



2025 SCMA Annual Meeting

Resident, Fellow, and Medical Student Research Book

Edited by Jaime Brown, MD, Chair, SCMA Young Physician Section

Index

1.	An Unusual Presentation of Hiatal Hernia: Pancreatic Migration Adam Beall, Joseph Novack, MD; Gunnar Orcutt, DO; James Tribble, MD – University of South Carolina School of Medicine, Columbia	Page 8
2.	Decreasing 72-Hour Readmission Rates in Sepsis and Pyelonephritis Patients Rowan Burns, Liela Meng, Mirinda Ann Gormley, Stella Self, Nathan Hudepohl – University of South Carolina School of Medicine, Greenville	Page 9
3.	HIV PrEP Awareness and Barriers to Uptake: Insights from College Campuses Across South Carolina, 2024 William Capell, MD; Marco Tori, MD, MSc – Prisma Health/University of South Carolina School of Medicine	Page 10
4.	Screening Natural Compounds for the Prevention and Treatment of Cardiac Fibrosis Wesley Caudle, Yuzhen Wang, Daping Fan – University of South Carolina School of Medicine, Columbia	Page 11
5.	The “Lightbulb Moment”: Performing Gastrobulbostomy for a Malignant Gastric Outlet Obstruction Mark Cromer, MD; Varun Moktan, MD; Juan Corral Hurtado, MD; Kalpit Devani, MD – Prisma Health Upstate	Page 12
6.	Evaluation of Post-Operative Outcomes in Patients with Dementia Undergoing Ankle Fracture ORIF Cassandra D’Amico, BS; Jagannath Kandadai, BS; Hana Hashioka, BS; Christopher E. Gross, MD; Daniel J. Scott, MD, MBA – MUSC College of Medicine	Page 13
7.	Assessing Physical Activity Behaviors and Skeletal Muscle Mitochondrial Oxidative Capacity in Patients undergoing Chemotherapy for Breast or Gynecologic Cancer	Page 14

	Kenan Delbridge, Jillian Florez Bhandari, Bricen Ghent, Meagan Rudolph, Micheal Wolf, Sara Biddie, Frankie Bennett, Randy Hutchinson, Jennifer Trilk, MD – University of South Carolina School of Medicine, Greenville	
8.	Unmasking Pseudo-TMA With the Clue of Hyperpigmentation: A Case Report Lauren Ervin, Madison Arnel, Marwan Elya, MD; Sreenivas Rao, MD – University of South Carolina School of Medicine, Columbia	Page 15
9.	Barriers to Breast Cancer Screening in a Rural SC Family Medicine Practice Bailey Gibson, Greyson Foxtran, Andrew Hensing, Grace Coleman – University of South Carolina School of Medicine, Columbia	Page 16
10.	Association of Patient-Reported Drug Allergies with Outcomes Following Midfoot, Hindfoot and Ankle Fusions Robert Henke, Hana Hashioka, BS; Jagannath Kandadai, BS; Daniel J. Scott, MD MBA; Christopher E. Gross MD – MUSC College of Medicine	Page 17
11.	Abdominal Aortic Aneurysm (AAA) Screening Initiative in Primary Care Luke Hollingsworth, Logan Hitchcock – University of South Carolina School of Medicine, Columbia	Page 18
12.	Clinical Experience Using Injectable Long-Acting Antiretroviral Therapy in South Carolina Amber Jacobsen, BS; Prerana Roth, MD, MPH – University of South Carolina School of Medicine, Greenville	Page 19
13.	Silent Sicklers & Traumatic Hyphema: A Case to Emphasize the Importance of Questioning the Unknown Cecily Kaufmann BSN, RN; James Pratt MD; Caroline H Kerrison, BS; Richard Yi, MD; John Barnhill, MD; Alexander Pogrebniak, MD; Katie Keck, MD – University of South Carolina School of Medicine, Columbia	Page 20
14.	A Student-Led Initiative to Address Type 2 Diabetes in South Carolina	Page 21

	Deborah Keen, Brynn Franz, Caroline Hensing, Madysen Hotchkin, Stephanie Litzenberger, Sreya Varanasi, and Kristina Borglum - University of South Carolina School of Medicine, Columbia, South Carolina	
15.	Preoperative Osteoporosis and Its Association with Postoperative Outcomes Following Hindfoot Arthrodesis Ronit Kulkarni, BS; Jagannath Kandadai, BS; Hana Hashioka, BS; Christopher E. Gross, MD; Daniel J. Scott, MD MBA – MUSC College of Medicine	Page 22
16.	Impacts of Psychiatric Medication Use in Total Ankle Arthroplasty J. Ambrose Martino, BS; Hana Hashioka, BS; Jagannath Kandadai, BS; Christopher E. Gross, MD; Daniel J. Scott, MD, MB – MUSC College of Medicine	Page 23
17.	Impact Of Hba1c on Cost-Effectiveness of Trigger Finger Management Options Samantha Morales, Michael Russell, Caleb Godbee, Claire Krohn, Calleigh Brignull, Kyle Adams, Greg Faucher. Prisma Upstate – Department of Orthopedic Surgery, University of South Carolina School of Medicine, Greenville	Page 24
18.	Increasing EMR Portal Use at Residency Continuity Clinic Fildrin Ndimbo, MD – Prisma Health Tuomey Hospital	Page 25
19.	The Effect of Early Versus Delayed Rehabilitation on Clinical Outcomes Following Reverse Total Shoulder Arthroplasty: A Systematic Review Timothy Pitts, Emma Klosterman, MD; James Carpenter, MD; Bradley Richey, MD – University of South Carolina School of Medicine, Columbia	Page 26
20.	A Moving Target: Working Toward Comprehensive Maternity Care in Rural Upstate South Carolina Shelby Re, Madison Stanley, Kati Beben, MD; Elizabeth Harpster, MD; Katrina Fuller Quick, MD – University of South Carolina School of Medicine, Greenville, Center for Family Medicine Oconee, Seneca	Page 27

