE NEW TECHNOLOGY FOR LOCALIZING NON-PALPABLE BREAST LESIONS FOR SURGERY

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University of California Los Angeles

Presenter: Maggie DiNome MD

Background: The aim of our study was to evaluate a new, FDA-approved radiofrequency identification (RFID) tag for localization of non-palpable breast lesions for surgery. We hypothesize that this new technology will be effective, easy to adopt, and a suitable alternative to current localization procedures.

Methods: Patients were enrolled in a non-randomized, single arm, open label pilot study. Patients who required surgical excision of a non-palpable breast lesion, either benign or malignant, were eligible for the study and underwent image-guided placement of an RFID tag in lieu of a wire prior to surgery. Primary study endpoints included percentage of patients with successful placement and retrieval of the tag. Secondary endpoints included percentage of patients with marker migration, days prior to surgery of tag insertion, patient, radiologist and surgeon experience with the new technology, distance of tag from skin and from incision, and positive margin and re-excision rates for cancer.

Results: The study evaluated 50 patients, and all patients had successful placement and retrieval of the RFID tag. No patients demonstrated tag migration based on post-placement mammogram and specimen radiograph. Tags were placed up to 14 days prior to surgery. Likert questionnaire data revealed that most patients agreed or strongly agreed that the procedure went smoothly and was easier than expected. Radiologist and surgeon data suggested that the RFID tag was as fast and reliable as the wire localized procedure. Surgeons also generally agreed or strongly agreed that the distance gauge was helpful to guide the surgical dissection. The greatest depth of a tag from the overlying skin was 6 cm, and the furthest radial distance of a tag from the incision was 12 cm. Of the 33 patients who had surgery for in situ or invasive cancer, 1 had a positive margin on final pathology (3%) and two underwent re-excision (6%) for a positive margin or close margin.

Conclusion: These data suggest that radiofrequency identification (RFID) is an effective method of localizing non-palpable breast lesions for surgery. Unlike other technologies, the LOCALizer probe detects distance from the tag which was identified by the surgeons to be a helpful feature. The RFID approach allowed retrieval of lesions through incisions that were remote from the tag, which could improve oncoplastic approaches for breast surgery. In addition, this unique feature may have contributed to the low positive margin rate seen in this study. RFID technology appears to offer advantages over current localization procedures and is being evaluated further in a larger prospective institutional study which is currently underway.

ePOSTER ABSTRACTS

(Kiosk #2)

P15. ROBOTIC LEARNING CURVES APPEAR TO MATTER LITTLE IN A EDUCATIONAL INSTITUTION

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Presenter: Jacopo Crippa MD

Background: Robotics technology has been applied to many surgical procedures. Currently, the Da Vinci® Surgical System (Intuitive Surgical, Inc., Sunnyvale, CA) is the most common robotic system for surgical procedures with approximately 753,000 operations worldwide and 563,000 in the U.S.A. From 2009 to 2012 the number of robotic colorectal procedures has quadrupled. Establishing a learning curve for this procedure is therefore important within an educational environment in order that fellowships can plan for the training required for residents and fellows who must transition their way to proficient and safe surgery. Other authors have already attempted to establish a learning curve for robotic colorectal surgery. These results describe a required training of 15 to 32 cases for surgeons to become proficient. However, results typically refer to a single center or single surgeon's experience. For this reason, we designed the present study to establish a learning curve of pelvic procedures for malignant disease among multiple surgeons in a high volume teaching multi-center, single-institution colorectal program.

Methods: A retrospective review of a prospectively maintained database of all patients who underwent robotic pelvic surgery for malignant disease from January 2008 until April 2018 at Mayo Clinic, Rochester, MN and Mayo Clinic, Jacksonville, FL was performed. Each surgeon within the cohort had performed more than 50 laparoscopic pelvic operations and a minimum of 10 mentored robotic cases before independent robotic cases were performed. Overall operative time was calculated from incision to skin closure. Trends over time and successive surgery was performed using a linear regression model where the dependent variable was surgical time in hours.

Results: 373 robotic pelvic procedures were performed by 10 surgeons and included in the analysis. The highest number of operation performed by a single surgeon was 169, the lowest 6. Average operation time varied from 4.5 hours to 8.4 hours with consistent times over increasing case volume. Linear regression models found no or little difference in operative time for each surgeon over the course of time and cases. Surgeon, male gender, BMI were factors that impacted operative time overall.

Conclusion: Within this teaching environment we could not establish a learning curve for robotic colorectal surgery for malignant pelvic disease. Individual surgeon operative times were more dependent on BMI, male gender and surgeon of record than case volume. This may be related to the previous laparoscopic experience of each surgeon, the variability of complex tertiary cases, and the education environment of our institution.

ePOSTER ABSTRACTS

(Kiosk #2)

P17. CAPITALIZING ON COMPETITION: SHARING DATA AMONG SURGEON PEERS REDUCES OPERATING ROOM COSTS

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Presenter: Jordan Weinberg MD

Background: Instrument choices are primarily influenced by a surgeon's training, experience, and individual preference. Cost is often of secondary interest, particularly in the absence of any contracted fiscal obligation to a hospital or surgery center. Surgeons, however, are often unaware of how their individual preferences compare with their peers with respect to cost. It is plausible that knowledge of comparative cost data would influence individual behavior, given the innate competition among members of a peer group including the phenomenon known as "last-place aversion." We hypothesized that dissemination of cost data among a surgeon peer group would result in behavioral change toward lowering variable costs. The purpose of this study was to evaluate how this intervention affected operating room costs for laparoscopic appendectomy.

Methods: Cost data for laparoscopic appendectomies between July-December 2016 were disseminated to surgeons belonging to the same department of a teaching hospital. Specifically, case cost comprised the sum total of all disposable items opened for each operation. Each surgeon was provided his or her own cost data along with blinded data for his or her peers for comparison. Cost for each disposable item used among the group was provided for reference. Laparoscopic appendectomy costs performed following the intervention (June-December 2017) were compared with costs prior to the intervention, for both individual surgeons and the group as a whole. Skew and kurtosis were reviewed to assess normality. Difference scores for each surgeon were computed by subtracting the mean cost post-intervention from the mean cost pre-intervention. Percent change was calculated by dividing the difference score by the pre-intervention mean for each surgeon. A random effects linear regression model clustered on surgeon was then used to assess the average cost savings of the intervention while accounting for the intra-correlation of surgeon costs.

Results: One outlier from the post-intervention cohort with a standardized cost score of 4.3 was removed from the analysis, resulting in a cohort of 89 cases pre-intervention and 74 post-intervention. Following outlier removal, data were normally distributed. Mean cost per case decreased for 10 of the 11 surgeons analyzed (minimum decrease of \$7 to maximum decrease of \$725). The remaining surgeon increased from an average of \$985±235 pre-intervention to \$1003±227 post-intervention. The average cost savings for the group was \$238±226 and was associated with an average reduction in cost of 21%. A linear regression analysis clustered on surgeon suggested the intervention was associated with an average cost reduction of \$260 ($\beta = -260$, SE = 39, $P < .001$).

Conclusion: Following dissemination of cost data among surgeon peers, a reduction in variable costs was observed. Most notably, significant savings occurred in the absence of any mandate or incentive to reduce costs. Providing individual comparative cost data to surgeons to facilitate innate competition among peers is a simple and effective tool for reducing operating room costs.

ePOSTER ABSTRACTS

(Kiosk #2)

P20. UTILIZATION AND EFFICACY OF NEO-ADJUVANT CHEMOTHERAPY IN THE MULTI-MODALITY MANAGEMENT OF GASTRIC CANCER

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Mayo Clinic Arizona

Presenter: Nabil Wasif MD, MPH

Background: Neo-adjuvant chemotherapy for the treatment of gastric cancer has become standard of care following publication of seminal randomized trials showing survival benefit. To what extent use of neo-adjuvant chemotherapy has disseminated into everyday practice remains relatively unknown. Furthermore, it is unclear if response to systemic treatment correlates with improved long term survival following surgical resection.

Methods: The National Cancer Database was queried to identify patients diagnosed with gastric cancer who underwent surgery from 2006-2014. Univariate and multivariate regression analyses identified factors associated with response to neoadjuvant chemotherapy. Kaplan Meier curves with log rank tests and Cox proportional hazard modeling identified factors associated with long-term survival.

Results: The utilization of neoadjuvant chemotherapy increased from 15 to 45% over the study period. Of a total of 6,746 patients, 206 (3.05%) had a complete pathologic response (CR). Overall, 35% of patients were downstaged following neo-adjuvant chemotherapy, 47% remained at the same stage and 19% were upstaged. Factors associated with CR were median age (64 vs. 62, $p=0.006$), male sex (84.5% vs. 75.8%, $p=0.004$), lower clinical AJCC stage ($p<0.001$), and grade ($p<0.001$). Long-term survival was associated with a graded response to neo-adjuvant chemotherapy, with a median survival of 57 months (95% CI 49-NA) for patients who were downstaged, 38 months (95% CI 35-41) for those who remained at the same stage and 30 months (95% CI 28-32) for those who were upstaged on final pathology. Patients who had a CR did not reach median survival and had a 64% 5 year survival compared to 25% for patients who were upstaged ($p<0.001$). On multivariate analyses, patients with a CR trended towards a lower hazard of mortality (HR 0.48 95% CI 0.23-1.02).

Conclusion: Increased utilization of neo-adjuvant chemotherapy for gastric cancer was seen over the time period of this study. Response to neo-adjuvant chemotherapy is associated with improved long term survival and can be used as a favorable prognostic marker for gastric adenocarcinoma. Although complete pathologic response is rare, it is associated with a 64% 5 year survival.

ePOSTER ABSTRACTS

(Kiosk #2)

P21. SURGEON EXPERIENCE PREDICTS RECURRENCE FOLLOWING LAPAROSCOPIC INGUINAL HERNIA REPAIR IN 1378 PATIENTS

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NorthShore University HealthSystem

Presenter: Merritt Denham BS

Background: Laparoscopic inguinal hernia repair is a common procedure with over 500,000 cases per year. Hernia recurrence has been reported with varying rates of less than 1% to over 5%. Previously reported factors of recurrence include history of smoking and chronic pulmonary obstructive disease (COPD). A learning curve for surgeons performing laparoscopic inguinal hernia repair has also been widely identified. In the current study, we aim to identify pre and intraoperative predictive factors of recurrence, including the rate of recurrence throughout the learning curve.

Methods: Consecutive patients (n=1378) in a prospectively managed database were selected for further review. All patients underwent laparoscopic inguinal hernia repair from 2009-2018. All procedures were performed by four board-certified general surgeons at a single institution. Patients were split into two groups based on recurrence. A chi-square analysis was conducted between patients with a recurrence and those who did not recur. An additional multivariable Cox proportional hazards analysis was used to identify predictive factors of recurrence.

Results: The recurrence rate was 3.8% (n=52). The majority of patients were male (n=1267, 91.9%) with a mean age of 57.3±15.6 years. Univariate analysis identified COPD as a predictor, with a higher percentage of patients in the recurrence group having COPD (10.8% vs. 2.5%, p=.042). The first 50 cases of a surgeon's experience recurred compared to cases 51-100 and 100-150 (10.6% vs. 5.1% vs. 1.5%, p<.01). In multivariable regression analysis, procedures by the least experienced surgeon (HR=3.31, 95% CI 1.27-8.63, p=.01) were more likely to recur. The least experience surgeon had a recurrence rate of 7.6%, while the other three surgeons had a combined recurrence rate of 3.5%. COPD (HR=2.21, 95% CI 0.8-6.13, p=.13) was not predictive of recurrence.

Conclusion: Overall, our recurrence rate was 3.8%. We found surgeon experience level was a predictive factor of hernia recurrence, corroborating prior research. Cases performed earlier in a surgeon's learning curve were more likely to recur than those performed later. Additionally, the higher recurrence rate for our least experienced surgeon further emphasized the effect of surgeon experience on recurrence.

ePOSTER ABSTRACTS

(Kiosk #2)

P22. REGIONAL DISSECTION FOR MELANOMA: DOES OBSERVATION LEAD TO LOSS OF REGIONAL CONTROL?

A Uppal, M Fujita, JF Thompson, N Mozzillo, OE Nieweg, HJ Hoekstra, DF Roses, VK Sondak, M Kashani-Sabet, BJ Coventry, M Sim-Shin, DE Elashoff, R Elashoff, AJ Cochran, MB Faries

Cedars-Sinai Medical Center

Presenter: Abhinav Uppal MD

Background: The standard of care for patients with melanoma metastases found in sentinel lymph nodes (SLN) has recently changed. Two randomized trials have demonstrated no adverse impact on survival with close observation of such patients, though increases in clinically-apparent regional recurrences have been observed. There has been considerable debate regarding whether the increase in macroscopic nodal disease with observation makes definitive regional disease control more difficult to obtain. We evaluated factors related to in-basin nodal recurrence after complete dissection and compared patients whose dissections were done for microscopic (SLN positive) or macroscopic/palpable metastases.

Methods: Two data sources were used for this study: a large, prospective institutional database and the first Multicenter Selective Lymphadenectomy Trial (MSLT-I). Cases with multiple primary melanomas, multiple basin involvement, or in-transit metastases were excluded. Variables included age, sex, primary tumor stage, primary tumor location, N stage, number of lymph nodes removed and use of radiotherapy. Univariable and multivariable analyses examined factors related to in-basin nodal recurrence.

Results: In the retrospective cohort, 785 eligible patients were identified with disease in cervical (n=152), axillary (n=387) and inguinal (n=246) basins. Mean age was 48.9 years and 67% of patients were male. Mean numbers of lymph nodes removed were 29, 19, and 16 for cervical, axillary and inguinal basins respectively. Overall, there was an in-basin 4.8% failure rate after SLN-directed dissection and a 10.7% failure rate after dissection for palpable disease (HR 2.70, p=0.0018). Multivariable analyses within each basin site demonstrated that regional recurrence after dissection was independently related to:

Neck:	Number of nodes removed (HR for >20 nodes: 0.31, p=0.02)
	Palpable status (HR for palpable: 3.17, p=0.05)
Axilla:	Palpable status (HR for palpable: 3.55, p=0.04)
	Radiotherapy (HR for radiated: 2.86, p=0.02)
Groin:	Number of nodes (HR for >10 nodes: 0.33, p=0.01)

In MSLT-I, there was a trend toward increased post-dissection regional recurrence in observation patients who had clinical recurrences. The HR for regional recurrence after dissection for patients with clinical nodal recurrence relative to SLN metastases was 2.66 (95%CI 0.91-7.73, p=0.07).

Conclusion: While most patients undergoing complete dissection for regional metastases of melanoma will have long-term clearance of that basin, a clinically significant fraction will fail. These failures appear to be less likely when dissection is performed for disease that is clinically occult, particularly in cervical and axillary basins. Further research is warranted to determine whether the current shift to expectant management of regional nodes is associated with unacceptable loss of regional control in some patients and whether ultrasound surveillance can ameliorate that effect.

ePOSTER ABSTRACTS

(Kiosk #2)

P25. THROMBOELASTOGRAPHY AFTER CARDIOPULMONARY BYPASS, DOES IT SAVE BLOOD PRODUCTS?

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Presenter: Hadley Freeman MD

Background: The accurate assessment of anticoagulation reversal following cardiopulmonary bypass minimizes transfusion of blood products. Thromboelastography (TEG) is a functional coagulation test that measures mechanical properties of blood clot formation and fibrinolysis. The purpose of this study was to determine if TEG is associated with reduced blood product use and reduced surgical re-intervention following cardiopulmonary bypass compared to traditional coagulation tests.

Methods: A retrospective chart review was conducted of 698 patients who underwent cardiopulmonary bypass from a single Midwestern hospital from February 16, 2014 – February 16, 2015 (Period I) and May 16, 2015 - May 16, 2016 (Period II). Traditional coagulation tests guided transfusion during Period I and TEG guided transfusion during Period II. Intraoperative and postoperative administration blood products (red blood cells, fresh frozen plasma, platelets, and cryoprecipitate), reoperation for hemorrhage or graft occlusion, duration of mechanical ventilation, hospital length of stay and mortality were recorded.

Results: Use of a TEG-directed algorithm for transfusion of blood products following cardiopulmonary bypass was associated with a 13.5% absolute reduction in the percentage of patients being transfused during the intraoperative period (34.7% vs. 48.2%, $P < 0.001$). Fresh frozen plasma transfusion was the most conserved blood product with the use of TEG, and was observed to have a 50% utilization reduction (0.3 vs. 0.6 units, $P < 0.001$). Overall blood product utilization was not significantly different between study periods in the postoperative period. Use of TEG was not observed to significantly decrease mortality (2.9% vs. 1.9%, $P = 0.41$), time to extubation (6.5 vs. 7.2 hrs., $P = 0.16$), nor the need for reoperation due to bleeding (2.1% vs. 1.6%, $P = 0.63$). The median length of hospital stay was observed to decrease by 1 day after TEG guided transfusion was implemented (9 days vs. 8 days, $P = 0.01$).

Conclusion: Use of TEG-directed transfusion of blood products following cardiopulmonary bypass appears to decrease the need for intraoperative transfusions, but the effect on clinical outcomes has yet to be clearly determined. Further investigation on how the utilization of TEG throughout the recovery period following cardiopulmonary bypass may impact utilization of blood products is needed.

ePOSTER ABSTRACTS

(Kiosk #3)

P26. WHEN RURAL IS NO LONGER RURAL: DEMAND FOR SUB-SPECIALTY TRAINED SURGEONS INCREASES WITH INCREASING POPULATION OF A NON-METROPOLITAN AREA

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Presenter: Dorothy Hughes MHSA

Background: Anecdotal reports suggest that, although they are often grouped together, general surgical practice in larger, but non-metropolitan, communities may be distinct from a truly rural practice. Understanding the need for sub-specialty trained surgeons in these communities will help guide the training of surgeons interested in non-metropolitan careers. We hypothesize that in non-metropolitan communities, increasing population size correlates with increasing perceived need for sub-specialty surgeons.

Methods: We designed a mixed methods study, distributing an anonymous survey in partnership with the American College of Surgeons Advisory Council for Rural Surgery and conducting semi-structured interviews with selected participants. The survey was designed to elucidate practicing surgeons experiences with sub-specialization in non-metropolitan communities. We utilized purposive sampling to interview selected surgeons and achieve maximum variation, resulting in 16 interviews spanning 11 hours. Non-urban communities were defined as truly rural (<50,000 people) and either small (50,000-100,000 people) or large (>100,000 people) non-metropolitan communities. Census sub-regions were used to code geographic location of practice. Quantitative data were analyzed using linear regression. Qualitative data were analyzed thematically.

Results: We received 237 responses to the survey, 60% (141/237) from surgeons in practice for >20 years, 72% (170/237) in truly rural communities and 77% (183/237) without formal sub-specialty training. A desire to hire a sub-specialty trained surgeon as their next partner was associated with practice in a large non-metropolitan community (OR 4.5, 95% CI 1.2-16.5) but not in truly rural or small non-metropolitan communities. Census sub-region and a surgeon's number of years in practice did not correlate with desire to hire a sub-specialty surgeon. Key emergent themes identified on qualitative analysis included: 1) truly rural general surgery is a distinct specialty, 2) general surgery residency training is currently inadequate preparation for a truly rural practice, 3) truly rural surgeons voluntarily limit the scope of their practice to align with available hospital resources, 4) non-metropolitan surgeons specialize in response to their clinical interests and to market pressures from patients and referring physicians.

Conclusion: These data suggest that, while often lumped together into the category of rural surgery, surgical practice in communities of <50,000 people is distinct from surgical practice in larger non-metropolitan communities. Surgeons in these larger communities are increasingly looking to recruit sub-specialty surgeons as new partners and this may be in response to pressure from patients and referring physicians. A truly rural practice demands unique residency preparation while residents considering careers in large non-metropolitan communities may wish to pursue sub-specialty training.

ePOSTER ABSTRACTS

(Kiosk #3)

P27. CHANGING TRENDS IN NON-OPERATIVE MANAGEMENT OF MICROPAPILLARY THYROID CANCER

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Presenter: Simon Holoubek DO, MPH

Background: In 2010, an observational trial of non-operative management for papillary microcarcinoma in Japanese patients was published. It is unknown whether this trial has influenced practice patterns in the United States. The purpose of this study is to determine if there have been changes in the prevalence of non-operative management of papillary microcarcinoma over time.

Methods: Patients treated for papillary thyroid carcinoma (PTC) between 2004 and 2015 in the NCDB PUF were identified. Inclusion criteria were: classic or follicular variant, tumor size 1-10 mm, cN0 disease, and without extrathyroidal extension or metastatic disease. The use of non-operative management was trended over time and also compared for patients treated in 2004-2010 vs. those treated 2011-2015. Multivariate logistic regression was done to identify factors associated with non-operative status.

Results: A total of 65,381 patients with PTC were identified, and 344 (0.5%) were treated non-operatively. There was a statistically significant increase in non-operative management (80 vs 264, 0.3% vs 0.7%, $P < .001$) between the 2004-2010 and 2011-2015 cohorts. There was no significant difference in patient age, race, comorbidities or reason for non-operative management between the two time periods. The most common reason for non-operative status was surgery was not part of the planned first course treatment plan ($N=288$). Academic centers were more likely to manage patients non-operatively than any other centers (0.7% or 135 of 20,598 treated at academic centers). On multivariate analysis, male gender (HR: 0.767, $p < .05$), Hispanic race (HR: 0.571, $p < 0.01$), and Asian race (HR: 0.486, $p < 0.001$) were associated with non-operative management. Age ($p = 0.27$) was not associated with non-operative management.

Conclusion: The vast majority of patients with papillary microcarcinoma are being treated with an operation. However, a statistically significant increase in non-operative management of patients has occurred between 2004-2010 and 2011-2015. It is likely that more patients could be treated with non-operative management.

ePOSTER ABSTRACTS

(Kiosk #3)

P28. ENDOSCOPIC VACUUM ASSISTED WOUND CLOSURE (EVAC) DEVICE TO TREAT ESOPHAGEAL AND GASTRIC LEAKS: ASSESSING TIME TO PROFICIENCY AND COST

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Baylor Scott & White Healthcare

Presenter: Marc Ward MD

Background: Endoluminal Vacuum Therapy (EVAC) is an emerging procedure used to treat anastomotic leaks and/or perforations that would otherwise require surgery. The aim of this study was to determine the case volume required to become proficient in EVAC and the cost effectiveness of the procedure.

