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LOUISIANA CHAPTER

ACS 73RD ANNUAL MEETING

APRIL 4-6, 2025

PODIUM

President Session | Clinical Science | Breast

Tumor-Specific FISH Characterization of CTCs in ER-Positive Breast Cancer Patients as a Method to Monitor Disease Recurrence and Treatment Resistance

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Background: Estrogen receptor-positive (ER+) breast cancer is associated with a 40% recurrence rate over 20 years and is typically endocrine-therapy resistant at relapse. We propose using custom-designed fluorescence in situ hybridization (FISH) probes created from each patient's tumor-specific genomic changes to detect circulating tumor cells (CTCs) in order to monitor treatment efficacy and molecular recurrence patterns in patients.

Methods: With IRB approval, breast cancer patients of various subtypes were enrolled in this study to monitor CTCs over time. Using Affymetrix™ Oncoscan arrays, tumor samples were analyzed for somatic copy number alterations (SCNAs). Blood collected before, during, and after treatment underwent size-based filtration and FISH characterization. Isolated CTCs were classified as true CTCs if they contained SCNA-positive FISH signals.

Results: CTCs were detected in 83% and 78% of pre- and post-treatment samples, respectively. CTCs present in high-risk patient post-treatment samples predicted one-year recurrence. All tested ER+ patients (53% of our cohort) had detectable CTCs before and after treatment while on anti-estrogens. Presence of FISH-positive CTCs in these patients suggests estrogen-resistant minimal residual disease (MRD).

Conclusion: Customized FISH probes accurately identified true CTCs and predicted one-year recurrence in high-risk breast cancer subtypes. Interestingly, ER+ breast cancer patients on hormone-therapy had CTCs in post-treatment samples, potentially indicating estrogen-resistant MRD. Use of tumor-specific FISH has been shown to be accurate and specific in identifying MRD in ER+ patients. This technique has given insight into mechanisms of hormone-resistance and tumor dormancy, offering a pathway toward more effective monitoring and improved long-term outcomes in patients.

ID	Stage (AJCC 8th edition)	SCNA			Ki67 (%)	CTCs Pre-Treatment			CTCs Post-Treatment		
		gain	loss	total		CTCs	Total Cells	% + for CTC	CTCs	Total Cells	%+ for CTC
LUMINAL A											
14	IA	1	1	2	9	YES			YES		
						9	3,093	0.29%	14	5526	0.25%
8	IA	4	1	5	9	YES			NOT ANALYZED		
						11	7221	0.15%			
6	IA	5	1	6	8	YES			YES		
						8	5429	0.15%	19	7173	0.26%
31	IA	11	4	15	11	YES			NOT ANALYZED		
						9	1900	0.47%			
12	IA	24	0	24	9	YES			NOT ANALYZED		
						5	13142	0.04%			
1	IB	5	3	8	26	YES			YES		
						15	1577	1.02%	6	4548	0.13%
LUMINAL B											
2	IA	3	17	20	15	NO			NOT ANALYZED		
						0	2740	0.00%			
13	IIA	20	21	41	30	YES			YES		
						2	1144	0.17%	8	10981	0.07%
HER2 + (ER +)											
11	IA	18	38	56	21	YES			YES		
						19	16809	0.11%	12	29476	0.04%
16	IA	73	25	98	40	YES			RECURRANCE		
						10	4649	0.22%			
TNBC											
15	IB	25	39	64	90	NO			YES		
						0	771	0.00%	11	22769	0.05%
25*	IIA	4	3	7	70	YES			NO		
						7	13338	0.05%	0	296	0.00%
23*	IIIA	49	0	49	80	YES			NO		
						14	5912	0.24%	0	346	0.00%
29*	IIIC	44	40	84	90	YES			YES		
						3	8590	0.03%	2	14102	0.01%
49*	IIA				60	YES			RECURRANCE		
						5	2112	0.24%			

President Session | Basic/Transactional Science | Colon and Rectal Surgery

Combination Chemotherapy and Immune Checkpoint Blocker Treatment Response in MSS/MSI Colorectal Cancer using a Humanized Murine Model

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Background: Most colorectal cancer (CRC) is microsatellite stable (MSS), however microsatellite unstable (MSI) CRC is a subset with important clinical and pathologic characteristics that impacts treatment options. MSI-CRC responds well to immune checkpoint inhibitors (ICB), particularly to anti-PD1/PDL1 treatment. We hypothesized that chemotherapy may sensitize MSS CRC to ICB treatment and potentiates ICB response for MSI CRC. We tested 5FU + ICB combination therapy in MSI-CRC and MSS-CRC patient tumors using our established humanized patient-derived orthotopic xenograft (PDOX) mouse model.

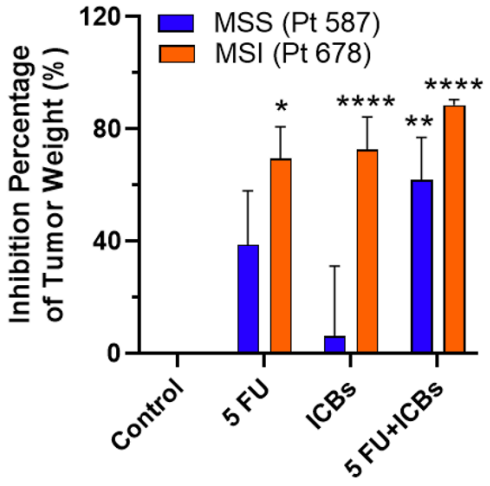
Methods: MSI or MSS-CRC tumor cells were injected intrarectally into immunodeficient Rag2 mice. After tumor formation, mice received intraperitoneal infusion of healthy donor peripheral blood mononuclear cells (PBMCs) to establish the humanized immune system. Mice then received either no treatment (control), ICB, 5FU, or combination therapy weekly for 3-4 weeks. After sacrifice, tumor weight was recorded and blood was collected to confirm humanization and evaluate T-cell profile by fluorescence-activated cell sorting (FACS) analysis. OPAL Multiplex staining of human EpCAM, cytokeratin, Ki67 and CD8 was performed on tumor sections to assess tumor and tumor-infiltrating T-cells. Statistical analysis between groups was performed by unpaired T-tests. A p-value of < 0.05 was considered to be significant.

Results: 5FU inhibited tumor growth in both MSS($p=0.08$) and MSI ($p=0.03$) tumors as compared to the control group. ICB alone inhibited MSI tumor growth ($p=< 0.0001$), but not in MSS tumors ($p=0.806$). Combination therapy significantly inhibited tumor growth in both MSS ($p=0.003$) and MSI ($p=< 0.0001$) tumors . All mice included in the study achieved humanization as confirmed by percentage of human CD45+ cells in murine blood by FACS. Circulating CD8+ T cells were significantly reduced by 5FU in MSI tumors ($p=0.003$). The ICB in the combination group rescued the circulating CD8+ T cells reduced by 5FU ($p=0.01$). In addition, significantly less Ki67+ proliferating cells were found in the ICB ($p=0.006$) and combination ($p=0.006$) groups as compared to the control in MSI tumors.

Conclusion: MSS and MSI tumors have distinct responses to 5FU-based chemotherapy and ICB treatment in our humanized PDOX mouse model. ICB alone inhibited tumor growth in MSI but not MSS CRC tumor. ICB may also sensitize 5FU-based chemotherapy in both MSI and MSS-CRC. Ongoing studies utilizing our humanized mouse model are needed to further characterize the response of MSS- or MSI-CRC to anti-PD1/PDL1 therapy and other ICB treatments in combination with chemotherapies.

	MSS						
	Untreated (N=13)	**5FU** (N=5)	p-value	**ICB** (N=15)	p-value	**5FU+ICB** (N=9)	p-value
Tumor Growth Inhibitory Rate*, %, mean (SEM)	0	47.7 (24.9)	0.0831	6.22 (24.9)	0.806	61.9 (15.1)	**0.003**
	MSI						
	Untreated (N=12)	**5FU** (N=3)	p-value	**ICB** (N=13)	p-value	**5FU+ICB** (N=9)	p-value
Tumor Growth Inhibitory Rate, %, mean (SEM)	0	69.5 (11.3)	**0.0253**	72.7 (11.7)	**<0.0001**	88.5 (2.01)	**<0.0001**

*[(Mean Control Weight-Mean Treatment Weight)/Mean Control Weight]x100



President Session | Clinical Science | Geriatric/Palliative Care

Trauma Team Activation Effectiveness for the Management of Geriatric Patient Fall

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Background: Falls are a leading cause of both morbidity and mortality for the elderly. Currently, there are no standardized trauma activation protocols specifically for this age demographic. Timely and accurate triage, along with appropriate care, is crucial to preventing negative outcomes. As the U.S. population continues to age, ensuring adequate trauma care resources remains a priority. The primary aim of this study was to evaluate the existing trauma team activation criteria for geriatric patients at a Level 1 trauma center to assess the potential for over-triage.

Methods: This retrospective study examined geriatric patients (aged 65 and older) who presented to a Level 1 trauma center. Over-triage was defined as patients who were discharged home after presenting to the Emergency Department, while under-triage was defined as patients who suffered from mortality or were admitted to the ICU without having been properly activated or who received a lower-level trauma activation. Descriptive statistics were used to analyze the data and quantify the rates of over-triage and under-triage across different trauma activation levels.

Results: A total of 500 patients were included in the study, with the majority being Caucasian (334, 66.8%) males (265, 53.0%). Patients with lower-level trauma activations had higher rates of discharge to home (18.5%, n=23/125) compared to non-activated patients (3.7%, n=10/272) and those with higher-level trauma activations (10.7%, n=11/103). Of the patients discharged home following activation, more than 47% (n=11/23) were initially activated due to head trauma or anticoagulant use criteria. Mortality rates were highest among patients with the most severe trauma activations (19.4%), followed by those with lower-level activations (6.4%) and non-activated patients (5.9%). Across all activation levels, the leading causes of mortality were intracranial hemorrhage (58%) and hip fractures (18%). Additionally, 29% (n=79/272) of non-activated patients were admitted to the ICU, while 45.6% (n=57/125) of patients with lower-level trauma activations required ICU admission.

Conclusion: Evidence of over-triage was observed, as a higher proportion of patients in the lower-level activation group were discharged home. Additionally, while mortality rates remained low across both non-activated and lower-level activation groups, signs of under-triage were evident, with a significant number of patients in these groups requiring ICU admission. Establishing standardized trauma activation criteria for the geriatric population that minimizes both over and under triage could lead to more efficient use of hospital resources and improve patient outcomes for this rapidly growing segment of the trauma population.

President Session | Basic/Transactional Science | Trauma/Burn/Critical Care

The effects of ethanol intoxication on endotheliopathy in a rat hemorrhage model

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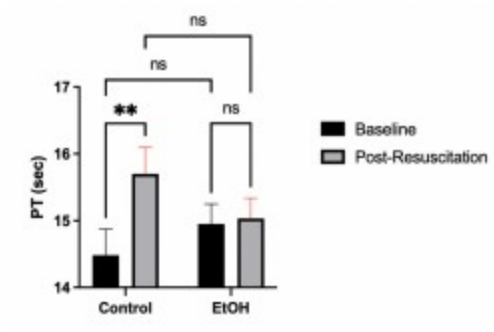
Background: Acute hypoxemia secondary to hemorrhage is understood to cause a myriad of down-stream effects including endotheliopathy. Previous studies have shown changes in endothelial membrane organization is necessary for endothelial glycocalyx damage and coagulopathy following hemorrhagic shock. Additionally, ethanol (EtOH) has been shown to increase membrane fluidity which may affect the membrane reorganization effects of shock. We hypothesized that hemorrhage-induced coagulopathy will be blunted with ethanol administration. We aimed to investigate this hypothesis utilizing markers of the coagulopathy of trauma in a rat hemorrhage model.

Methods: In this experiment a right internal jugular catheter and bilateral femoral artery catheters were placed in Sprague-Dawley rats (Charles River Laboratories) after initiation of anesthesia. Study rats were intravenously administered of 1.5L/g of EtOH diluted with Lactated Ringer's (LR) for a total volume of 1mL to achieve a blood alcohol content of approximately 0.16%. The control group received 1mL of LR only. The femoral catheters were utilized for continuous mean arterial pressure (MAP) monitoring as well as controlled hemorrhage/blood sample collection. Study subjects were then hemorrhaged to obtain a MAP of 40 +/- 3 mmHg which was maintained for thirty minutes, shedding additional blood as necessary. After this time, subjects underwent resuscitation to obtain a MAP ≥ 60 mmHg. Blood samples were obtained prior to hemorrhage, prior to resuscitation, and at 30- and 60-minutes following resuscitation at which time the experiment was concluded. A point of care blood analysis system was utilized to obtain coagulation and blood chemistry values for samples obtained prior to hemorrhage and at 60-minutes post-resuscitation. Significance was assessed with a two-way analysis of variance (ANOVA).

Results: There was no difference in hematocrit between the two groups. Lactate levels increased in both groups after hemorrhage/resuscitation and were no different at the end of the end of the resuscitation phase. Control animals had significantly increased PT from baseline to 60 minutes post-resuscitation (14.5 vs. 15.7 seconds, p=0.002), while treated animals showed no difference (14.9 vs. 15.0 seconds, p=0.94) (Figure 1A). Control animals had significantly increased serum potassium from baseline to 60 minutes post-resuscitation (4.75 vs. 6.03 mmol/dL, p=0.002), while treated animals showed no significant difference (4.47 vs. 4.98, p= 0.31) (Figure 1B).