21.	Synchronous Metastatic Squamous Cell Carcinoma of the Spine from Primary Squamous Cell Carcinoma of the Urinary Bladder Alex Roetzheim MD; Carra Powell, MD; Seetharamprasad Madala, MD – Department of Internal Medicine, Prisma Health, University of South Carolina School of Medicine, Columbia	Page 28
22.	From Exhaustion to Inspiration: The Impact of Medical Missions on Surgical Attendings Michael J. Russell, BS; Gabrielle C. Rodriguez, MD; Brandon J. Xavier, BS; Lauren Jhin, BA; Matthew D. Chetta, MD – University of South Carolina School of Medicine, Greenville	Page 29
23.	Unveiling the Risk: Identifying Patient-Specific Factors in Blood Culture Contamination Lance Schacht BS; Mallory Tedder BS; Janu Patel BS; Sangita Dash, MD; Pamela Bailey, DO, MPH – University of South Carolina School of Medicine, Columbia, Prisma Health	Page 30
24.	Concealed By Complexity: A Case of Metastatic Bladder Cancer in a Patient with Concurrent Renal and Ureteral Pathologies Yvone Shametaj, Ahva Y. Zadeh, Michael A. Goble Jr., DO; Department of Internal Medicine, Prisma Health, University of South Carolina School of Medicine, Columbia	Page 31
25.	Concurrent immune checkpoint inhibitor associated necrotizing myopathy and acute inflammatory demyelinating polyneuropathy following pembrolizumab therapy Adarsh Shidhaye, Raj Dwivedi, Cory McGee, MD – University of South Carolina School of Medicine, Greenville	Page 32
26.	Laser Speckle Imaging of an Atypical Junctional Melanocytic Proliferation: A Case Report Shelby Smith, Penny Smith, Hannah Neimy, Mary Nan Leath, Hannah Gandy, Nicholas Stiebler, Manuel Valdebran – University of South Carolina School of Medicine, MUSC College of Medicine	Page 33

27.	Recurrent Pleural Effusions Secondary to Chronic Paget's Disease Alina Smoleva, Ravi Kant, MD – MUSC College of Medicine	Page 34
28.	Political Engagement Among Physicians- Unattainable or Within Reach? Noah Steyer – MUSC College of Medicine	Page 35
29.	Risk of Infective Endocarditis in Monomicrobial and Polymicrobial Enterococcus Species Bloodstream Infection Katherine Turnley, MS; Majdi N Al-Hasan, MBBS; Sarah Al Mansi, MD – University of South Carolina School of Medicine, Columbia	Page 36
30.	Bridging Primary Care and Community Health: A Multi-faceted Approach to Hypertension Control Through Screening, Treatment Protocols and Produce Access Initiatives Louis Yu, MD; Mark Humphrey, MD, MPH – Prisma Health, University of South Carolina School of Medicine, Greenville	Page 37

An Unusual Presentation of Hiatal Hernia: Pancreatic Migration

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Introduction

A hiatal hernia is described as a protrusion of abdominal contents through the esophageal hiatus and into the posterior mediastinum. While hiatal hernias involving the stomach are relatively common, transhiatal herniation of other abdominal organs is more unusual, and herniation of retroperitoneal organs such as the pancreas is relatively rare with only twenty-nine cases reported in the literature. Herniation of the pancreas may occur without symptoms for some patients, however, in many it is associated with kinking of the biliary and pancreatic ductal system. This manifests as obstructive symptoms such as jaundice from bile stasis within the common bile duct when the pancreatic head is herniated into the mediastinum, or as acute pancreatitis from pancreatic duct outflow obstruction when any portion of the pancreas is involved in the hernia. Management of large paraesophageal hiatal hernias can be particularly challenging in patients with prior abdominal surgery and may become more complex in the future with the increasing popularity of foregut weight-loss surgery. Bariatric surgeries are not only some of the fastest-growing elective general surgical procedures, but also due to the widespread predominance of metabolic syndromes have reached only one percent of eligible individuals in the United States.

Case Description

We present the unusual case of a large type four paraesophageal hiatal hernia containing retroperitoneal fat and pancreatic body in a 60-year-old female with an extensive past bariatric and surgical history including gastric band placement and removal, sleeve gastrectomy, sleeve conversion to Roux-en-Y gastric bypass, removal of gastric pouch and conversion to esophagojejunostomy due to recalcitrant ulcer disease, and open hiatal hernia repair with biologic mesh. The patient presented initially after an episode of acute pancreatitis without obvious etiology at which time the body of her pancreas was noted on imaging to have herniated into her posterior mediastinum. She was ultimately managed with laparoscopic hiatal hernia repair and hybrid mesh placement, which she has tolerated without major complications to date.

Conclusion:

Surgical planning, pitfalls, and post-operative management are discussed.

Decreasing 72-Hour Readmission Rates in Sepsis and Pyelonephritis Patients

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Introduction

Sepsis is defined as life-threatening organ dysfunction caused by a dysregulated host response to infection. Sepsis survivors are often at risk for health complications and consequently demonstrate substantial rates of healthcare utilization, including hospital readmissions. Additionally, pyelonephritis, an upper urinary tract infection, results in 100,000 hospitalizations every year and has been found to be among the most common identified organ specific reasons for 30-day hospital readmission in patients previously admitted for sepsis. This study aims to evaluate the effectiveness of a targeted intervention to decrease 72-hour hospital readmission rates in patients with sepsis or pyelonephritis in a large southern ED.

Methods

This retrospective cohort study evaluated Emergency Department (ED) readmission rates before and after intervention implementation from January 1, 2020 to June 31, 2023. The policy was implemented on April 1, 2021. Eligible adults (18+) had an ED diagnosis of sepsis or pyelonephritis. Monthly readmission rates were calculated as the proportion of patients readmitted within 72 hours of discharge relative to total number of visits for sepsis or pyelonephritis. Interrupted time series (ITS) analysis was used to assess differences in trends of monthly readmission rates pre-policy, during policy implementation, and post-policy.