Methods: We retrospectively reviewed a prospectively maintained IRB approved database for all patients undergoing EVAC after esophageal and gastric complications between October 2013 and December 2017. Proficiency was determined by obtaining predicted estimates and analyzing the point at which average procedure time plateaued based on case volume. Cost analysis of the procedure was calculated based on cost of supplies and location where the procedure was performed.

Results: There were 50 patients (17 males, 33 female), with a mean age of 52.1 years. EVAC was placed in 23 (46%) patients with esophageal injuries and 28 (56%) with gastric injuries. Two advanced endoscopists performed all EVAC procedures in this study (1 surgeon, 1 gastroenterologist), with each performing exactly 50% of the cases. The average procedure time for all patients was 43.5 minutes and the average wheel in/wheel out time for all patients was 75.6 minutes. Analysis of the trend based on average procedure times for EVAC revealed that proficiency was obtained after 10 cases. Total cost of the procedure is significantly lower in the GI lab compared to the operating room (\$4528 vs \$11889). The majority of EVAC were performed in the GI lab (62%) compared to the operating room (38%).

Conclusion: Successful outcomes in managing anastomotic leaks or intestinal perforations non-operatively has led to an increased interest in EVAC. For advanced endoscopists, the time to proficiency is approximately 10 cases. Performing the procedure in the GI lab has a 2.5 reduction in total cost compared to the operating room.

ePOSTER ABSTRACTS

(Kiosk #3)

P29. PRIMARY CARE PHYSICIANS' PERCEPTIONS OF BARIATRIC SURGERY AND MAJOR BARRIERS TO REFERRAL

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NorthShore University HealthSystem

Presenter: Eliza Conaty BS

Background: Fewer than 1% of eligible Americans are undergoing bariatric surgery to treat obesity and obesity related comorbidities. Existing evidence suggests that lack of knowledge within the primary care specialty about the safety and efficacy of bariatric surgery greatly affects referral. The aim of this study was to analyze a large cohort of primary care physicians (PCP) clinical judgments regarding bariatric surgery and specifically identify major barriers to referral that could inform the implementation of an educational strategy to address underutilization of bariatric surgery.

Methods: A prospective anonymous electronic survey was sent to all primary care physicians at a multicenter community-based academic hospital system between March and June of 2018, with 151 respondents. The survey was composed of eleven questions in total, the first eight utilizing a five point Likert scale, with answers including strongly disagree, disagree, neutral, agree, and strongly agree. The final three questions utilized freeform answers of numbers or text where appropriate.

Results: Between 81% and 87% of PCPs supplied affirmative responses, either agree or strongly agree, to questions regarding the utility of bariatric surgery as an efficacious and valuable tool for the treatment of obesity and related comorbidities. PCPs reported an average BMI of 40kg/m² at which bariatric surgery is a patient's best option for weight loss, and an average BMI of 38kg/m² at which surgery is the best option for management of comorbidities. 85.4% of PCPs agree or strongly agree that having a BMI over 40kg/m² is a greater risk to a patient's long-term health than undergoing bariatric surgery. Despite these results, only 47.0% of PCPs claimed any familiarity with the NIH eligibility criteria for bariatric surgery and only 59.1% responded affirmatively that they were comfortable participating in the long-term care of a postoperative bariatric patient. The two highest reported barriers to referral for bariatric surgery together account for 40% of PCPs responses; 20.7% of PCPs report concern regarding surgical complications and/or long term side effects as the primary barrier for referral, and 18.6% report concern for ineffective weight loss after bariatric surgery as a primary barrier for referral. 15% of PCPs identified a lack of familiarity with bariatric surgical options as their primary barrier to referral. 10.7% of PCPs identified providing postoperative long term care for postoperative bariatric patients as their primary barrier to referral. The remaining 34.3% of PCPs responses included inadequate insurance coverage (8.6%), lack of knowledge about a bariatric surgical program at their institution (7.14%), patient reluctance (6.4%), fear of offending their patient (5.7%), and other responses including fundamental disagreements with bariatric surgery as a treatment modality (4.4%) as primary barriers to referral.

Conclusion: Our results indicate that despite largely positive attitudes toward use of bariatric surgery in an obese patient population, primary care physicians report significant barriers to confidently referring their own patients. Further, bariatric surgery is overlooked in a large group of patients with BMIs between 35 kg/m² and 40 kg/m². Educational strategies to address these barriers should target rates of specific surgical complications, weight loss statistics, best practices for postoperative bariatric care, and patient quality of life outcomes.

ePOSTER ABSTRACTS

(Kiosk #3)

P30. COMPARATIVE EFFECTIVENESS OF LYMPHADENECTOMY STRATEGIES DURING CURATIVE RESECTION FOR GASTRIC ADENOCARCINOMA

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University of Virginia

Presenter: Victor Zaydfudim MD, MPH

Background: The optimal extent of lymphadenectomy during subtotal or total gastrectomy for gastric cancer remains unclear. Due to the presence of differing perioperative outcomes between Eastern and Western series, the purpose of this study is to compare the long-term effectiveness of three lymphadenectomy strategies using data from modern Western studies. We hypothesized that, compared to the traditional extended lymphadenectomy (D2) approach, the less aggressive modified-extended lymphadenectomy (mD2) offers superior effectiveness due to reduced operative morbidity and comparable disease-free survival.

Methods: A Markov decision analysis model was created to simulate three lymphadenectomy approaches during curative resection for gastric cancer. Extent of lymphadenectomy was defined according to Japanese Gastric Cancer Association guidelines. A regional (D1) resection involves resection of perigastric lymph nodes directly attached to the stomach (stations 1-7). An extended (D2) resection includes lymphadenectomy along the hepatoduodenal ligament, common hepatic artery, celiac trunk, the full extent of the splenic artery, and including the splenic hilum lymph nodes (stations 8-12). The modified-extended dissection (mD2) is a D2 lymphadenectomy that spares the distal splenic artery and splenic hilar nodes, as well as the posterior common hepatic artery nodes. The primary outcome was quality adjusted life-years (QALY). Estimates for utility were derived from published time trade-off data and long-term quality of life surveys. Estimates for perioperative morbidity and long-term post-surgical outcomes were derived from published, prospective trials performed in the West. One-way and probabilistic sensitivity analyses incorporating all clinically-relevant variables were performed.

Results: The modified-extended D2 lymphadenectomy outperforms the traditional D2 lymphadenectomy (3.48 vs 3.21 QALY) over 5 years of follow-up. Both of these approaches outperform D1 resection (3.04 QALY). Monte Carlo simulations indicate that mD2 has a greater than 99% likelihood of outperforming D2, and a 100% likelihood of outperforming D1. Importantly, sensitivity analyses indicate that the advantage of the mD2 over the D2 approach is contingent upon a post-operative mortality rate < 10.1% (baseline estimate 3.2%). Similarly, in order for D2 to outperform D1, its mortality rate must remain < 7.5%. Analysis of disease state distributions show that the advantage of mD2 over other lymphadenectomy approaches is derived primarily through greater disease-free survival.

Conclusion: The modified-extended (mD2) lymphadenectomy approach offers superior long-term utility than traditional D1 and D2 resections. Taking into account modern perioperative outcomes, D2 lymphadenectomy also outperforms the D1 approach; thus, D1 lymphadenectomy is not recommended during gastric cancer resection.

ePOSTER ABSTRACTS

(Kiosk #3)

P31. SUCCESSFUL GENERATION OF TWO PANCREATIC ACINAR CELL PATIENT-DERIVED XENOGRAPHS DEMONSTRATE IN VITRO AND IN VIVO SENSITIVITY TO SINGLE AGENT OXALIPLATIN

MC Hernandez, JL Leiting, L Yang, T Ivanics, JR Bergquist, R Graham, S Murphy, RL Smoot, DM Nagorney, MJ Truty

Mayo Clinic Rochester

Presenter: Matthew Hernandez MD

Background: Pancreatic acinar cell carcinoma (PACC) is a rare pancreas malignancy with limited preclinical data available to understand its pathogenesis and management. Patient-derived xenografts (PDX) are clinically relevant preclinical models that can be used for a variety of translational application including modeling rare tumors and assessing therapeutic responses. We describe the successful creation of two resected PACC tumors that recapitulate the patient cancer phenotype and evaluated therapeutic responses to oxaliplatin therapy.

Methods: Surgically resected patient cancerous tissue was implanted into immunodeficient mice. Original patient and PDX-derived tumors were validated by a gastrointestinal pathologist. Whole genome mate pair sequencing (MPseq) was utilized for structural genomic analysis. Two and three dimensional cell culture assessed the antitumor activity to oxaliplatin and these results were used to select therapeutics for an in vivo therapy trial using PACC PDX models.

Results: Two PDX models were successfully engrafted from primary patient cancerous tissue. Histologic architecture was accurately recapitulated between primary and PDX-derived tissue in both models. Further, IHC staining for trypsin was similar in both patient and PDX tissues and electron microscopy elucidated similar micro-architecture. MPseq analysis demonstrated high human tumor purity in F1 and F2 generations. Six of these genes are listed in the COSMIC gene census of commonly somatically mutated genes casually implicated in cancer; ABL1, FHIT, PTEN, PTPRK, SMAD4 and TBL1XR1. Other key genes hit directly included; GRB2, BIRC6, PPP2CB, GRM1, ROR1 PTPRK and RIMS2. Two and three dimensional cell culture demonstrated sensitivity to oxaliplatin and this correlated with PDX tumor response.

Conclusion: We generated two novel PACC PDX models and these maintain individual patient's tumor histologic and microscopic structure. Genomic analysis demonstrated high human tumor purity and several genetic rearrangements consistent with known commonly somatically mutated genes implicated in cancer. Oxaliplatin demonstrated increased in vitro activity and correlated with in vivo treatment therapy which has substantial implications for individualized therapy in PACC. These PDX models will serve as a pre-clinical translational platform to assess new therapies based on actionable genetic targets for these uncommon tumors.

ePOSTER ABSTRACTS

(Kiosk #3)

P32. IS THE AMERICAN COLLEGE OF SURGEONS ONLINE COMMUNITIES A SAFE AND EFFECTIVE VENUE TO ASK FOR SURGICAL ADVICE?

K Bernardi, P Shah, EP Askenasy, C Balentine, MM Crabbe, MA Cerame, JA Harvin, L Huang, SG Millas, P Molt, TE Saunders, SK Shah, J Schwartz, TC Ko, TG Hugher, MK Liang
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Presenter: Karla Bernardi MD

Background: Many surgeons rely on the American College of Surgeons (ACS) Community Forums for advice on managing complex patients. Our objective was to assess the safety and effectiveness of advice provided on the most popular surgical forum.

Methods: Overall 121 consecutive, deidentified clinical threads extracted from the general surgery forums in reverse chronological order. Three groups of three surgeons (mixed academic and community perspectives) evaluated at least 60 of the 121 threads for unsafe or dangerous posts. Positive and negative controls for safe and unsafe answers were included in 20 threads, and reviewers were blinded to their presence. Reviewers were free to access to all online and professional resources.

Results: There were 861 unique responses (median 7, 2-15 responses per thread) to the 121 clinical threads/scenarios. The three review teams correctly identified all positive and negative controls for safety. The vast majority of threads (114, 94.4 %) provided safe or evidence/guideline-based answers. However, 116 responses (13.5%) contained unsafe or dangerous advice, most of which were corrected (70.4% of responses) by other surgeons.

Conclusion: The ACS Community Forums are generally a safe and effective resource for surgeons seeking advice for challenging cases. While unsafe or dangerous advice is not uncommon, other surgeons typically correct it. When utilizing the forums, advice should be taken as a congregate and any single recommendation should be approached with healthy skepticism. However, social media such as the ACS Forums is self-regulating and can be an appropriate method for surgeons to communicate challenging problems.

ePOSTER ABSTRACTS

(Kiosk #3)

P33. RISK-ADJUSTED READMISSIONS FOLLOWING MEDICARE ELECTIVE COLORECTAL SURGERY

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MPA Healthcare Solutions

Presenter: Donald Fry MD

Background: Over 60% of U.S. acute care hospitals are assessed penalties by Medicare for excessive readmissions following inpatient care. Avoiding preventable readmissions of surgical patients will result in better patient care and reduced overall costs.

Methods: We studied elective colorectal resections for 2013-2015 in the Medicare Limited Dataset. Complete outcomes of inpatient deaths (IpD), 3-If length-of-stay outliers, 90-day post-discharge deaths (PD90), and 90-day Readmissions (RA90) after Medicare-accepted exclusions were considered Adverse Outcomes (AOs) of care. A logistic prediction model was designed specifically for readmission as the dependent variable from over 500 candidate independent risk factors. C-statistics validated discrimination of the final model. Case-level analysis stratified all eligible cases into deciles by increasing risk based upon the predictive model and observed-to-predicted rates of readmission were compared. Causes of RA90 were tabulated by frequency. Hospital-level analysis (N>20 cases) was evaluated by quartile of risk-adjusted readmission rates to define differences between the first and fourth quartile as the margin for preventable RA90.

Results: There were 94,592 patients from 2,600 hospitals. Of those, there were 818 IpDs (0.9%), 6,818 PrLOSs (7.2%), 857 PD90s (0.9%), and 15,715 RA90s (16.6%) with one or more readmissions. There were an additional 1,216 deaths during or following readmission. The prediction model for readmission had 36 significant ($P<0.01$) medical and clinical risk factors and the c-statistic after removal of hospital effect was 0.668. A linear regression plot of predicted-to-observed readmissions by decile validated the predictive model with an $R^2 = 0.98$. The most common Medicare-Severity, Diagnosis-Related Groups (MS DRGs) among all first RA90s were Infections ($n=4,173$; 26.6%), non-surgical gastrointestinal diagnoses ($n=3,539$; 22.5%), abdominal surgical procedures ($n=2,123$; 13.5%), and cardiovascular complications ($n=1,504$; $n=9.6\%$). Among first RA90s, 9511 (60.5%) occurred during the initial 30 days following discharge.

There were 1,364 hospitals with more than 20 eligible cases that had a total of 80,906 patients. The readmission rate of study hospitals was 16.7%. Risk-adjusted readmission rates were 9.4% for the first quartile, 14.4% for the second quartile, 18.1% for the third quartile, and 23.8% for the fourth quartile. Readmissions in fourth quartile hospitals were 2.5 times higher than in first quartile facilities.

Conclusion: Readmissions within 90-days are the most common AO among colorectal surgical patients. Calibration of the prediction model demonstrated uniform performance across low and high-risk patients. Comparisons of the first quartile hospitals with the remaining 75% of facilities indicate an opportunity to reduce patient morbidity and costs from potentially preventable readmissions.

ePOSTER ABSTRACTS

(Kiosk #3)

P36. GENDER AND GEOGRAPHIC DISPARITIES LIMIT ACCESS TO LIVER TRANSPLANTATION

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Presenter: Adeel Khan MD, MPH

Background: Distance from tertiary care center and rural residency are well-established agents of health-care disparity. We hypothesized that these factors may also impact likelihood of liver transplantation (LT) and post-LT outcomes.

Methods: This is a single center retrospective review of all adult (≥ 18 -yr) patients listed for LT from 2005-2016. Data pertaining to demographics, peri-operative variables, wait list times, rates of waitlist drop-off and transplantation, and post-transplant outcomes were reviewed. Data on proximity of patient to transplant center (TC) (<50 miles, 51-100 miles, 101-200 miles, 201-300 miles, and >300 miles) and type of residence (rural, urban, suburban) based on Rural –Urban Commuting Area (RUCA) codes was also collected and reviewed.

Results: 1,567 patients meeting criteria were listed for LT: 1,075 were transplanted while 492 dropped off the waitlist without receiving LT. Median age, MELD score and waitlist time for listed patient was 57 yrs, 23 and 361 days respectively. 64% were males and 87% were Caucasian. Hep C was the most common etiology (38%) and 30% had hepatocellular carcinoma (HCC). Transplanted patients compared to waitlist drop-off patients were more likely to be male (67% vs 57%), younger (57y vs 59y), had a higher incidence of HCC (37% vs 16%), higher MELD score (26 vs 16), resided closer to TC and were more likely to be urban dwellers (55% vs 47%) ($p<0.05$ for all). Rates of LT decreased significantly with increasing distance from TC (77% for ≤ 50 m, 67% for 51-200m, 61% for 201-300m and 57% for >300 m; $p<0.0001$). This corresponded with a proportionate increase in rate of waitlist drop-off with increasing distance (23% for ≤ 50 m vs. 43% for >300 m; $p<0.0001$). Patient residing within 50m from TC had the shortest wait-list time of 272d versus 483d for 201-300m, and 404d for >300 m ($p<0.0001$). Comparison of groups based on area of residence demonstrated significantly higher likelihood of LT and shorter wait-list times for urban-dwellers (71% and 330d) compared to rural-dwellers (63% and 399d) ($p=0.0388$). Multivariate analysis demonstrated male gender, diagnosis of Hep C cirrhosis, underlying HCC, and residence <50 m from TC to be significantly associated with likelihood of LT. Patient and graft survival after transplant was not impacted by gender, area of residence or distance from TC.

Conclusion: We demonstrate significant disparities in access to LT that disadvantage females, rural residents and patients living further away from TC. These disparities have the potential to worsen with some of the proposed changes in redistricting and organ allocation.

ePOSTER ABSTRACTS

(Kiosk #3)

P37. POINT OF CARE VISCOELASTIC (ROTEM®)-BASED RESUSCITATION: WORKING SMARTER OR WORKING HARDER?

CL Luppens, S Lombardo, M McCrum, JM Nunez, JB Young, AL Colonna, TM Ennis, R Nirula

University of Utah

Presenter: Carolyn Luppens MD

Background: Fixed ratio protocols that approximate whole blood have decreased mortality from traumatic hemorrhage, however point of care viscoelastic testing identifies coagulopathy patterns to more specifically direct blood component resuscitation. The majority of studies in this field are from cardiothoracic and orthopedic populations with few performed in trauma. We tested the hypothesis that ROTEM®-based resuscitation would be associated with greater blood component use but fewer pRBCs.

Methods: In 2015 our institution consistently obtained ROTEM® for higher level trauma activations. We retrospectively assessed the effect of this new protocol by performing a 1:2 propensity score matching of patients receiving ROTEM® (RO) versus those not receiving ROTEM® (no-RO) using patients from 2 years bracketing this practice change. Mortality, morbidity, and 24-hour product transfusion were compared for RO and no-RO patients adjusting for the probability of receiving ROTEM®. We additionally calculated the difference in cost between the two groups using the cost of the ROTEM® test itself (\$306.50), and the cost of blood product transfusion (\$770.70 for the first hour).

Results: There were 3862 admissions yielding 170 ROTEM and 332 controls after matching. After matching, model AUC was 0.834 and model variables were balanced except for abdominal AIS scores (mean 0.65 vs. 0.51; $p=0.03$). There was no difference in mortality between RO and no-RO patients (19.4% and 19.0% $p=0.91$). RO was not associated with reduced pRBC transfusion (RO=2.4 units vs no-RO=1.8 units, $p=0.002$) despite increased component transfusions for RO patients. There was a non-significant trend towards more complications (32.4% vs. 25.0% p -value 0.08) in RO patients. The difference in cost between the RO group was at least \$1,594 more per patient than no-RO group, assuming each patient only received one ROTEM. In our study group this amounted to an increased cost of \$270,980.

Conclusion: ROTEM®-guided resuscitation was not associated with decreased pRBC transfusions despite greater blood component transfusion. Mortality and complications were not reduced by ROTEM®-guided resuscitation. Despite a greater cost of ROTEM®-guided resuscitation there was no clear benefit. Further studies assessing the utility of ROTEM-guided resuscitation are warranted.

ePOSTER ABSTRACTS

(Kiosk #4)

P39. SURGICAL MANAGEMENT OF BREAST CANCER: A RURAL-METROPOLITAN DIVIDE

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Rush University Medical Center

Presenter: Lauren Williams MD

Background: Socioeconomic disparities profoundly affect access to healthcare. Rural Americans, who comprise 19.3% of the population, are more likely to be uninsured, less likely to undergo screening mammography, more likely to present at later stages of disease, and less likely to live in close proximity to a general surgeon or radiation center; an estimated 30% of counties in the US lack a single general surgeon. Limited data exists regarding the impact of geographic location on the surgical treatment and on the overall outcomes of breast cancer patients. Prior published studies have suggested that rural patients undergo more radical procedures and have decreased long-term survival as compared to their metropolitan counterparts. However, the majority of these studies are outdated, having taken place in the 1990s. The purpose of this study is to provide an updated assessment on the impact of geography on breast cancer given advancements in treatment and national strides to improve access to healthcare.

Methods: We utilize the SEER Medicare Database to examine geographic disparities. Data points included AJCC stage at time of diagnosis, primary surgery performed stratified by AJCC staging of disease, and overall survival. These data points were then subdivided based upon zip code of patient residence into metropolitan, urban, or rural. Chi-square tests were conducted to evaluate the relationship between geographic location and primary surgery performed. A Kaplan Meier analysis examined differences in survival over the data collection period, 2003-2015.

Results: Analyses showed that women in rural and urban designated counties were significantly more likely to undergo more radical surgical resection than their metropolitan counterparts. Most significantly, rural and urban women were less likely to undergo partial mastectomy and more likely to undergo modified radical mastectomy for early disease. Only 63.6% of rural women and 65.8% of urban women underwent partial mastectomy for stage I disease, compared to 75% of metropolitan women. Similarly, 41.7% of rural women and 46.1% of urban women underwent partial mastectomy for stage II disease, compared to 56.4% of metropolitan women. Among those with stage I disease, 17.1% of rural women and 14.7% of urban women underwent modified radical mastectomy compared to just 7.6% of metropolitan women. Furthermore, 34.6% of rural women and 30.9% of urban women underwent modified radical mastectomy for stage II disease compared to 21.2% of metropolitan women. Kaplan Meier analysis revealed decreased overall survival in women from rural and urban areas. Over a 150 month period, ranging 2003-2015, rural and urban women had a 20% and 28% higher mortality, respectively, than their metropolitan counterparts.