Conclusion: Alcohol intoxication may mitigate traumatic coagulopathy in hemorrhagic shock and resuscitation. We propose that this is due to the membrane disordering effect of ethanol. These results could be of clinical interest due to the high percentage of trauma patients with elevated blood alcohol content. Future work will investigate the cellular mechanism of ethanol effects on coagulopathy and endothelial dysfunction generally, and investigate clinical evidence of an effect of ethanol on endotheliopathy.


ns
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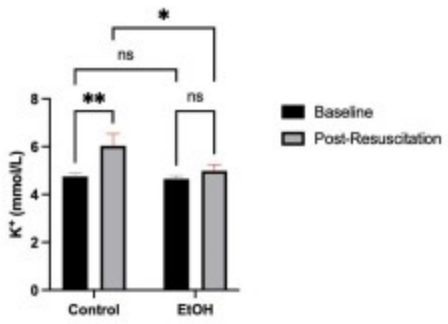
ns
PT (sec)
17
16
15
14
Control
EtOH
Baseline
Post-Resuscitation


*
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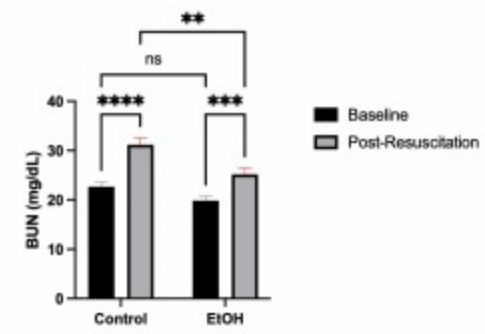
K+ (mmol/L)
8
6
4
2
0
Control
EtOH
Baseline
Post-Resuscitation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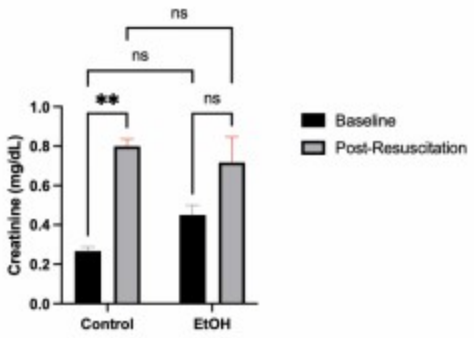
BUN (mg/dL)
40
30
20
10
0
Control
EtOH
Baseline
Post-Resuscitation


ns
ns
**
ns
Creatinine (mg/dL)
1.0
0.8
0.6
0.4
0.2
0.0
Control
EtOH
Baseline
Post-Resuscitation

President Session | Clinical Science | Trauma/Burn/Critical Care

Analysis Of Outcomes After Whole Blood Transfusion Versus Balanced Component Therapy

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Background: Whole blood (WB) transfusion is increasingly preferred over balanced component therapy (BCT) in trauma resuscitation, but the differential impact on post-trauma complications is not fully understood. We applied a machine learning–augmented analysis to determine if WB transfusion reduces morbidity compared to BCT, hypothesizing that WB transfusion would yield fewer complications.

Methods: This retrospective cohort study utilized the Trauma Quality Improvement Program (TQIP) database (2018-2021) for patients receiving ≥1mL of blood products within the first four hours post-admission. Exclusion criteria included patients <18 years, head or burn injuries, and missing demographics. BCT was strictly defined as a 1:1:1 RBCs:plasma ratio. Propensity score matching balanced baseline characteristics across WB and BCT groups. Anomaly detection using Principal Component Analysis (PCA) and Density-Based Spatial Clustering of Applications with Noise (DBSCAN) identified and removed outliers, optimizing dataset quality. A Support Vector Machine (SVM) model, optimized for class imbalance, further analyzed key predictors of mortality and complications.

Results: The pre-matching cohort included 7,687 patients (2,343 BCT, 5,344 WB). Post-matching, 4,434 patients were equally distributed, showing no significant demographic differences. WB transfusion resulted in reduced ICU stays and lower rates of complications, including acute kidney injury, acute respiratory distress syndrome, cardiac arrest, deep vein thrombosis, unplanned ICU admissions, and OR visits, compared to BCT. SVM analysis highlighted cirrhosis, anticoagulation therapy, and peripheral arterial disease as top mortality predictors. Mortality rates were not significantly different between groups (5.4% vs 4.7%, p=0.30).

Conclusion: Machine learning–enhanced methods demonstrated that WB transfusion may reduce morbidity compared to BCT, though survival outcomes were similar. AI-driven insights underscore WB transfusion's potential to improve outcomes and the value of advanced analytics in trauma research. Further investigation into WB's role in reducing specific complications is needed.

	WB (n=2,217)	BCT (n=2,217)	p-value
ICU Length of Stay	4 days	5 days	0.002
AKI	1.8%	5.4%	<0.001
ARDS	1.0%	1.8%	0.03
Cardiac Arrest with CPR	4.7%	9.2%	<0.001
DVT	3.1%	4.6%	0.01
Unplanned ICU Admission	3.2%	5.0%	0.003
Unplanned Intubation	2.6%	4.4%	0.002
Unplanned OR Visit	4.0%	5.5%	0.03
Mortality	5.4%	4.7%	0.30

Plastic & Reconstructive Surgery | Clinical Science | Breast

"Stacked Four Flap Autologous Breast Reconstruction from a Single Abdominal Donor Site"

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Background: Autologous breast reconstruction using the Deep Inferior Epigastric Perforator (DIEP) flap is the current gold standard. However, four-flap stacked reconstruction with DIEP flaps with either the Superficial Inferior Epigastric Artery (SIEA) or the Deep Circumflex Iliac Artery (DCIA) can potentially improve reconstructive outcomes for patients with limited donor tissue or complex reconstructive needs.

Methods: A retrospective analysis was performed of three cases of breast reconstruction following mastectomy where bilateral stacked flaps were harvested from a single abdominal donor site. Primary outcome analyzed were age, body mass index (BMI), history of tobacco and alcohol use, past medical and surgical history, breast cancer characteristics (e.g., ER, PR, HER2 status, BRCA mutation status), history of radiation and/or chemotherapy, and details of mastectomy and reconstruction type. Flap measurements (caliber, flow, flow direction) were recorded for all free flaps. Surgical timing (immediate vs. delayed reconstruction), lymph node involvement, indication for delay, operative time, hospital length of stay (LOS), complications (dehiscence, seroma, hematoma, and metastasis), and return to OR (RTOR) were reviewed.

Results: Three patients, aged 31 to 60, with BMIs ranging from 22.9 to 24.3, received total free tissue transfer volumes greater than their mastectomy weights. Operative times ranged from 7 to 9 hours, with hospital length of stay (LOS) ranging from 3 to 6 days, for an average of 4.33 days. Although some patients experienced complications—including venous congestion in one of the sixteen flaps (6.25%), superficial flap infection (33%), abdominal dehiscence (33%), and infected seroma (33%)—no flaps were lost. There was one take-back procedure with successful salvage of the flap. Two of the three cases were performed with a 24-hour free tissue delay, which resulted in improved perfusion metrics and flow velocities after surgical delay.

Conclusion: The use of stacked DIEP, SIEA, and DCIA flaps from a single abdominal donor site is a viable alternative for breast reconstruction in patients with limited infraumbilical adiposity by enhancing flap perfusion, increasing volume, improving inset and shape, and decreasing donor site morbidity. This technique can be combined with delay phenomena to improve perforator size and tissue perfusion.


A
SIEA
DIEP
DIEP
SIEA
B

Plastic & Reconstructive Surgery | Clinical Science | Breast

Novel Technique for Nipple-Skin Sparing Mastectomy with Immediate Reconstruction in Women with Large BMI and Macromastia: A Louisiana Experience

R Walton, R Duhon, K Baldwin, M Richards, S Thayer - LSU Health - Shreveport

Background: Nipple-skin sparing mastectomy (NSSM) has emerged as a significant advancement over traditional mastectomies, providing oncological safety with improved cosmetic outcomes, patient satisfaction, and quality of life. However, NSSM is traditionally limited to women with smaller breasts and minimal ptosis, which excludes many women in Louisiana, where high BMI and macromastia are prevalent.

Methods: We present a novel approach to NSSM for women with large breasts and higher BMI, incorporating a Wise pattern breast reduction with an inferiorly based pedicle. This technique utilizes perforators from the chest wall to sustain nipple viability, allowing for a large autologous dermal graft that enhances expander coverage, improves tissue support, and preserves the nipple-areolar complex

Results: Our modified NSSM technique has demonstrated oncologic safety and superior aesthetic results with minimal risk of nipple or skin loss. Patients reported high satisfaction with cosmetic outcomes, and complications were rare. This method facilitated effective reshaping and provided stable coverage for expanders, offering a safe, reconstructive option to women with macromastia who were previously excluded from NSSM.

Conclusion: This innovative approach enables women with large BMI and macromastia to undergo NSSM with immediate reconstruction, achieving excellent oncologic and cosmetic outcomes. By expanding access to NSSM, we are improving the quality of care and aesthetic options for Louisiana women with breast cancer, offering superior outcomes with minimal risk of nipple loss.

Plastic & Reconstructive Surgery | Clinical Science | Breast

Wise Pattern Oncoplastic Breast Reduction for Large Tumor Excision in Women with High BMI and Macromastia: A Louisiana-Based Study

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Background: Women in Louisiana with breast cancer face unique challenges, notably high rates of obesity (BMI >35) and significant macromastia. Traditional mastectomy approaches often lead to asymmetry and cosmetic disfigurement, which is challenging for these patients. This study evaluates a novel Wise pattern oncoplastic technique combined with immediate contralateral breast reduction, aimed at excising large tumors while preserving breast contour and symmetry.

Methods: We conducted a retrospective review of patients with large tumors and DCIS who underwent oncoplastic Wise pattern breast reduction with contralateral reduction. Patient outcomes, including postoperative symmetry, contour, and quality of life measures, were assessed. We focused on both oncologic and aesthetic outcomes in a population with high BMI and large breast volumes.

Results: The Wise pattern approach allowed for the removal of extensive tumor and DCIS areas while achieving aesthetically pleasing contours and improved symmetry. Patient-reported outcomes showed high satisfaction with physical appearance and emotional well-being post-surgery. Complications were minimal and primarily associated with wound healing, consistent with high-BMI surgical populations.

Conclusion: This technique demonstrates a successful option for women with macromastia and high BMI, providing effective oncologic resection with favorable cosmetic outcomes. By addressing asymmetry and enhancing contour, the Wise pattern oncoplastic approach improves both oncologic and psychosocial outcomes for this unique patient population.

Plastic & Reconstructive Surgery | Clinical Science | Plastic & Maxillofacial Surgery

Characterization of Hand Surgery Transfers to a Level 1 Trauma Center in the Southeast: Assessing the Necessity for Emergent Care and Surgical Intervention

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Background: Level 1 trauma centers receive hand surgery transfers from a wide catchment area. Previous studies indicate that a proportion of transfers that do not necessitate higher level of care. Our study characterizes the hand transfers to our level 1 trauma center in the Southeast Region and identifies the proportion of patients who require emergent evaluation and
treatment by a hand surgeon.

Methods: The trauma database was queried for patients transferred for isolated hand and wrist injuries between 2018 and 2023. Exclusion criteria included polytrauma and medical comorbidities necessitating transfer. A retrospective chart review was performed to collect patient demographics, insurance carrier, level of transferring facility, mechanism of injury, and management. Descriptive statistics were performed.

Results: 241 patients were identified. 78.4% were transferred from non-trauma designated hospitals. Two patients from Level 1 trauma centers were transferred for revascularization/replantation. The most common insurer was
Medicaid (39.8%). 51.9% were admitted and underwent surgery
during hospitalization. 40.2% suffered sharp/penetrating trauma.
Complete digit amputation was for the most common reason for transfer. Average distance traveled was 64.4 miles.

Conclusion: More than half of transfers to our level 1 trauma center in the Southeast Region required admission and surgical intervention. Education of emergency room providers should be undertaken to temporize hand injuries not requiring urgent evaluation and treatment by a hand surgeon and to prevent unnecessary costs and time associated with inter-facility transfer.
Our findings may not be applicable to regions that are highly saturated with
surgical subspecialties.

Mini-Talk Session I | Surgical Potpourri I | Clinical Science | Plastic & Maxillofacial Surgery

Prophylactic Antibiotic Management of Non-Operative Facial Fractures at a Level One Trauma Center

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Background: Facial fractures are involved in ~5-10% of trauma cases each year. The non-operative management of facial fractures has become increasingly common. In October 2023, the Antibiotics Prophylaxis in Trauma Guideline was approved at University Medical Center New Orleans (UMCNO) and no longer recommended antibiotic use in non-operative facial fracture management. This study aimed to evaluate the impact of this policy change for non-operative facial fractures at UMCNO.

Methods: UMCNO's trauma registry was queried for adult patients with isolated non-operative facial fractures from April 1, 2023, to July 1, 2024. Patient cohorts from 6 months before (PRE) and after (POST) the implementation of the new protocol were captured with a 3-month washout period in between. Data including patient demographics, facial third affected, and infection development were collected. Significance was set at $p < 0.05$.

Results: In total, 105 patients met study inclusion criteria, with 60 PRE patients and 45 POST patients. Almost half of PRE patients (n=25/60, 41.7%) received prophylactic antibiotics compared to 33.3% (n=15/45) of POST patients (p=0.192). The incidence of head and neck infection in PRE patients was 3.3% (n=2/60) compared to 0/45 (0%) of POST patients (p=0.109). No patient in either cohort developed a Clostridium difficile infection or required an infectious disease consultation.

Conclusion: Discussion: There was no significant difference in antibiotic prescription rates or the incidence of head and neck infections following UMCNO's policy change. Investigation into the specific antibiotic regimens being prescribed following the policy change may prove insightful when considering the impact of these guidelines.

Mini-Talk Session I | Surgical Potpourri I | Clinical Science | Pediatric Surgery

Gastrostomy Tube Outcomes in Trisomy 21 Patients: A National Surgical Quality Improvement Program - Pediatric Study

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Background: Trisomy 21 (T21) patients commonly require gastrostomy tube (GT) placement. Previous studies demonstrate that T21 patients have increased postoperative complications. We aim to determine whether T21 patients who undergo GT placement have increased postoperative complications.

Methods: We used the National Surgical Quality Improvement Program—Pediatrics database from 2012 to 2020. Using CPT codes, children <18 years old with GT were identified and stratified based on T21 ICD diagnosis. Chi-square, Wilcoxon-Mann-Whitney, and logistic regression were used for statistical analysis.

Results: Of 31,244 patients with GT procedures, 1,495 (4.8%) had T21. Laparoscopic gastrostomy was most commonly performed (76.8%), followed by open gastrostomy (16.5%). When compared to non-T21 counterparts, T21 patients were younger (112 vs 238 days, p<0.001), non-Hispanic White (p<0.001), weighed less (10.7 vs 14.7 kg, p<0.001), older gestational age (37 vs 36 weeks, p<0.001), had previous cardiac surgery (37.5% vs 15.0%, p<0.001), had major (59.9% vs 21.3%) and minor (24.7% vs 18.3%) cardiac risk factors (p<0.001), had pulmonary anomalies (25.6% vs 19.2%, p<0.001), and esophageal/gastric/intestinal disease (54.3% vs 51.4%, p=0.029). T21 patients were more likely to be inpatient (89.4% vs 89.2%, p<0.001), require oxygen support (24.9% vs 18.7%, p<0.001), undergo elective cases (93% vs 92%, p=0.026), and have higher ASA class (p<0.001). T21 patients were more likely to have postoperative complications related to wound healing (OR 1.23 [1-1.5] p=0.046).