Results

There were 39,818 patients identified with sepsis or other bacterial infections with 4,907 (12.3%) readmissions within 72 hours. The majority of the population was female (60.0%) and white (77.0%) with an average age of 57 years. Following intervention implementation, there was an immediate drop of 0.004 ($p=0.7$) and 0.003 ($p=0.5$) in the monthly readmission rate for sepsis and pyelonephritis, respectively. There was a significant and sustained decrease of 0.003 ($p=0.02$) and 0.001 ($p=0.2$) readmissions per admission per month post-intervention for sepsis and pyelonephritis, respectively.

Conclusions

Reversal in the trend direction for 72-hour readmission rates indicates that the implemented intervention had a meaningful impact on readmission rates for sepsis.

HIV PrEP Awareness and Barriers to Uptake: Insights from College Campuses Across SC, 2024

William Capell, MD; Marco Tori, MD, MSc – Prisma Health/University of South Carolina School of Medicine

Introduction

Pre-exposure prophylaxis (PrEP) prevents human immunodeficiency virus (HIV) infection, but use remains low in the Southern United States, especially among young adults and racial/ethnic minorities, where HIV incidence is disproportionately high. These factors position college students as a key group for HIV prevention, yet research on PrEP use within this population is limited. Our study explores PrEP awareness, uptake, and HIV infection risk among students attending free HIV testing events at South Carolina college campuses.

Methods

We administered a 17-item survey at twenty higher education campuses, including all eight Historically Black Colleges and Universities (HBCUs). The survey assessed participant demographics, HIV risk behaviors, PrEP awareness, barriers to uptake, PrEP service delivery preferences, and prior PrEP use. Responses were analyzed descriptively with subgroup analyses examining differences by gender and sexual orientation.

Results

We received 174 survey responses. Approximately 65% of respondents were women, 81% were aged 18-22, 71% were Black/African American, and 72% identified as heterosexual. Fifty percent of respondents had prior knowledge of PrEP, most commonly from friends or social networks (29%), medical providers (24%), and school (22%), yet only 2% reported current use. Most respondents perceived themselves as being at “no” or “low risk” for HIV infection, including 86% of those with inconsistent condom use and 80% of those with a recent sexually transmitted infection (STI). The most commonly cited barriers to PrEP use were low perceived risk (70%), lack of knowledge (62%), uncertainty about how or where to get PrEP (35%), and cost concerns (27%). Participants indicated they would first seek PrEP from primary care providers (48%) or university health centers (39%), with fewer selecting health department clinics (10%) or telehealth services (4%). 45% preferred a daily pill and 25% favored a long-acting injectable. Non-heterosexual men, the group most affected by HIV in South Carolina, had higher PrEP awareness (92% vs. 47%) and uptake (10% vs. 2%) compared to their peers, however overall risk perception and use remained low in this group.

Conclusions

We identified low PrEP awareness and use among college students engaging with HIV testing events. Several barriers contributed to low uptake, including misaligned perception of HIV risk with behaviors. Although non-heterosexual men had greater PrEP awareness than their peers, uptake remained low, reinforcing the need for targeted interventions for this high-priority group. These findings highlight key opportunities to integrate PrEP education and services into trusted healthcare settings, such as primary care providers and university health centers.

Screening Natural Compounds for the Prevention and Treatment of Cardiac Fibrosis

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Background

Cardiac fibrosis occurs when there is excessive accumulation of extracellular matrix proteins in the heart tissue. It can lead to serious complications, including heart failure and cardiac arrhythmias. Cardiac fibrosis can be triggered by chronic conditions such as hypertension or acute conditions like myocardial infarction. The common underlying mechanism by which these chronic or acute conditions cause cardiac fibrosis is persistent unresolving inflammation in cardiac tissue, involving immune cells including macrophages. Macrophages secrete cytokines, such as IL-6 and IL-1 β , and growth factors, especially TGF β , to transdifferentiate cardiac fibroblasts into myofibroblasts that produce the proteins such as α -smooth muscle actin (α SMA) and collagen 1 A1 (Col1a1). The purpose of this study is to find an ideal drug for the prevention or treatment of cardiac fibrosis by targeting both macrophage inflammation and cardiac fibroblast-to-myofibroblast transdifferentiation.

Methods

To develop new drugs for cardiac fibrosis, we aim to screen a natural compound library containing 1149 compounds to identify hits that can inhibit macrophage inflammation as well as suppress cardiac fibroblast-to-myofibroblast transdifferentiation. In the first step, primary murine macrophages were treated with LPS and different compounds. Quantitative real-time PCR (qPCR) was performed to measure IL-1 β mRNA levels in the cells, and ELISA was conducted to measure IL-6 concentrations in the culture medium. In the second step, human cardiac fibroblasts were treated with TGF β and different compounds. qPCR was performed to measure α SMA mRNA levels in the cells, and ELISA was conducted to measure Col1a1 concentrations in the culture medium.

Results

We identified a compound, named Compound 106, that not only robustly inhibited LPS-induced IL-1 β and IL-6 expression or production in murine macrophages, but also significantly suppressed TGF β -triggered α SMA and Col1a1 expression or secretion in human cardiac fibroblasts.

Conclusion

Compound 106 can both inhibit macrophage inflammation and suppress cardiac fibroblast-to-myofibroblast transdifferentiation. Therefore, it holds the promise to be developed as a new drug for the prevention and treatment of cardiac fibrosis.

The “Lightbulb Moment”: Performing Gastrobulbostomy for a Malignant Gastric Outlet Obstruction

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Introduction

Endoscopic ultrasound-guided gastroenterostomy (EUS-GE) is a safe, effective, and often preferred intervention for symptom relief of malignant gastric outlet obstruction (MGOO). Surgical gastrojejunostomy (GJ) can provide excellent symptom relief durability but also involves higher risk of morbidity and mortality in terminally ill patients. Endoscopic stenting (ES) provides rapid symptom relief but may require repeat intervention due to stent dysfunction or migration. This case demonstrates EUS-gastrobulbostomy as a novel EUS-GE approach for MGOO.