Conclusion: This data is a stark reminder that for many Americans geographic location still plays a significant role in access of standard of care services and overall survivorship. Despite numerous advances in the management of breast cancer and strides to improve access to care on a national level, rural women remain significantly more likely to undergo radical resection than metropolitan women.

ePOSTER ABSTRACTS

(Kiosk #4)

P40. CAN WE PREDICT COMPLICATIONS IN REAL-TIME? DEVELOPMENT OF A NOVEL GROUP BASED TRAJECTORY MODEL

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University of Chicago

Presenter: Ashley Williamson MD

Background: Vital sign alterations are likely the earliest warning of post-operative complications. Surgeons often use threshold values (i.e. temperature over 101.5) to prompt complication workups. This strategy leaves a large amount of residual data, and there are currently no models that use all available vital sign data to risk stratify patients in real-time. In a climate focused on decreasing cost, length of stay, and readmission, we sought to investigate whether post-operative vital sign trajectories could be used to risk stratify patients for post-operative complications.

Methods: We performed a retrospective review of adults who underwent pancreaticectomy or colectomy at an academic health system from October 2014 to February 2018. Postoperative complications were abstracted using definitions from the National Surgical Quality Improvement Program (NSQIP). Post-operative vital signs, including pain score, were extracted from the Electronic Data Warehouse. Time of diagnosis for complications (as determined by labs, cultures, radiology, or procedures) was also abstracted through chart review. Group based trajectory modeling (GBTM), a technique used to identify distinct clusters of patients with similar trajectories, was used to group patients with similar temperature, heart rate, blood pressure, and pain scores. Postoperative complications were tabulated for each risk group. Chi-square tests were used to compare categorical variables.

Results: We identified 508 independent surgical patients: 195 undergoing pancreaticectomy and 313 undergoing colectomy. Thirty-day overall complication rates were 35.4% for pancreaticectomy, and 10.2% for colectomy. Patients undergoing pancreaticectomy clustered into two distinct temperature groups (low and high), while patients undergoing colectomy clustered into three distinct temperature groups (low, medium, high). Risk of inflammatory complications was significantly different between the low (9.3%; n=150) and high temperature (26.1%; n=23) colectomy patients ($p = .02$). Risk of inflammatory complications was not significantly different between low (27.1%; n=118) and high temperature (41.6%; n=77) pancreaticectomy patients ($p=.052$). Patients were also clustered into two distinct risk-groups for overall complications using other vital signs. For patients undergoing pancreaticectomy, systolic blood pressure was predictive of readmission (9.2% vs. 20.6%; $p < .05$), while heart rate and pain scores were predictive of sepsis ($p < .05$). Finally, time to diagnosis of inflammatory complications was longer in the low compared to the high temperature groups (12.7 days vs 8.6 days; $p=.002$).

Conclusion: Novel techniques like group based trajectory modeling may allow real-time risk stratification of post-operative patients using all available vital sign data. Although many pre-operative risk tools exist, this is the first model we are aware of that utilizes post-operative data to predict complications. These tools may be used to intervene earlier for complications, which could lead to decreased length of stay, lower readmissions, and less severe complications.

ePOSTER ABSTRACTS

(Kiosk #4)

P43. DISPARITIES IN COLORECTAL CANCER MORTALITY FOR RURAL POPULATIONS: DOES SCREENING MATTER?

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University of Colorado School of Medicine

Presenter: Heather Carmichael MD

Background: Rural populations in the United States have both increased incidence of and mortality from colorectal cancer, as compared to urban populations. It has been hypothesized that this disparity in outcomes may be as a result of poor cancer screening in rural areas. According to the United States Preventative Services Task Force (USPSTF) guidelines, adults aged 50 to 75 years should be screened with either colonoscopy every 10 years, annual high-sensitivity fecal occult blood testing (FOBT), or sigmoidoscopy every 5 years with FOBT every three years. Although rates of adequate screening overall are increasing, primarily through increased use of colonoscopy, significant regional and sub-population disparities exist. We hypothesized that rural-urban disparities might be greater when examined at a regional level in the United States, and that regional trends in screening would correlate with mortality trends along the urban-rural divide.

Methods: A combined variable encompassing the percentage of the population that was screened according to USPSTF guidelines from the 2016 Behavioral Risk Factor Surveillance System was utilized. This variable was mapped at the state level as well as the smaller geographic level of micropolitan and metropolitan statistical areas (MMSAs). For counties contained within an MMSA, prevalence of colorectal screening was estimated as the rate for the MMSA. For counties outside of an MMSA, prevalence was imputed using the state prevalence and excluding the populations aged 50 to 75 years living within MMSAs in that state. Similarly, data from the National Cancer Institute was used to approximate mortality rates in adults over the age of 50 from colorectal cancer at the county level (5-year average 2010-2014). Counties were then stratified according to the urban-rural designation as defined by the Centers for Diseases Control.

Results: Overall, between-state disparities far exceed rural-urban disparities for colorectal cancer screening. States with the highest rates of screening had the smallest urban-rural disparities (74.6% vs. 73.0%) while states with the lowest rates of screening had the largest disparities (61.3% vs. 56.9%). In a multivariable model at the county level, both percent screened and urban-rural classification were correlated with mortality rates ($p < 0.001$), with rural counties experiencing approximately 5 more deaths per 100,000 population, even when controlling for screening rates.

Conclusion: Estimations of urban-rural disparities in colorectal cancer screening at a national level may not reflect greater disparities that exist in specific regions of the United States. Between-state disparities far exceed within-state disparities. States with the lowest rates of screening have the greatest urban-rural disparities. This means that estimations of urban-rural disparities at the national level may not reflect greater disparities that exist at a more regional level. Furthermore, screening rates do not fully explain the mortality gap between urban and rural populations, and other factors such as access to care and appropriate treatment must be considered.

ePOSTER ABSTRACTS

(Kiosk #4)

P44. FACTORS ASSOCIATED WITH INCREASED RISK OF RECURRENCE REQUIRING REOPERATION FOLLOWING LAPAROSCOPIC HIATAL HERNIA REPAIR

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McGovern Medical School at the University of Texas Health Science Center at Houston

Presenter: Maamoun Harmouch MD

Background: Prevention of recurrence after laparoscopic hiatal hernia repair remains a challenge. The aim was to identify factors associated with increased risk of recurrence requiring reoperative procedure.

Methods: Retrospective review of prospectively collected data. Procedures were performed by the same surgical team in a single center. Patients were followed using a structured questionnaire via phone to assess for heavy lifting, diseases resulting in retching/vomiting or coughing after surgery. Patients characteristics and operative data for patients who had primary repair at our center were compared between patients who had 1 hernia repair at our center to patients who required subsequent reoperative procedures at our center. A Cross-sectional analysis of patients characteristics and operative data at the time of reoperative procedures (including patients who had the first repair at another facilities) was performed. A prospective prediction of reoperation from baseline for patients whose first repair was performed at our center and required reoperation was performed. Factors associated with recurrence were identified using logistic regression analysis. The values are presented as median (interquartile range).

Results: From 9/16/2009 to 11/10/2017 there were 401 antireflux procedures (367 patients). There were 308 primary repairs and 93 reoperative procedures. All primary repairs were performed laparoscopically. Questionnaires were obtained in 288/357 alive patients (81%) at 21 months (12-42). In 308 primary repairs: 287 had 1 repair vs. 21 who required reoperations, Abdominoplasty was seen in 3/287(1%) vs. 3/21 (14%), $p < 0.005$ and tubal ligation in 19/287(6%) vs. 6/21 (29%), $p < 0.004$, 206/287 vs. 15/21 had questionnaires. Diseases resulting in coughing or vomiting after surgery was seen in 2/206 (1%) vs. 2/15 (13%) $p < 0.03$, vomiting or lifting in 15/206 (7%) vs. 5/15 (33%) $p < 0.009$. There was no difference between demographics, BMI, type of hernia, use of mesh and operative data between the 2 groups.

There were 93 reoperative procedures in 80 patients. A cross-sectional analysis of patients' characteristics and operative data of 93 reoperative procedures at the time of reoperation, showed that associated factors were lifting or vomiting OR= 5.8, $p < 0.0001$, tubal ligation OR=3.3, $p < 0.014$, height < 160 cm: OR=2.7 $p < 0.0083$, age < 52, OR= 3.2, $p < 0.0011$.

In 27 reoperative procedures (in 21 patients) initial hernia repair was performed at our center. Prospective prediction of reoperation from baseline characteristics for the 27 reoperative procedures in 21 patients with initial operation at our center showed: height < 160 cm: OR=2.7 $p < 0.0492$ abdominoplasty: OR =21.9, $p < 0.0007$ and tubal ligation: OR= 5.2, $p < 0.0038$.

Mesh was used in 245/308 (80%), and was not used in 63/308 (20%). Reoperation was required in 16/245 (7%) with mesh vs. 5/63 (8%) without mesh, OR 0.83, $p = 0.73$. Type of hiatal hernia was not an associated factor.

Conclusion: Prevention of recurrence following laparoscopic hiatal hernia repair remains a challenge. Younger age, shorter stature, heavy lifting or vomiting after surgery, abdominoplasty which increases the intra-abdominal pressure, and tubal ligation, as indicator of multiple pregnancies, are factors associated with increased risk of recurrence requiring reoperation. Higher BMI and not using mesh are not associated factors. Careful selection of patients, awareness of associated factor for recurrence and preventive measures when possible are essential.

ePOSTER ABSTRACTS

(Kiosk #4)

P45. DRAINAGE OF PANCREATIC FLUID COLLECTIONS AFTER DISTAL PANCREATECTOMY: COMPARISON OF PERCUTANEOUS VS. ENDOSCOPIC DRAINAGE TECHNIQUES

P Bhurtel, BJ Borah, JP Moriarty, RL Smoot, SP Cleary, MJ Truty, DM Nagorney, TE Grotz, ML Kendrick

Mayo Clinic Rochester

Presenter: Partha Bhurtel MD

Background: Up to 30% of patients undergoing distal pancreatectomy develop a pancreatic fluid collection (PFC). Options for drainage of symptomatic PFC include both percutaneous and endoscopic methods yet current data comparing these modalities is limited. Our aim was to compare outcomes of percutaneous versus endoscopic drainage for symptomatic PFC after distal pancreatectomy.

Methods: A single-center retrospective review of all consecutive patients from 2011 through 2017 requiring percutaneous interventional radiology (IR) drainage or endoscopic ultrasound (EUS) drainage of symptomatic PFC after distal pancreatectomy was performed. Clinical outcomes analyzed included treatment success, total hospital days, number of interventions, number of CT scans and duration until treatment resolution. All clinical outcomes occurred within the 90-days post discharge from the index operation. Cost outcomes included those of the index hospitalization, 90-day post discharge, and index hospitalization plus the 90-day follow-up. Due to small sample size, unadjusted descriptive comparisons were performed. Data are reported as means.

Results: A total of 63 IR and 28 EUS patients had all study outcomes available for evaluation. Treatment success occurred in 93% of patients for both groups. Total hospital days for the IR group was 12.4 days vs. 10.7 ($p=0.08$) days for the EUS group. Total number of interventions required was greater for IR compared to EUS (3.4 vs. 2.3, $p<0.01$). Number of CT scans obtained were identical at 3.5 ($p=0.46$). Total days with IR drain or EUS stent was shorter for IR patients (44.3 vs. 59.2; $p<0.01$). Cost of the index hospitalization for IR patients was \$43,435 compared to \$35,799 for EUS patients ($p=0.08$). Cost for 90-day post-discharge follow-up care was equal for IR and EUS patients (\$14,689 vs. \$12,390; $p=0.49$). Total cost was also similar for the IR and EUS patients (\$58,123 vs. \$48,189, $p=0.19$, respectively).

Conclusion: EUS and IR drainage appear to be safe and equally effective for drainage of postoperative pancreatic fluid collections. Endoscopic drainage requires less interventions and should be considered as it avoids an external drain resulting in patient discomfort, maintenance and skin related complications. Further studies with larger sample size are warranted to substantiate theoretical advantages of endoscopic drainage including cost-effectiveness.

ePOSTER ABSTRACTS

(Kiosk #4)

P47. REVISITS FOLLOWING ADRENALECTOMY: A STATE INPATIENT AND EMERGENCY DEPARTMENT DATABASE ANALYSIS

IY Nwaogu, M Olsen, K Chomsky-Higgins, Y Chen, R Sukpanich, M Sedaghati, C Seib, I Suh, WT Shen, JE Gosnell, Q Duh

University of California San Francisco

Presenter: Iheoma Nwaogu MD

Background: Readmission after surgery is a quality metric hypothesized to reflect the quality of care in the index hospitalization. Preventable readmissions are costly to the healthcare system, disruptive to both patients and the caregivers, and potentially exposes patients to additional risks of hospitalization. We sought to elucidate this problem in the adrenalectomy patient population.

Methods: We used data from the 2009 to 2011 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) as well as the State Emergency Department Databases (SEDD) from the state of California to identify over 1,300 inpatient discharges following adrenalectomies.

Results: Of 1,339 discharges undergoing adrenalectomies during the study period, 139 (10.4%) were re-admitted to the hospital within 30 days with a median of 9 days to readmission. Approximately 72.7% of those readmitted went through the ED. The most frequent reasons for readmission were postoperative infection or septicemia, acute renal insufficiency, respiratory complications, complications of the digestive system, and primary adrenal insufficiency. Another 9.2% of inpatient discharges had a treat-and-release ED visit within 30 days. The most cited reasons for those ED visits included abdominal pain, postoperative infection, dyspnea or respiratory abnormalities, and malaise. On univariate analysis, patients discharged home were less likely to be readmitted than patients discharged home with home health or to another care facility. Self-pay patients were also less likely to have a readmission than those who were privately insured or covered by other programs. Additionally, patients who were readmitted were noted to have a significantly longer surgical hospitalization length of stay than those who did not get readmitted (Median: 5 days versus 3 days). In a multivariable logistic regression model, only the length of stay during the index admission proved to be an independent predictor of readmission. Patient comorbidities did not significantly impact readmission rates. Median incremental costs over \$42,000 were noted for each readmission.

Conclusion: Our analysis represents a more global picture of revisits following adrenalectomy. Specifically, we show that revisits, both as readmissions or ED visits, are more frequent than previously appreciated and are associated with substantial costs. Initial surgical hospitalization length of stay was the only identified independent predictor of readmissions. These findings should help focus efforts to help decrease readmission rates.

ePOSTER ABSTRACTS

(Kiosk #4)

P48. PTSD IN TRAUMA: DOES MECHANISM MATTER?

MK Bobbs, TB Coopwood, I Tabas, S Ali, S Manser, CVR Brown

Dell Seton Medical Center

Presenter: Melanie Bobbs MD

Background: Every year in the United States, up to 40% of the 2.8 million patients requiring hospital admission for traumatic injuries meet criteria for post traumatic stress disorder (PTSD) in the 12 months following their injuries. Risk factors associated with PTSD development after a traumatic injury have not been well studied.

Methods: The Primary Care - PTSD (PC - PTSD) screen was administered to admitted patients meeting inclusion criteria. Patients with symptoms were randomized to an interventional or control group. Both groups completed in-hospital interviews, then 45-day and 90-day telephone interviews. Follow up collected the PTSD Checklist-Civilian (PCL-C) assessment and qualitative data on barriers to seeking treatment.

Results: Of the 152 patients included, 135 (89%) patients completed follow-up assessments at 45 days, and 129 (85%) completed follow-up assessments at 90 days. ICU length of stay, ventilation days, and severe extremity injuries were all associated with development of PTSD at both 45 and 90 days. Gender and race were not associated with development of PTSD. Independent risk factors for the development of PTSD at 45 days included younger age and penetrating injuries. However, penetrating injuries appeared to be the only independent risk factor for development of PTSD at 90 days.

Conclusion: Understanding risk factors for patients more likely to develop PTSD after a traumatic injury can help guide in-hospital and post-discharge screening and interventions to better set goals for recovery.

ePOSTER ABSTRACTS

(Kiosk #4)

P49. SEVERE TRAUMATIC BRAIN INJURY AND SHOCK ARE ASSOCIATED WITH WORSE ACUTE TRAUMATIC COAGULOPATHY: A REVIEW OF THE PRAGMATIC, RANDOMIZED OPTIMAL PLATELET AND PLASMA RATIOS DATABASE

SG Smith, JM Murphy, EN Dewey, JB Holcomb, EM Bulger, BA Cotton, K Inaba, MR Cook, MA Schreiber

Oregon Health & Science University

Presenter: Sawyer Smith MD

Background: Shock and tissue injury have been associated with acute traumatic coagulopathy. Traumatic brain injury (TBI) has also been associated with coagulopathy, but debate remains if severe TBI contributes disproportionately to acute traumatic coagulopathy compared to severe traumatic injury in other body regions.

Methods: We performed a secondary analysis of the Pragmatic, Randomized Optimal Platelet and Plasma Ratios (PROPPR) trial database. Admission conventional coagulation tests (CCT), thromboelastography (TEG) values, base deficit (BD), Abbreviated Injury Scale (AIS) score, and Injury Severity Score (ISS) were recorded. Severe injury was defined as an AIS score ≥ 3 in a body region. Patients were grouped according to the single highest (i.e., dominant) AIS score region. Patients without an AIS score ≥ 3 or patients with two or more regions with the same maximum AIS score were excluded. Significant shock was defined as a BD ≥ 6 at the time of admission. CCT and TEG values were compared between dominant AIS regions in patients who did and did not present in shock. Significance was set at $p < 0.05$ for all stated differences.

Results: Of the 680 patients in the PROPPR trial database, 500 patients met inclusion criteria. Patients were predominately male (81%), experienced penetrating trauma (53%), and presented with a BD ≥ 6 (58%). Patients with a BD ≥ 6 were significantly more hypocoagulable than patients with a BD < 6 by CCT and TEG values. Patients presenting with shock and head dominant AIS scores were significantly more hypocoagulable by CCT and TEG values than patients with shock and dominant AIS scores in other body regions. In patients presenting without shock, there was no significant difference in CCT or TEG values between dominant AIS regions.

Conclusion: Shock is associated with coagulopathy after trauma. This coagulopathy is most pronounced in patients with shock and severe head injury when compared to patients with shock and severe injury to other AIS body regions.

ePOSTER ABSTRACTS

(Kiosk #4)

P50. PROLONGED PARTIAL RESUSCITATIVE ENDOVASCULAR BALLOON OCCLUSION OF THE AORTA (REBOA) FOR MANAGEMENT OF A HIGHLY LETHAL AORTIC INJURY USING A NOVEL PREBOA-PRO CATHETER

BJ Behrens, BH McCully, E Dewey, SG Smith, JM Murphy, A Goodman, SJ Underwood, E Rick, B Madison, JB Holcomb, MA Schreiber

Oregon Health & Science University

Presenter: Brandon Behrens MD

Background: Resuscitative balloon occlusion of the aorta (REBOA) is an increasingly popular alternative to traditional thoracotomy for control of non-compressible torso hemorrhage. However, supraphysiologic proximal hemodynamic responses and downstream ischemia/reperfusion injury after balloon deflation make weaning from complete aortic occlusion difficult. Recent work with partial REBOA demonstrates that compared to complete aortic occlusion, partial occlusion dampens proximal hypertension, decreases rebound hypotension, and decreases distal ischemia, however, no guidelines for partial REBOA currently exist. The goal of this study was to compare the ability of the novel pREBOA-Pro catheter to establish and maintain a state of partial aortic occlusion after a highly lethal aortic injury to the currently available ER-REBOA catheter.

Methods: This study utilized female Yorkshire swine weighing between 40 and 50 kg. Animals were randomized to one of three groups: control, pREBOA-Pro, or ER-REBOA. Following induction, intubation, and vascular cannulation, the right femoral artery was exposed and the REBOA sheath introduced. A midline laparotomy was made, the supraceliac aorta exposed, and REBOA catheters placed in zone 1 under direct palpation in both intervention groups. A 4mm supraceliac aortic injury was made using a 4mm punch biopsy and uncontrolled hemorrhage was allowed for 30 seconds. After 30 seconds a resuscitative bolus of lactated Ringer's solution was administered and in intervention arms, the aortic occlusion balloons were inflated to full aortic occlusion for 10 minutes. At 10 minutes, partial occlusion was established with the target distal MAP of 40 mmHg with a pulsatile arterial waveform tracing. Once partial occlusion was reached, the animals were monitored for 4 hours with every 30 minute physiologic data recordings and hourly labs. At 4 hours, the animals were euthanized, total blood loss and urine output were recorded, and tissue samples collected.

Results: There were no significant differences in baseline physiologic or labs between groups. Mean survival time for the control, ER-REBOA, and pREBOA-Pro groups were 9, 226.4, and 200.3 minutes. There was no significant difference in survival between the two partial REBOA experimental arms with a log-rank p-value of 0.70. In addition, there were no significant differences in physiologic parameters between the two catheter groups. Arterial blood gases and chemistries were similar across time for each catheter group and there were no statistically significant differences across time for either catheter group or between the two catheter groups. Overall, coagulation profiles were similar between both catheter groups. The median difference of the distal MAP from the target of 40 mm Hg was not significantly different at any of the time points, however, the number of adjustments required to maintain partial REBOA was significantly lower in the pREBOA-Pro group compared to the ER-REBOA group (3 vs 10, p 0.01).

Conclusion: Using the new pREBOA-Pro catheter, we were able to create a state of partial aortic occlusion with similar mortality, blood loss, and variation of distal MAP from target while requiring significantly fewer balloon volume manipulations. This suggests that the dual balloon system utilized by the pREBOA-Pro catheter produces a more controlled state of distal aortic flow that is less affected by changes in proximal aortic pressures and changes in vascular tone.

ePOSTER ABSTRACTS

(Kiosk #1)

P52. CORE7: DEVELOPMENT OF A COMPREHENSIVE WELLNESS CURRICULUM FOR GENERAL SURGERY RESIDENTS AT A SAFETY-NET ACADEMIC MEDICAL CENTER

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University of New Mexico Hospital

Presenter: Rebecca Williams-Karnesky MD, PhD

Background: The Accreditation Council for Graduate Medical Education outlines six core competencies that provide a consistent set of standards for the training, continuing education, and evaluation of resident physicians. As the medical field faces an epidemic of burnout, we propose that wellness comprises a seventh core competency that is essential to maintaining physician engagement and ensuring a high level of quality care for patients. In order to address burnout in our institution, we designed a comprehensive wellness curriculum for general surgery residents to hone resilience-promoting behaviors, attitudes, and skills.