Conclusion: Significant differences exist between T21 patients and their non-T21 counterparts undergoing GT placement, particularly postoperative complications related to wound healing. Further investigation into T21 patients' unique wound healing differences is warranted.

Adjusted analysis of factors associated with postoperative complications in patients with gastrostomy tubes, National Surgical Quality Improvement Program - Pediatric 2012-2020

	OR	p-value
T21	1.23 (1.00-1.50)	0.046
Case type (ref = elective)		
Emergent	0.50 (0.30-0.78)	0.004
Cardiac Risk Factors (ref = none)		
Major	1.19 (1.04-1.36)	0.014
Minor	1.21 (1.05-1.40)	0.010
Severe	1.69 (1.37-2.07)	<0.001
Gestational Age at birth	1.01 (1.00-1.03)	0.009

Mini-Talk Session I | Surgical Potpourri I | Basic/Transactional Science | Pediatric Surgery

Cell Culture on PVA Coated Medical Devices

J Colvin, S Alexander, D Sorrells - LSU Health - Shreveport

Background: Biodegradable polymers, such as polyvinyl alcohol (PVA), have been studied for the augmentation of medical devices in multiple ways including drug binding, cell culturing, and adding mechanical strength. Binding protein-based therapeutics and cell growth factors directly to medical devices would allow the localized and concentrated delivery of these agents. This study aims to evaluate if intestinal endothelial cells can be cultured on vaginal expansion sleeve (VES) and intestinal expansion sleeve (IES) devices.

Methods: IES and VES were coated with PVA and crosslinked with glutaraldehyde and sulfuric acid to make a chemically reactive surface for binding. The sleeves were then cultured with intestinal endothelial cells before staining with a cell live/dead assay to determine the viability.

Results: Addition of 50 μg of GLP-2 to each PVA coated IES and VES device bound an average 22.69 ± 9.32 μg/cm2 of GLP-2 after adjustment for an external surface area of 9.425 cm2. Live cell assays confirmed the attachment of cells to the construct.

Conclusion: PVA membranes are biocompatible/biodegradable and have been shown to allow for adequate adhesion and growth of cells. Combined with this methodology of crosslinking PVA membranes making a chemically reactive surface to conjugated protein-based therapeutics, would allow for the growth of intestinal epithelial cells onto our IES/VES medical devices.

Mini-Talk Session I | Surgical Potpourri I | Education | Surgical Education

Robotic Versus Laparoscopic Adrenalectomy: A single surgeon experience

G.B.Zibari, R.Mudhher, Z.Agha, L.Zibari, N.Singh, M.Albritton, L.Kimball-Ravari, G.Melder, H.Shokouh-Amiri - Willis-knighton health system

Background: Numerous studies have demonstrated the safety and feasibility of robotic adrenalectomy (RA). However, the relative superiority of RA compared to laparoscopic adrenalectomy (LA) remains to be established. This study is designed to compare the advantages of robotic vs. laparoscopic adrenalectomies and patient outcomes.

Methods: A retrospective chart review of all patients underwent adrenalectomy from July 1998 to July 2024 was done. The study gathered data on patient demographics, duration of hospitalization, intraoperative, postoperative complications, and 90-day mortality rates. Statistical analyses were performed using Student's t-test and Chi-square test via JASP software

Results: The study found that the robotic group had a significantly shorter hospital stay (3.22±2.3 days) than the laparoscopic group (5.83±6.3 days) with a p-value of 0.003. Age distribution showed no significant difference between the groups (p=0.0698). There were no significant differences in intraoperative complications (p=0.878), postoperative complications (p=0.8), 90 days mortality (p=0.939), or sex distribution (p=0.239). The robotic group had a lower rate of conversion to open compared to the laparoscopic group (RA 0% vs. LA 7.2%), with a p-value of 0.031.

Conclusion: The study concludes that robotic surgery has some advantages over laparoscopic surgery, particularly in terms of shorter hospital stays and lower conversion rates to open surgery.

	Robotic (62)	**Lap (69)**	P-value
EBL (ml), mean ± SD	110 ±231.5	170 ±171	0.091
Lesion size (cm), mean ± SD	5.75±4.6	4.8±2.9	0.2
OR time (mins), mean ± SD	113±79.7	127.39±57.5	0.250
Hospital Stay (days) (Mean ± SD)	3.22± 2.3	5.83± 6.3	0.003
Conversion to open, % [n]	0% [0]	7.2% [5]	0.031
Additional resection, % [n]	[8]	[8]	0.934
Cholecystectomy	4	3	
Nephrectomy	3	2	
Splenectomy	0	1	
right retroperitoneal mass	1	0	
Hepatectomy	0	1	
Pancreatectomy	0	1	
Post-op Complication, % [n]	[3]	[4]	0.8
postop bleeding	1	1	
pneumonia	1	0	
Respiratory failure	0	2	
kidney failure	1	0	
wound infection	0	1	
90-day mortality, % [n]	1.6%.[1]	1.45%.[1]	0.939

Mini-Talk Session II | Surgical Potpourri II | Clinical Science | Surgical Oncology

Perineural Catheters Do Not Improve Perioperative Outcomes Following Pancreaticoduodenectomy

S Knowlton, B Viscomi, J Pettis, C Ianiro, S Budney, T Johnson, N Bolton, R Brown - Ochsner Medical Center

Background: Postoperative multimodal pain regimens aim to improve pain control, reduce narcotic usage, and accelerate recovery. Continuous perineural catheters have shown promise in extremity surgeries, but their utility in abdominal surgeries remains unclear. This study aims to evaluate the utility of continuous erector spinae plane (ESP) catheters following open pancreaticoduodenectomy (PD).

Methods: We reviewed our institution's prospectively collected pancreatectomy database and included all consecutive patients undergoing open PD via midline approach during a year of ESP implementation. Patients were managed according to an enhanced recovery after surgery (ERAS) pathway. ESP catheter placement and local anesthetic dosage were standardized. Outcomes measured included morphine milligram equivalents (MME) and subjective pain ratings (visual analog scale) during the first five postoperative days. Two groups were compared: those who received preoperative ESP catheters and those who did not (non-ESP).

Results: Forty-nine patients were included in the study: 26 (53%) received an ESP catheter, and 23 (47%) did not. There were no statistically significant differences in narcotic use (33.0 vs. 29.3 MME, $p = 0.56$), pain scores (4.78 vs. 4.80, $p = 0.96$), or length of stay (8.5 vs. 8.4 days, $p = 0.89$) between the groups.

Conclusion: The addition of continuous ESP catheters does not significantly reduce narcotic utilization, improve pain control, or shorten length of stay within an existing ERAS pathway following open PD. We noted challenges with ESP implementation, such as equipment education, catheter/pump maintenance, ambulation difficulties, and delayed case start times, along with the lack of measurable benefit, led to discontinuation for abdominal operations at our institution.

Mini-Talk Session II | Surgical Potpourri II | Clinical Science | Bariatric/Foregut

Robotic vs. Laparoscopic Hiatal Hernia Repair: A Year in Review

A Farran, A Tummala, J Wooldridge, J Gorham, W Richardson - Ochsner Medical Center

Background: Hiatal hernias (HH) have long been repaired laparoscopically with excellent outcomes. In recent years, robotic surgery has been used for HH repair. Studies have not demonstrated a clear benefit of one approach over the other. Our study compares post-operative symptom resolution following laparoscopic (LHR) and robotic (RHR) repair at a single quaternary academic center over one year. Secondary outcomes include peri-operative complications, operative time, hospital length of stay (LOS), recurrence, and re-admission.

Methods: Following IRB approval, we performed a retrospective review of patients who underwent LHR or RHR from January 1, 2022 to December 31, 2022. Inclusion criteria included patients with symptomatic HH. Patients younger than 18, emergent repair, and recurrent repair were excluded. 101 patients met criteria, 59 with LHR and 42 with RHR. 51 patients had a type 1 HH, 45 had a type 3 paraesophageal hernia (PEH), and 1 had a type 4 PEH. Post-op symptoms were obtained via 14-point questionnaire at patients' 2-week follow-up visit. Outcomes were entered into a generalized linear model.

Results: After controlling for several factors, minimally invasive surgery modality did not significantly affect outcome. However, lower post-op symptom count, decreased operative time, and LOS, trended towards significance in favor of the RHR group.

Conclusion: No significant statistical difference was found between laparoscopic and robotic HH repair at this institution. Self-reported post-op symptom improvement, decreased operative time, and shorter hospital LOS trended toward favoring robotics without reaching statistical significance. This supports use of both minimally invasive platforms as preferred by the operating surgeon.

Outcomes	LHR (mean)	RHR (mean)	OR [95% CI]	p
LOS	1.43±.97	1.21±.61	2.22 [.98-6.17]	0.096
Post-op symptom count	0.847±1.01	0.64±0.85	0.57[0.28-1.02]	0.083
Procedure length (min)	121±62.1	103±36.5	0.99[.09+1.00]	0.092

Outcomes	LHR	RHR	OR [95% CI]	p
30 days readmission	1.7%	5%	3.74[0.20-104.5]	0.365
Intra-op readmission	7.2%	2.3%	0.16[0.01-1.55]	0.168
Post-op complications	3.5%	5%	1.29[0.09-19.53]	0.847
HH recurrence	5.3%	2.4%	0.09[0.00-1.36]	0.120

Mini-Talk Session II | Surgical Potpourri II | Basic/Transactional Science | Surgical Oncology

The Pancreatic Duct Gland (PDG) Stem Cell Compartment as the Epithelial Origin of Pancreatic Ductal Adenocarcinoma (PDAC)

Kyle McAndrews, Kathryn Baldwin, Kristine Von Maltzan, Nirjhar Aloy, and Sarah Thayer - LSU Health - Shreveport

Background: The cellular origin of pancreatic ductal adenocarcinoma (PDAC) has been a long-standing question, with previous studies suggesting acinar-to-ductal metaplasia (ADM) as a possible source. The Thayer Laboratory has identified a distinct stem cell compartment, termed the Pancreatic Duct Gland (PDG), as a progenitor zone responsible for epithelial renewal in normal pancreatic homeostasis. This study characterizes the role of the PDG compartment as the true epithelial origin of PDAC.

Methods: Utilizing a transgenic mouse model (TT mice) expressing the Tff2 marker, which is unique to the PDG compartment, we lineage-tagged Tff2-expressing cells to investigate their role in PDG function. These Tff2+ cells, identified as transient amplifiers (TA), were subsequently targeted with mutations in Kras and Smad4—oncogenes commonly associated with PDAC development—resulting in the TTKP mouse model. TTKP mice were evaluated monthly to observe the progression of epithelial lesions

Results: Lineage tracing in TT mice revealed that Tff2-expressing TA cells in the PDG compartment actively contribute to epithelial renewal under normal conditions. In TTKP mice, targeted expression of Kras and Smad4 in Tff2+ cells led to the formation of progressive epithelial lesions resembling pancreatic intraepithelial neoplasia (PanIN) before developing into PDAC. This progression highlights the PDG compartment, rather than ADM, as the primary origin of PDAC

Conclusion: Our findings provide evidence that PDAC and its precursor, PanIN, originate from an epithelial stem cell compartment within the PDG. This discovery enhances our understanding of PDAC's cellular origins and opens new avenues for targeting CSCs within the PDG for early intervention and treatment of pancreatic cancer

Mini-Talk Session II | Surgical Potpourri II | Basic/Transactional Science | Surgical Techniques

The Ties That Bind: An Experimental Investigation of the Dermabond Effect on Knot Strength

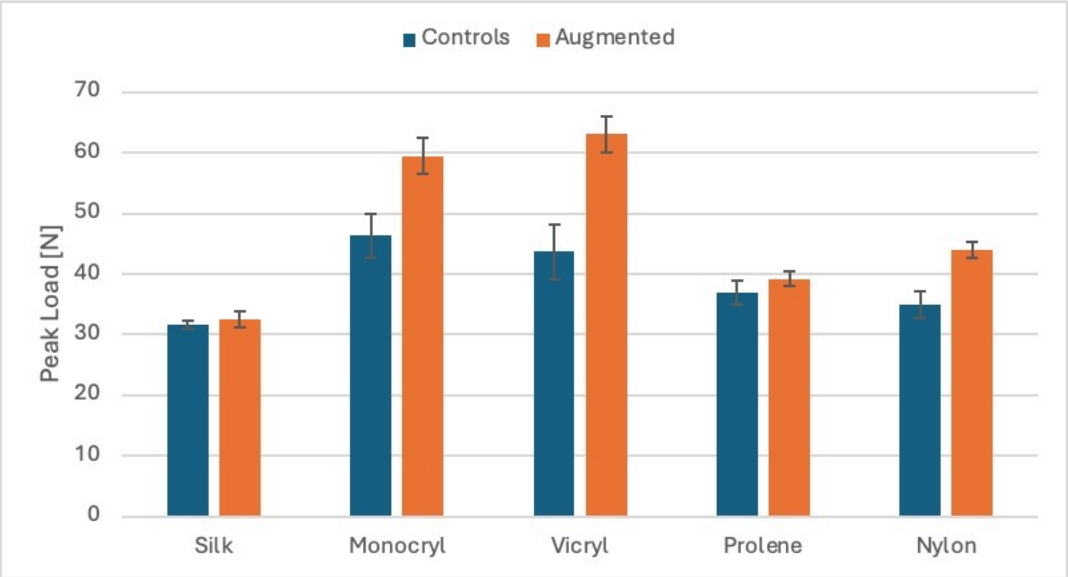
M Brown, G Solitro, D Sorrells - LSU Health - Shreveport

Background: Dermabond is commonly used as an alternative to other adhesives due to its many protective qualities such as being antimicrobial, flexible, and waterproof. However, no studies have been done to show the effect of Dermabond on the tensile strength of sutures. Strength enhancement knowledge could be especially significant to the integrity of wound closures on high tension areas such as joints. In this study, we hypothesize that Dermabond will strengthen skin wound closures via strengthening the sutures used.

Methods: Five different types of sutures were tested with and without Dermabond: Silk, Monocryl, Nylon, Prolene, and Vicryl (all 3-0). Each suture had knot failure load testing using an Instron mechanical machine at a displacement rate of 5mm/min with 8 repetitions with and without Dermabond (80 total experiments). Strength was evaluated as the peak load prior to failure.

Results: All testing was performed with loops of suture bound by a square knot. Dermabond influence was tested using a one tail t-test to obtain p-values to determine statistical significance.