Case Description

A 51-year-old female, non-smoker, with obesity, prior heavy alcohol use, and unknown *Helicobacter pylori* status initially presented for abdominal pain and new oral intake intolerance. Computed tomography (CT) scan identified a gastric antral lesion with irregular wall thickening and diffuse mesenteric stranding and nodularity. Endoscopic biopsies at an external facility diagnosed poorly differentiated, HER2-negative gastric adenocarcinoma. Two weeks later she presented to our facility for nausea, vomiting, complete oral intake intolerance, and abdominal distension. Repeat imaging revealed marked interval progression of suspected metastatic peritoneal disease with new large volume ascites. Cytology from paracentesis showed atypical cells suspicious for malignancy (indeterminate) but was negative for infection. An upper gastrointestinal series and CT scan showed a distended, debris-filled stomach with transition in the gastric antrum and minimal contrast flow into the duodenum consistent with partial gastric outlet obstruction (GOO). The decision was made to attempt EUS-GJ. On endoscopy, the gastric antral mass was causing proximal dilation of the gastric body and fundus, but the examined duodenum was normal. Unfortunately, no jejunal limb was found in adequate proximity to the stomach for safe access; however, the duodenal bulb was noted to be widely patent and only 18mm from the lesser curvature. Using fluoroscopy and endosonography guidance, a 15 x 10mm lumen-apposing metal stent was used to successfully create a gastrobulbostomy, bypassing a short segment of peri-gastric ascites. The next day, the patient’s nausea and vomiting had resolved, she tolerated oral intake, and her nasogastric tube was eventually removed.

Conclusion

EUS-GE is an effective intervention for GOO in terminally ill patients, with 87-100% technical success, and 82-100% clinical success (defined as relief of obstructive symptoms and improved oral intake). EUS-GE has also demonstrated higher clinical success, similar technical success, lower need for re-intervention, shorter length of hospitalization, and lower adverse event rates than surgical-GE or ES. While EUS-GE typically involves accessing the third or fourth portions of the duodenum or proximal jejunum, this case demonstrates gastrobulbostomy to be an effective approach for MGOO.

Evaluation of Post-Operative Outcomes in Patients with Dementia Undergoing Ankle Fracture Open Reduction and Internal Fixation

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Introduction

Dementia affects over 55 million people worldwide and is associated with an increase in postoperative complications following a variety of surgeries. Although its impact has been studied in other surgical populations, there is very limited data on the impact of dementia on the outcomes of ankle fracture open reduction and internal fixation (ORIF). This study aims to evaluate the effects of preoperative dementia on clinical outcomes following ankle fracture ORIF.

Methods

This retrospective study utilized the TriNetX database (2005-2025) to create two cohorts of patients undergoing ankle fracture ORIF. Cohort 1 consisted of patients who were preoperatively diagnosed with dementia, while cohort 2 consisted of controls without dementia. Propensity score matching was used at a 1:1 ratio based on preoperative demographic characteristics and comorbidities, in efforts to control for possible confounders. Following matching, each cohort consisted of 1,110 patients. Cohort 1 (70.4% female) had a mean age of 72.5 years (range 18-100), mean body mass index (BMI) of 30.1 kg/m² (range 18.5-40), and mean follow-up duration of 606.6 days (range 180-1095.8). Cohort 2 (70.8% female) had a mean age of 72.9 years (range 18-100), mean BMI of 30.5 kg/m² (range 18.5-40), and mean follow-up duration of 653.8 days (range 180-1095.8).

Results

At 6 months, patients with dementia demonstrated statistically significantly increased risks of pneumonia (Risk Ratio [RR]: 1.739; 95% Confidence Interval [CI]: 1.048–2.885), urinary tract infection (UTI) (RR: 1.353; 95% CI: 1.000–1.830), and mortality (RR: 2.500; 95% CI: 1.409–4.437). However, the risk of post-traumatic arthritis was lower in the dementia cohort (Risk Difference [RD]: -0.009; 95% CI: -0.015 to -0.003; p = 0.002). At 2 years, dementia patients had a lower risk of conversion to a fusion (RD: -0.009; 95% CI: -0.015 to -0.003; p = 0.002). No differences in nonunion or malunion were observed between the two cohorts at any timepoint.

Conclusion

Patients with dementia undergoing ankle fracture ORIF have increased risks of pneumonia, UTIs, and postoperative mortality. Patients and surgeons should be aware of these elevated risks in this population. Additional research is needed to better characterize this association and its clinical implications.

Assessing Physical Activity Behaviors and Skeletal Muscle Mitochondrial Oxidative Capacity in Patients Undergoing Chemotherapy for Breast or Gynecologic Cancer

Kenan Delbridge, Jillian Florez-Bhandari, Brice Ghent, Meagan Rudolph, Micheal Wolf, Sara Biddie, Frankie Bennett, Randy Hutchinson, Jennifer Trilk, MD – University of South Carolina School of Medicine, Greenville

Introduction

Chemotherapy for breast and gynecologic cancer often induces mitochondrial dysfunction, impairing energy production and increasing oxidative stress. This reduces adenosine triphosphate (ATP) generation, directly diminishing muscle endurance and resilience. Consequently, patients experience fatigue and decreased physical function, highlighting the need for interventions to restore mitochondrial integrity and support recovery. The study's purpose is to determine if physical activity (PA) behaviors at baseline and throughout chemotherapy treatment attenuates mitochondrial dysfunction and increases resistance to chemotherapy-induced fatigue.

Methods

Patient PA behaviors are documented at baseline and each session through a physical activity recall (PAR) questionnaire. The PAR allows the patient to list moderate-to-vigorous physical activity and interval training since their last chemotherapy infusion. Near infrared spectroscopy (NIRS) allows for non-invasive assessment of mitochondrial oxygenation capacity and is measured during exercise and rest periods (on/off kinetics) by assessing changes in oxygenated/deoxygenated hemoglobin. This study applies a generalized linear mixed model (GLMM) with gamma distribution and log link function to evaluate the effect of cycle number on average tau, as well as PA behavior, accounting for individual variability across subjects.