Methods: In order to create a comprehensive wellness program for general surgical residents at a safety-net academic medical center, we employed a six-dimensional model of wellness to represent a holistic view of the individual. The specific domains of wellness addressed by our curriculum include: Physical, Social, Emotional, Spiritual, Occupational and Intellectual. To better understand the needs of our residents, we performed a baseline survey of the culture of wellness within the surgery department.

Results: Using the results of our baseline survey data, we have identified residents needs within all six domains of wellness. This information has been used to tailor our wellness curriculum to address critical deficiencies. Specific areas of need include emotional exhaustion and personal relationships. Barriers to acceptance of the curriculum have also been identified, including guilt about time away from clinical duties and the effort required to participate in wellness activities. Since implementation by the general surgery department, the CORE7 curriculum has already begun affecting the broader culture of wellness at our institution.

Conclusion: With CORE7, we propose a low-cost, comprehensive resident-created, resident-led and faculty-supported wellness curriculum that can be integrated into any institution's existing didactic curriculum, while still allowing for institution-specific customization.

ePOSTER ABSTRACTS

(Kiosk #1)

P53. OUTPATIENT PARATHYROIDECTOMY - THE NEW STANDARD

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University of Texas Rio Grande Valley School of Medicine

Presenter: Henry Reinhart MD

Background: Minimally-invasive techniques have made parathyroidectomy safer and more feasible as an outpatient procedure. We propose that outpatient parathyroidectomy (OP) is the new norm and strive to characterize factors responsible for successful OP.

Methods: A retrospective analysis was performed over a 7 year period to identify type of parathyroid surgery, inpatient (IP) vs OP, postoperative complications, and resulting clinical outcomes.

Results: Between August 2009 and October 2016, 672 parathyroid surgeries were performed. There were 51 IP (7.6%) and 621 were OP (92.4%). The surgeries stratified into 456 limited parathyroidectomies (PT, 1-2 gland, 67.9%), 68 subtotal parathyroidectomies (ST, 3-3.5 gland, 10.1%), 125 PT with thyroidectomy (PTT, 18.6%), and 23 ST with thyroidectomy (STT, 3.4%). Anesthesia included 369 (54.9%) procedures under general (GA), 294 (43.8%) utilizing local with monitored anesthesia care (L/MAC), and 9 (1.3%) cases of L/ MAC converted to general. There was one postoperative hematoma in the OP group (0.16%). IP were more likely to experience symptomatic hypocalcemia (7, 13.7%) than OP (27, 4.3%; $p=0.01$). Patients that had a ST (11, 16.2%) or STT (4, 17.4%) were more likely to experience symptomatic hypocalcemia than PT (10, 2.2%) or PTT (9, 7.2%; $p<0.0001$). Surgeries that utilized GA (30, 8.1%) were more likely to also experience symptomatic hypocalcemia compared to MAC surgeries (3, 1.0%; $p<0.0001$). There was a significant statistical difference ($p<0.0001$) for the ASA risk status of the OP (2.5 mean) versus IP (3.2 mean) group. A PT was likely to lose the least amount of blood ($p<0.0001$) compared to all groups. Surgeries that utilized GA were likely to lose more blood ($p<0.0001$). There were 3 (5.9%) recurrent laryngeal nerve (RLN) injuries in the IP group and 6 (1.0%) in the OP group ($p=0.02$). There was one permanent recurrent laryngeal nerve injury in the OP group (0.16%). There was no association with the extent of surgery (PT, ST, PTT, STT), age, sex or anesthesia with RLN injury ($p=0.59$). There were no mortalities and average postoperative monitoring time was 2.1 hours for the OP group.

Conclusion: Outpatient parathyroid surgery is safe and should be applicable to nearly all parathyroid procedures, except for higher ASA status, and ST/STT, which are more likely to require inpatient management.

ePOSTER ABSTRACTS

(Kiosk #1)

P55. THE COMBINATION OF PYLOROPLASTY AND GASTRIC ELECTRICAL STIMULATION IMPROVES BOTH GASTRIC EMPTYING TIME AND SYMPTOMS IN PATIENTS WITH GASTROPARSIS

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Presenter: Kent Van Sickle MD

Background: Gastroparesis is chronic digestive disorder defined by delayed gastric emptying and characterized by chronic nausea, vomiting and epigastric pain refractory to medical therapy. Patients who suffer from gastroparesis often report a significant reduction in their quality of life. Recently, we have used a novel combination surgical therapy of gastric electrical stimulation (GES) and Heineke-Mikulicz pyloroplasty (PP) for selected refractory gastroparesis patients. This study examines the efficacy and safety of this combination therapy.

Methods: This is a retrospective review of data collected on patients undergoing robotic-assisted dual surgical therapy of GES + PP for either Diabetic or Idiopathic gastroparesis at our institution from 2014-2018. Patients with gastric retention > 90% at 1 hour, >60% at 2 hours or > 10% at 4 hours based on 4-hour standardized Tc-99 sulfur colloid gastric emptying scintigraphy and complete Gastroparesis Symptom Severity (GSS) and Frequency (GSF) questionnaires were analyzed. The GSS and GSF questionnaires each have 7 domains: vomiting (V), nausea (N), early satiety (ES), bloating (B), post-prandial fullness (PPF), epigastric pain (EP), and epigastric burning (EG). Follow-up for GSS, GSF and GE times were done post-operatively, and differences in pre- vs. post-operative values were made using paired t test analysis. Statistical significance was assigned for P value <0.05.

Results: Follow-up data were available in 28 patients' gastric emptying studies (20 Diabetic, 8 Idiopathic; mean f/u 7 mo.) and 17/28 patients completed pre- and post-operative questionnaire data (12 Diabetic, 5 Idiopathic; mean f/u 3 mos.). Mean gastric retention rates at 1, 2 and 4 hours were 79% vs. 60% (p=0.008), 64% vs. 39% (p=0.004), and 37% vs. 13% (p=0.000) respectively. 21/28 patients (75%) demonstrated improvements in gastric emptying and 17/28 patients (60%) had normalized gastric emptying at 4 hours. Mean GSS and GSF scores improved significantly across all 7 domains: GSS V (6.1±3.6) vs (1.5±1.9), N (9.1±1.6) vs (2.9±2.9), ES (8.3±2.2) vs (3.6±3.4), B (7.7±3.1) vs (3.4±3.1), PPF (8.4±2) vs (4.11±3.6), EP (9.1±1.3) vs. (4.1±3.7), EB (7.4±3.7) vs (3.3±3.5); p<0.002, all domains; GSF V (5.1±3.7) vs (1.7±2.4), N (8.2±2.4) vs (3.3±3.4), ES (8.7±2.1) vs (3.6±3.2), B (6.8±3.3) vs (3.4±2.9), PPF (8.2±2.2) vs (3.9±3.3), EP (8.7±2) vs (4.4±3.6), EB (7.7±3.2) vs (3.7±3.7), p<0.002 all domains.

Conclusion: The combination of GES and PP for gastroparesis provides significant improvements in both gastric emptying time and symptom frequency and severity in this cohort. Dual surgical therapy should be strongly considered as a primary treatment as it is effective in selected patients with this refractory disease.

ePOSTER ABSTRACTS

(Kiosk #1)

P56. INSTITUTIONAL EXPERIENCE WITH VARIABLE OPIOID USE FOR GENDER AFFIRMING BREAST SURGERY, ONCOLOGICAL MASTECTOMY, AND MAMMOPLASTY

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Presenter: Kortney Robinson MD

Background: Surgeons have struggled to effectively treat postoperative pain without putting patients at undue risk of misuse and diversion from overprescribing. Proper opioid prescribing depends on identifying the demographic, social, and medical characteristics that define use. Transgender patients are known to be a particularly vulnerable population, with elevated rates of substance use disorder and mental health diagnoses. Little research has focused on characterizing post-operative opioid use for these patients. Gender-affirming surgeries now have broader insurance coverage and are being accessed in greater numbers. Accurate post-surgical prescribing is imperative given the unique characteristics of the surgery and patient population. In this study, we compare gender-affirming mastectomy to two surgeries with similar surgical exposure.

Methods: We called patients who underwent surgery at a single academic medical center from 10/2017-4/2018 within one month of discharge. Data gathered included medical history, opioids prescribed, remaining pill counts, adjunct medications, post-surgical pain expectations, and post-surgical pain ratings. Three breast surgeries were included in our analysis: mastectomy reductions, gender affirmation mastectomies (top surgery), and oncologic mastectomies. T-tests were used to compare sample means.

Results: A total of 75 patients who participated in our phone survey had one of three surgeries. Oncologic mastectomies (n=14) were completed in older patients (mean age 65), while top surgeries (n=31) and mastectomy reductions (n=30) were typically completed in younger patients (mean ages of 37 and 28, respectively). Mental health diagnoses were present in 29%, 47%, and 58% of patients who underwent oncologic mastectomies, mastectomy reductions, and top surgeries, respectively. Oncologic mastectomy patients were prescribed a mean of 78 morphine milliequivalents (MME) of opioid containing medication, while mastectomy reduction and top surgery patients were prescribed a mean of 204 and 274 MME. Top surgery patients were prescribed more opioid containing medications, yet reported MME consumption was not statistically different between mastectomy reduction (mean 110 MME) and top surgery patients (127 MME) with $p = 0.53$. Patients who underwent oncologic mastectomies consumed a mean of 19 MME, which was significantly less than the other surgeries ($p < 0.0001$).

Conclusion: This data demonstrates that breast surgery patients were generally overprescribed opioids. At the same time, mastectomy reduction and top surgery patients did not take significantly different amounts of post-operative opioids. Our data suggests that each group has unique opioid requirements that may be related to the specific demographic and health characteristics of the patients undergoing surgery. This highlights the importance of granular data on post-operative opioid use. Conflating mastectomy procedures without accounting for patient characteristics could lead to poor prescribing and pain management. Additionally, these groups have varying rates of comorbid diagnoses that put them at risk of misuse; accurate prescribing in these patients is beneficial for improved pain control and reduced future risk.

ePOSTER ABSTRACTS

(Kiosk #1)

P57. DO DRAINS REALLY SUCK? A PROPENSITY SCORE ANALYSIS OF CLOSED-SUCTION VERSUS CLOSED-GRAVITY DRAINAGE ON FISTULA AND OUTCOMES AFTER PANCREATECTOMY

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Presenter: Lyonell Kone MD

Background: Post-operative pancreatic fistula (POPF) remains one of the most common complications after pancreatic surgery. In effort to mitigate the risks of POPF, we previously reported that the vast majority of US surgeons leave closed drains after pancreatectomy. There remains controversy, however, and limited data on what type of closed drain should be left after pancreatectomy. Therefore, the objective of this study is to compare the rate of post-operative pancreatic fistula (POPF) and complications between closed-suction and closed-gravity drains.

Methods: Demographic, comorbidity, perioperative, intraoperative, and outcomes data were captured from the first ACS National Surgical Quality Improvement Program (NSQIP) targeted pancreatectomy database to collect drain type as a variable. Univariate, multivariate and inverse probability of treatment weight propensity score regressions were performed to compare suction to gravity drains.

Results: Of 5,191 patients that underwent a pancreatectomy in 2016 with closed drain placement, 828 drained to gravity and 4,363 drained to closed suction. On univariate analysis, suction drains were less likely to have a biochemical leak ($p=0.02$), but more likely to have a clinically relevant (grade B or C) POPF ($p=0.001$) and delayed gastric emptying (DGE) ($p=0.04$). However, after adjusting for potential confounders, there were no significant differences in POPF of any grade between suction and gravity drains or DGE after Whipple-type procedures, or after any pancreatectomy. Furthermore, there were no significant differences in re-operation rate, time-to-discharge, time-to-drain removal, peak drain amylase level, percutaneous drain placement, or patient readmission rates. There was an increase in superficial surgical site infection with gravity drainage on multivariate analysis ($p=0.02$), however, this was not maintained upon propensity score analysis ($p=0.07$).

Conclusion: The use of either gravity or suction closed system drains did not affect the incidence, severity, or duration of POPF, DGE, or other morbidities. However, critically there was a trend towards a decrease in superficial surgical site infections in patients with suction drains, warranting further prospective investigation.

ePOSTER ABSTRACTS

(Kiosk #1)

P58. LINITIS PLASTICA: A DISTINCT TYPE OF GASTRIC CANCER THAT NEEDS A CLEAR DEFINITION

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Presenter: Naruhiko Ikoma MD, MS

Background: The prognosis of patients with linitis plastica (LP) gastric cancer is reported to be poor; however, previous studies were hampered by heterogeneous definitions of LP. The purpose of our retrospective study was 1) to propose a clear definition of LP and identify the proportion of gastric cancer patients with LP who had been treated in our surgical oncology practice, 2) to determine the effect of the LP phenotype on OS after controlling for other clinicopathologic factors, and 3) to determine the effects of gastrectomy on OS in LP patients.

Methods: We defined LP as gastric cancer that involves more than 1/3 of the gastric wall macroscopically, confirmed by at least two of three diagnostic methods (CT scan, endoscopic ultrasonography, and operative findings). We reviewed a prospectively maintained institutional database of gastric cancer patients and summarized and compared clinicopathologic factors between LP and non-LP patients. Overall survival (OS) was compared using Kaplan-Meier models and the log-rank test. LP and non-LP patients who underwent gastrectomy were matched 1:1 using propensity score matching, and the OS durations in the two groups were compared with the stratified log-rank test. Multivariable Cox regression analyses were conducted to determine the factors associated with OS in LP patients, using gastrectomy as a time-varying covariate.

Results: We identified 740 gastric cancer patients, 157 (21.2%) of whom had LP gastric cancer. Most LP patients presented with advanced-stage disease; 75.8% of LP patients had clinical stage IV disease, mostly due to peritoneal involvement (gross peritoneal carcinomatosis (56.7%) or positive cytologic results (18.5%)). LP patients frequently had signet ring cell morphology (77.7%) and poorly differentiated histologic characteristics (91.1%). LP patients had significantly shorter OS than did non-LP patients in the entire cohort (median OS 14.0 vs. 33.5 months; p value < 0.001) and in the surgical cohort (median OS after gastrectomy 21.8 vs. 91.0 months; $p < 0.001$), as well as in the propensity-matched surgical cohort. The 5-year OS after gastrectomy were 18% in the LP group and 56% in the non-LP group. In the LP cohort, chemotherapy (HR 0.594; $p = 0.076$), chemoradiation therapy (HR 0.346; $p = 0.001$), and gastrectomy (HR 0.425; $p = 0.003$) were associated with a longer OS.

Conclusion: LP is a phenotype of gastric cancer that often presents at an advanced stage, with a high rate of peritoneal involvement. In LP patients, the use of diagnostic laparoscopy is mandatory to complete clinical staging. We found that the survival durations of LP patients were poor, even in the surgical cohort. The use of preoperative chemotherapy, chemoradiation therapy, and gastrectomy seemed to be a promising approach in carefully selected patients with localized LP. Future studies should focus on defining the best treatment strategy for patients with LP gastric cancer.

ePOSTER ABSTRACTS

(Kiosk #1)

P60. NOT JUST RACE OR INCOME: USING THE SOCIAL VULNERABILITY INDEX TO EXAMINE DISPARITIES IN VIOLENT DEATH

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Presenter: Heather Carmichael MD

Background: The Social Vulnerability Index (SVI) is a composite scale created by the Centers for Disease Control and Prevention for resource allocation in natural disasters, but has not been used to examine disparities in healthcare. It encompasses variables in the four categories of socioeconomic status, household composition/disability, minority status and language, and housing/transportation, and is assigned at the census tract level. We examined rates of homicide and suicide stratified by SVI to determine at-risk populations, particularly with regard to modifiable demographic components, to inform future policy efforts toward trauma prevention.

Methods: We retrospectively reviewed our state Violent Death Reporting System for the years 2004-2015. We assigned an estimated SVI to victims according to their census tract of residence, when known. We used population estimates to create a representative sample of each SVI category across the state. Homicide and suicide rates were calculated by quintile for each SVI component. Excess mortality was estimated by the mortality ratio between the highest and lowest quintile for each measure.

Results: There were 2042 homicide and 10,167 suicide victims. Higher ranking in all SVI categories was associated with increased risk of homicide ($p < 0.001$). When comparing the highest SVI quintile to the lowest for socioeconomic status, excess mortality was 5.4-fold. For minority/language status, excess mortality was 4.7-fold. Excess mortality for the categories of household composition and housing/transportation were 2.6-fold and 2.9-fold, respectively. Although the effect was less pronounced, higher SVI ranking was also associated with increased rates of suicide ($p < 0.001$) in all categories except for minority/language. Excess mortality was 30% for socioeconomic status, 20% for household composition, and 40% for housing/transportation when comparing the highest to the lowest SVI quintile.

Conclusion: The SVI is a useful tool to examine health disparities beyond race and income. We identified an association between both homicide and suicide rates and potentially modifiable social factors, such as housing and transportation. These areas could be targets of policy intervention, even for suicide, where disparities are otherwise attenuated.

ePOSTER ABSTRACTS

(Kiosk #1)

P61. RISK FACTORS FOR AND ASSOCIATIONS OF PROLONGED AIR LEAK AFTER ROBOTIC-ASSISTED PULMONARY LOBECTOMY

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Moffitt Cancer Center

Presenter: Roger Gerard BS

Background: Prolonged air leak (PAL) is the most common complication following partial lung resection and an important determinant of hospital length of stay (LOS). This study sought to identify risk factors for developing PAL after robotic-assisted video-thoroscopic (RAVT) pulmonary lobectomy.

Methods: We retrospectively analyzed prospectively-collected data from patients who underwent RAVT lobectomy by one surgeon between September 2010 and May 2017. Patients were grouped based on having or not having PAL, defined as an air leak persisting >5 days, during the postoperative period. Patients' demographics, intraoperative complications, perioperative outcomes, and postoperative complications were compared.

Results: Of 423 total patients who underwent RAVT lobectomy, 89 patients (21%) experienced PAL. Patients with PAL had lower mean body mass index (BMI) compared to patients with no PAL (26.9 kg/m² vs. 28.7 kg/m², $p=0.045$). Patients who developed PAL postoperatively were more likely to have chronic obstructive pulmonary disease (COPD) (33% vs. 16%, $p<0.001$) or history of previous pneumonia (14% vs. 7%, $p=0.045$). Patients with PAL had pre-operative forced expiratory volume in 1 second as percent of predicted (preopFEV1%) (81.2% vs. 87.4%, $p=0.010$). Patients with repeat pulmonary surgery were more likely to experience PAL postoperatively, with 50% of those 14 patients developing PAL. Patients who had intraoperative tracheobronchial injury were also at higher risk for PAL ($p=0.032$). Patients with PAL experienced greater median estimated-blood-loss (EBL) (200 mL vs. 150 mL, $p=0.013$) and greater median operative time (208 min vs. 172 min, $p=0.001$). Patients with PAL had longer median hospital LOS (9 d vs. 4 d, $p<0.001$).

Conclusion: Decreased BMI, decreased preopFEV1%, COPD, previous pneumonia, redo surgery, and intraoperative bronchial injury were identified as being risk factors for the development of PAL during the postoperative period. These patients also experienced increased EBL, operative time, and had longer hospital LOS.

ePOSTER ABSTRACTS

(Kiosk #1)

P62. HIGH-VOLUME SURGEONS HAVE DECREASED POSTOPERATIVE COMPLICATIONS IN NIPPLE-SPARING MASTECTOMY

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Presenter: Alex Bartholomew MS

Background: Nipple-sparing mastectomy (NSM) has become increasingly popular due to superior cosmetic and psychosocial benefits to the patient without compromising oncologic safety. With all surgical procedures, a learning curve exists where proficiency and expertise require practical experience. To date, no study has examined the effect of procedural volume on rates of postoperative complications in NSM.

Methods: A retrospective chart review identified all NSMs occurring from January 2009 through August 2016 at a single teaching institution. The primary outcome was the rate of 30-day postoperative complications, including nipple areolar (NAC) necrosis, skin flap necrosis, wound dehiscence, infection, implant loss, and hematoma/seroma. For analysis, a surgeon was classified annually as either high-volume, if they performed more than an average of two NSMs per month, or low-volume if they did not meet criteria. Chi square and multivariate logistic regression, controlling for age, BMI, history of radiation, and smoking history, were used to evaluate differences in complication rates between high- and low-volume surgeons.

Results: A total of 371 NSMs were performed on 588 breasts. Patient cohort consisted of 255 (43.4%) therapeutic breasts, mean age of 45.1 (9.8), BMI of 23.22 (3.7), 164 (28.3%) former smokers, and 36 (6.4%) with a history of prior radiation. A total of eight surgeons were included in the analysis, with high-volume surgeons completing 66.5% of total cases. The average number of procedures performed per year by high-volume surgeons was 39.3 (10.2) per surgeon, while the low-volume surgeons performed 10.8 (4.5) per surgeon. The overall rate of postoperative complications in the cohort was 15.31%. High-volume surgeons had significantly fewer complications than low-volume surgeons (12.5% vs. 20.8%, $p = 0.009$). When controlling for age, BMI, history of smoking, and prior radiation, low-volume surgeons had 1.6 times increased odds of a postoperative complication compared to high-volume surgeons (1.6, 95% CI 1.0 – 2.6; $p = 0.042$). BMI was also a significant predictor, with a one point increase in BMI corresponding to 1.08 increased odds of a postoperative complication (1.1, 95% CI 1.0 – 1.2; $p < 0.006$). There was no difference in baseline BMI between the high- and low-volume surgeon cohorts (23.1 vs 23.5, $p = 0.205$, respectively). Low-volume surgeons had slightly higher rates of positive nipple margins (5.6% vs. 3.1%; $p = 0.137$) and unintended reoperations (13.7% vs 8.7%; $p = 0.060$).