Conclusion: Dermabond did not have equal effects on each type of suture. Specifically, Dermabond augmented the tensile strength of all the sutures tested ($p<0.05$) except for the silk ($p=0.052$). The silk control peak tension before failure was 31.60 N±0.67 compared to 32.52N±1.33 with Dermabond. Vicryl showed the greatest augmentation with a 44.4% increase from 43.70N±4.49 to 63.10N±2.99 with Dermabond (p-value=3.17x10-8). Knowledge of this adaptive increase in strength may improve wound closures in higher tension areas.



Trauma & Critical Care | Clinical Science | Trauma/Burn/Critical Care

Comparing Clinical Outcomes of Prehospital Ketamine Alone vs. Combined with Traditional Analgesics in Trauma Patients

C.Cook, N.Taylor, A.Smith - LSU Health - New Orleans

Background: Ketamine is effective for pain management and sedation in the trauma setting and is a potential alternative to opiates and benzodiazepines. It is underutilized due to lack of protocols. This study aimed to identify prehospital ketamine use and compare outcomes of ketamine alone versus with traditional analgesics in trauma patients.

Methods: This study involved trauma patients at 15 trauma centers over 2 years, examining those who received ketamine alone or with other analgesics. The primary outcome was airway complications. Data analysis included chi-square, logistic regression, t-tests, and Fisher's exact test.

Results: A total of 691 patients received prehospital ketamine, with 60.3% receiving ketamine alone, and 39.7% received it alongside other analgesics. The IV route was the most common route of administration. Pain was the primary indication for ketamine use. Intubation rates in the ED were 13.4% for the ketamine alone group and 22.9% for the analgesic group. Higher ketamine doses increased intubation odds slightly (OR = 1.009, 95% CI: 0.988 - 1.031, p=0.04). African American patients had 1.5 higher odds of intubation with ketamine alone (OR = 1.508, 95% CI: 0.0.357 - 6.362, p = 0.01). Patients needing a CT head also had a 2.7 higher odds of intubation (OR = 2.723, 95% CI: 1.004 - 7.386, p = 0.049).

Conclusion: Ketamine alone results in fewer intubations than when combined with other analgesics. Higher ketamine doses, race/ethnicity, and injury patterns needing a CT head scan increase intubation risk. Further research is needed to assess ketamine's safety for prehospital pain management in trauma settings.

Trauma & Critical Care | Clinical Science | Trauma/Burn/Critical Care

Anti-Xa Level Monitoring in Elderly Trauma Patients Receiving Enoxaparin Prophylaxis

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Background: Initiation of timely and appropriately dosed prophylaxis with enoxaparin, a low molecular weight heparin (LMWH), has been shown to reduce venous thromboembolism (VTE) in trauma patients. Lower enoxaparin doses are recommended in neurotrauma, renal insufficiency, low weight, pregnancy, and geriatric trauma patients. This study evaluated the appropriateness of serum anti-Xa levels for monitoring the effectiveness of VTE prophylaxis with enoxaparin in elderly trauma patients.

Methods: This single-centered, retrospective study analyzed data from geriatric trauma patients (aged 65 or older) who presented to a Level I trauma center between January 2020 and July 2024. All patients meeting inclusion criteria received enoxaparin 30 mg subcutaneously (SQ) twice daily for VTE prophylaxis and had a peak anti-Xa level drawn after 3 consecutive doses. The primary outcome evaluated peak serum anti-Xa levels for therapeutic appropriateness of VTE prophylaxis in elderly trauma patients. Secondary outcomes included time to VTE prophylaxis initiation and incidence of VTE prophylaxis complications, including clinically significant bleeding or VTE. Univariate analysis was performed.

Results: A total of 104 elderly patients met inclusion criteria. Baseline demographics found 59.6% male patients (62), with a mean age of 74.4 ± 7.3 years, mean ISS score of 18 ± 9.3, and a median BMI of 26.1 mg/m2. One hundred two patients (98.1%) had a blunt mechanism of injury, and 76.9% of patients (80) presented with a traumatic brain or spinal cord injury. Median time to VTE prophylaxis initiation from admission was 2 days. The mean anti-Xa peak level was 0.25 ± 0.12 IU/mL. Anti-Xa levels were therapeutic in 61 patients (58.7%), subtherapeutic in 37 patients (35.6%), and supratherapeutic in 6 patients (5.8%). Clinically significant bleeding after enoxaparin initiation was seen in 4 patients (3.8%) and VTE occurred in 7 patients (6.7%). Of the 7 patients who developed a VTE, 4 patients (57%) had subtherapeutic anti-Xa levels. The median hospital length of stay was 17 days.

Conclusion: This study found that subtherapeutic anti-Xa levels were measured in over one-third of elderly trauma patients who were initiated on enoxaparin 30 mg SQ twice daily for VTE prophylaxis. While anti-Xa levels were found to be therapeutic in only 58.7% of patients, complications of prophylactic therapy, including clinically significant bleeding or VTE, developed in a small proportion of patients. Initial enoxaparin doses greater than 30 mg SQ twice daily may be limited in elderly patients due to a higher rate of blunt trauma mechanism with brain or spinal cord injury. Further research is needed to evaluate dose adjustments using anti-Xa monitoring in geriatric trauma patients.

Anti-Xa Monitoring for LMWH Prophylaxis, *N=104*	
Therapeutic Appropriateness of LMWH Prophylaxis, N(%)	
Therapeutic (anti-Xa level 0.2-0.4 IU/mL)	61 (58.7)
Subtherapeutic (anti-Xa level <0.2 IU/mL)	37 (35.6)
Supratherapeutic (anti-Xa level ≥ 0.5 IU/mL)	6 (5.8)
Time to Initiation of LMWH Initiation (days), median (IQR)	2 (1-3)
Complications, N(%)	
DVT/PE	7 (6.7)
Clinically Significant Bleeding	4 (3.8)

Abbreviations: **LMWH** (low molecular weight heparin), **DVT** (deep venous thrombosis), **PE** (pulmonary embolism)

A Propensity-Matched Analysis of Whole Blood + Component Therapy versus Component Therapy Alone

J Leoni, J Chaisson, Y Kawji, M Hargis, S Jain, C Leonardi, S Lawicki, A Smith - LSU Health - New Orleans

Background: Recent studies suggest that whole blood (WB) therapy may provide comparable or even superior resuscitation and hemostatic outcomes to component therapy (CT). WB therapy offers a single, refrigerable product containing a mixture of blood components. In contrast, CT separates specific components, including fresh frozen plasma (FFP), red blood cells (pRBCs), platelets (Plt), and cryoprecipitate (Cryo). WB is especially beneficial for managing hemorrhagic shock and can be supplemented with CT as needed. This study aimed to investigate the outcomes of WB versus CT alone in critically ill trauma patients.

Methods: A retrospective chart review was conducted of adult trauma patients presenting with hemorrhagic shock at a Level 1 Trauma Center from July 2019 to December 2023. Patients received either CT plus WB (CT+WB) or CT alone. Data collected included demographics, injury severity score (ISS), 24-hour transfusion (WB, pRBC, FFP, Plt, Cryo) units/volumes, and outcomes such as 24-hour mortality, ventilation requirements, total ICU days, hospital length of stay (LOS), and adverse events (VAP, ARDS, sepsis, TACO, TRALI). Data were analyzed using SAS version 9.4 (SAS Institute Inc, Cary, NC, USA). Patients were matched on sex, race, age, BMI, and ISS, aiming for a 1:2 ratio of CT to CT+WB using greedy matching for continuous variables and exact matching for sex and race. Univariable analyses were performed to compare the two groups (CT vs. CT+WB) using chi-square or Exact tests for proportions, Mann-Whitney U tests for medians, and t-tests for means.

Results: A total of 249 patients were included with 88 in the CT group and 161 in the CT+WB group. The median total transfusion volume was 2145 mL (1060 mL WB) for the CT+WB group and 1135 mL for the CT group. Patients were predominantly male (82.7%), African American (65.1%), with a median age of 34 years, BMI of 25.2 kg/m2, and ISS of 20.8 on presentation. Mortality at 24 hours was higher in the CT alone group compared to the CT+WB group (19.3% vs. 9.2%, $p=0.038$). Additionally, the median LOS was longer in the CT alone group (9 days) than in the CT+WB group (7 days, $p=0.026$). No significant differences were observed in secondary outcomes of adverse events between the two groups ($p>0.05$).

Conclusion: This retrospective, propensity-matched study advances our understanding of current transfusion practices in trauma care. Our findings suggest that whole blood transfusion to supplement traditional component therapy may be a more effective approach for resuscitating patients in hemorrhagic shock.

Trauma & Critical Care | Clinical Science | Trauma/Burn/Critical Care

Constant Real-Time Endotracheal Tube Monitoring in the ICU Setting: Proposal of a Novel Safety Device

D Lincoln, P Hollenshead, G Solitro, J Alexander, D Sorrells - LSU Health - Shreveport

Background: Unplanned extubation (UE) in the intensive care setting occurs in about 7% of cases with potentially high levels of morbidity. Quality improvement measures have had some impact; however, UE continues to be a nemesis of intubated patients. This study explores a novel device capable of recognizing extubations and gives providers an accelerated pathway for diagnosing problems in endotracheal tube placement.

Methods: The proposed device is composed of an Arduino computer and three RFID sensors to measure position. The system was affixed to an intubated mannequin with the sensor positioned within 1cm of an RFID sticker (within the active read range). While in contact, the device was run for 9 hours with a sampling rate of 4 times per second. Results were tracked using an onboard LCD screen. The study was then repeated with the RFID sticker placed outside of the read range.

Results: The initial testing revealed a sensitivity of 99.98% and specificity of 1, (no false positive values). Following the first test, the code was updated, and tests were repeated. After changes, the device had no detected false positive or false negative values.

Conclusion: Based on the results of our initial device testing, we conclude that this device can accurately detect unplanned extubation with an accuracy of 99.98%. Though further clinical testing is needed, our solution can likely reduce associated costs, morbidity, and mortality within the ICU setting.

Actual

Predicted	**N = 259200**	In Contact	Not in Contact	
	Read: True	129573	0	**PPV:** 1
	Read: False	27	129600	**NPV:** 0.9998
		Sensitivity: 0.9998	**Specificity:** 1	**Accuracy:** 0.9998

N = # of Read Cycles

Trauma & Critical Care | Clinical Science | Trauma/Burn/Critical Care

Reported Ventilator Associated Pneumonia Rates in the Trauma Population does not Reflect Clinically Significant Respiratory Infection

Balaraman P, Mortemore A, Chiep K, Gross A, McGee E, Suh A, Tatum D, McGrew P, Zhang J, Duchesne J, Taghavi S, Harrell K - Tulane School of Medicine

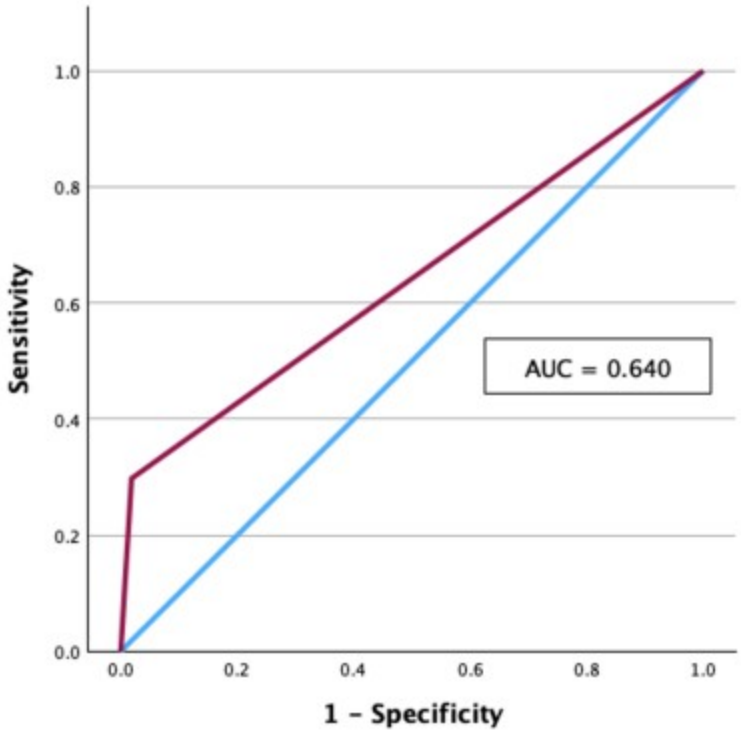
Background: Ventilator-associated pneumonia (VAP) is a known complication among intensive care unit (ICU) patients requiring mechanical ventilation and is associated with increased morbidity and mortality. Trauma patients are particularly susceptible to developing VAP due to comorbid conditions such as pulmonary contusions, chest wall injury, and increased aspiration risk. VAP is an important quality metric and rates are reported to the Trauma Quality Improvement Program (TQIP). Despite this, sparse data exists regarding the development of VAP in this patient population. The aim of this study is to investigate rates of clinical VAP compared to reported rates in TQIP. We hypothesized that reported VAP rates would be lower than clinically significant VAP.

Methods: A retrospective analysis of intubated trauma patients was conducted at a single Level I trauma center from January 2019 to December 2023. Trauma registry, demographics, injury, cultured organism, and outcome data were collected. VAP was defined as moderate growth of speciated organisms on respiratory culture obtained two days or more after intubation. The primary outcome of interest were rates of reported VAP compared to rates of VAP identified on respiratory culture.

Results: Over the five-year study period, 892 patients met inclusion criteria. The patients were majority male (77.0%, n=755) with a median age of 42 [29-59] years. Most patients suffered blunt injury (71.3%, n=699) and median injury severity score of 20 [13-29]. Rib fractures were diagnosed in 311 (31.7%) and pulmonary contusion in 171 (17.4%) patients. The trauma registry identified 81 (8.3%) patients as having VAP but 225 (22.9%) with VAP on respiratory culture. Of patients with clinical VAP, 214 (95.1%) received at least some antibiotic therapy, with a median 7 [3-7] day course. Registry VAP as a predictor for clinically significant VAP had a sensitivity of 82.7%, specificity of 82.4%, positive predictive value of 29.8%, and negative predictive value of 98.1%. A receiver operating characteristic curve was generated demonstrating an area under the curve of 0.640 (Figure 1).

Conclusion: Rates of clinically significant respiratory infection are prevalent in the trauma ICU. VAP rates in the registry was found to be underreported, limiting its use as a quality metric. Further studies along with improved definitions, reporting criteria, and using diagnostic respiratory culture are necessary to reconcile these differences if VAP is to remain a marker of ICU and trama quality.