Results

This study is ongoing and n=23 patients have completed testing. The model revealed a significant positive association between cycle number and average tau (Estimate = 0.1017, $p < 0.001$), suggesting that average time to recovery increases with each cycle. Results also suggest that patients with high PA behaviors may have lower tau values, indicating faster muscle recovery and less mitochondrial dysfunction. This data suggests that likelihood of vigorous PA participation significantly decreases over time (estimate = -0.3103, $p = 0.0395$).

Conclusion

More data is being collected to increase sample size to provide enough power to detect potential correlations. The results of this study may provide insight into how PA behavior before and during treatment correlates with chemotherapy-induced fatigue and mitochondrial dysfunction throughout chemotherapy treatment.

Unmasking Pseudo-Thrombotic Microangiopathy with the Clue of Hyperpigmentation: A Case Report

Lauren Ervin, Madison Arnel, Marwan Elya, MD; Sreenivas Rao, MD – University of South Carolina School of Medicine, Columbia

Introduction

We present an atypical case of severe vitamin B12 deficiency in a 64-year-old African American female who presented with hyperpigmentation and initial findings consistent with thrombotic thrombocytopenic purpura (TTP), a prototype thrombotic microangiopathy (TMA).

Case Description

A 64-year-old African American female with a past medical history significant for one episode of postoperative anemia requiring transfusion presented to the emergency department with generalized fatigue, headache, blurred vision, and progressive bilateral hand discoloration. Initially, the patient was thought to have thrombotic thrombocytopenic purpura with hemolytic anemia given the elevated LDH, total bilirubin, mild transaminitis, marked thrombocytopenia, and schistocytes present on blood smear. The blood smear also revealed myelophthisic changes and one large band cell, prompting vitamin B12 deficiency consideration. The patient's vitamin B12 level was undetectable, further confirming severe deficiency.

Conclusion

This case highlights the importance of excluding severe vitamin B12 deficiency when a patient presents with TMA symptoms and skin hyperpigmentation as early treatment may offset permanent disability or unnecessary treatments.

Barriers to Breast Cancer Screening in a Rural South Carolina Family Medicine Practice

Bailey Gibson, Greyson Foxtran, Andrew Hensing, Grace Coleman – University of South Carolina School of Medicine, Columbia

Background

Breast cancer screening is vital for early detection and better outcomes, but rural areas face numerous barriers that lower participation. These challenges include transportation, long distances to healthcare facilities, limited insurance coverage, socioeconomic, and psychological factors. Cultural factors, such as stigma and modesty, further contribute, and racial, ethnic, and immigrant populations often face additional difficulties like language barriers and navigating the healthcare system. Healthcare providers in rural areas are often stretched thin with time constraints and limited resources and may not identify screening gaps, making it harder to promote prevention. Systemic issues, like scarce screening services and insufficient funding intensify these challenges. Effective solutions, including mobile mammography units, patient navigation, and text-based campaigns, have shown promise in boosting screening rates. Culturally relevant education about early detection and individual risk is crucial. By addressing both individual and systemic barriers, targeted interventions can improve screening rates and health outcomes in rural communities.

Methods

This study serves to identify barriers to breast cancer screening in the rural population surrounding the Prisma Health Winnsboro Family Medicine Clinic by examining logistical, psychological, cultural, social, and systemic factors. Our quality improvement survey assesses key barriers and perceptions in patients who are eligible for breast cancer screening. Outcome measures include perceived importance of breast cancer screening, barriers to scheduling a mammogram, impact of transportation on screening, impact of fear, stress, or discomfort on screening, patient identified barriers, and percentage of patients who express consent for assistance in scheduling a mammogram. The results of our study provide insight into the unique barriers to breast cancer screening faced by our local community. This information will assist in the development of actionable strategies for improving breast cancer screening rates, reducing disparities, and promoting equitable healthcare access in rural communities.

3 Learning Objectives

- Participants will have a simple, flexible outline for determining barriers to breast cancer screening in their local community
- Using the information from our QI project, participants will understand common barriers to breast cancer screening in rural South Carolina
- Participants will be able to develop a simple survey that, within 6 months, will help them understand the unique barriers to breast cancer screening that their community is facing, which they can target to improve patient outcomes.

Association of Patient-Reported Drug Allergies with Outcomes Following Midfoot, Hindfoot and Ankle Fusions

Robert Henke, Hana Hashioka, BS; Jagannath Kandadai, BS; Daniel J. Scott, MD MBA; Christopher E. Gross MD – MUSC College of Medicine

Introduction

Patient-reported drug allergies have been studied in relation to outcomes following various orthopaedic procedures such as total hip and total knee arthroplasty. Currently, there is limited reporting on the effect of drug allergies on outcomes following midfoot, hindfoot, or ankle arthrodesis. This study aims to investigate the association between patient-reported drug allergies and outcomes following midfoot, hindfoot, and ankle arthrodesis.

Methods

The TriNetX database (2005-2025) was utilized to retrospectively query two cohorts of de-identified patients who underwent midfoot, hindfoot, or ankle fusions. The control group consisted of 30,163 patients who were never diagnosed with these various drug allergies. Patients were matched using propensity score matching using preoperative demographics and comorbidities at a 1:1 ratio to control for potential confounders. After matching, there was 4,311 patients per cohort. The drug allergies cohort had a mean age of 57.1 years (range 18-100), mean body mass index (BMI) of 32.9 kg/m² (range 18.5-40.0), and mean follow-up duration of 733.44 days (range 180–1,095). The control cohort had a mean age of 57.6 years (range 18-100), mean BMI 32.2 kg/m² (range 18.5-40.0), and mean follow-up duration of 755.54 days (range 180–1,095).

Results

At 6-month follow-ups, the drug allergy patients had a statistically significantly increased risk of developing pneumonia (RR: 1.548; 95% CI: 1.128, 2.125), readmission (RR: 1.283; 95% CI: 1.088, 1.512), acute respiratory failure (RR: 1.923; 95% CI: 1.309, 2.825), and emergency department presentation (RR: 1.677; 95% CI: 1.484, 1.894). At 2-years postoperatively, the drug allergy cohort had a statistically significantly increased risk of experiencing removal of hardware (RR: 1.318; 95% CI: 0.997, 1.741), implant-related pain (RR: 1.343; 95% CI: 1.107, 1.629), and fusion reoperation (RR: 1.579; 95% CI: 1.054, 2.365).