Conclusion: High-volume surgeons have significantly fewer postoperative complications following nipple-sparing mastectomy than low-volume surgeons. Higher BMI is also a significant patient risk factor for postoperative complications. Breast surgeons should aim to perform at least two NSMs monthly due to a potential, volume-dependent learning curve.

ePOSTER ABSTRACTS

(Kiosk #1)

P63. LAPAROSCOPIC EXTRACORPOREAL VERSUS ROBOTIC-ASSISTED INTRACORPOREAL ANASTOMOSIS FOR SIGMOID COLECTOMY

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Presenter: Reza Gamagami MD

Background: During laparoscopic sigmoid colectomy, the anastomosis can be created intracorporeally or extracorporeally. This study aimed to determine whether a difference exists in short-term outcomes between robotic-assisted intracorporeal anastomosis versus laparoscopic extracorporeal anastomosis.

Methods: Prospectively collected data of 223 patients who underwent sigmoid colectomy were reviewed retrospectively. Robotic-assisted intracorporeal anastomosis (RIC) was performed in 157 patients and extracorporeal laparoscopic (EL) in 66 patients. Patient demographics, operative time, blood loss, length of stay, 30 days morbidity, and number of lymph nodes harvested were evaluated. The inverse probability of treatment weight was used to control for variabilities between the two groups.

Results: There were no significant differences in length of stay, number of removed lymph nodes, and operative skin-to-skin times (178 ± 73 vs. 162 ± 98) between the two groups. The blood loss was significantly lower in the robotic intracorporeal group (40 ± 65.53 ml vs. 83 ± 99 ml; $p = <0.001$). Minor complications were similar between the two groups. Major complications occurred in significantly more patients in the extracorporeal laparoscopic group (15 vs. 1; $p = 0.0006$) than the robotic intracorporeal group.

Conclusion: Despite many similar short-term outcomes for the type of anastomosis (robotic-assisted vs. laparoscopic), robotic-assisted intracorporeal anastomosis results in less blood loss and reduced major complications. Further, randomized studies are necessary to validate these findings.

ePOSTER ABSTRACTS

(Kiosk #2)

P64. A TWENTY-FIVE YEAR EXPERIENCE WITH PERINEAL HERNIA REPAIR

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Presenter: Nicholas McKenna MD

Background: Due to the rarity of perineal hernias the optimal method of repair remains undetermined. The current literature largely encompasses small case series (n=1-8) that describe perineal and abdominal approaches, varying use of laparoscopy, and inconsistent use of mesh. More recently, the incidence of perineal hernias has been suggested to be as high as 12% after abdominal perineal resection (APR), indicating a significant problem necessitating a better understanding of the best method of repair. Leveraging our institution's experience over the past 25 years with perineal hernia repair, we herein describe our experience and management.

Methods: A retrospective review of an institution maintained database was conducted from January 1, 1994 to January 31, 2018 for patients undergoing perineal hernia repair. Data collected included patient characteristics, the indication and operation performed at the index surgery, details of the perineal hernia repair, 30-day postoperative complications, and recurrence following repair.

Results: Twenty-one patients underwent perineal hernia repair within the study period, but two-thirds of the operations occurred after January 1, 2011. Median age was 70 years (range, 37-83) and 12 were male. Index operation was predominantly APR (n=17). Diagnoses at the index operation consisted of rectal cancer (n=14), anal cancer (n=3), ulcerative colitis (n=1), and other (n=3). Eleven patients with rectal cancer received neoadjuvant chemoradiation. Median time to repair of perineal hernia after index operation was 13 months (range, 2-127).

Twenty of the 21 operations were completed in an open manner. An abdominal approach was used in 9 cases, a perineal approach in 9, and a combined approach in 3. Six patients had an additional hernia repaired concurrently (n=5 parastomal, n=1 inguinal), and these cases were all approached transabdominally. Mesh (n=8), mesh plus a tissue based flap (n=7), or a tissue based flap alone (n=4) were used in 90% of cases, with only 2 defects closed primarily. Thirty-day post-operative infectious complications were observed in 4 patients (n=2 superficial surgical site infection, n=1 infected seroma, n=1 missed enterotomy). Only 1 recurrence was noted.

Conclusion: Though seen infrequently the occurrence of symptomatic perineal hernia appears to be increasing. We did not observe any difference in outcomes between an abdominal or perineal repair; therefore the decision on approach should be based on the complexity of the perineal hernia and the presence of any concurrent hernias that need repair. Likewise, the decision to pursue tissue, mesh, or combined closure of the defect should be based on size and local conditions.

ePOSTER ABSTRACTS

(Kiosk #2)

P65. RECTAL CANCER OPTIMIZATION AT A SINGLE INSTITUTION: EVALUATION WITH OSTRICH CRITERIA

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Presenter: Claire Miller BS, MS

Background: In 2011, a consortium of surgeons came together in an attempt to standardize the management of rectal cancer throughout North America by 5 main principles (deemed OSTRiCh Criteria, OC), with the goal of reducing inconsistencies in patient treatment and outcomes. OC includes: total mesorectal excision, specific pathology techniques for management of surgical quality, specialist imaging techniques identifying patients at risk for local recurrence, use of neoadjuvant and adjuvant therapies, and a multidisciplinary team approach to treatment. Each facet of this protocol has proven to improve outcomes and decrease risk for local and distal recurrence. Adherence with OC, even amongst high-volume centers, is unknown and not described in current literature. We created a simplified scoring system based on the tenants described by OC to evaluate the compliance of 4 colorectal surgeons at a single, high volume, tertiary care, academic medical center

Methods: All patients who underwent surgical intervention for rectal cancer under the care of a colorectal surgeon from January 2014 to December 2017 were evaluated. Stage I disease, proximal rectal cancers, recurrent disease, and patients whose index visit with a colorectal surgeon occurred after neoadjuvant treatment, were excluded. A retrospective chart review was performed evaluating for tumor location, pre-operative imaging, tumor staging, pathology evaluation, use of neoadjuvant and adjuvant therapies, and presentation at a multidisciplinary conference.

Results: 128 patients underwent surgery for rectal cancer and 47 patients were excluded. Adherence to current recommendations within the study group (n=81) was 87.7% for imaging (pelvic MRI or endorectal ultrasound), 100% for total mesorectal excision, 40.7% had classification of TME by pathology, 91.4% received neoadjuvant chemoradiation, and only 53.1% were discussed at a multidisciplinary conference. Overall, only 27.2% of the cohort met criteria for all 5 tenants, and 56.8% had 4 or more tenants. Notably, treatment was discussed for all 7 patients who did not receive neoadjuvant therapy, but held for age, comorbidities, prior radiation, or connective tissue disorder.

Conclusion: Compliance with OC at this high-volume, specialty academic practice has been quite poor, at 27.2%. Even at a facility where protocols and support are in place for a team approach to cancer care, there are identifiable gaps in management. This indicates that a deficiency in rectal cancer care may be further reaching than currently identified, and may be more inferior at institutions where a colorectal surgical team is not in place. We have selected several areas for improvement at our institution; specifically, in striving to have all rectal cancer patients presented prospectively at our multidisciplinary conference, and in developing a dedicated gastrointestinal pathology section. All facilities treating rectal cancer should consider evaluation of their compliance with OC.

ePOSTER ABSTRACTS

(Kiosk #2)

P66. APPENDICEAL NEUROENDOCRINE TUMORS: DOES COLON RESECTION IMPROVE OUTCOMES?

A Crown, AG Lopez-Aguilar, M Dilhoff, EW Beal, GA Poultsides, E Makris, K Idrees, P Marincola Smith, H Nathan, M Beems, D Abbott, J Barrett, RC Fields, J Davidson, SK Maithel, FG Rocha

Virginia Mason Medical Center

Presenter: Angelena Crown MD

Background: Appendiceal neuroendocrine tumors (A-NET) are rare neoplasms of the GI tract. They are typically managed according to tumor size; however, little is known about the impact of surgical strategy on the short and long-term outcomes of these patients.

Methods: All patients who underwent resection of A-NET at 8 institutions from 2000-2016 were analyzed retrospectively. Patients were stratified according to resection type (appendectomy alone vs formal colon resection). Clinicopathological parameters, progression-free (PFS) and overall survival (OS) were compared between groups using student's t test, Mann-Whitney test, and the method of Kaplan and Meier.

Results: In 65 patients identified with A-NET, mean age of presentation was 45.9 ± 15.8 years in predominantly Caucasian (77%) and male (62%) patients. Forty-six percent of patients presented with symptoms, the most common being abdominal pain. Thirty-one patients underwent appendectomy (18 laparoscopic, 13 open) and 34 underwent colonic resection (4 ileocecectomy – 2 laparoscopic, 2 open, 30 right hemicolectomy – 14 open, 16 laparoscopic). The appendectomy group had more T1 tumors (85% versus 50%) than the colon resection group ($p < 0.01$) although median tumor size was similar 0.6 cm (IQR 0.4-1.04) versus 0.95 cm (IQR, 0.42-2.5), $p = 0.24$. Of patients in the colon resection group, 26% had positive lymph nodes and 7% had M1 disease. R0 resections were achieved in 90% of appendectomy patients and 97% of colectomy patients. Complications occurred with higher frequency in the colonic resection group (32%) compared to the appendectomy group (10%, all from open cases), $p = 0.04$. Readmission rates were similar, 6% in both groups. Median length of stay was longer in the colonic resection group compared to the appendectomy group, 4 days versus 2 days ($p = 0.0005$). One patient in each group required reoperation. Mean blood loss and operative time were lower in the appendectomy group compared to the colectomy group, 75 ± 91 mL versus 153 ± 143 mL, ($p = 0.05$) and 101 ± 50 min versus 178 ± 82 min, ($p = 0.01$), respectively. Median PFS and OS were identical and not different between appendectomy and colectomy, (106 months vs 126 months, $p = 0.82$).

Conclusion: A-NET PFS and OS appear to be equivalent regardless of surgical strategy. Formal colon resection is associated with increased complication rate, length of stay, OR time, and higher blood loss. Further study is warranted to identify patients that are likely to benefit from more aggressive surgery.

ePOSTER ABSTRACTS

(Kiosk #2)

P67. ADVANCED STATISTICAL METHODS USING ARTIFICIAL INTELLIGENCE: DO THEY OFFER BETTER PREDICTIVE POWER IN MODELING CLINICALLY RELEVANT POSTOPERATIVE PANCREATIC FISTULA?

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Presenter: Emanuel Eguia MD, MHA

Background: There has been increasing interest in applying artificial intelligence algorithms to large administrative datasets in effort to better identify causal relationships between pretreatment clinical variables and outcomes. We evaluate the potential advantages of using those methods to develop models predicting clinically relevant postoperative pancreatic fistula (CR-POPF).

Methods: The ACS NSQIP Procedure Targeted database for pancreas was queried to identify all adult patients undergoing Pancreaticoduodenectomy (PD) between 2014 and 2016 with CR-POPF. Clinically relevant pancreatic fistula was defined as patients with the designation of having a “pancreatic fistula” and had at least one of the following: drain in place for > 14 days during a hospital stay of > 21 days, organ space surgical infection, postoperative percutaneous drain placement, reoperation, sepsis, shock, or multisystem organ failure (respiratory or renal failure). Variable selection techniques using conventional and machine learning techniques for prediction of CR-POPF were performed using the following methods: (1) decision tree, (2) random forest, (3) logistic regression using best 2-, 3-, 4-, 5-variable subsets, (4) stepwise regression, (5) ridge regression, and (6) LASSO. The most parsimonious model was chosen by considering discrimination with the receiver operating characteristics (ROC) area under the curve (AUC) and model fit with the Bayesian Information Criterion (BIC). We analyzed the data using STATA and R software.

Results: A total of 10,973 patients underwent PD and 1,621 (14.8%) had a CR-POPF. The model with the highest ROC AUC and lowest BIC was a fourteen variable model established by stepwise logistic regression, with a ROC AUC of 0.67 (95% CI 0.66 – 0.68). Variables independently associated with CR-POPF in this model included soft gland texture (OR 1.91; 95% CI 1.70 – 2.15), metastatic disease (OR 1.62; 95% CI: 1.28-2.06), obesity (OR 1.59; 95% CI: 1.41-1.79), male gender (OR 1.48; 95% CI: 1.32– 1.65), preoperative dyspnea (OR 1.38; 95% CI 1.10-1.73), drain placement (OR 1.34; 95% CI: 1.11–1.62), Asian ethnicity (OR 1.34; 95% CI 1.02-1.75), small pancreatic duct size (OR 1.33; 95% CI: 1.18-1.51), Hispanic ethnicity (OR 1.30; 95% CI: 1.03-1.65). Patients with preoperative jaundice (OR 0.81; 95% CI: 0.72-0.91), Type 2 Diabetes Mellitus (OR 0.80; 95% CI: 0.70-0.91), preoperative weight loss (OR 0.79; 95% CI: 0.66-0.93), chemotherapy within 90 days (OR 0.62; 95% CI: 0.51-0.77), and radiation within 90 days (OR 0.58; 95% CI: 0.41-0.82) had a decreased odds risk of developing a CR-POPF. Models developed using advanced machine learning techniques including decision tree (ROC AUC 0.62; 95% CI: 0.60-0.62) and random forest (ROC AUC 0.59; 95% CI: 0.56-0.62) demonstrated lesser discriminatory power and more poor fit than those developed by step-wise multivariable logistic regression.

Conclusion: Non-linear statistical methods employing artificial intelligence algorithms provide no advantage over stepwise multivariable logistic regression in developing predictive models for CR-POPF from NSQIP data. The understanding of pancreatic fistula and mitigation strategies will ultimately be driven by ongoing improvements in fistula grading data capture and input data quality.

ePOSTER ABSTRACTS

(Kiosk #2)

P69. A DESCRIPTIVE ANALYSIS OF MOTORIZED WATERCRAFT INJURIES

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Presenter: Joshua Crosby MD

Background: Injuries related to motorized watercraft can be devastating. Even so, very little has been written regarding their epidemiology. The specific aim of this study is to better understand the patterns and outcomes of motorized watercraft injuries.

Methods: We performed a retrospective study of the 2015 National Trauma Data Bank using ICD-9 codes to identify patients who were injured as a result of motorized watercraft. Patients were subdivided into motorized watercraft occupants (MWO) and non-occupants (MWNO). Variables included patient demographics, injuries, abbreviated injury scores (AIS), injury severity score (ISS), and operations performed. We performed a propensity matched comparison of MWO with motor vehicle collision (MVC) and of MWNO with auto versus pedestrian (AVP). The primary outcome was mortality.

Results: There were 1364 motorized watercraft injuries. Patients were an average of 43 years old, 65% male, and 88% Caucasian, with an ISS=10. Injuries included TBI (9%), chest (23%), abdominal (11%), spinal cord (3%), and fractures including spine (22%), pelvic (7%), upper extremity (13%), and lower extremity (21%). The most common procedures were orthopedic (32%), laparotomy (3%), craniotomy (1%), and thoracotomy (0.15%). Mortality was 1.5%.

Comparing MWO (76%) to MWNO (24%), MWO were older (44 vs. 38, $p<0.0001$) and more often female (38% vs. 29%, $p=0.008$). MWO sustained more upper extremity fractures (16% vs. 6%, $p=0.0002$) and MWNO more lower extremity fractures (28% vs. 19%, $p<0.005$) and spinal cord injuries (7% vs. 3%, $p=0.005$). While ISS was similar (10 vs. 9, $p=0.34$), severe injuries (AIS ≥ 3) were higher for MWO in the chest (20% vs. 12%, $p=0.005$) and MWNO in the spine (7% vs. 3%, $p=0.005$) and lower extremity (20% vs. 15%, $p=0.048$). There was no difference in mortality.

Comparing MVC with MWO, MVC patients had a higher ISS (11 vs. 10, $p=0.01$), and sustained more TBI (15% vs. 9%, $p=0.002$), chest injuries (33% vs. 25%, $p=0.0005$), spine fractures (31% vs. 23%, $p=0.001$), upper extremity fractures (20% vs. 16%, $p=0.04$), and pelvic fractures (13% vs. 8%, $p=0.0003$). They also sustained more severe injuries to the head (14% vs. 10%, $p=0.02$) and the chest (28% vs. 20%, $p=0.0003$). However, despite having less severe injuries, MWO patients more often required an orthopedic procedure (31% vs. 26%, $p=0.02$) or an amputation of either upper (77% vs. 0%, $p=0.03$) or lower (1% vs. 0%, $p=0.008$) extremities. There was no difference in mortality.

Comparing MWNO to AVP, MWNO sustained more spinal cord injuries (7% vs. 1%, $p=0.002$) and more severe injuries (AIS ≥ 3) to the spine (7% vs. 1%, $p=0.002$) and lower extremity (20% vs. 13%, $p=0.04$). They also required more orthopedic procedures (38% vs. 31%, $p=0.04$). AVP patients sustained more TBI (17% vs. 7%, $p=0.0008$) more upper extremity fractures (23% vs. 6%, $p=0.0001$), and more chest injuries (25% vs. 13%, $p=0.001$). They also had more severe injuries to the head (18% vs. 7%, $p=0.0001$) and chest (21% vs. 12%, $p=0.007$). There was no difference in mortality.

Conclusion: Injuries related to motorized watercraft use occur most commonly in middle aged Caucasian men. Injury patterns are diverse, can include any body cavity and differ based on the location of the individual as an occupant or non-occupant of the watercraft. When compared to motorized vehicle collisions and auto versus pedestrian collisions, individuals injured by a motorized watercraft tend to be less severely injured but more often sustain life changing injuries such as amputations and spinal cord injuries.

ePOSTER ABSTRACTS

(Kiosk #2)

P70. THE LETHAL EFFECT OF OBESITY ON TRAUMA LAPAROTOMY

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Presenter: Faran Bokhari MD

Background: The link between obesity and trauma outcomes is complex. A nationwide analysis was performed to evaluate the association between obesity and outcomes in abdominal trauma patients, especially those undergoing a trauma laparotomy.

Methods: A retrospective analysis of the national trauma data bank (NTDB) was undertaken for the years 2013-2015. Mortality, complication rates and lengths of stay (LOS) were evaluated in abdominal trauma patients of different body mass indices (BMI).

Results: 117,352 abdominal trauma patients were evaluated in the NTDB with a mean BMI of 27.1. The BMI of deceased patients was significantly higher than survivors (28.0 vs. 27.1, $p < 0.001$). Elevation of one unit of BMI independently results in mortality and complication rate elevations of 1.1% and 1.8% respectively. Obese patients who received an operation fared much worse than non-obese patients with increased mortality and complication rates at 2.0% and 2.6% respectively for each unit increased BMI. For obese patients who did not require an operation, mortality was unchanged but the complication rate was increased by 1.2% per one unit increase of BMI. In addition, for trauma laparotomy patients, mortality rate increased significantly for BMI% >35 (odds ratio to mortality: 1.50 times in obesity class II and 1.69 times in obesity class III). Mortality of patients who underwent trauma laparotomy was not influenced by whether the patients sustained blunt or penetrating abdominal trauma.

Conclusion: Obesity causes increased morbidity in non-operative abdominal trauma. For abdominal trauma patients who underwent a trauma laparotomy, obesity is an independent risk factor for increased mortality.

ePOSTER ABSTRACTS

(Kiosk #2)

P71. PENETRATING THORACOABDOMINAL INJURIES: INDEPENDENT PREDICTORS OF MORTALITY

KL Chow, A Murillo, L Schwarzman, A Tully, HN Mashbari, M Hemdi, E Smith-Singares, EC Omi, JM Santaniello

University of Illinois at Chicago

Presenter: Kevin Chow MD

Background: Penetrating thoracoabdominal trauma has historically higher mortality rates with combined operations above and below the diaphragm. Mortality rates reported in the literature range from 20-41%. The aim of the study was to determine independent risk factors that are predictive of mortality in penetrating thoracoabdominal trauma.

Methods: This study is a retrospective chart review conducted at an urban level 1 trauma center. The institutional trauma registry was queried for all penetrating injuries to the thoracoabdominal region over a 2-year period; January 2015 - December 2016. Data regarding presentation, injuries, interventions, and outcomes were collected. The primary outcome for the study was mortality in patients with penetrating thoracoabdominal injuries requiring surgical intervention.

Results: There were 7,068 trauma activations during the study period with 430 penetrating thoracoabdominal injuries. Of those injuries, 204 (47.4%) were managed surgically with laparotomies (57.8%), thoracotomies (25.0%), median sternotomies (1.5%), or combined chest and abdominal explorations (15.7%). The overall mortality rate for all thoracoabdominal injuries was 22.8% while those who were managed surgically had a mortality of 27.0% divided in decreasing order: thoracotomy alone, combined operations, and laparotomy alone (68.6% vs 43.8% vs 4.2%). There were no survivors of the 39 patients who underwent resuscitative thoracotomies in the trauma bay.

Logistic regression of risk factors demonstrated that left chest injuries (superior to the nipple and to the left of midline) were more likely to present as traumatic arrests (OR 3.60, CI: 1.67-7.82; $p=0.001$) with significant mortality (OR 2.77, CI: 1.29-5.96; $p=0.009$). However, for patients who made it to the operating room, there was a higher risk of mortality in those with right thoracoabdominal injuries, from the nipple line to costal margin, (OR 4.91, CI: 1.71-14.11; $p=0.003$) and in those requiring combined chest and abdominal explorations (OR 9.66, CI: 3.63-25.65; $p<0.001$). GSWs compared to knife wounds had significantly higher rates of transfusions (OR 2.15, 95% CI: 1.23-3.77; $p=0.008$), traumatic arrests (OR 4.08, CI: 1.82-9.16; $p=0.001$) and mortality (OR 3.31, CI: 1.31-8.4; $p=0.011$).

Conclusion: Penetrating thoracoabdominal trauma requiring combined thoracotomies and laparotomies continues to have a high mortality with GSWs carrying a significantly higher risk of lethality as compared to knife wounds. Left chest injuries have a higher risk of traumatic arrests; however, for patients who make it to the operating room, right thoracoabdominal injuries have a higher risk of mortality. These findings might be explained by the higher incidence of cardiac injuries with the left chest and liver injuries with right thoracoabdominal injuries. Alternatively, the differences in mortality may represent the difficulty and associated mortality of multiple body cavity explorations and the sequence in which they occur. Further research is needed to identify risk factors that may direct clinical decision making and improve mortality.

ePOSTER ABSTRACTS

(Kiosk #2)

P73. INCISIONAL SURGICAL SITE INFECTIONS IN OPEN ABDOMEN: DOES CLOSURE TECHNIQUE MATTER?