Figure 1
Receiver operating characteristic curve for registry VAP as a predictor of clinical VAP



Trauma & Critical Care | Clinical Science | Trauma/Burn/Critical Care

ANNUAL HOMICIDE RATES AS A PREDICTOR OF OVERALL FIREARM VIOLENCE

R Lewis, L Magnotti, W Hoover, N Manley, G Davis, B Martinez, T Jacome - OLOL /LSU Baton Rouge

Background: The annual reporting of homicides often captures the nation's attention with the unspoken assumption that this serves as an accurate surrogate for overall firearm violence. The purpose of this study is to evaluate whether homicide rates serve as a good predictor of overall gun-related violent crime.

Methods: Using publicly available police crime incident data from a large urban city in the southern United States, the total number of firearm-related violent crimes and homicides per year from 2014 to 2022 were recorded. Over the same period, consecutive patients who sustained gunshot wounds within the city limits were identified from the registry of the region's only designated trauma center. Rates of gunshot victims treated at the regional trauma center, firearm-related violent crimes, and homicides per 100,000 of the city's population were stratified by year and compared over time using simple linear regression. Analysis of variance was then used to compare the rate of increase of homicides to firearm-related violent crimes.

Results: The total number of firearm-related violent crimes and homicides over the study period were 7442 and 805, respectively. Linear regression analysis identified a significant increase in the rate of gunshot victims (57.94/100,000 to 130.5/100,000, Beta=9.481, p=0.004), firearm-related crimes (188.75/100,000 to 531.04/100,000, Beta=46.436, p<0.001), and homicides (25.90/100,000 to 47.41/100,000, Beta=3.525, p=0.004) from 2014 to 2022. Over the study period, firearm-related violent crimes increased more than homicides (181.35% vs 83.08%, p=0.003).

Conclusion: Annual homicide rates should be interpreted with caution as they may not accurately reflect the true extent of gun violence in communities. In fact, despite increased public awareness, the incidence of gunshot victims and homicides have steadily increased over the past nine years. Broadening understanding represents the first step in preventing continued increases in this major public health problem.

Room One | Oncology - Breast | Clinical Science | Breast

Mechanisms of Endocrine-Therapy Resistance: Loss of Estrogen Receptor Expression in CTCs of Hormone-Positive Breast Cancer Patients may Contribute to Late Recurrence

K Baldwin, M Richard, D Maroni, C Grabow, J Price, K Von Maltzan, S Thayer - LSU Health - Shreveport

Background: Estrogen receptor-positive (ER+) breast cancer poses a significant risk of late recurrence with about a 40% recurrence rate over 20 years. Late recurrence is usually marked by resistance to endocrine therapies, leading to poor outcomes. We aim to uncover possible mechanisms of hormone-resistance by isolating and characterizing circulating tumor cells (CTCs) from ER+ breast cancer patients.

Methods: Patients with hormone-receptor positive breast cancer were enrolled in our IRB-approved study. Blood samples were collected pre-treatment and at multiple points during and after treatment. Samples underwent size-based filtration using the Rarecell ISET filtration device to isolate CTCs. Filtered samples underwent multiplex immunofluorescence (mIF) for CD45, EpCAM, and ER. Cells that were CD45+/EpCAM-neg were defined as WBCs, while CTCs were defined as any CD45-neg/EpCAM+/ER+ or CD45-neg/EpCAM+/ER-neg cell.

Results: The patient samples that underwent mIF contained a complex pattern ER+ and ER-neg cells, even within a patient sample. Two subsets of CTCs were identified: CD45-neg/EpCAM+/ER+ cells and CD45-neg/EpCAM+/ER-neg cells. This data suggests that mechanisms of estrogen-resistance are likely heterogenous and include loss of the estrogen receptor.

Conclusion: Presence of ER-neg CTCs in our ER+ breast cancer patients indicates that the loss of the estrogen receptor is one mechanism of estrogen-resistance in this population. This insight may offer more personalized interventions to help improve long-term outcomes in patients.

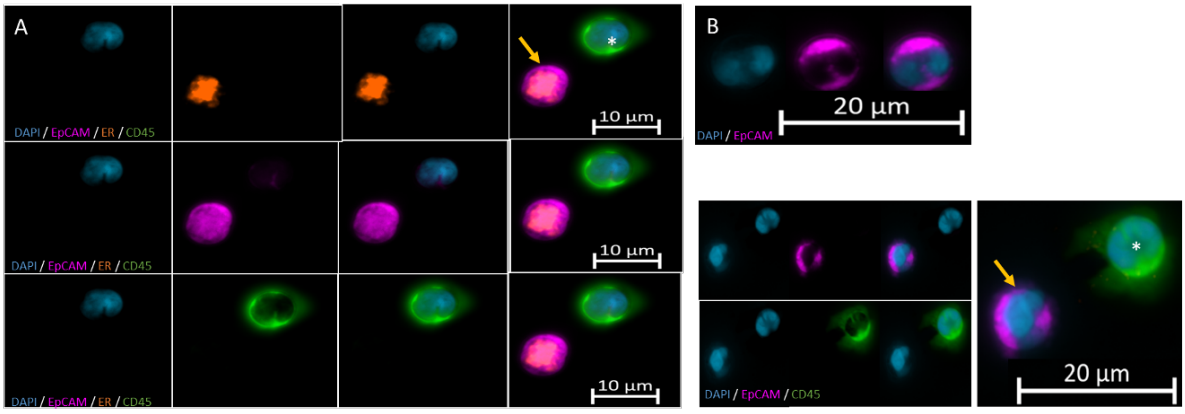


Figure X: CTC-117 post-surgery sample.
A) Estrogen and EpCAM positive CTC (arrow) and CD45 positive WBC (asterisk) shown
B) Estrogen negative, EpCAM positive CTC
C) Estrogen negative, EpCAM positive CTC (arrow) and CD45 positive WBC (asterisk)

Room One | Oncology - Breast | Basic/Transactional Science | Breast

A Novel Low-Cost CTC Capture and Characterization Platform with Applications in Diagnostic and Therapeutic Interventions

Kristine Von Maltzan, Kathryn Baldwin, Madeleine Richards, and Sarah Thayer - LSU Health - Shreveport

Background: Circulating tumor cells (CTCs) provide critical insights into tumor biology, treatment resistance, and metastatic potential. Pre-treatment CTC analysis supports personalized interventions, while characterization aids in monitoring treatment success and recurrence. This study focuses on a predominantly African American population (60%), at higher risk for aggressive breast cancer subtypes, including triple-negative breast cancer.

Methods: We employed a cost-effective approach to capture CTCs from blood samples. This method isolates cells larger than 12 μm by filtering lysed blood through a semi-permeable membrane under negative pressure. Captured cells were characterized using May-Grüwald Giemsa staining for cytologic features, and specific immunofluorescence markers confirmed malignancy. Live-cell CTCs were successfully cultured into organoids.

Results: · CTC detection was achieved in 80% of patient pre-treatment samples

· Immunofluorescence analysis confirmed the presence of cancer biomarkers in 50% of detected CTCs.

· Cytologic features such as nuclear atypia and high nuclear-to-cytoplasmic ratios were prominent in identified CTCs, enabling diagnostic integration by pathologists.

· Live-cell CTC capture and expansion in organoid cultures were successfully demonstrated, paving the way for advanced resistance profiling and therapeutic screening.

· This novel system provides, low-cost method for CTC capture, integrating cytologic evaluation into the diagnostic pipeline while offering opportunities for precision medicine applications.

Conclusion: This system captures and characterizes CTCs efficiently and affordably. Its ability to support both cytologic and molecular analysis from a single sample enhances diagnostic workflows, particularly in underserved populations. Furthermore, the system's capacity to generate live CTC organoid cultures facilitates in-depth resistance and high-throughput drug screening, advancing the understanding and management of breast cancer.

Room One | Oncology - Breast | Clinical Science | Colon and Rectal Surgery

Improving Watch and Wait: Database System Monitoring and Notifications for Missed Surveillance

K Herman, C Whitlow, B Kann, D Vargas, W Johnston, W Kethman, D Kay, C Zibilich, H Green, C Becnel, J Paruch - Ochsner Medical Center

Background: Surgery after chemotherapy and radiation provides rectal cancer patients the best chance of disease-free survival, however it is associated with significant morbidity. Patients with complete or near complete tumor response to chemotherapy and radiation may avoid surgery by entering an active surveillance plan (Watch and Wait), which requires frequent endoscopic and radiologic evaluation. Studies have shown that up to 50% of patients miss surveillance intervals in the first year. We hypothesize that a system of active monitoring for missed visits would increase the number of patients receiving complete surveillance.

Methods: A Redcap database was designed to prospectively monitor patients undergoing Watch and Wait. From January 2020 to present, patients were entered into the database following a tumor board decision to proceed with Watch and Wait surveillance. Beginning in April 2023, an audit of the database was performed monthly by a clinical research coordinator. When a missed surveillance appointment was identified, an email was sent to the patient's surgeon and nurse to reschedule the appointment. We report data on the effect of the notification intervention on surveillance completion.

Results: Of 53 total patients in Watch and Wait, 7 (13%) received all their surveillance pre-intervention, 19 (36%) received it all post-intervention, and 27 (51%) had surveillance spanning both periods. There were 155 surveillance intervals pre-intervention (34 patients), and 140 intervals post-intervention (46 patients). A missed surveillance interval occurred in 40% of pre- and 43% of post intervention intervals. Patients who received all of their surveillance post-intervention had the lowest rate of missed intervals, particularly compared to pre-intervention only patients (28.6% vs. 54.5%, p= 0.0224). Among all pre-intervention patients, 50% missed surveillance multiple times. 29.4% of all pre-intervention patients had at least one occurrence of missing surveillance across consecutive intervals. Patients that were completely post-intervention had a reduction in multiple and consecutively missed surveillance as compared to pre-intervention patients (26.3% vs. 57.1% and 21.1% vs. 42.9%, respectively). Notification intervention also significantly reduced the frequency of missing the same surveillance modality (ie. endoscopy) two intervals in a row (5.26% vs. 42.9%, p=0.0468).

Conclusion: We describe the development of a system to track Watch and Wait surveillance intervals. Provider notification significantly reduces the number of patients who miss individual and consecutive surveillance intervals. Ongoing refinement of Watch and Wait programs is essential to ensure consistent adherence to surveillance. We propose that a monitoring system with frequent auditing should be established at the onset of any Watch and Wait program.

	Pre-Intervention (Total)	Post-Intervention (Total)	P-value	Pre-Intervention (Only)	Post-Intervention (Only)	P-value
Total Patients, n (%)	34	46		7	19	
Missed Any Surveillance	25 (73.5)	29 (63.0)	0.347	5 (71.4)	8 (42.1)	0.378
Missed Multiple Intervals (≥ 2)	17 (50.0)	22 (47.8)	>0.999	4 (57.1)	5 (26.3)	0.188
Missed Consecutive Intervals	10 (29.4)	17 (37.0)	0.633	3 (42.9)	4 (21.1)	0.340
Missed Consecutive - Same Modality	9 (26.5)	9 (19.6)	0.590	3 (42.9)	1 (5.26)	**0.0468**
Total Surveillance Intervals, n	155	140		33	49	
Total Intervals with any Missed Surveillance, n (%)	62 (40.0)	60 (43.0)	0.637	18 (54.5)	14 (28.6)	**0.0224**
Missed Endoscopy	36 (23.2)	32 (23.0)		9 (27.3)	6 (12.2)	
Missed Imaging	28 (18.1)	22 (15.7)		8 (24.2)	4 (8.16)	
Missed Labwork	36 (23.2)	35 (25.0)		9 (27.3)	8 (16.3)	

Room One | Oncology - Breast | Clinical Science | Hepatobiliary and Pancreas

The Impact of Early Diagnosis on Survival after Resection of Pancreatic Ductal Adenocarcinoma

V Sahar, N Bolton, D Pointer Jr, A Newton, J Bolton, R Brown - Ochsner Medical Center

Background: Given the high case-fatality rate of pancreatic ductal adenocarcinoma (PDAC), we sought to determine the detection threshold that meaningfully improves overall survival rates. This study reviews our experience with early stage PDAC.

Methods: This is a retrospective single institution review of 402 patients who underwent pancreatic resection with curative intent for PDAC between 2013-2020. Of those, 35 patients with early stage (pT1xNx) PDAC underwent upfront resection without neoadjuvant therapy. We analyzed the presenting signs and symptoms, imaging findings, treatment pattern, and long-term survival in early stage patients.

Results: The nodal positivity rate was 0% (0/7) for pT1a,b cancers vs. 50% (14/28) for pT1c cancers (p=0.03). 5-year overall survival was 71% for pT1a,b cancers vs 33% for all T1c cancers and 14% for pT1cN1-3 cancers. Among the earliest stage cancers (pT1a,b), 86% were asymptomatic with malignancy revealed postoperatively, compared with only 7 % of pT1c patients (p<.001). Cystic neoplasms were associated with 70% of pT1a,b cancers vs 21% of pT1c cancers (p=0.02).

Conclusion: Diagnosis of PDAC at an early stage has a profound effect on outcome. Favorable long-term survival is associated with pT1a,bN0 stage, incidental diagnosis prior to the development of symptoms, and co-incident cystic neoplasm of the pancreas. These findings underscore that a major shift (below current imaging or clinical sensitivity) toward an earlier stage at diagnosis is necessary to impact survival rates. Recent biomarker research suggests that serologic screening for PDAC may become available soon, providing hope for earlier diagnosis.

Room Two | General Surgery | Education | Education

Inability to predict resident performance at graduation from application and interview data

V Cox, AH Waldenmaier, J Gorham, C Coogan, G Fuhrman - Ochsner Medical Center

Background: Previous work at our institution has shown that out of all of the data points in an application, only USMLE Step 2 scores and interview scores are predictive of rank list position at the end of recruitment. We performed this study to determine whether we could predict a resident's performance at graduation from their application materials.

Methods: Surgical faculty that worked directly with residents at both junior and senior years of training were surveyed using a five-point Likert scale to assess six ACGME domains including: medical knowledge, patient care, decision making, professionalism, interpersonal skills, and operative skill. Additionally, faculty were asked to rank each member of a graduating class based on overall performance at the time of graduation. Using individual regression, these faculty assessments were compared to resident application materials to determine if we could predict performance at graduation from the application.