Conclusion

Patients with drug allergies demonstrated a significantly increased risk of multiple postoperative complications following midfoot, hindfoot, and ankle fusions. While these findings highlight the need for further research, patients with reported drug allergies should be informed about their potentially higher risk of complications following midfoot, hindfoot, and ankle fusions.

Abdominal Aortic Aneurysm (AAA) Screening Initiative in Primary Care

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Background

Currently, the USPSTF recommends one-time Abdominal Aortic Aneurysm (AAA) screening for any male patient aged 65-75 years old who has ever smoked. Ultrasound is preferred over CT or other imaging modalities due to cost and accessibility. Primary care physician-performed ultrasound examinations have been shown to effectively screen for AAA while reducing referral barriers to care. With this project, we aim to increase AAA screening among the Prisma Health Family Medicine Clinic patient population.

Methods

EMR-generated patient reports identified patients aged 65-75 years old who smoked and are overdue for AAA screening. Patients were contacted via electronic messaging, phone calls, and/or letters. Trained project personnel provided information about the project, explained the purpose and procedures, and invited patients to call the clinic to schedule an appointment. Participants who agreed to participate in the project underwent AAA screening using ultrasound imaging at the Family Medicine Center. The primary outcome measure was the total number of patients screened at our center to reduce the risk of AAA rupture and associated morbidity and mortality.

Results

The original selection criteria generated a list of 98 patients with an open care gap indicating a need for AAA screening with 71 eligible patients after exclusions were applied. Of the total eligible patients (N=71), 19 were screened (26.76%) within the project window. Of those who were successfully scheduled, 82.61% were ultimately screened. Of the 19 screened patients, 6 required follow-up imaging, of which 3 were normal and 3 are still pending.

Conclusion

Our study showed that targeted outreach proved a useful clinical tool to increase screening rates, though rates were lower than expected. Based on our data, the biggest hurdle for primary care providers to overcome is the initial steps of contact and scheduling given the high rate of screening once scheduled. Potential limitations of our project include small sample size, relatively short project duration, and limited access to patient records. Should this project be replicated, a major improvement may include providing scheduling abilities to the outreach team to streamline the scheduling process.

Clinical Experience Using Injectable Long-Acting Antiretroviral Therapy in South Carolina

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Introduction

Sixty-six percent of people with Human Immunodeficiency Virus (HIV) in the United States were virally suppressed in 2019, with the Southern United States contributing the highest rates for new diagnoses. Long-acting antiretroviral therapies (LAI-ART) offer another tool to combat HIV and the disparities within the United States. There have been few studies that look at the demographics, uptake, barriers, and success of implementing LAI-ART in clinical settings, especially in the Southeast. Our research aims to fill that gap by providing information for better utilization of LAI-ART for those who need it.

Methods

We conducted a retrospective chart review of patients who had a prescription for LAI-ART written between 1/1/2020 and 7/1/2024 at three separate institutions: Prisma Health Upstate, Aid Upstate and New Horizon Family Health Services. Variables analyzed included demographics, reasons for starting and/or stopping LAI-ART and duration of treatment.

Results

We only identified 75 people who had attempted to start LAI-ART during the study period. The average age was 42.6 years, 73.3% were male, 22.7% were female, and 4.0% were trans male to female. 66.7% of the patients were privately insured, 12.0% were on Medicare, 10.7% were on Medicaid, 9.3% were uninsured, and 1 person (1.3%) was incarcerated.

In chart review, we identified reasons for switching to LAI-ART for 70 out of 75 people. The most common reason for switching was patient request (52.7%) followed by adherence challenges on oral ART (25.7%), pill burden (5.7%), oral ART side effects (5.7%), challenges managing oral ART with other comorbidities (5.7%), and 4.5% had a specific reason unique to them such as concern for absorption with oral therapy. Insurance approved LAI-ART for 76.6% of patients after an initial prior authorization. 10.9% were initially denied but got approval after appeals and 12.5% never received approval. 75.9% of patients who started LAI-ART were still on it. For the 24.1% of patients who were no longer on LAI-ART, the most common reason for discontinuation in our data set was a loss to follow-up.

Conclusion

Our research highlights the overall low uptake of LAI-ART in the upstate of South Carolina. Even though the process has become easier over the last four years, increased clinical resources including pharmacists, nurses, and provider time are necessary in our area to fully harness the benefits of LAI-ART. Our research shows that, despite these challenges, once patients start LAI-ART in upstate South Carolina the majority are adherent to therapy.

Silent Sicklers & Traumatic Hyphema: A Case to Emphasize the Importance of Questioning the Unknown

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Introduction

Hyphema, the accumulation of erythrocytes in the anterior chamber, can arise from various causes but is most commonly a consequence of blunt trauma. This occurs when disruption of normal ocular anatomy exposes anterior chamber vasculature to shearing forces, leading to hemorrhage.

Case Description

A previously healthy six-year-old white male presented to the emergency department after trauma to his right eye and was diagnosed with a 3-mm hyphema. The patient's intraocular pressure was measured at 49 mmHg (normal: 10-21 mmHg) with a visual acuity of 20/50 in the right eye. Despite medical therapy with topical antihypertensives and lifestyle modifications, the patient's intraocular pressure increased throughout daily evaluations, peaking at 77 mmHg with new onset corneal edema on day three after his initial presentation. Given this significant elevation in pressure despite medical management, the patient was screened for sickle cell disease to assess for an underlying pathology exacerbating his markedly elevated intraocular pressure, revealing the presence of sickle cell trait. On day three after his initial encounter, a prompt anterior chamber washout operation was performed to mitigate the risk of corneal blood staining and optic nerve damage in the context of acute ocular hypertension. The procedure resulted in pressure normalization to 14 mmHg and visual acuity of 20/25 on postoperative day 1 and remained at 14 mmHg on subsequent follow-up exams.