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Presenter: Savo Bou Zein Eddine MD

Background: Adult patients with abdominal trauma requiring an exploratory laparotomy, specifically open abdomens (OA), comprise a distinct patient population at risk for surgical site infection (SSI). Multiple methods of wound closure have been proposed to decrease rates of SSI, resulting in a wide variability of utilized techniques. We hypothesize that vacuum assisted (VAC) delayed primary closure (DPC) in traumatic OA has a lower risk of SSI as compared to other techniques.

Methods: A retrospective chart review was conducted of patients - aged 18 years and above - who underwent exploratory laparotomies with OA approach between November 2013 and March 2018 with no in-hospital mortality before fascial closure. Demographics, medical history, injury characteristics, operative course, closure technique (primary closure (PC), traditional DPC, incisional VAC or VAC DPC), hospital course, and complications were examined to evaluate their influence on the development of a SSI.

Results: A total of 81 patients underwent exploratory abdominal surgery with OA management. 87.8% were males. Median age was 34.0 (IQR: 23.0 - 48.8) and median BMI was 26.8 (IQR: 23.7 - 31.8). Our mean abdominal trauma index (ATI) was $20.8 \pm SD 14.7$. Of the total population, 64.6% had a penetrating abdominal injury, 29.6% had only one hollow organ perforation, 5% had duodenal perforations, 12.3% had colon perforations, and 2.5% having rectal perforations. The median of total operation days per patient was 4.0 (IQR: 3.0 - 7.0). Skin was closed in 71.6% of the cases. Incisional VAC was used in 8.6% of the patients. DPC was used in 28.4% of the patients, of which 73.9% were VAC DPC. 17.3% developed wound infections, of which 28.6% were superficial SSI/deep incisional SSI and 78.6% were organ space SSI. Penetrating injuries ($p=0.020$), duodenal perforation ($p=0.009$), colon perforation ($p=0.042$), rectal perforation ($p=0.002$), and the total number of perforations ($p=0.003$) were significant predictors of developing a SSI. None of the different closure techniques (PC, traditional DPC, incisional VAC, or VAC DPC) were significant predictors of developing superficial/deep incisional or any SSI.

Conclusion: In traumatic OA, patient and injury characteristics may have a greater influence on SSI rather than closure technique. This should be considered during the final closure of the open abdomen patient.

ePOSTER ABSTRACTS

(Kiosk #3)

P77. POSTOPERATIVE VENOUS THROMBOEMBOLISM IN THE INCARCERATED PATIENT POPULATION

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Albany Medical College

Presenter: Andrea Gillis MD

Background: Venous thromboembolic events (VTE) are a well-established source of postoperative morbidity and mortality, with institutional rates being a benchmark for high quality care. Additionally, the financial burden of VTE on the United States healthcare system is significant, costing 7-10 billion dollars annually. There are 2.3 million people in the prison system in the United States, and incarceration has been linked to higher rates of negative health outcomes. Studies examining surgical outcomes within this vulnerable patient population are historically sparse. Here, we examine the incidence of postoperative VTE in an inmate population (IP) as compared to the general population (GP) of patients.

Methods: This retrospective cohort study included a total of 906 inmates matched via propensity scores to 906 GP patients who underwent an inpatient general surgical procedure between 1/2009 - 3/2018 at a single tertiary academic center. The primary outcome measure was incidence of VTE, including deep venous thrombosis (DVT) and pulmonary embolism (PE). Secondary outcomes were length of stay and mortality. The IP and GP cohorts were matched by age, gender, and diagnosis (Charlston Comorbidity Index). T-tests, chi-squared, and Fisher's exact tests and modified Poisson regression were used for data analysis. Statistical Software STATA 14.0 was used for analysis.

Results: The average age of groups was 46.5 years ($p=0.9$). Venous thromboembolic events were higher in the IP as compared to the GP, 1% ($n=9$) vs. 0.22% ($n=2$) ($p=0.06$) with an IRR of 4.5 (95% CI 0.97 to 20.85). The rates of DVT and PE individually were similar between groups. One inmate patient had a documented DVT and PE. Length of stay was longer in the IP group by 1.4 days (9.1 ± 12.3 days vs 7.7 ± 13.9 days, $p=0.02$). There were no mortalities either VTE group.

Conclusion: To our knowledge, this is the first study that investigates the incidence of postoperative VTE in the incarcerated patient population. The trend toward higher VTE in this relatively healthy, young group of individuals as compared to the matched GP group indicates there is a need for attention to perioperative risk reduction to improve quality of care to this vulnerable population. Because of the inherently infrequent occurrence of VTE events, future large-scale multi-center studies are warranted to describe and compare the outcomes of IP and GP groups. Limited ability to ambulate postoperatively, and longer lengths of stay may both contribute to this higher risk of adverse outcomes, and may benefit from quality improvement initiatives to mitigate the discrepancy.

ePOSTER ABSTRACTS

(Kiosk #3)

P78. TRAUMATIC ABDOMINAL WALL HERNIAS: A CASE SERIES EVALUATING INJURY PATTERNS

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University of Illinois at Chicago

Presenter: Kevin Chow MD

Background: Evidence of abdominal wall injury is seen on CT scans in 9% of blunt trauma patients. Injuries causing fascial disruptions or traumatic abdominal wall hernias (TAWH) are a rare injury pattern seen in less than 0.2% of patients following high-energy blunt trauma. The aim of this study is to describe injury patterns associated with this rare traumatic presentation.

Methods: This is a descriptive study from a single center retrospective chart review of an urban level I trauma center. The trauma registry was queried between January 2004 - December 2017 for patients with acute TAWH. Inclusion criteria were acute TAWH diagnosed during admission and blunt trauma mechanism. Exclusion criteria were penetrating trauma, age < 18, and pregnant patients. The data collected included baseline demographics, patient presentation, associated injuries, timing and method of repair, and outcomes.

Results: Over the course of 14 years, there were 16,957 patients admitted with blunt traumatic injuries. Fifteen patients, 0.1% of high-energy blunt trauma admissions, met inclusion criteria. There was a total of 19 repairs in the study population. The average age was 31 ± 11 years, ISS 15 ± 9 , and BMI 33.4 ± 7.1 kg/m². Mechanisms included: falls (13%), motor vehicle collisions (60%), motorcycle accidents (20%), and pedestrian versus motor vehicle collisions (7%). Pre-operative CT was performed in 93% of initial presentations. There were 3 grade IV and 12 grade V abdominal wall injuries. The majority of patients were repaired in the acute setting (93%). The most commonly associated injuries included colonic injuries (53%), long bone fractures (47%), pelvic fractures (40%), and small bowel injuries (33%). The wound classifications were divided into clean (40%), clean-contaminated (20%), and contaminated (40%). Methods of repair included: mesh underlay (63%), mesh bridge (11%), and primary suture repair (32%). There was no significant relationship between contamination and mesh use or recurrence. There were 4 recurrences in 3 patients; 2 patients were initially repaired primarily, and 1 patient recurred after mesh repair due to infection. There was one mortality related to sepsis and multi-organ failure.

Conclusion: The formation of TAWH is typically from a combination of shearing forces and intraabdominal pressures damaging the fascia while the skin remains intact. The operating surgeon should be cognizant of concomitant injury patterns, with pelvic visceral injuries and fractures seen most often. In patients without hollow viscous injuries and gross contamination, these hernias can be repaired safely with mesh in the acute setting. However, in patients with gross contamination or hemodynamic instability, the risk of recurrence with primary repair must be weighed against the risk of infection and prolonged surgery with mesh repair. In those cases, a delayed reconstruction in the elective setting may be optimal.

ePOSTER ABSTRACTS

(Kiosk #3)

P79. EFFECT OF NODAL SKIP METASTASIS ON POSTOPERATIVE OUTCOMES AFTER ROBOTIC-ASSISTED PULMONARY LOBECTOMY FOR NON-SMALL CELL LUNG CANCER

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Presenter: Roger Gerard BS

Background: We sought to evaluate both short- and long-term postoperative outcomes between patients with continuous nodal metastasis (NoSkip) compared to those with nodal skip-metastasis (Skip).

Methods: We retrospectively analyzed patients who underwent robotic-assisted videothoracoscopic (RAVT) pulmonary lobectomy by one surgeon between September 2010 and May 2017. Patients with final pathology reporting pulmonary metastasis or benign lesion were excluded. Inclusion criteria consisted of obligatory pathologic mediastinal nodal (pN2) classification. Patients were then stratified into two groups: Skip or NoSkip. Patients' demographics, perioperative outcomes, perioperative complications, and overall survival (OS) were compared.

Results: Of a total of 423 patients who underwent RAVT lobectomy, 390 patients had non-small cell lung cancer (NSCLC). While 319 patients with NSCLC were pN0 or pN1, 71 patients had pN2 disease, of which 18 (25.3%) were Skip and 53 (74.7%) were NoSkip. Mean age, gender distribution, and body habitus were similar between groups ($p=0.617$, $p=0.194$ and $p=0.091$, respectively). Patients with Skip had lower mean pre-operative forced expiratory volume in 1 second as percent of predicted (FEV1%; $79.5\pm3.5\%$ vs. $89.7\pm2.8\%$), but this difference was not quite significant ($p=0.053$). Albeit not significant, patients in the NoSkip group had slightly more intraoperative complications (15.1% vs. 5.6%) and slightly more often required conversion to thoracotomy (15.1% vs. 5.6%) compared to the Skip group ($p=0.293$ and $p=0.293$, respectively). Incidence of postoperative complications were similar between groups ($p>0.05$). Patients in both groups had similar median estimated blood loss (EBL; 200 mL vs. 200 mL), operative time (214.5 min vs. 197 min), chest tube duration (4.5 d vs. 4 d), and hospital length of stay (LOS; 5 d vs. 5 d) ($p=0.734$, $p=0.178$ and $p=0.973$, respectively). Mean number of N1 lymph node (LN) stations reported and mean number of N1 LNs evaluated were similar between groups (1.9 ± 0.1 vs. 1.7 ± 0.1 [$p=0.226$] and 7.6 ± 0.6 vs. 6.7 ± 0.6 [$p=0.441$], respectively). Mean number of N2 LN stations reported and mean number of N2 LNs evaluated were also similar between groups (3.7 ± 0.0 vs. 3.4 ± 0.2 and 11.4 ± 1.1 vs. 9.4 ± 1.4 , respectively). Patients with nodal skip metastasis (Skip group) had slightly less favorable 1-yr ($50.7\%\pm13.8\%$ vs. $80.0\%\pm6.4\%$) and 3-yr OS ($42.2\%\pm13.9\%$ vs. $57.1\%\pm9.2\%$) ($p=0.077$).

Conclusion: Mean patient age, gender distribution, and body habitus did not differ between groups. Patients with Skip had reduced FEV1% pre-operatively, but the number of postoperative complications remained similar between groups. No significant differences were noted in EBL, operative times, chest tube duration, and hospital LOS. Skip is associated with worse OS compared to patients with NoSkip.

ePOSTER ABSTRACTS

(Kiosk #3)

P80. HOW WELL DOES PREOPERATIVE IMAGING PREDICT TUMOR SIZE IN BREAST CANCER PATIENTS?

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Presenter: Anecs Chagpar MD, MSc, MPH, MA, MBA

Background: Preoperative imaging, with mammography, ultrasonography and/or MRI is considered prerequisite to breast conserving surgery, often providing the surgeon with important information as to tumor size and location. How accurately our current modalities of imaging predict extent of disease, however, remains unclear.

Methods: The SHAVE trial is a randomized controlled trial in which patients underwent breast conserving surgery and were randomized to either have cavity shave margins resected or not. All patients had preoperative imaging at the discretion of the treating surgeon. Of the 235 patients in the trial, 7 (3.0%) had neoadjuvant chemotherapy; another 9 (3.8%) had no disease remaining after core biopsy at the time of surgery. The remaining 219 patients formed the cohort of interest. Data was gathered from imaging reports as to extent of disease (where indicated) and tumor size of both invasive and in situ components were obtained from the pathology reports. Non-parametric correlations of tumor size based on preoperative imaging and pathology were calculated using SPSS Version 24 software.

Results: In this cohort, 50 patients had invasive cancer, 45 had DCIS, and 124 had both. The median tumor size of the invasive component 1.10 cm (range; 0.1-6.5 cm), and the median size of the DCIS was 1.20 cm (range, 0.1-9.3 cm). For the purposes of this study, we correlated imaging with the largest tumor size (regardless of whether DCIS or invasive). Of the 219 patients in this cohort, 93 had a mammographic mass, 54 had calcifications, 45 had both, and 27 had neither. A quantitative size was noted on 72 mammograms. The median mammographic tumor size was 0.9 cm (range; 0.2-4.0) while the median pathologic tumor size was 1.6 cm (range; 0.1-9.3), Pearson correlation coefficient=0.443, $p<0.001$. Mammograms overestimated tumor size by ≥ 1 cm in 5 (6.9%) cases and underestimated tumor size by ≥ 1 cm in 25 (34.7%) cases. Ultrasound was performed in 195 (89%) of cases; a quantitative tumor size measurement was noted in 138 (70.8%). Performance of ultrasound was more often done in cases presenting with a mammographic mass (69.2% vs. 30.8%, $p<0.001$), and invasive disease (82.1% vs. 17.9%, $p<0.001$). The median tumor size on ultrasound was 1.0 cm (range; 0.3-0.6). Ultrasonographic tumor size correlated with pathologic tumor size (Pearson correlation coefficient = 0.383, $p<0.001$). Ultrasound overestimated tumor size by ≥ 1 cm in 4 (2.9%) of cases, and underestimated tumor size by ≥ 1 cm in 54 (39.1%) of cases. MRI was done in 59 (26.9%) of cases; quantitative tumor size being reported in 33 (56%) of these. Median MRI tumor size was 1.7 cm (range; 0.5-9.0 cm), which correlated with pathologic tumor size (Pearson correlation coefficient = 0.686, $p<0.001$). MRI overestimated pathologic tumor size by ≥ 1 cm in 4 (12.1%) of cases, and underestimated pathologic tumor size by ≥ 1 cm in 7 (21.2%) of cases. When averaging the tumor size based on all imaging modalities performed for each patient, imaging still underestimated tumor size by 0.83 cm on average (range; underestimate by 5.3 cm to overestimate by 3.0 cm).

Conclusion: While preoperative imaging is helpful in surgical planning, both patients and physicians should be aware that tumor size noted is an estimate, and can either under- or overestimate actual tumor size significantly.

ePOSTER ABSTRACTS

(Kiosk #3)

P82. RIGHT SIDED DISPLACEMENT OF THE THORACIC AORTA BY TYPE IV HIATAL HERNIA: AN ANATOMIC CONSIDERATION AT THE TIME OF LAPAROSCOPIC HERNIA REPAIR

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McGovern Medical School at the University of Texas Health Science Center at Houston

Presenter: Grant Garwood BS

Background: Type IV hiatal hernia can result in displacement of mediastinal structures such as anterior shift of the heart. Our goal was to assess right sided displacement of thoracic aorta in patients with type IV hiatal hernia.

Methods: Retrospective review of prospectively collected data. The patients with type IV hiatal hernias from 07/07/2010 to 12/15/2017 were included in the study. All patients underwent an esophagram and an upper endoscopy. CT scan was obtained in 90/135 (67%). The anatomical position of the thoracic aorta was assessed by CT scan and intraoperatively. Intrathoracic stomach was defined as 100% herniation of the stomach into the chest. Values are presented as median and interquartile range.

Results: There were 135 type IV hiatal hernia, 106 females, 29 males, age of 69 years (60-77). The most common herniated organ was omentum in all, in addition to omentum: colon in 7 (5%), small bowel in 6 (4%), and pancreas in 1 (0.7%). Small bowel or colon was seen in 9 (6.7%). Small bowel and colon was seen on 4 (3%). Intrathoracic stomach was seen in 58/135 (43%).

Right sided displacement of the thoracic aorta was seen in 12/135 (8.9%), 9/90 (10%) on CT scan and 3 additional at the time of repair, 8/12 had herniated omentum and partial herniation of the stomach, 4/12 had herniated omentum and an intrathoracic stomach (1/4 had herniated small bowel and colon), there were 10 females, 2 males, age 70 years (64-75). In 123 patients with non-displaced aorta, there were 96 females and 27 males, age 69 (59-78). There was no difference between age and gender between patients with displaced and non-displaced aorta. None had a right sided aortic arch.

% herniated stomach was 61% (50-100) in patients with displaced aorta vs. 66% (50-100) non-displaced aorta ($p=0.77$). Intrathoracic stomach was seen in 4/12(33%) in patients with displaced aorta vs. 54/123 (44%) non-displaced aorta ($p=0.584$). Herniated small bowel or colon was seen in 1/12 (8.3%) in patients with displaced aorta vs. 8/123 (6.5%) non-displaced aorta ($p=0.81$). Herniated SB and colon was seen in 1/12 (8.3%) patients with displaced aorta vs. 3/123 (2.4%) non-displaced aorta ($p=0.25$).

Displaced aorta was seen in 4/58 (6.9%) with intrathoracic stomach vs. 8/ 77 (10%) without intrathoracic stomach, ($p=0.58$). Displaced aorta was seen in 1/9 (11%) with herniated small bowel or colon vs. 11/126 (10%) without herniated small bowel or colon ($p=0.81$). Displaced aorta was seen in 1/4 (25%) with herniated small bowel and colon vs. 11/131 (8%) without herniated small bowel and colon ($p=0.25$).

All repairs were performed laparoscopically. There was no aortic injury. There were no conversions.

Conclusion: Right sided displacement of the thoracic aorta can occur in patients with type IV hiatal hernia with herniated omentum and any size of herniated stomach. Recognition of this anatomical variation is useful during laparoscopic mediastinal mobilization and crural closure.

ePOSTER ABSTRACTS

(Kiosk #3)

P83. PREDICTORS FOR RECURRENCE AFTER LAPAROSCOPIC PARAESOPHAGEAL HERNIA REPAIR

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Presenter: Stephanie Novak MS

Background: Although it is well known that there is a high rate of recurrence after laparoscopic paraesophageal hernia (PEH) repair, little data exists showing what factors are predictive of these recurrences. Our study sought to explore potential risk factors associated with a higher rate of recurrence after PEH repair.

Methods: A retrospective review of a prospectively collected Quality database was performed for patients who had undergone a PEH repair in an academic medical center. Preoperative, intraoperative and postoperative data was collected. Recurrence rates and patient characteristics were compared with chi-square or Fishers exact tests. Univariable and multivariable Cox regression modeling was used identify potential predictors.

Results: Of the 316 patients who underwent laparoscopic PEH repair at our institution since 2010, complete data was available for 273 patients, with a cohort of 28 (10.3%) experiencing recurrence after surgery. A univariable analysis of patient characteristics revealed obesity, smoking status, asthma and fundoplication type as potentially affecting recurrence rates. Heartburn, dysphagia, water brash, globus sensation and PPI use were found as preoperative symptoms likely associated with recurrence. Longer operative time, higher estimated blood loss, mesh type, American Society of Anesthesiologists (ASA) class, length of stay, pain at discharge, emergency department visits and readmission all appeared to be potential factors impacting recurrence rate. Multivariable analysis showed that preoperative heartburn (Hazard Ratio=3.69, 95% Confidence Interval=1.09-12.53, $p=0.036$) and higher ASA class (HR=3.54, 95% CI=1.54-8.13, $p=0.003$) were both independent predictors of PEH recurrence. BMI ≥ 30 (HR=0.41, 95% CI=0.16-1.04, $p=0.060$) was shown to be a protective factor against recurrence. The use of biosynthetic mesh (glycolic acid and triethylene carbonate) was protective when compared with no mesh ($p=0.0592$).

Conclusion: Our data shows that preoperative heartburn and ASA class are each independent predictors of recurrence after laparoscopic PEH repair. Our data builds upon previous literature that has suggested a link between heartburn and PEH recurrence with a powered analysis that supports this conclusion and is able to demonstrate further factors that are predictive of recurrence after laparoscopic PEH repair. Furthermore, we show that obesity is protective factor against recurrence, as is the use of biosynthetic mesh when compared with no mesh.

ePOSTER ABSTRACTS

(Kiosk #3)

P84. RESUSCITATIVE ENDOVASCULAR BALLOON OCCLUSION OF THE AORTA (REBOA): A BRIDGE, BANDAID, OR BOTH? RESULTS FROM A NATIONAL TRAUMA DATABASE

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Presenter: Megan Brenner MD, MS

Background: REBOA is being increasingly utilized to temporize non-compressible torso hemorrhage. An ICD-10 code was added to the National Trauma Data Bank (NTDB) in 2016, providing a method to capture the procedure. We aimed to analyze current practices of REBOA using NTDB data to identify and investigate patterns of use, quality metrics, and outcomes.

Methods: Patients submitted to NTDB under ICD-10 procedure code 04L03DZ from Jan 1 2016 to March 31 2017 were included. The two highest volume REBOA centers in the US were excluded.

Results: A total of 114 patients were submitted from 64 centers, of which 66% were ACS verified. Median number of procedures per institution was 1 (IQR 1, 2) with a maximum of 16. Mean age was 46 years (range 15-106), admission systolic blood pressure 97mmHg (range 0-187), admission heart rate 94bpm (range 0-180), and median ISS 34 (IQR 19, 43). 87 patients received a median of 10units (IQR 5,19) PRBC. 43 patients (38%) underwent angiography within a median time of 4.1 hours from admission (IQR 2.1, 6); of those, 36 (83.7%) had embolization, primarily for pelvic injury (63.9%). The angiography subgroup had an overall mortality rate of 55.8%.