Results: The odds ratio (95% CI) for ranking first in the participants' respective residency classes were estimated from individual logistic regression models with fixed effect for item and covariates for year and rater based on each factor as follows: USMLE Step 1 score 0.98 (0.85, 1.13); USMLE Step 2 score 1.12 (0.95, 1.33); position on Match rank list 1.21 (0.90, 1.62); medical knowledge 2.95 (1.97, 4.56); operative skill 2.12 (1.50, 3.06); patient care 2.86 (1.87, 4.51); decision making 2.76 (1.89, 4.19); interpersonal skills 1.99 (1.40, 2.89); and professionalism 2.02 (1.36, 3.05).

Conclusion: At our institution, there are no objective measures from the application that predicted the highest or lowest ranked resident at graduation. The six ranked domains are all significantly associated with a resident being ranked highly, but ranked domains may not be weighted equally in staff perception of residents. The domains of medical knowledge, patient care and decision making have more weight than professionalism, interpersonal skills and operative skill.

Item	Ranked First in Class Odds Ratio* (95% CI)	Ranked Last in Class Odds Ratio* (95% CI)
Medical Knowledge	2.95 (1.97, 4.56)	0.55 (0.36, 0.81)
Operative Skill	2.12 (1.50, 3.06)	0.49 (0.32, 0.72)
Patient Care	2.86 (1.87, 4.51)	0.82 (0.53, 1.22)
Decision Making	2.76 (1.89, 4.19)	0.57 (0.38, 0.83)
Interpersonal Skills	1.99 (1.40, 2.89)	0.81 (0.54, 1.18)
Professionalism	2.02 (1.36, 3.05)	0.82 (0.53, 1.22)
Step 1 score	0.98 (0.85, 1.13)	1.04 (0.90, 1.20)
Step 2 score	1.12 (0.95, 1.33)	0.98 (0.83, 1.15)
Position on Match Rank List	1.21 (0.90, 1.62)	0.83 (0.61, 1.12)

*Estimated from individual logistic regression models with fixed effect for *item* and covariates for year and rater

Room Two | General Surgery | Education | Education

Evaluating the Impact of Increased Program Signals on Match Outcomes in General Surgery

D Bromenshenkel, T French, J Gorham - Ochsner Medical Center

Background: Program signaling was introduced in the ENT match during the 2020-2021 application cycle, allowing applicants to indicate interest in up to five programs. This process gained support among applicants and program directors, with evidence showing increased interview rates at signaled programs. General Surgery adopted signaling in 2021-2022, initially offering five signals and increasing to 15 for the 2024-2025 match. Other surgical specialties, including Neurosurgery, Orthopaedic Surgery, and Otolaryngology, allow a higher number of signals: 25, 30, and 25, respectively. There is limited data regarding how these changes will affect the General Surgery match.

Methods: An online questionnaire was sent to General Surgery residents who participated in virtual interviews at two institutions (NRMP Match 2021-2024). This survey included questions about residents' use of signaling and match outcomes. Questions about applicants' top 15 residencies prior to program interaction (i.e. info sessions, open houses, etc.) were used as a proxy for how they would have used 15 signals. Data were analyzed using descriptive statistics and chi-square tests to identify differences in match outcomes with the anticipated increase to 15 available signals.

Results: Of the 23 respondents, 17 utilized program signaling. Seven matched into one of their five signaled programs (7/17; 41.1%). Across all respondents, 17 matched into programs they indicate fell within their top 15 choices pre-interview (17/23; 73.9%). While this confirms a significant difference between the use of five and 15 signals ($p = 0.037$), these results suggest over one-fourth of applicants develop interest in or even favor non-signaled programs throughout the application cycle and could miss a "perfect match" if signaling is prioritized too heavily by programs.

Conclusion: Expanded signal limits in the General Surgery match may offer applicants a better chance to secure interviews at preferred programs, potentially leading to greater satisfaction in the match process. However, applicants' interest in programs may evolve over the application cycle, and limiting signals to 15 may not allow applicants to indicate their full breadth of residency program interest.

Room Two | General Surgery | Clinical Science | Endocrine

Real Scale Augmented Reality For Surgical Planning in Parathyroidectomy

Mullen SC, BS; Alexander S, PhD; Solitro G, PhD; Yatavelli R, MD; Lairmore TC, MD - LSU Health - Shreveport

Background: Preoperative planning for parathyroidectomy is facilitated by precise localization of parathyroid adenomas. Traditional localization studies such as ultrasound, sestamibi scan, 4D CT, and MRI can provide 2D images for localization. Augmented Reality (AR) enhances visualization by overlaying 3D imaging onto the patient, improving understanding of critical anatomical structures. Using 3D printing, we created patient-specific models of parathyroid adenomas from 4D CT and Sestamibi CT/SPECT data for surgical planning and education, advancing virtual imaging technologies for intraoperative localization.

Methods: DICOM data from preoperative 4D CT scans of patients with primary hyperparathyroidism were segmented to isolate the thyroid, parathyroids, and trachea. These 3D models, including external skin, were refined using Meshmixer (Autodesk) and exported as OBJ files to the Unity engine (Unity Technologies). Anatomical structures were color-coded, made interactive, and prepared for real-scale AR applications via the Meta XR All-in-One SDK. Finalized models were deployed on an Oculus Quest 3 headset (Meta) for surgical and educational use.

Results: We developed a first-generation paradigm for preoperative surgical planning and resident education, utilizing augmented reality for visualization of parathyroid adenomas utilizing patient-specific models.

Conclusion: The integration of augmented reality and virtual imaging technologies, using patient-specific 3D anatomical models, enhances preoperative and intraoperative localization of parathyroid adenomas. This approach improves surgical precision, streamlines planning, and offers an interactive tool for resident education, with the potential to advance outcomes and expand AR applications in endocrine surgery.

SURGICAL TREAMENT OF REFRACTORY GASTROPARESIS IS SUCCESSFUL IN SELECTED PATIENTS

M. Kang, A. Alaini, P. Puri, C. Velasco-Gonzales, W. Richardson - Ochsner Medical Center

Background: For patients with refractory gastroparesis, selecting the appropriate surgical intervention is challenging due to the inability to target therapy to specific etiologies and the paucity of comparative data.

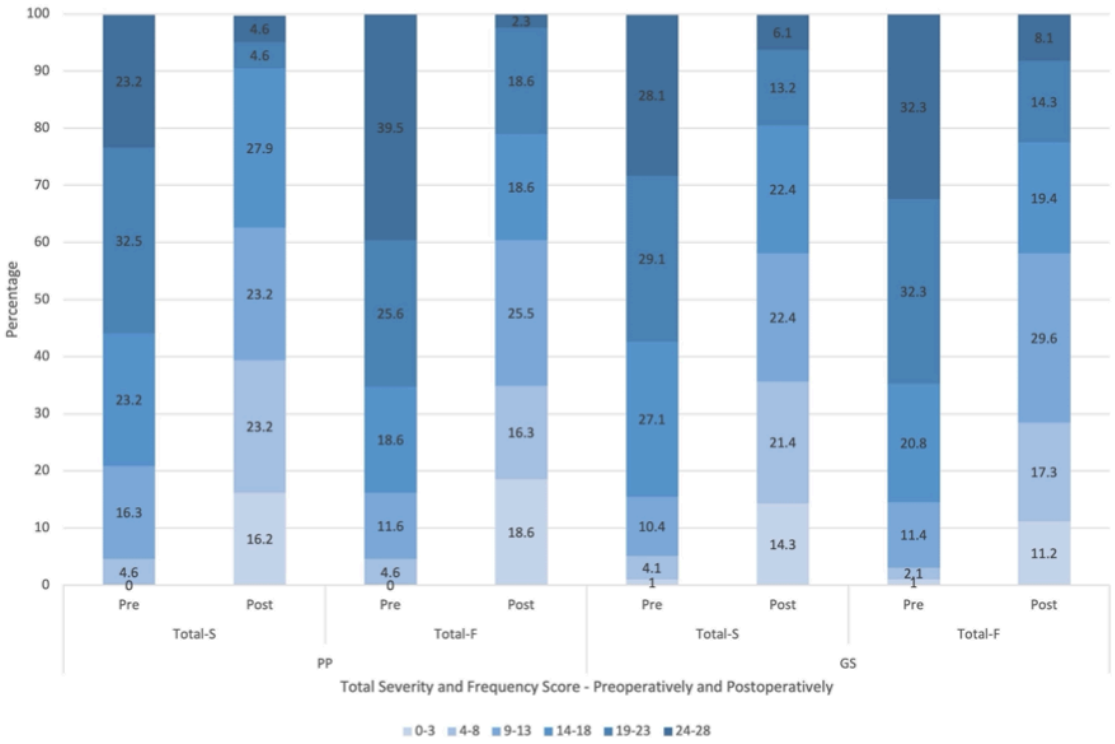
Methods: A prospective cohort study utilizing GSCI surveys administered preoperatively and two weeks postoperatively for adults undergoing pyloric procedure(PP) and gastric stimulator(GS) between 2020 and 2024. 43 PP and 98 GS patients included. The survey assessed severity(S) and frequency(F) of vomiting(V), nausea(N), early satiety(ES), bloating(B), postprandial fullness(PF), epigastric pain(EP), and epigastric burning(EB). Symptoms rated from 0 to 4, with a maximum total of 28. P-value calculated using proportional odds ordinal logistic regression, with odds-ratio and 95% confidence interval.

Results: There was a statistically significant reduction in all scores on the GSCI survey for both PP ($p<0.005$) and GS ($p<0.0005$). The highest odds of reporting a lower score was B-F (8.53, 3.53-20.6) and V-F (7.05, 2.99-16.6) for PP, and N-F (6.15, 3.44-11.0) and N-S (6.12, 3.49-10.7) for GS.

For PP, patients with a total severity score of 14-28 dropped from 34 to 16 postoperatively, and those with a frequency score of 14-28 dropped from 36 to 17. For GS placement, patients with a severity score of 14-28 decreased from 81 to 41, and those with a frequency score of 14-28 decreased from 82 to 41. Graph 1 shows the percentage change in total scores.

Conclusion: There was significant improvement in severity and frequency of symptoms postoperatively for PP and GS. The results show improvement over a prior study, suggesting better patient selection.

Difference (%) in Symptom Severity and Frequency Total Score for Pyloric Procedure (PP) and Gastric Stimulator (GS)



Room Two | General Surgery | Clinical Science | General Surgery

Contemporary Gastrostomy Tube Experience at an Academic Medical Center

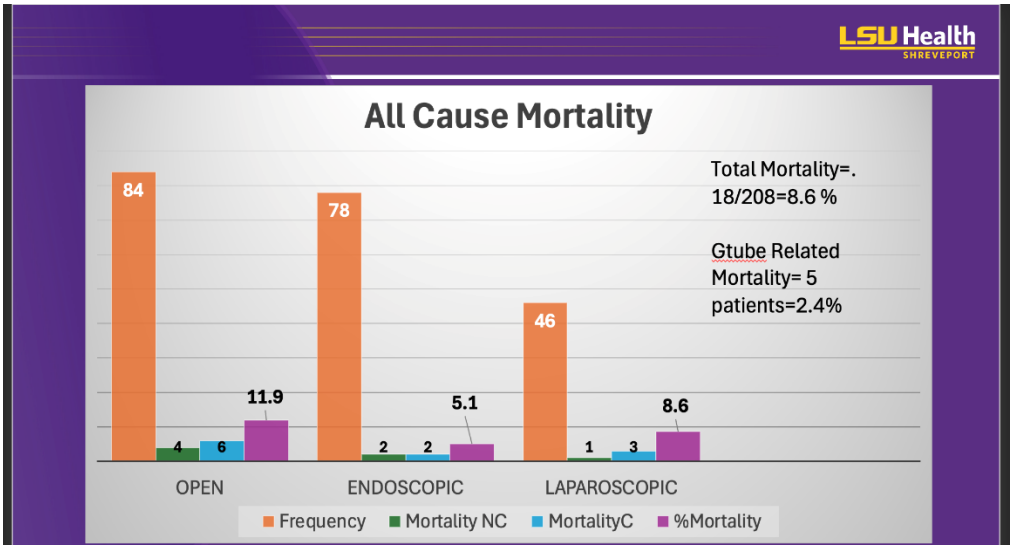
M Robert, K White - LSU Health - Shreveport

Background: Gastrostomy tube placement is a common procedure that serves patients who are usually debilitated to attain their nutritional goals. Percutaneous, laparoscopic-assisted and open surgical techniques are the most employed techniques and are utilized by surgeons and non-surgeons alike. Complications are frequent and usually minor, but major unrecognized injuries or early tube dislodgement can result in mortality. This study explores our recent experience at a major academic healthcare system with high volume trauma and comprehensive stroke centers.

Methods: This retrospective cohort includes 208 patients who underwent gastric feeding tube insertion either percutaneously, laparoscopically, or open over a recent 20-month period. There were 121 (58%) non-complicated g-tube procedures (NCGT) and 87 (42%) complicated events (CGT). Of the 87 complications, 66 (75%) were minor and 21 (25%) were major. All-cause and g-tube related mortalities were compared to age, race, co-morbidities, type and length of procedure and the specialty of the proceduralists. The student t-test was employed to evaluate statistical significance (< 0.05)

Results: All-cause mortality was 8.6% and there were 5 patients (2.6%) with g-tube related deaths. Six reoperations (9%) were required in the NCGT group without mortality. In the CGT cohort 15 reoperations (71%) were needed. Unrecognized adjacent visceral injury or early tube dislodgement with subsequent tube feeding chemical peritonitis accounted for 4 of 5 deaths. Age, race, co-morbidities, type and length of procedures and type of proceduralist were not statistically related to morbidity or mortality. Those complications not immediately noted carried a mortality of > 75%.

Conclusion: Gastrostomy tube procedures are usually performed in a high-risk population by a spectrum of practitioners. While complications are usually of little consequence, those not recognized at the initial procedures carry a very high mortality.



Mini-Talk Session III | Trauma & Critical Care | Basic/Transactional Science | Trauma/Burn/Critical Care

Elevated Concentrations of IL-10 Secreted from Adipose-Derived Stem Cells of Burn Patients with Higher BMIs

K. Andre, P. Deville, A. Masoud, D. Vitharana, S. Trinh, A. Ozcan, J. Carter, H. Phelan, J. Schoen, M.V. Miles, A. Smith - LSU Health - New Orleans

Background: Human adipose tissue has known metabolic and endocrine activity which drives the immune response and healing process following injury. In obese patients, adipose tissue remodeling can cause cell death and mechanical stress which contribute to chronic inflammation. As cytokines play a key role in regulating cellular metabolism, we hypothesized that the ADSCs of patients with higher BMIs would display significantly different cytokine profiles than those with lower BMIs.