Conclusion

While most hyphemas respond well to medical therapy alone, the presence of sickle cell hemoglobinopathy significantly influences management, as these patients are at greater risk for permanent vision loss from resultant pressure spikes. Physicians must ascertain a patient's hemoglobin status to appropriately mitigate the risk of ocular complications in cases of traumatic hyphema. Given the relatively lower prevalence of sickle cell trait in non-Black populations, failure to consider its presence may result in serious adverse outcomes. This case highlights the importance of obtaining a comprehensive past medical and family history and considering early sickle cell screening for all patients who do not respond to intraocular pressure therapy or present with unknown hemoglobin status.

A Student-Led Initiative to Address Type 2 Diabetes in South Carolina

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Introduction

Medical Students Making Change (MSMC), led by University of South Carolina School of Medicine Columbia (USCSOM) students in collaboration with free medical clinics, aims to improve diabetic control in South Carolina where approximately 13.2% of the adult population has diabetes. The zip code adjacent to USCSOM's teaching hospital has one of the highest rates (9.96 per 10,000) of diabetic amputations in the United States. Seeing patients who struggled to get their diabetes under control, this led medical students to start MSMC. This project aims to promote prevention strategies for Type 2 Diabetes (T2DM) within underserved areas.

Methods

Medical student volunteers reviewed HbA1cs from the clinics, contacted eligible patients, and enrolled those meeting inclusion criteria (adults ≥ 18 years old, diagnosed type 2 diabetes or prediabetes based on HbA1c, and access to a phone). Biweekly counseling calls between volunteers and patients focused on assessing goals related to diet, exercise, sleep and hydration, as well as addressing barriers. Patients followed-up at the clinic to measure HbA1c every 3 months. Patients who met the criteria for continuous glucose monitoring were offered a continuous glucose monitor and were followed by the clinic endocrinologist.

Results

Of patients enrolled ($n=71$), the average initial HbA1c value was 9.63%. With our lifestyle and educational strategies, HbA1c levels decreased by an average of 0.64% ($p=0.2230$ with 95% CI - 0.427 to 1.705). Average blood glucose decreased from 154 mg/dL to 148 mg/dL in patients utilizing the CGM ($p=0.2361$ with 95% CI -7.21 to 19.71).

Conclusion

This project is unique in multiple facets and strives to reduce the gap in diabetic care for uninsured patients. It promotes longitudinal relationships allowing patients the time, education, and resources needed to manage their diabetes. We also train future physicians in South Carolina in the skill of motivational interviewing and the breadth of appropriate diabetic management. These promising data trends indicate that patient education and access to resources can improve T2DM management in underserved areas.

Preoperative Osteoporosis and its Association with Postoperative Outcomes Following Hindfoot Arthrodesis

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Introduction

Osteoporosis, a common comorbid condition among older patients, is characterized by reduced bone mineral density. While several studies have explored the association of osteoporosis and outcomes following hip and knee joint arthroplasty, few have evaluated its influence on ankle surgery. Our study aims to investigate if preoperative osteoporosis influences postsurgical outcomes in patients undergoing midfoot, hindfoot, or ankle arthrodesis.

Materials and Methods

The TriNetX database (2006-2024) was retrospectively queried to identify patients who underwent open hindfoot arthrodesis. Three groups were created to include patients with untreated osteoporosis (cohort 1), treated osteoporosis (cohort 2), and no osteoporosis or osteoporosis treatment within 1 year of their surgery. Propensity score matching (1:1) based on preoperative demographics and comorbidities resulted in 1,185 patients between cohorts 1 and 3 and 698 patients between cohorts 2 and 3. Results were studied at 6-month and 2-year postoperative periods.

Results

At the 6-month postoperative period, untreated osteoporosis (cohort 1) had a significantly increased risk of pneumonia ($p=0.0240$, Risk Difference (RD)=1.266%, 95% Confidence Interval (CI)=0.168%,2.364%), deep vein thrombosis (DVT) ($p=0.0167$, RD=1.688%, 95% CI=0.307%,3.068%), and readmission ($p=0.0455$, RD=2.025%, 95% CI=0.042%,4.008%) compared to cohort 3. When comparing treated osteoporosis (cohort 2) to cohort 3 at the 6-month period, there was an increased risk of readmission ($p=0.0214$, RD=3.009%, 95% CI=0.45%,5.567%), DVT ($p=0.0083$, RD=2.865%, 95% CI=0.743%,4.988%), reoperation for wound dehiscence ($p=0.0015$, RD=1.433%, 95% CI=0.551%,2.314%), and UTI ($p=0.0028$, RD=3.438, 95% CI=1.187%,5.69%). At the 2-year postoperative period, there was no difference postoperative complications between cohorts 1 and 3. However, cohort 2 had an increased risk of nonunion or malunion ($p=0.0015$, RD=1.433%, 95% CI=0.551%,2.314%) and implant-related pain ($p=0.0175$, RD=3.009%, 95% CI=0.533%,5.485%) compared to cohort 3.

Conclusion

Osteoporosis is associated with an increased risk of short-term postoperative complications following hindfoot arthrodesis. However, while treatment for osteoporosis may reduce the risk of certain complications, it is also linked to a higher incidence of wound-related issues, infections, and an increased risk of nonunion or malunion in the long term. These findings suggest that while osteoporosis management is important, its impact on surgical outcomes remains complex. Further research is needed to better understand these findings.

Impacts of Psychiatric Medication Use in Total Ankle Arthroplasty

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Introduction

Psychiatric medications are widely used to treat many psychiatric problems nationally, yet their impact on outcomes in patients undergoing total ankle arthroplasty (TAA) remains unclear. The purpose of this study is to evaluate the association between preoperative psychiatric medication use and postoperative complications following TAA.