Conclusion: Although this data represents initial adoption in these institutions, it is clear that REBOA is not performed routinely. This has significant implications for credentialing, skills sustainment, and quality assurance measures. Time to angiographic hemorrhage control continues to be a challenge, even in those patients who require immediate temporization with REBOA in the resuscitation area.

ePOSTER ABSTRACTS

(Kiosk #3)

P85. MALE BREAST CANCER: A RETROSPECTIVE LOOK AT THE NATIONAL CANCER DATA BASE FROM 2008-2015

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Rush University Medical Center

Presenter: Jennifer Son MD

Background: Male breast cancer comprises about 1% of total breast cancer and is therefore understudied. In the past, many studies have implied that male breast cancer has a worst prognosis from the female counterpart likely due to a delay in diagnosis, higher stages or management. Some studies show that men with invasive breast cancer treated with modified radical mastectomy, radiotherapy, chemotherapy and anti-hormonal therapy still had inferior outcomes to females with similar age, pathology receptor status, node status and treatment. However, recent studies show that after adjusting for stage at diagnosis, gender was not a significant predictor of survival. An analysis of male breast cancers from different databases found that men have a lower breast cancer survival rate than women.

Our study aims to use the National Cancer Database from 2008- 2015 to compare males and females with breast cancer and analyze the type of surgery performed, demographics, and overall survival. Our goal is to understand why there is an inferior survival in men with breast cancer and examine the overall demographics that play a role in this disparity.

Methods: There were 15,647 males and 1,723,207 females with breast cancer in the NCDB. Demographic variables and treatment types were analyzed. Chi-Square tests were conducted on categorical data. Welch's t-test was utilized on ordinal variables. Kaplan Meier analysis was used to examine each treatment separately. Analyses were conducted in R 3.3.2.

Results: There was a higher percentage of black men (13.4%) diagnosed with breast cancer than black women (11.6%). Black male and female patients had a higher pathology stage compared to their white counterparts. A higher percentage of women (84%) had a Charlson Score of 0 compared to males (78.3%). More females compared to males had private insurance. The most common procedure among men was total mastectomy, with 36.1% of men and only 14.6% of women undergoing this procedure. Women survived for a significantly longer time than men ($p < 0.001$), with survival rates five years after diagnosis at 85.3% for women, and 74.2% for men.

Conclusion: Males are likely to have more co-morbidities, higher stage of disease, less private insurance, and more likely to have a lower income than females with breast cancer which can affect survival rates. The aforementioned demographic differences can affect access to care and thus poorer survival in males with breast cancer. Black patients had a higher stage of disease suggesting a continued disparity in both males and females with breast cancer. It is increasingly important to address disparities as the population becomes more diverse and to understand the wide range of factors that contribute to them such as socioeconomic and insurance status. Further studies are necessary to address disparities amongst males that exist in the treatment of breast cancer and how we can work to provide equal care for all.

ePOSTER ABSTRACTS

(Kiosk #3)

P86. TRAUMA TO THE EYE: AN IMPORTANT CAUSE OF TRAUMA MORBIDITY

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Emory University

Presenter: Stephanie Busby, MD

Background: Ocular trauma is the leading cause of monocular visual loss in the United States, particularly in children and young adults. Still, all individuals across the lifespan are at risk for ocular injuries. The aim of this study was to evaluate the clinical characteristics and clinical outcomes of patients who sustained acute trauma to the eye.

Methods: A retrospective cohort analysis of adult patients with severe ocular trauma (defined as injury to the eye requiring hospitalization and evaluation by trauma and ophthalmology specialists) was performed at an urban, level I trauma center. Data from 1/3/16 to 12/29/17 were analyzed. International Classification of Diseases, Tenth Revision, identified patients with acute ocular injuries. Patient demographics, mechanism of injury, injury severity score (ISS) and need for operative procedures were recorded. Outcomes included surgical procedures and mortality.

Results: 321 patients were identified: 239 were male (74%), 185 were black (58%) and median age was 41 years (Q1 29, Q3 54). The majority of injuries were related to blunt mechanisms (N=274, 85%) and the mechanisms of injury varied widely. Blunt mechanisms included motor vehicle collisions (N=92, 29%), assaults (N=71, 22%), falls (N=47, 15%), pedestrian struck (N=18, 6%), bicycle crash (N=4, 1%) and other (N=42, 13%). Penetrating mechanisms included gunshot wounds (N=31, 10%), stabbings (N=3, 1%), glass injury (N=2, <1%) and other (N=10, 3%). Median ISS = 9 (Q1 5, Q3 17). Disposition from the ED was notable for 105 (33%) requiring immediate operative intervention and 68 (N=21%) requiring ICU care. Mortality was rare (N=8, 2.5%). Patients were discharged from the hospital to home (N=240, 75%), rehabilitation centers (N=29, 9%), morgue (N=8, 2.5%), assisted living (N=4, 1.3%), skilled nursing facility (N=1, 0.3%) or other locations (N=39, 12%). Of those tested for alcohol and drugs (N = 246 and 120, respectively), 62 patients had alcohol levels beyond the legal limit (25%) and 40 were positive for illicit drug use (33%).

Conclusion: Although trauma to the eye is not associated with significant mortality, these injuries are prevalent and may contribute to increased hospital costs and disability. Future research focused on long-term visual functional outcomes after trauma as well as strategies for effective prevention, including drug and alcohol counseling, is warranted.

ePOSTER ABSTRACTS

(Kiosk #4)

P87. WHY, WHEN AND WHERE PATIENTS WHO UNDERGO TRAUMA LAPAROTOMY DIE

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Grady Memorial Hospital

Presenter: Peter Rhee MD, MPH

Background: The purpose of this study was to describe the etiology, timing and disposition of those who die after a trauma laparotomy. A better understanding of the circumstances surrounding their death may guide us on how we can potentially improve.

Methods: Three-year (2015-2017) review of all deaths after initial trauma laparotomies at a Level I trauma center. Initial trauma laparotomy was defined as those performed within six hours of arrival. Time to death was recorded in hours. Location of death was noted. Reasons for death were classified as uncontrolled decompensating irreversible hemorrhagic shock (UDI-SH) if the patient died within 24 hours of arrival primarily from exsanguination, traumatic Brain Injury (TBI) if the patient died of head injury while hemorrhage and contamination was controlled on the initial laparotomy, multiple organ dysfunction syndrome (MODS) if the patient survived 24 hours but later died of organ failures, sepsis if death was from known uncontrollable bacterial infection. Late death was defined as death after 28 days of hospitalization.

Results: There were 947 patients requiring trauma laparotomy during the study period (mean = 316 /year). The trauma volume and number of laparotomies did not change significantly over time. Overall mortality was 11.2% (106 deaths) and 23% for hypotensive (SBP<90mmHg in trauma bay) patients. The breakdown of the why, where and when the patients died are shown below. The majority (54%) of deaths were from UI-HS. The major cause of UI-HS death (57) were gunshot wounds (30) and most of these patients were in extremis as they underwent emergency department thoracotomy (20 EDT) or operating room thoracotomy (21 ORT). There were no deaths from stab wounds. The blunt trauma deaths were also in extremis as 41/49 needed proximal aortic occlusion either through the chest abdomen or Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) (6). Time of death was logarithmic in shape with 46% of the deaths occurring within 6 hours. Late deaths occurred in only 5 patients.

	DEATHS	OR	ICU	TIME (mean (range))	EDT	ORT	REBOA
UDI-HS (EXSANG)	57	47	11	3.5 HRS (1-18)	20	21	5
TBI	20	20	8 days	(1-56)			
MODS	19	1	15	10 days (2-47)	2	3	1
SEPSIS	4	3	27 days	(6-75)	1		
OTHER	6	4	17 days	(4-27)			
TOTAL	106						

Conclusion: The most common cause of death was patients in extremis with uncontrolled irreversible hemorrhagic shock. Most of these patients died in the OR within 6 hours of their arrival and many had no signs of life on initial presentation requiring emergent aortic clamping or occlusion. TBI was the second most common cause of death and these were all considered anticipated deaths. This study may help us understand where the efforts should be placed to improve our care and may also be useful to help allocate research efforts to improve survival in trauma.

ePOSTER ABSTRACTS

(Kiosk #4)

P88. MORBIDITY AND MORTALITY FROM GUNSHOT WOUNDS OF THE ESOPHAGUS: MULTIVARIATE ANALYSIS OF PERIOPERATIVE RISK FACTORS ON CLINICAL OUTCOMES

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JM Santaniello, EC Omi

University of Illinois at Chicago

Presenter: Kevin Chow MD

Background: Gunshot wounds (GSWs) of the upper gastrointestinal (GI) tract pose as surgical dilemmas given their anatomic location and physiologic implications. The decision to repair, with or without diversion, or perform damage control with delayed reconstruction is not always straightforward. Anastomotic leaks were once thought to lead to increased mortality. There is no current consensus on how these types of injuries are best managed. The aim of this study is to evaluate factors that may influence clinical outcomes following these injuries.

Methods: This is a single center retrospective chart review of an urban level I trauma center. The trauma registry was queried for patients admitted to the trauma service with injuries to the esophagus from a GSW between 2007-2016. Only patients with confirmed esophageal injuries on surgical exploration or endoscopy were included. Data was collected regarding their presentation, surgical management, and post-operative care. The primary outcome was mortality. Secondary outcomes included anastomotic leak and time until enteral diet. A univariate analysis was conducted for categorical variables using Chi Square test. A binomial logistic regression was done for multivariate analysis of risk factors for the primary and secondary outcomes.

Results: There were 20 patients that met inclusion criteria. The patient population was primarily male (75%) with GSWs to the esophagus. The mean injury severity score was 21. Injuries were divided into cervical (35%), thoracic (50%), and gastroesophageal junction (15%). The most common concomitant injuries were to the trachea (30%), lung (65%), and liver (30%). Methods of repair included: debridement and primary repair (80%), diversion (10%), resection with primary anastomosis (5%), and drainage alone (5%). Most patients received additional feeding access via gastrostomy (30%) or jejunostomy (25%) tube. The median time to resume enteral diets was 5 days (3 to 10 days).

Three patients out of 20 died for an overall mortality of 15%. Each mortality underwent a debridement and primary repair in conjunction with a damage control laparotomy and an open abdomen during their initial operations. While the overall leak rate was 30%, there was no statistical difference in leak rates for the different injury locations. The patients who died had significantly higher injury severity scores (36 vs 18, $p=0.05$) and received more transfusions of red blood cells (5.2L vs 1.5L, $p=0.03$) and plasma (3.0L vs 0.5L, $p=0.02$), but none of them leaked from the esophageal repair.

On univariate analysis, BMI > 35 kg/m², the presence of associated intra-abdominal injury, and intra-operative lactic acid > 3 mmol/L were associated with higher risks of mortality (Chi-square, $p<0.05$). No variables appeared to be an independent risk factor for the development of the anastomotic leak or mortality on the multivariate analysis.

Conclusion: The surgical management of penetrating esophageal trauma remains a challenge to the trauma surgeon. The surgeon's decision to repair or divert is influenced by numerous factors including timing, blood loss, associated injuries, and the overall patient condition. Despite advancements in surgical critical care, the anastomotic leak rate and mortality of esophageal trauma remains high. However, obesity, associated intraabdominal injuries, and ongoing lactic acidosis despite adequate resuscitation seem to be associated with a higher mortality and not anastomotic leak.

ePOSTER ABSTRACTS

(Kiosk #4)

P89. LUNG TUMOR HISTOLOGY AS A PROGNOSTIC FACTOR FOR SHORT- AND LONG-TERM POSTOPERATIVE OUTCOMES

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Moffitt Cancer Center

Presenter: Roger Gerard BS

Background: Based on the 2015 World Health Organization (WHO) Classification of Lung Tumors, we investigated whether lung tumor histology serves as a clinical factor that predicts short-term and long-term perioperative outcomes.

Methods: We retrospectively analyzed patients who underwent robotic-assisted video-thorascopic lobectomy by one surgeon over 81 months. Patients were grouped by tumor histology based on final pathology report. Patients' demographics, smoking history, lobar tumor location, extent of resection, intraoperative outcomes, perioperative complications, and hospital length of stay (LOS) were compared.

Results: Among 420 study patients, the most common tumor type was adenocarcinoma (AD, 59.8%), followed by squamous cell carcinoma (SQ, 19.3%) and neuroendocrine carcinoma (NEC, 11.7%). Final histology for the remainder of the study cohort consisted of adenosquamous carcinoma (AdSq, 2.1%) and pulmonary metastasis (PM, 7.1%). All patients with AdSq histology had a positive smoking history, while those with NEC histology had the lowest smoking history rate (100% vs 71.4%; $p < 0.001$). Patients with AdSq histology were both older and had larger tumors at time of resection ($p < 0.001$ and $p = 0.003$, respectively). Patients with AdSq histology required more extensive resections ($p < 0.004$) and experienced greater estimated blood loss (EBL; $p = 0.005$) and longer operative times ($p = 0.018$) than the other three groups. While SQ or PM patients had slightly more postoperative complications, this difference was not significant ($p = 0.990$). Patients with AdSq and PM histology had significantly worse 3-year overall survival (3-yr OS) (20.0% and 52.4%, respectively) compared to 76.2% and 73.9% for AD and NEC patients, respectively ($p \leq 0.001$).

Conclusion: Patients with AdSq histology were older and had larger tumors, which put them at risk of intraoperative difficulties, with more extensive resections, longer operative times, and greater EBL. Having AdSq histology did not affect the short-term postoperative course, but AdSq histology resulted in worse 3-yr OS.

ePOSTER ABSTRACTS

(Kiosk #4)

P90. A NOVEL BIOSYNTHETIC SCAFFOLD MESH REINFORCEMENT AFFORDS THE LOWEST HERNIA RECURRENCE IN THE HIGHEST-RISK PATIENTS

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Presenter: Eugene Ceppa MD

Background: Mesh selection for ventral hernia repair (VHR) is a continuum from synthetic to biologic materials ultimately based on the severity of the Ventral Hernia Working Grade (VHWG) and wound classification. Patients categorized in VHWG class 2 or 3 have higher postoperative infection risk, thereby limiting the options for mesh use in hernia repair. Biosynthetic mesh is intended to utilize the durability of synthetic mesh combined with the biocompatibility of biologic mesh in high-risk hernia repair. We sought to assess the outcomes of a novel biosynthetic scaffold mesh for VHR in modified VHWG class 2 and 3 patient populations over a six-month postoperative period.

Methods: Data were collected via a retrospective review identifying patients from CPT4 procedural codes corresponding to VHR and having used TELA Bio OviTex biosynthetic mesh during 2017. Patients were classified as VHWG class 2-3 and CDC wound class I-IV (clean, clean-contaminated, contaminated, or dirty). Endpoints included surgical site occurrence (SSO), readmission rate, and hernia recurrence following VHR at 6 months postoperatively. Data for a contemporary cohort of patients undergoing VHR with synthetic mesh were also collected. IRB approval was obtained. P value < 0.05 denoted by *.

Results: 50 patients underwent open VHR with placement of OviTex mesh. Pertinent data can be found in the Table. The majority of patients were female (58%), mean age of 55 ± 14 years, and mean body mass index (BMI) of 34 ± 6 kg/m². Mean defect size was 124 ± 163 cm² with 68% requiring component separation. Primary fascial closure was achieved in 92% of cases and location of mesh included underlay (68%), sublay (20%), and onlay (12%). Concomitant procedures were performed in 70% of patients. VHWG distribution included grade 2 (32%) and grade 3 (68%). Wound class distribution included CDC class I (30%), II (44%), III (10%), and IV (16%). SSO were seen in 36% of patients, which included seroma (n=5), abscess/deep SSI (n=8), and wound drainage/dehiscence (n=5). Average LOS distribution in days includes ICU (1) and total (11). Rate of readmission was 24% and hernia recurrence rate was 8% (n=50). Open VHR with synthetic mesh group had a similar mean age and BMI. Mesh location included underlay (62%), sublay (34%), and onlay (4%). Wound class consisted CDC class I (94%), II (4%), and III (2%); VHWG included 2 (94%) and 3 (6%). Postoperative occurrences included 22% SSO, 14% readmission rate, and 12% hernia recurrence. OviTex mesh was associated with a significantly higher VHWG distribution, higher CDC wound classification, and longer length of stay compared to synthetic mesh.

Conclusion: This is the first report of the use of TELA Bio OviTex biosynthetic scaffold mesh in patients undergoing VHR. The data found a higher albeit somewhat expected SSO rate with a paradoxical low hernia recurrence rate in the highest risk patients. Comparison to a similar cohort of patients who underwent VHR with synthetic mesh showed no difference in SSO rate or hernia recurrence with use of OviTex mesh in higher risk patients. This suggests that this biosynthetic mesh may be better suited for definitive hernia repair in higher risk patients in place of synthetic and biologic meshes. This question will be best addressed in an ongoing multicenter trial studying OviTex mesh use in VHR.

ePOSTER ABSTRACTS

(Kiosk #4)

P91. REDO SENTINEL LYMPH NODE SURGERY IN RECURRENT BREAST CANCER: PERITUMORAL VS. SUBAREOLAR INJECTIONS

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Mayo Clinic Rochester

Presenter: Swadha Guru MBBS

Background: Sentinel lymph node (SLN) surgery has an established role in axillary staging and reducing morbidity associated with complete axillary lymph node dissection (ALND) in primary breast carcinoma. In the setting of recurrent cancer, no standard methodology has been established regarding the technical aspects of redo SLN surgery. We aim to study our institutional experience with attempted redo SLN surgery in recurrent breast cancer to determine the optimal injection technique in this scenario.

Methods: We conducted a single site, retrospective review of adult female patients who presented with recurrent breast cancer from 2008-2017. All patients undergoing surgery for recurrent ipsilateral disease with an attempt at redo SLN surgery were included. Patients with no prior ipsilateral axillary operations were excluded. Details regarding the agents injected, technique of injection (including peritumoral vs subareolar and intraparenchymal vs intradermal) were collected. Descriptive analysis was performed.

Results: 141 patients were included in our study; 103 (73%) underwent successful SLN biopsy (SLNB) with 33 (23%) having aberrant drainage. Factors associated with failed mapping included prior radiation (31% vs 13% failed, $p=0.03$) and prior ALND (40% vs 20% failed, $p=0.01$).

Radioactive technetium colloid for lymphatic mapping was injected in the subareolar location for 99 (70%) patients, peritumoral for 38 (27%), and both locations in 4 (3%) patients. 109 (77%) patients were injected with blue dye; 92 (84%) subareolar area, 14 (13%) peritumoral area and 3 (3%) in both locations.

For radiocolloid injections, subareolar injection resulted in failed mapping in 23 (23%) and aberrant drainage in 26 (26%) patients. By comparison, peritumoral injection had respective findings of 14 (37%) failed mapping and 7 (18%) aberrant drainage. Of the patients with successful SLNB via subareolar injection, 11/76 (14%) were positive for metastatic disease as compared to 2/24 (8%) in those via peritumoral injection. The incidence of nonradioactive but positive SLNs was 1/99 (1%) for subareolar and 0% for peritumoral injection.

16 patients were found to have lymph node metastases on final pathology; 13 (81%) were identified via SLNB. 14 SLNs were found to be positive; 11 were ipsilateral axillary nodes of which 10 were identified by subareolar injection of radiocolloid \pm blue dye, and 1 was palpable suspicious but neither radioactive nor blue. There were 3 positive aberrant SLNs, including 1 in the contralateral axilla detected by subareolar radiocolloid but not by subareolar blue dye, and 2 detected by the radiotracer injected in the peritumoral location but not by the subareolar blue dye injection (1 contralateral axilla, 1 internal mammary node).

With a median follow-up of 31 months, 6 regional recurrences were observed in patients with subareolar injection and none in patients with peritumoral injection. Thus, 5-year regional recurrence rates were 11.4% (95% CI: 0-21.5%) and 0% for subareolar and peritumoral injection techniques, respectively.

Conclusion: Subareolar and peritumoral injections had a similar incidence of SLN identification and aberrant drainage. Peritumoral injection resulted in aberrant drainage to positive nodes that were not identified by subareolar injection in some patients. Patients who underwent subareolar injections had a higher incidence of regional recurrences but this difference was not statistically significant.

ePOSTER ABSTRACTS

(Kiosk #4)

P93. OVERCOMING CHALLENGES OF HIPEC IN PATIENTS WITH MASSIVE ASCITES

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University of South Florida

Presenter: Tara Barry MD

Background: HIPEC (hyperthermic intraperitoneal extracorporeal chemotherapy) has been shown to improve outcomes in patient with peritoneal carcinomatosis from colorectal, appendiceal, and ovarian origin. Often times these patients also present with malignant ascites related to their disease and diffuse peritoneal involvement. This is a case of a 63 year old woman who presented with massive ascites of over 25 liters. Surgical exploration revealed diffuse carcinomatosis from an appendiceal primary with an 18 pound ovarian metastasis. Given the increased peritoneal surface area from the massive volume of ascites, maintaining adequate flow without compromising chemotherapeutic concentration was a difficult task. There is very little literature discussing the technical aspects of performing HIPEC in patients with massive ascites, specifically challenges associated with the increase in overall peritoneal volume and surface area. Maintaining flow rates without compromising chemoperfusion and chemotherapeutic concentration is essential for maximal therapeutic benefit and poses a challenge in cases with increased volume and surface area of the peritoneal cavity.

Methods: The patient was determined to have a Peritoneal Cancer Index (PCI) of 16. The Completeness of Cytoreduction (CCR) score was 1. PCI and CCR are two factors that have a significant impact on survival and prognosis in patients with appendiceal neoplasms making adequate chemotherapeutic concentration imperative in this patient.

Due to the large volume ascites the patient had redundant peritonealized abdominal wall tissue that required exposure to the chemotherapeutic agent. Increasing the volume of saline would have diluted the Mitomycin-C. Increasing the total dose of Mitomycin-C would have posed a risk of increased systemic toxicity, and the patient was already receiving the maximum recommended dose of 35 mg/m². Our solution was to insert space occupying implants that would allow for adequate exposure of all peritoneal surfaces to the chemotherapy as well as maintain the recommended chemotherapeutic concentration so as to decrease the risk of systemic toxicity or decrease efficacy by adding additional carrier solution. Implants were created by placing 4 sterile gloves filled with O2 into 4 sealed sterile bags.

Results: Flow rates were maintained at 1,900 mL per minute throughout the case. The mean inflow and outflow tissue temperatures were 40.9°C and 41.3°C respectively. The maximum inflow and outflow fluid temperatures were 43.6°C and 41.1°C. Optimal temperature range has been reported as 41 - 43°C and 41.5 - 43.5°C. The maximum core temperature was maintained at 38.0°C.