Methods: Following IRB approval, subcutaneous adipose tissue was collected from adult burn patients at the site of injury during the index operation. ADSCs were isolated with flow cytometry. Each sample was grown for 24 hours using standard cell culture techniques. Supernatant was extracted and tested using a 10-analyte multiplex assay targeting IFN-γ, IL-1β, IL-4, IL-6, IL-10, IL-13, IL-17A, TGF-α, TNF-α, FGF-2, MCP-1, and VEGF. Patients were stratified based on BMIs either higher or lower than 25 kg/m2, and a 2-tailed t-test was performed.

Results: The average BMI of the 27 patients studied was 26.646.19 kg/m2. Over half of the patients (52%, n=14/27) had a BMI >25 kg/m2. Within these patients, levels of IL-10 were significantly higher ($p=0.02$) than the 13 patients with a BMI of < 25 kg/m2. No significant differences in levels of the remaining cytokines were identified between the two groups ($p>0.05$).

Conclusion: This study furthers our understanding of the cytokine levels in ADSCs of burn patients with higher BMIs. As IL-10 has known anti-inflammatory properties, increased levels may limit the host cell immune response, increasing susceptibility to infection. Further studies are needed to determine the impact of this finding on wound healing in this high-risk population. The cytokine profiles of ADSCs in burn patients may contribute to the development of targeted therapeutics for burn wounds. These treatments could include stem cell-derived biological therapeutics that may promote faster wound healing and decrease the risk of infection.

Mini-Talk Session III | Trauma & Critical Care | Clinical Science | Trauma/Burn/Critical Care

Now or Later: Tranexamic Acid Use in Traumatic Massive Transfusion Protocol

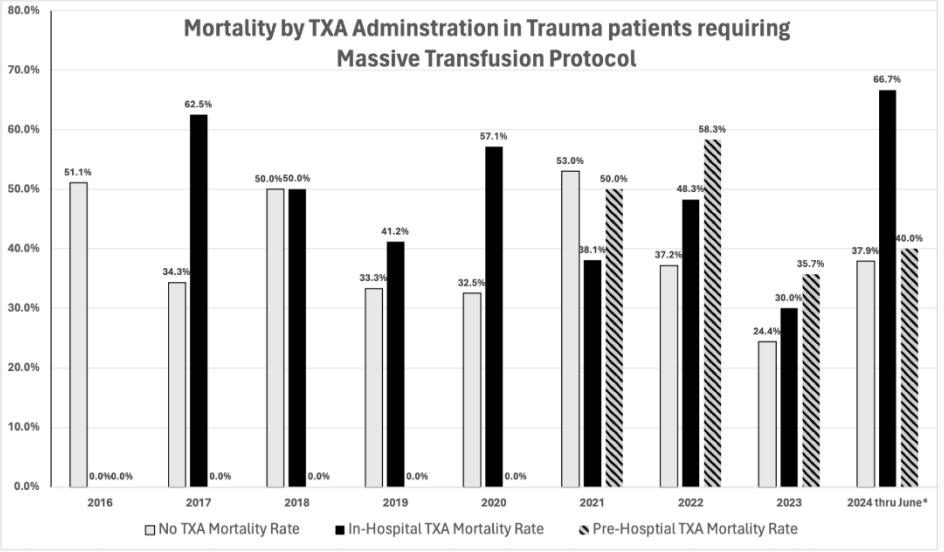
I Ifearulundu, L Bellfi, S Lawicki, C Leonardi, J Hunt, J Duchesne, A Marr, L Stuke, P Greiffenstein, A Smith - LSU Health - New Orleans

Background: Hemorrhage is the most common cause of death within the first 24 hours in a trauma center or operating room. Studies suggest tranexamic acid (TXA) safely reduces bleeding risk in trauma, although comparisons of prehospital administration remain uncertain. This study aimed to compare prehospital versus in-hospital administration of TXA in trauma patients requiring massive transfusion protocol (MTP).

Methods: A retrospective chart review was conducted on patients aged 18 or older requiring MTP who presented to an urban single-center, American College of Surgeons (ACS) Verified Level 1 Trauma Center. Data from January 2016 through June 2024 were collected from the trauma registry. Intracranial hemorrhage patients were excluded. Variables included demographics, clinical factors, complications, and mortality. Factors were compared using univariate analysis with a $p<0.05$.

Results: Among 861 trauma patients who required MTP, 78.5% (n=676) met the study criteria with a mortality of 42.7% (n=282/676). Most injuries were penetrating trauma at 66.9% (n=452/676), and required a surgical operation at 81.2% (n=549/676). The mortality of those receiving prehospital TXA was 43.9% (n=18/41) compared to in-hospital TXA mortality of 46.9% (n=60/128). No significant difference was seen in venous thrombosis, pulmonary embolism, or stroke rates. Analysis demonstrated an increase in TXA use since 2017 with increasing prehospital administration starting in 2021.

Conclusion: An eight-year analysis at an ACS Verified Level 1 Trauma Center reveals changing trends in TXA use with MTP. Findings emphasize TXA use in MTP is increasing including prehospital administration with similar outcomes to in-hospital administration. Further research on optimal TXA administration could improve hemorrhage outcomes.



Mini-Talk Session III | Trauma & Critical Care | Clinical Science | Trauma/Burn/Critical Care

From Stability to Complications: How Obesity Alters REBOA Performance in Blunt Trauma Patients

M Plunkett, A Shridhar, J Duchesne, J Hunt, A Marr, L Stuke, P Greiffenstein, J Schoen, A Smith - LSU Health - New Orleans

Background: Trauma patients with obesity present anatomic and physiologic challenges. Evidence examining the impact of obesity on methods of aortic occlusion (AO) is limited. We aimed to investigate outcomes of resuscitative endovascular balloon occlusion of the aorta (REBOA) in patients with and without obesity.

Methods: A retrospective review of adult blunt trauma patients who underwent REBOA placement was conducted using the AAST AORTA database over 10 years. Blunt mechanisms of injury include falls, MVCs, MCCs, and auto vs. pedestrian accidents. Patients were stratified by BMI <30 (LBMI) versus BMI ≥30 (HBMI). Chi-squared tests analyzed categorical variables, and Mann-Whitney tests analyzed continuous variables, with statistical significance at $p<0.05$.

Results: Of 502 patients, 302 were LBMI, and 200 were HBMI. No significant differences were observed in abbreviated injury scale, injury severity score, and initial HR or SBP ($p>0.05$). The incidence of in-hospital mortality ($p=0.80$) and success in achieving hemodynamic stability ($p=0.77$) did not differ significantly. Access site complications also showed no significant difference ($p>0.05$). However, time from admission to hemodynamic stability was longer in HBMI (median 39.5 minutes, IQR 25.0-89.8) compared to LBMI (median 33.0 minutes, IQR 23.0-56.5) ($p=0.034$). Acute kidney injury (AKI) was more common in HBMI patients (33.5%) than in LBMI patients (22.5%) ($p=0.007$). No significant differences were noted between pREBOA and ER-REBOA.

Conclusion: REBOA placement is becoming a treatment alternative to resuscitative thoracotomy. In patients with obesity, REBOA increased time to hemodynamic stability and AKI incidence. Future studies are needed to further define this observation and possible mitigation strategies.

Mini-Talk Session III | Trauma & Critical Care | Clinical Science | Trauma/Burn/Critical Care

Anti-Xa Level Monitoring in Morbidly Obese Trauma Patients Receiving Enoxaparin Prophylaxis

Jennifer M Brewer, MD Lillian Bellfi, PharmD, BCCCP Alison Smith, MD, PhD - LSU Health - New Orleans

Background: Enoxaparin has been shown to decrease venous thromboembolism (VTE) in trauma patients. However, in trauma patients with a larger body mass index, standard enoxaparin doses may be inadequate, leading to higher rates of VTE. This study evaluated the therapeutic effectiveness of anti-Xa monitoring in morbidly obese trauma patients.

Methods: A single-center retrospective analysis was performed in trauma patients with a body mass index (BMI) greater than 40 kg/m2 admitted to a Level 1 trauma center between October 1, 2020 -September 1, 2024. Patients were included if they received enoxaparin 30 or 40 mg subcutaneously (SQ) twice daily for venous thrombosis prophylaxis and had a peak or trough anti-Xa level drawn after 3 consecutive doses. The primary outcome evaluated anti-Xa levels for therapeutic appropriateness of VTE prophylaxis in trauma patients with a BMI of greater than 40. Secondary outcomes evaluated anti-Xa levels following increased enoxaparin dose adjustments, and incidence of venous thrombosis prophylaxis complications. Univariant analysis was performed.

Results: Of the 12 patients included in this study, 8 (67%) were female, with a median age of 42 (IQR 29-49), a median injury severity score of 24 (IQR 12-37), and a median BMI of 48 mg/m2. Nine patients (75%) had a blunt mechanism of injury, and 4 subjects (33%) presented with brain or spinal cord injury. Initial anti-xa levels were subtherapeutic in 11 patients (91%). Enoxaparin dose adjustments with repeat anti-Xa levels were available in 6 patients. After enoxaparin dose adjustments 67% (4/6) had a therapeutic anti-Xa level. The median adjusted dosing regimen to achieve a therapeutic level was 60 mg SQ twice daily (IQR 50-73). No clinically significant bleeding occurred. Of the 1 patient (8%) who experienced venous thromboembolism, an enoxaparin dose adjustment was made to 50 mg SQ twice daily without a repeat anti-xa level. The median hospital length of stay was 23 days (IQR 16-33).

Conclusion: Standard enoxaparin dosing for trauma patients with a BMI greater than 40 leads to subtherapeutic anti-Xa levels. This study found that 67% of patients achieved therapeutic levels when the enoxaparin dose was increased to 60 mg SQ twice daily or greater. Therefore, higher initial enoxaparin doses with anti-Xa monitoring should be considered in morbidly obese trauma patients.

Mini-Talk Session III | Trauma & Critical Care | Basic/Transactional Science | Trauma/Burn/Critical Care

Role of Lactic Acidosis on Cytokines in Peritoneal Fluid After Damage Control Laparotomy for Trauma

Dhanushka Vitharana, MD, Jenna Dennis, BS, Sophia Trinh, MD, Paige Deville, MD, Farhana Rais, BS, Cara Ramos, BS, Jared Robinson, BS, Juan Duchesne, MD, Patrick Greiffenstein, MD, Alison A. Smith, MD, PhD Peritoneal fluid was collected from adult patients undergoing damage control laparotomy at a Level 1 Trauma Center following blunt or penetrating trauma. Cytokine levels in the peritoneal fluid collected were measured using a 10 analyte multiplex assay. Patients were then stratified by lactate levels with lactate above 2 mmol/L being defined as elevated. Univariate analyses were used to compare the two groups. - LSU Health - New Orleans

Background: Lactate is both a pro- and anti-inflammatory mediator in the inflammatory cascade. In trauma, lactic acidosis has been associated with a robust inflammatory response and poorer outcomes. However, its effect on cytokine production following trauma has not been elucidated. The aim of this study was to investigate how lactic acidosis affects cytokine production in peritoneal fluid of trauma patients. It was hypothesized that peritoneal fluid cytokine levels differ in patients with elevated lactate on admission.

Methods: Peritoneal fluid was collected from adult patients undergoing damage control laparotomy at a Level 1 Trauma Center following blunt or penetrating trauma. Cytokine levels in the peritoneal fluid collected were measured using a 10 analyte multiplex assay. Patients were then stratified by lactate levels with lactate above 2 mmol/L being defined as elevated. Univariate analyses were used to compare the two groups.

Results: Of the 14 patients studied, 9 patients (64.3%) had a lactic acidosis on admission. No significant differences in baseline demographics between the groups (age, sex, race, BMI, and mechanism of injury) were observed ($p > 0.05$). IFN-γ was significantly higher in patients with lactic acidosis compared to those without (2.2 and 0.71 pg/mL respectively, $p < 0.05$). No significant differences in IL-4, IL-6, IL-1ß, IL-8, IL-10, IL-17A, MCP-1, and VEGF levels were observed ($p > 0.05$). Increased mortality ($n = 2$, $p = 0.51$) and prolonged admission (33 ± 30.3 days, $p = 0.40$) were observed in the lactic acidosis group, however neither were statistically significant.

Conclusion: The results from this study suggest that lactic acidosis in trauma patients may alter cytokine levels, specifically IFN-γ, a potent pro-inflammatory mediator. IFN-γ activates macrophages to promote phagocytosis and killing of intracellular pathogens and plays an integral role in the pro-inflammatory cascade. Further investigation into the role of lactate as an inflammatory modulator in the setting of trauma may enable the development of treatments to counteract the profound inflammatory response in this population.

Mini-Talk Session III | Trauma & Critical Care | Basic/Transactional Science | Trauma/Burn/Critical Care

Cytokine Profile following Lipopolysaccharide Stimulation of Adipose-Derived Stem Cells from Burn Patients

G DeFelice, A Masoud, P Deville, D Vitharana, A Ozcan, K Andre, M Miles, J Carter, H Phelan, J Schoen, A Smith - Tulane School of Medicine

Background: Adipose tissue and adipose-derived stem cells (ADSCs) have been demonstrated to have an important role in the mediation of inflammatory response to injury and illness. The secretion of paracrine factors by stem cells, which can have pro- or anti-inflammatory effects, may have wider implications on wound healing. Lipopolysaccharide (LPS) is an important component of the outer membrane of gram-negative bacteria that triggers a strong immune response. The objective of this study was to compare the paracrine factors secreted from damaged adipose tissue from burn patients with and without LPS administration.

Methods: Fat samples were collected from 28 burn adult patients with TBSA from 10-95% who presented to an ABA Verified Burn Center. Fluorescence-activated single cell sorting (FACS) confirmed the presence of ADSCs. Lipopolysaccharide (LPS) was administered to 12 matched burn samples to mimic an initial inflammatory response, and supernatant was collected from cell culture for analysis. The secretion of 10 paracrine factors were measured by ELISA. A Mann-Whitney u test was performed.

Results: Levels of all 10 paracrine factors analyzed were greater in samples of ADSCs from burn patients with LPS administration. There was a significant difference in the levels of four specific paracrine factors: IL-6, IL-1-beta, IL-8, and IL-10 ($p < 0.05$).

Conclusion: Our findings demonstrate increased secretion of four specific paracrine factors from ADSCs in burn patients following LPS administration. These factors are both pro- and anti-inflammatory and have been previously found to attenuate autoinflammatory syndromes. Future directions will be focused on investigating the effects of increased IL-6, IL-1-beta, IL-8, and IL-10 on wound healing in burn patients with concomitant infections.