Conclusion: Given the high incidence of malignant ascites in patients with peritoneal carcinomatosis this approach may be helpful to other physicians who perform HIPEC and could be explored further, specifically finding a more standardized implant while keeping costs low.

ePOSTER ABSTRACTS

(Kiosk #4)

P94. A CASE SERIES OF SUCCESSFUL REPAIR TRANSECTION OF THE SUPRAHEPATIC INFERIOR VENA CAVA AFTER BLUNT TRAUMA: NO LONGER A FATAL INJURY?

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Oregon Health & Science University

Presenter: Erin Maynard MD

Background: Blunt injury to the suprahepatic inferior vena cava (SHIVC) is rare and despite improvements in resuscitation, trauma systems, and technology remains a lethal injury with mortality approaching 100%.

Methods: Total hepatic isolation (THI) in combination with the use of venovenous bypass (VVB) to repair two SHIVC injury after motor vehicle collision (MVC)

Results: Case 1: A 25-year-old woman presented tachycardic and normotensive after MVC. Imaging revealed a pseudoaneurysm of the SHIVC. She underwent operative repair using THI and VVB. Right femoral and right internal jugular veins were cannulated. Median sternotomy and IVC control below right atrium was obtained. Laparotomy with splenectomy and total hepatic isolation Pringle and suprarenal control was obtained. The injury was exposed revealing complete avulsion of the SHIVC and hepatic veins. Venovenous bypass was initiated and repair was accomplished using branched aortic arch Dacron graft.

Case 2: A 30-year-old woman presented tachycardic and normotensive after MVC. Imaging revealed a SHIVC pseudoaneurysm and grade 5 liver laceration. She was admitted to the ICU with worsening tachycardia with hypotension. Repeat imaging demonstrated increased hemoperitoneum and worsening SHIVC injury. She underwent operative repair using THI and VVB. VVB was prepared after which THI was accomplished identically to case 1. The injury was exposed showing transection of the SHIVC at the diaphragm. VVB was initiated and repair performed with a Dacron graft.

Conclusion: Suprahepatic IVC disruption is almost always fatal. In the setting of preoperative hemodynamic stability, total hepatic isolation with the use of venovenous bypass to maintain preload improves the likelihood of successful repair by reducing operative site hemorrhage and providing more time to properly expose and repair the injury.

ePOSTER ABSTRACTS

(Kiosk #4)

P95. BILATERAL NEPHRECTOMY OF MASSIVE POLYCYSTIC KIDNEYS FOR UNCONTROLLED HYPERTENSION

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University of Arizona

Presenter: Eduardo Espinoza MD

Background: Autosomal dominant polycystic kidney disease (ADPKD) is the most commonly inherited kidney disease, affecting 1:1000 individuals. A life time gradual renal enlargement usually progresses to organ failure and often is bilaterally. Among its manifestations, hypertension (HTN) stands out as the most prevalent complication that plays a role in the morbidity and mortality. They also have vascular complications being the most common intracranial aneurysms in addition to coronary and aortic aneurysms and dissection. Current literature lacks a consensus protocol with indications for nephrectomy in ADPKD or studies that determine the long-term effect of bilateral nephrectomy to control intractable HTN and management of concurrent vascular disorders. Herein, we present a case of ADPKD who underwent Carotid-Subclavian bypass and Thoracic Endovascular Aortic Repair (TEVAR) for aortic dissection, s/p kidney transplant with massive polycystic kidneys and failure of medical management for whom bilateral nephrectomy resulted in long term blood pressure control. Pre-operative evaluation, intra operative findings, and literature are reviewed.

Methods: 28 yo male with history of HTN, thoracic aortic dissection, cardiomegaly, ESRD secondary to ADPKD s/p kidney transplant at age 12 which prevailed for nearly 11 years until complete graft failure and currently dialysis dependent with intractable HTN despite > 4 anti-hypertensive agents. Patient presented with acute abdominal pain, cachexia and hypertensive urgency managed with Esmolol and Nicardipine drip. He was transferred to our facility when deemed in respiratory distress due to flushed pulmonary edema and anxiety with subsequent endotracheal intubation. Given intractable HTN despite anti-hypertensive IV therapy, multidisciplinary consensus indicated bilateral nephrectomy seeking to improve HTN and relieve intra-abdominal mass effect considered to be the culprit for poor nutritional status.

Results: Left kidney: weight 4.7 lbs and measured 33x13cm. Right kidney: weight 4.05 lbs and measured 30x15cm. Both had a surface completely covered with multiple cysts and cut surface revealed cysts that are dispersed throughout both cortical and medullary surfaced. Patient was weaned off completely from antihypertensive drips by POD2. Post-operative course was complicated by re-exploration and bowel resection consistent with stercoral ulcer perforation and diverting colostomy, which subsequently was successfully reverted. Nephrectomy resulted in decreased systolic blood pressure (from 150-190 to 100-140) and diastolic blood pressure (from 100-110 to 60-70), freed of hypertensive urgency and controlled with oral therapy at 6 months follow up.

Conclusion: Intractable HTN, refractory to medical treatment in patients with ADPKD often resources to a multidisciplinary approach that exhausts non-operative management. Nephrectomy is typically already in the setting of renal failure when patients are either already transplanted or remain dialysis dependent. Open or laparoscopic nephrectomy are not devoid of potential complications as intra-abdominal mass effect of polycystic kidney (s) affects also the physiological integrity of these patients. However, bilateral nephrectomy represents a worth taking risk that provides substantial aid with blood pressure control, improves quality of life and enhances nutritional status provided return of peritoneal space.

ePOSTER ABSTRACTS

(Kiosk #4)

P96. FATAL HYPERAMMONEMIC ENCEPHALOPATHY FOLLOWING ROUX-EN-Y GASTRIC BYPASS: A COMPLEX AND DEVASTATING COMPLICATION OF BARIATRIC SURGERY

LE McGuire, JC Russell, RH Glew

University of New Mexico Hospital

Presenter: Lauren McGuire BS

Background: With over 200,000 bariatric surgeries performed annually in the US, there is increasing recognition of metabolic and neurologic complications of the procedure, including the unmasking of recessive urea cycle disorders such as Ornithine Transcarbamylase (OTC) deficiency. In the context of other common complications of bariatric surgery, such as urease-positive bacterial infections, severe malnutrition and urea cycle failure due to macronutrient deficiency, otherwise asymptomatic female carriers of the OTC deficiency gene (carrier frequency = 1/7000) are at high risk for fatal hyperammonemic encephalopathy following bariatric surgery.

Methods: N/A

Results: The patient is a 64 year old female with morbid obesity (BMI = 62) who underwent a laparoscopic Roux-en-Y Gastric Bypass (RYGB) resulting in significant weight loss of 41.1kg within 6 months (BMI = 43.2). Her recovery was complicated by poor wound healing and recurrent sepsis requiring numerous readmissions. 1 year following the RYGB she was admitted for sepsis and neurological symptoms concerning for metabolic encephalopathy (Ammonia = 65 umol/L) and was found to be severely malnourished (Albumin = 0.8 g/dL). During her admission she developed persistent status epilepticus and was found to have hyperammonemic metabolic encephalopathy (Ammonia = 206 umol/L). Despite aggressive measures to lower her ammonia and abort her seizures, over the next week the patient developed diffuse cytotoxic cerebral edema and ultimately expired in the intensive care unit.

Conclusion: Non-hepatic hyperammonemic encephalopathy is a rare but highly fatal complication of bariatric surgery. Extreme weight loss and severe malnutrition following gastric bypass may play a role in unmasking inborn and acquired functional deficiencies in urea cycle enzymes. Risk identification and reduction, prompt diagnosis and aggressive treatment are pivotal in preventing further fatal outcomes of this complication. We discuss the mechanism of this condition, pre- and post-operative considerations for bariatric surgery, and consider the concept of personalized surgical care.



VIDEO ABSTRACTS

VIDEO ABSTRACTS

V1. RECOGNITION OF VASCULAR ANOMALIES AND RELATIONSHIPS IS CRITICAL FOR SUCCESSFUL HILAR CHOLANGIOCARCINOMA RESECTION AND BILIARY RECONSTRUCTION

TJ Vreeland, GW Krampitz, HA Lillemoe, CW Tzeng, YS Chun, JN Vauthey, TA Aloia
University of Texas MD Anderson Cancer Center

Presenter: Heather Lillemoe MD

Background: The current surgical training environment places numerous pragmatic barriers in front of trainees attempting to master complex operations, including patient safety concerns, medicolegal factors, and an increasing emphasis on operating room efficiency. Consequently, programs must develop novel extra-operative tools to maximize learning. As a result, there has been an increased focus on simulation and video-based education in surgical training, with most efforts focused on minimally invasive techniques. Video-based education in maximally invasive surgery, while also valuable, is less available. Here, we present a video of a complex open hepatobiliary operation to be used as an educational resource for advanced surgical trainees.

Method: We used high-definition digital recording to capture the intraoperative steps of an extended left hepatectomy, portal lymphadenectomy, and biliary reconstruction, performed for a hilar cholangiocarcinoma in a patient with aberrant portal anatomy. This operation was chosen as a teaching case to demonstrate how to approach the disease, both cognitively and technically, emphasizing the key steps of the liver resection and biliary reconstruction. The recording is part of an institutional digital library of complex index cases that provides trainees a visual tool to learn key steps of a procedure before performing the operation. The library is part of a broader academic curriculum to enhance trainee education in complex oncologic surgery.

Results: The patient is a 65-year-old male who presented with abdominal pain. His work-up revealed intra-hepatic ductal dilation with an extra-hepatic filling defect consistent with a hilar cholangiocarcinoma. The narrated case highlights the importance of reviewing preoperative imaging for aberrant anatomy, including complex decision making that factored in a Nakamura Type D portal vein anomaly and differential future liver remnant volumes. The intra-operative video shows a complete portal dissection with lymphadenectomy, caval dissection from the left, parenchymal transection using a Two-Surgeon Technique and hanging maneuver without need for inflow occlusion, and bile duct margin control. Finally, the creation of a hepatico-jejunostomy with ductoplasty of the separated segment VI and VII ducts is detailed.

Conclusion: There is currently no uniform way to procedurally train fellows in complex open general surgical oncology using video-based preoperative preparation. This high-definition digital recording demonstrates the use of a video-based method to prepare trainees for complex open hepatobiliary surgery cases. Technically the costs, equipment and complexity related to image capture and video editing are coming down. Cognitively, the modern learner, who has ubiquitous access to online educational resources, can uniquely benefit from interactive video-based learning, leading to more effective intraoperative teaching and faster acquisition of necessary skills.

VIDEO ABSTRACTS

V2. LAPAROSCOPIC REDUCTION OF STRANGULATED PARAESOPHAGEAL HIATAL HERNIA WITH REPAIR OF GASTRIC NECROSIS AND PERFORATION

F Banki

McGovern Medical School at the University of Texas Health Science Center at Houston

Presenter: Tyler Cobb MD

Background: Gastric perforation has traditionally been treated with laparotomy. This case presents a minimally invasive approach for treating a strangulated paraesophageal hiatal hernia with repair of gastric necrosis and perforation.

Method: The patient is a 54 year old male, Jehovah's Witness who presented to the emergency room with acute onset of epigastric pain, tachycardia, and leukocytosis. CXR showed paraesophageal hiatal hernia, pneumomediastinum and possible gastric wall emphysema. CT scan confirmed pneumomediastinum and emphysema of the gastric wall. Our plan was to perform laparoscopic repair with possible laparotomy and gastric resection.

The patient was found to have an incarcerated paraesophageal hiatal hernia with visible gastric necrosis. The hernia sac was fully excised. Esophageal mediastinal mobilization was performed and 3 cm tension free intraabdominal esophageal length was achieved. The crural closure was performed without tension. The extent of gastric necrosis was identified and edges were widely debrided which resulted in arterial bleeding from the gastric edges. Hemostasis was achieved. The gastric repair was performed using 2-0 silk interrupted stitches in two layers. The gastric repair was reinforced using an omental patch. Upper endoscopy showed easy access into the stomach and intact gastric repair. Nasogastric tube and an abdominal drain were placed.

Results: The patient was extubated in the operating room. He did well post operatively. CT scan on POD #3 showed no leak. He was discharged on POD #4 tolerating a full liquid diet.

Conclusion: The treatment of strangulated paraesophageal hiatal hernia with gastric necrosis and perforation can be performed laparoscopically with low morbidity and short length of stay. Assessment of the extent of gastric necrosis should be performed intraoperatively and not based on imaging alone.

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Deaths
AND
Memorials

IN MEMORIAM

DEATHS REPORTED 2017 – 2018

Jessie Ternberg, MD | St. Louis, MO

Robert Allaben, MD | Gaylord, MI

Roger Ott, Sr., MD | Dubuque, IA

IN MEMORIAM



Jessie Ternberg, MD

St. Louis, MO

In 1954, when Jessie L. Ternberg, PhD, MD, became the first female surgical resident at what was then Barnes Hospital in St. Louis, the young physician-scientist was not given a warm welcome by her new, male colleagues. Undaunted, Ternberg's pioneering step became the first of several, as she eventually was embraced not only as an extremely talented surgeon but an excellent leader, role model and mentor.

She served on the Washington University School of Medicine faculty for 37 years, first as a general

surgeon and later as the director of pediatric surgery at St. Louis Children's Hospital.

A professor emerita of surgery and surgery in pediatrics, Ternberg died July 9, 2016, of natural causes while on vacation in Zermatt, Switzerland, one of her favorite places, according to her longtime friend and travel companion, Mabel Purkerson, MD, also a School of Medicine professor emerita. Ternberg, of Creve Coeur, was 92.

Ternberg paved the way for many women in medicine. During her internship at Boston City Hospital, Ternberg — a 1953 graduate of Washington University School of Medicine — decided she wanted to be a surgeon. When she couldn't find a surgical residency program that would consider an application from a woman, she wrote to Carl Moyer, MD, the head of surgery at Washington University. "I told him I thought it was a bum rap they wouldn't take women," Ternberg recalled in a 2002 interview published in *Washington* magazine. "He agreed — and he accepted me."

There were still many obstacles to overcome, though, from where she would live — residents lived at the hospital, and no one had ever had to make room for a woman before — to how and where she would prepare for surgery.

"She had to be twice as good and twice as smart as everybody else to survive, and she was," said Timothy J. Eberlein, MD, head of the Department of Surgery, director of Siteman Cancer Center and a longtime friend of Ternberg. "She had a fierce determination, and that's probably how she overcame all those obstacles over the years. She was like that to the end."

In 1958, she became the first female chief resident at Barnes, and in 1959, she became an instructor in surgery at the School of Medicine. Promoted to professor of surgery in 1971, she was instrumental in establishing the Division of Pediatric Surgery and was named its director in 1972. The next year, she became the first woman to be elected head of the School of Medicine's faculty council.

IN MEMORIAM *Jessie Ternberg, MD*

"She had a wonderful life, and it was a life she made for herself – nobody gave it to her," said Chancellor Emeritus William H. Danforth, MD. "She had enormous determination and focus and courage, and she was unflappable and put up with things that other people didn't have to. She never gave up, she never slowed down. She just kept going and was an absolutely wonderful surgeon and a wonderful physician who was greatly admired by everybody. I was very lucky to know her."

During Ternberg's tenure at the School of Medicine and St. Louis Children's Hospital, she routinely performed more than 500 operations a year. In addition, she led a surgical team in successfully separating two sets of conjoined twins, connected at the pelvis, a very rare condition. Colleagues described her surgeries as "works of art."

"Jessie was the go-to person," said Eberlein, who is also the Bixby Professor of Surgery. "If you had a child with a tough problem — and it didn't necessarily have to be a surgical problem — Jessie was the person you consulted. Everybody regarded her with a kind of awe. She was a remarkable individual."

In 1993, former pediatric surgical residents and colleagues established the Jessie L. Ternberg Award, to be given annually to a female medical graduate who best exemplifies Ternberg's "indomitable spirit of determination, perseverance and dedication to her patients."

In 2000, she was named a fellow of the American Association for the Advancement of Science for her contributions to the practice and teaching of pediatric surgery and for her role in mentoring students.

She was the author of more than 100 papers and 10 book chapters. She also wrote *A Handbook for Pediatric Surgery*, which became known as the bible of pediatric surgery and made her name familiar to a generation of pediatric surgeons.

Ternberg was involved with a variety of professional organizations, including serving as president of the St. Louis Children's Hospital Society and president of the St. Louis Surgical Society. She was a member of the American College of Surgeons and the American Pediatric Surgical Association.

Raised in Fairmont, Minn., she earned her bachelor's degree from Grinnell College in 1946. She went on to earn a doctorate in biochemistry from the University of Texas at Austin in 1950. There, she and Robert Eakin, PhD, reported their discovery of the mechanism by which Vitamin B-12 is absorbed in the intestine, helping to establish a cure for pernicious anemia.

Jessie L. Ternberg, PhD, MD, receives an honorary doctor of science degree at Washington University's Commencement in 2008.

IN MEMORIAM *Jessie Ternberg, MD*

WASHINGTON UNIVERSITY

Jessie L. Ternberg, PhD, MD, receives an honorary doctor of science degree at Washington University's Commencement in 2008.

Among her numerous honors, she received honorary doctor of science degrees from Grinnell, the University of Missouri-St. Louis and Washington University; several Washington University Alumni Awards; a Washington University Second Century Award; and membership in Alpha Omega Alpha Honor Medical Society. She also was named the honorary grand marshal at Washington University's 2006 commencement, and was a life trustee at Grinnell.

Other honors included the Trustees' Award from the Academy of Science of St. Louis; the St. Louis Globe-Democrat Woman of Achievement Award; a U.S. Department of Health, Education and Welfare's International Women's Year Award; and membership in the Horatio Alger Association of Distinguished Americans.

In 2009, more than 50 of Ternberg's friends and admirers funded a professorship in her name, the Jessie L. Ternberg, MD, PhD, Distinguished Professorship in Pediatric Surgery. The professorship is held by the director of the Division of Pediatric Surgery and surgeon-in-chief at St. Louis Children's Hospital.

Following Ternberg's retirement in 1996, she remained involved with a national pediatric oncology group. She is survived by a multitude of friends, and by her nieces and nephews.

IN MEMORIAM



Robert Allaben, MD

1930 – 2018

Robert D. Allaben, MD September 26, 1930 - March 15, 2018 It is with great sadness that the family of Robert D. Allaben, MD announces his passing on March 15, 2018 at the age of 87. Bob loved greatly, and was loved by his entire family, including his wife Joan, 3 children (Elizabeth, Janet, Bruce), 4 step-children (Deborah, Karyn, George, Robert), 13 grandchildren, 1 great-grandson, and many nieces and nephews. Also surviving are his brothers, Lawrence and John Randolph (Randy) Allaben and his first

wife, Ruth Six Allaben. He was preceded in death by his sister, Dorothy Talbert. Bob was born in Grand Rapids, MI and was a graduate of East Grand Rapids High School, class of 1948.

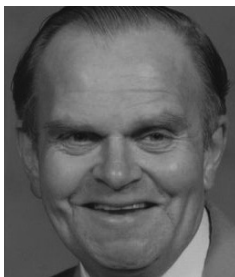
He received his undergraduate degree from the University of Michigan and his medical degree from the Wayne State University School of Medicine. Over the years, Bob was honored when he was contacted by former classmates, patients and colleagues. Although Bob retired from medicine in 1993, for the next 25 years he continued to remain current in the field of medicine via educational conferences and journals.

Nothing gave Bob greater satisfaction than being able to support friends and neighbors with counsel and advice. This literally continued until the day preceding his death. A dedicated surgeon and teacher of medicine, Bob was on staff at various Detroit hospitals and retired as Chief of Surgery for Grace Hospital. Bob was one of the first kidney transplant surgeons in Michigan and served as president of the Transplant Society of Michigan (Gift of Life Michigan). He devoted much of his energy to the improvement of medicine as Speaker of the House of the Michigan State Medical Society and other leadership positions with the American College of Surgeons, the American Medical Association, and numerous local medical associations.

Bob was an avid traveler, and visited all 7 continents and all 50 states. He shared his time between Michaywe in Gaylord, Michigan and Tennessee, making close friends in both. Unlike many people, Bob loved to spend the winter in Michigan. Bob gave his all to his marriage, his family, and to everything that he did, be it surgery, home maintenance, flying his plane, kayaking, computer work, or his determined perseverance as he faced his final challenge.

Provided by Grand Rapids Press

IN MEMORIAM



Roger A. Ott, Sr., MD

1930 – 2007

Roger A. Ott, age 77, formerly of 2825 Washington Street, Dubuque, and Madison, Wisconsin died at the home of his daughter in Dyersville, on Sunday, November 18, 2007. He was born on July 15, 1930 in York Township, Green County, Wisconsin. Roger was the son of Peter E. and Buelah (Engen) Ott. He was a 1944 graduate of Postville Grade School, a 1948 New Glarus (Wisconsin) High School graduate and was the senior high school president. Roger spent four years in the US Navy from 1951 until 1955. He continued his

education and was a graduate of the University of Wisconsin, Whitewater.

On June 8, 1957 in Madison, Wisconsin, he was married to the former Nancy J. Brandt. Roger retired from working for the Federal Government after 15 years of service in 1992. Mr. Ott was very active in several organizations over his lifetime including being an American Legion Post Commander and President of Capitol Area Chevron Retirees for three years. At the time of his death, he was a member of First Congregational United Church of Christ, National Association of Retired Federal Employees (NARFE), Past Commanders Club of Wisconsin, Korean War Veterans Association (KWVA), including the KWVA Iowa Tall Corn Chapter #99 and the James E. Kyes Association. Roger was also a longtime volunteer at the local library in Dubuque and received the Governor's Volunteer Award on April 28, 1995.

He is survived by a daughter, Holly (William Dennison) Ott of Dyersville, Iowa, and a son, Terry Ott, of Dubuque, and two grandchildren, Amanda Kay Ott and Blake Allen Ott of Dubuque. Also, one sister-in-law, Minerva Ott, in New Glarus, Wisconsin.

He was preceded in death by his parents, his wife, Nancy, and a brother, Elmon "Pete" Ott.

Provided by the Telegraph Herald

NOTES



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