Mini-Talk Session III | Trauma & Critical Care | Clinical Science | Trauma/Burn/Critical Care

To Warm or Not to Warm in a Fast Pace Prehospital Blood Resuscitation Program: That is the Question.

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Background: While most prehospital (PH) blood administration programs utilize warming devices, use of cold (5 – 7 °C) packed red blood cells (cPRBC) in an urban setting has been considered due to financial and logistic inconsistencies with portable blood warmers. We hypothesized that cPRBC in an urban EMS system would not significantly contribute to hypothermia in hypotensive trauma patients with hemorrhage.

Methods: Patients with severe hemorrhage who received 1 or 2 units of cPRBC from 2021-2024 in an urban EMS system were analyzed. The primary outcome of interest was incidence of hypothermia, which was defined as mild 35.0 – 32.0 °C, moderate 32.0 – 28.0 °C and severe < 28.0°C.

Results: A total of 70 patients met inclusion criteria. Median age was 36 [IQR 28-47], 89% were male, and 86% experienced penetrating injury with a median New Injury Severity Score (NISS) of 17 [IQR 9-27]. There was a significant increase in systolic blood pressure after transfusion (60 mmHg vs 105 mmHg, $p<0.001$) and decrease in shock index (1.3 vs 0.7, $p < 0.001$). Initial PH temperature prior to blood administration was 35.9 °C [IQR 34.8-36.5] with a post-administration temperature of 36 °C [IQR 36.6-37] ($p = 0.2$). 20 (28.6 %) patients had a temperature of 35°C or less prior to start of transfusion. Of these patients, 18 (90 %) remained hypothermic. 50 (71.4 %) patients were normothermic prior to start of blood transfusion, of these patients 4 (8 %) had mild hypothermic after transfusion. Most (87%) patients received 2-units cPRBC PH, while the remaining 13% patients received 1-unit cPRBC PH. Initial temperature on ED arrival was 36.0°C [IQR 36.0-37]. Time from scene arrival to ED arrival was 17.5 minutes [IQR 14 – 21]. ED mortality was 27.1%.

Conclusion: The administration of cPRBCs does not significantly contribute to hypothermia for patients in the absence of a portable blood warmer in the prehospital setting. Restoration of effective perfusion independent from warming device restored body temperature when cPRBC were utilized.

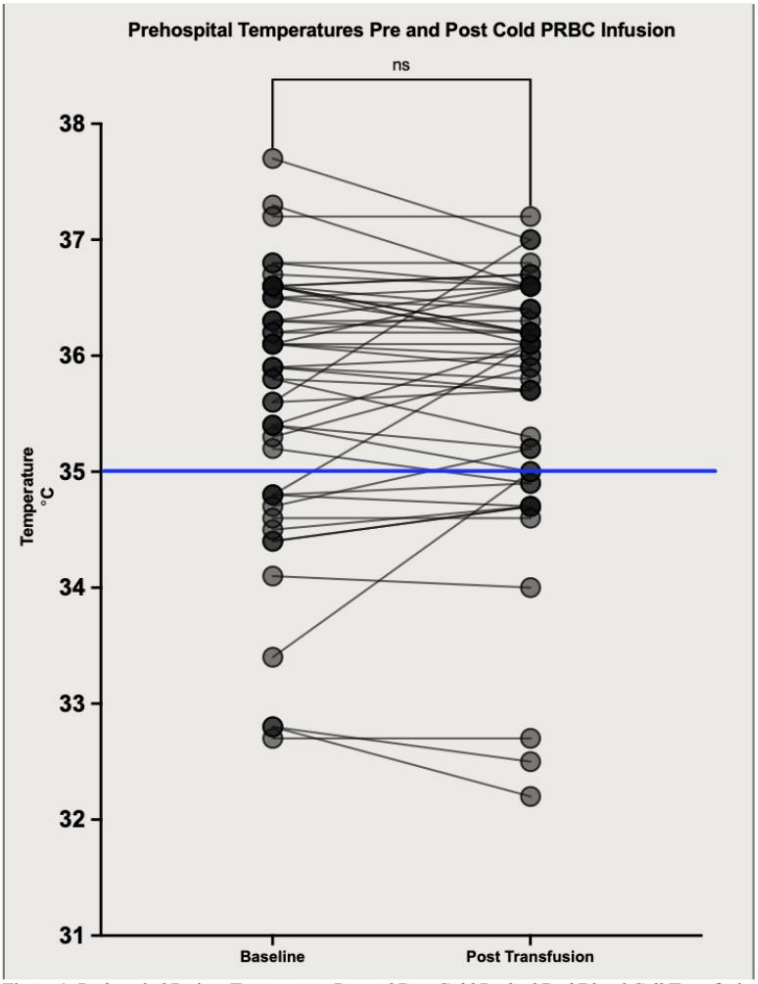

Figure 1: Prehospital Patient Temperature Pre and Post Cold Packed Red Blood Cell Transfusion. No significant difference was found between the two temperatures ($p = 0.68$). Clinical mild hypothermia is marked by the blue arrow at 35 °C. *Prehospital cardiac arrest excluded.

Oncology - HBP & Colon | Clinical Science | Surgical Oncology

DELAYED GASTRIC EMPTYING AFTER ESOPHAGOGASTRECTOMY IMPACTS MORTALITY

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Background: Delayed gastric emptying (DGE) following esophagogastrectomy is reported to occur in 5-20% of patients and can have a variable course. Alterations in surgical technique have not eliminated the occurrence of DGE. Medical and endoscopic therapies are often variably applied with inconsistent results. The current study is undertaken to bring the impact and treatment of DGE after esophagogastrectomy into better focus.

Methods: A prospectively collected database of 478 consecutive patients who underwent esophagogastrectomy between 2004 and 2022 for carcinomas of the esophagus or esophagogastric junction was analyzed. Standardized reconstruction using a narrow gastric conduit with pyloromyotomy was employed. DGE was diagnosed clinically and confirmed radiologically. Preoperative comorbidities, treatment variables, and postoperative complications other than DGE were analyzed. The clinical course, treatment modalities and impact of DGE were evaluated. Standard statistical analysis was employed.

Results: Overall, 38 patients (7.9%) developed postoperative DGE. Among patient factors, only COPD was significantly associated with DGE (p=0.012); the presence of diabetes was not. Neither the use of neoadjuvant chemoradiotherapy nor the type/location of esophagogastric anastomosis influenced the incidence of DGE. Recurrent laryngeal nerve paresis was associated with DGE (p=0.02), but anastomotic leak was not. The development of respiratory complications (pneumonia or aspiration pneumonitis requiring hospitalization, need for mechanical ventilation and/or tracheostomy) occurred in 14 patients after the diagnosis of DGE had been established. In patients with coexisting DGE and respiratory complications, despite medical and endoscopic treatments directed at improving gastric emptying, death from DGE-related respiratory failure occurred in 6 of 14 (43%) versus 0 of 24 (0%) of patients with DGE who did not develop respiratory complications (p=0.001). Preliminary results from double outlet Roux-en-Y gastrojejunostomy are also reviewed.

Conclusion: DGE is an infrequent but impactful complication of esophagogastrectomy, which contributed to early non-malignant mortality. The coexistence of late pulmonary complications in a patient with DGE following esophagogastrectomy is a harbinger of early mortality. We hypothesize that operative treatment may be warranted for this subset of patients.

Oncology - HBP & Colon | Basic/Transactional Science | Surgical Oncology

Characterizing the Origin and Progression of Cancer Stem Cells in Pancreatic Ductal Adenocarcinoma (PDAC) Using a Genetically Engineered Mouse Model

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Background: Cancer stem cells (CSCs) play a critical role in the initiation and progression of pancreatic ductal adenocarcinoma (PDAC). The Thayer Lab has identified the Pancreatic Duct Glands (PDG) as a key epithelial stem cell compartment responsible for epithelial renewal and, upon mutation, the origin of CSCs and PDAC. This study employs a genetically engineered mouse model to trace CSC biology from its inception to PDAC development, both in vivo and in 3D organoid culture

Methods: Utilizing a novel mouse model (Tff2-CreER, mTmG; KrasG12D, Smad4-/-) and CRISPR technology, we tracked the fate of Tff2-expressing transient amplifiers (TA) within the PDG. GFP tagging and lineage tracing enabled us to observe the progression of CSCs in the PDG compartment. Single-cell RNA sequencing (scRNAseq) and high-throughput drug screens were conducted on 3D organoids to identify CSC markers and pathways relevant to cancer progression.

Results: Lineage analysis revealed that Tff2-expressing TA cells transformed into CSCs, which seeded PDAC and metastasis. RNA velocity and latent time analyses identified stem-like clusters with high expression of CSC markers such as CD44. Enrichment analysis highlighted cancer-related pathways, allowing us to pinpoint potential therapeutic targets. Immunohistochemistry and single-cell sequencing over 8 time points further characterized CSC markers and activation states.

Conclusion: This model provides a valuable tool for tracing CSC origin and progression in PDAC. Our findings underscore the PDG compartment as the CSC origin, facilitating insights into cancer progression and potential therapeutic targets. Translating these findings to human studies may improve the understanding of CSCs in PDAC and enhance treatment options.

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Ovarian metastasis from small bowel primary neuroendocrine neoplasms is associated with bowel and ureteral obstruction

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Background: Neuroendocrine neoplasms metastatic to the ovary have traditionally been rare, but recent studies suggest a significant risk with small bowel neuroendocrine neoplasms (SBNENs). This case series seeks to examine the clinicopathologic features, complications, and surgical treatment of cases of ovarian metastasis.

Methods: Patients were identified using a prospectively maintained database (2014-2024). The electronic medical record was reviewed to analyze disease progression in female patients with well-differentiated SBNEN primaries and ovarian metastasis. We examined details of diagnosis, histopathology, biomarkers, and outcomes.

Results: Thirty-five female patients met inclusion criteria. Median age at diagnosis was 52 (range 32-74 years), and 80% were white. 40% were grade 1. Ovarian metastasis was diagnosed before the primary tumor in 5 patients (14.2%), simultaneously in 8 (22.9%), and later in 16 (45.7%). Associated complications included small bowel obstruction (N=16, 45.7%), ureteral obstruction (N=7, 20.0%), or both (N=5, 14.3%). Five patients with later ovarian metastasis experienced complications before metastasis diagnosis. 29 patients (82.86%) had metastasis to the liver, 9 (25.71%) to the peritoneum. Median overall survival was not reached; 5-year survival rate was 91.43%. Of the 7 deceased patients, 3 (42.9%) had detection of ovarian metastasis prior to SBNEN diagnosis.

Conclusion: This case series of patients with ovarian metastasis from SBNENs represents one of the largest available in the literature and demonstrates high rates of complications associated with this metastatic site. Further research is necessary to determine whether prophylactic oophorectomy may improve quality of life and reduce disease severity in patients at high risk for ovarian metastasis.

Oncology - HBP & Colon | Clinical Science | Surgical Oncology

68Ga-DOTATATE PET/CT has poor sensitivity for detection of lymph node metastasis in well-differentiated pancreatic neuroendocrine tumors

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Background: Guidelines for surgical treatment of pancreatic neuroendocrine tumors (PNETs) less than 2 cm allow for resection without regional lymphadenectomy in cases of low clinical suspicion of lymph node metastasis. However, the sensitivity of functional imaging to detect such metastases has not been well established. This study examines the sensitivity/specificity of the 68Ga-DOTATATE PET/CT for detecting lymph node metastases from well-differentiated G1/G2 PNETs.

Methods: Patients meeting inclusion criteria were identified from a prospectively maintained database (2014-2024). Inclusion criteria included a diagnosis of well-differentiated pancreatic neuroendocrine tumor, grade G1/G2, treated with surgical resection with regional lymphadenectomy and a minimum of five lymph nodes identified in the specimen, who had a 68Ga-DOTATATE PET/CT within six months of surgery. Sensitivity and specificity were calculated by lymph node positivity on radiological and surgical pathology reports.

Results: Eight patients met criteria for inclusion. Three (37.5%) had positive lymph nodes on 68Ga-DOTATATE PET/CT, and 6 (75%) had at least one positive node on surgical pathology, for a sensitivity of 50% and specificity of 100% (PPV 100%, NPV 40%). Similar results noted for standard preoperative triple phase CT and/or MRI (sensitivity 50%, specificity 100%, PPV 100%, NPV 40%) with a concordance rate of 75%.

Conclusion: 68Ga-DOTATATE PET/CT has a low sensitivity and high specificity for detecting lymph node metastases in well-differentiated G1/G2 PNETs in this study. Comparable sensitivity/specificity of 68Ga-DOTATATE PET/CT and triple phase CT/MRI may suggest a decreased utility of 68Ga-DOTATATE PET/CT if adequate CT/MRI images exist. Further evaluation is needed to recommend treatment based on sensitivity/specificity of 68Ga-DOTATATE PET/CT.

Oncology - HBP & Colon | Clinical Science | Surgical Oncology

Palliative Care in Patients with Advanced Pancreatic Cancer as It Pertains to Morbidity and Mortality

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Background: Palliative care services (PSC) are associated with fewer ED visits and hospital admissions among patients with HPB malignancy. However, this benefit remains unclear among the subset of patients with pancreas cancer (PDAC).

Methods: We identified all patients with Stage IV PDAC at our institution between 2017 and 2022. We compared demographics, outcomes, and end of life indicators between patients referred to PCS versus those who were not. Univariate analysis was performed with a p-value <0.05 considered significant.

Results: Analysis included 176 patients - 89 (50.5%) were referred to PCS; 87 (49.5%) were not. No difference was noted in gender, race, or insurance coverage between the two groups. At mean follow up of 157 days, 6% of the whole cohort remained alive. The proportion of patients who died within 30 days of diagnosis was similar. Patients referred to PCS were younger (55 vs. 68 years; p = 0.0216), but a higher percentage of them were divorced (14% vs. 4%; p = 0.0404) and had worse performance status (57% vs 38% PS > 1; p = 0.0387). The mean number of ED visits (2.25 vs. 1.2 per patient; p= 0.0006), hospital admissions (1.7 vs. 1.1 per patient; p <0.0001), and total number of hospital days (9.9 vs 4.8 days; p <0.0001) were greater among PCS patients.

Conclusion: Despite being younger, patients referred to PCS for PDAC were more vulnerable – with worse PS and higher divorce rates. PCS did not prevent this needful group from additional ED visits and hospital admissions.