Methods

The TriNetX database (2005-2025) was queried to retrospectively identify patients who underwent TAA. Patients were stratified into two cohorts: one with preoperative psychiatric medication use within one year prior to operation (cohort one) and one without preoperative psychiatric medication use (cohort two). Propensity score matching was performed using a 1:1 ratio to control for potential confounders. Matching was based on preoperative demographic characteristics and comorbidities, which resulted in each cohort consisting of 4,169 patients. After matching, cohort one (46.3% female) had a mean age of 53.3 years, mean body mass index (BMI) of 32.9 kg/m² (range 18.5-40), and a mean follow-up of 708.465 days (range 180-1095.75). Cohort two (46.3% female) had a mean age of 53.4 years, mean BMI of 32.2 kg/m² (range 18.5-40), and a mean follow-up of 733.254 (range 180-1095.75).

Results

At six months, patient with psychiatric medication use exhibited significantly higher risk of pneumonia (Risk Ratio [RR]: 1.727; 95% Confidence Interval [CI]: 1.024, 2.915), deep vein thrombosis (RR: 2.176; 95% CI: 1.228, 3.859), and emergency department utilization (RR: 1.209; 95% CI: 1.012, 1.443). At 2 years, they demonstrated significantly higher risk of experiencing implant-related pain (RR: 1.410; 95% CI: 1.102-1.803), and mechanical loosening of the prosthesis (RR: 2.545; 95% CI: 1.269-5.106). This cohort also showed increased risk for removal of hardware (RD: 0.002; 95% CI: 0.001-0.004; $p = 0.002$), though this is likely not clinically significant. Additionally, patients with psychiatric medication use experienced significantly lower risk of wound dehiscence (RR: 0.357; 95% CI: 0.174-0.734).

Conclusion

Patients with preoperative psychiatric medication use undergoing TAA are associated with a significantly higher risk of medical and implant-related complications at various postoperative time points. Patients should be aware the preoperative psychiatric medication usage may increase their risk of complications following TAA, though further research is needed to confirm this.

Impact Of Hba1c on Cost-Effectiveness of Trigger Finger Management Options

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Introduction

Stenosing tenosynovitis, typically managed nonoperatively via corticosteroid injection, is a common condition involving the inflammation, thickening, and subsequent triggering of the flexor sheath, A1 pulley, and volar plate. While typically idiopathic, patients with diabetes mellitus are known to have a higher prevalence, lower success rates with non-operative treatment, and increased treatment failure rates with higher A1c levels. The purpose of this study was to assess the impact of A1c levels on the 1) efficacy of corticosteroid injections and 2) cost-effectiveness of various trigger finger (TF) treatment algorithms in diabetic patients. This data will be used to evaluate the most appropriate and cost-effective treatment algorithms based on A1c level.

Methods

All 18+ year old patients with a diagnosis of diabetes who received at least one corticosteroid injection by a hand surgeon for TF were retrospectively identified via CPT code query. Patients were included if they had A1c labs available within six months of initial treatment. Patient records were reviewed to collect demographics, treatment data, and A1c levels. Logistic regression was used to model the effect of A1c on TF injection success rates. A one-way sensitivity/threshold analysis was then implemented to assess the cost-effectiveness of each treatment option based on Medicare reimbursement rates.

Results

Of 144 patients, 92 (63.9%) had success with injections alone, while 52 (36.1%) eventually required surgery. Those who required surgery had higher average A1c levels (8.1 vs 7.5, $p=0.05$). For each one unit increase in A1c, the odds of injection success decreased by 20%. Cost-effectiveness analysis revealed that immediate in-clinic TF release was more cost-effective than one injection followed by release in the operating room (OR) when A1c was >10.08 , than 2 injections followed by in-clinic release when A1c was >9.69 , and than 2 injections followed by release in OR when A1c was >6.61 .

Conclusion

These results affirm that in diabetic patients, increased HbA1c levels are associated with reduced TF injection success. Additionally, it is clear that at clinically feasible A1c levels, immediate TF release in the OR is never more cost-effective than any of the other evaluated treatment algorithms. Further, our study suggests specific A1c thresholds at which it may be more cost-effective for patients to receive immediate TF release as opposed to a trial of steroid injection(s).

Increasing EMR Portal Use at Residency Continuity Clinic

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Background

Patient engagement through electronic medical record (EMR) portals offers significant benefits, including improved communication between patients and healthcare providers, enhanced accessibility to health information, and increased efficiency in delivering laboratory results. Despite these advantages, adoption rates remain suboptimal. This study aimed to evaluate the impact of a structured intervention on portal adoption rates at Tandem Health.

Methods

A two-phase intervention was implemented to encourage patient enrollment in the AthenaOne portal system. In the first phase, initiated in November 2024, a one-page flyer with detailed portal access instructions, including a QR code linking to the AthenaOne portal application, was distributed in English and Spanish. Flyers were placed in patient waiting areas and examination rooms, and all patients were asked at checkout if they were interested in signing up. If interested, they were directed to the flyer for guidance. Portal adoption data was collected through Athena's IT team, tracking the number of new sign-ups per month. The second phase, introduced in February 2025, added a handout emphasizing the importance of portal engagement, also featuring a QR code for app access. Data collection for this phase is scheduled for April 2025.

Results

The portal adoption rates for September, October, November, and December 2024 were 51.6% (n=479), 54.2% (n=603), 58.2% (n=471), and 56.7% (n=550), respectively. A notable increase in adoption was observed in November, coinciding with the intervention's initiation. However, the rate declined slightly in December.

Conclusion

The initial intervention resulted in a measurable increase in portal adoption, demonstrating the effectiveness of targeted informational strategies in promoting patient engagement. The slight decline in December suggests potential challenges in sustaining adoption rates, highlighting the need for reinforcement strategies. Data from the second intervention phase will provide further insights into whether continuous reminders and additional educational materials can enhance long-term portal usage.

This study underscores the importance of proactive communication and education in increasing EMR portal adoption, with potential implications for improving patient-provider interactions and overall healthcare efficiency.

The Effect of Early Versus Delayed Rehabilitation on Clinical Outcomes Following Reverse Total Shoulder Arthroplasty: A Systematic Review

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Purpose

There is no consensus on the rehabilitation protocol following reverse total shoulder arthroplasty (rTSA). This systematic review aims to determine whether or not there is a difference in clinical outcomes between an early rehabilitation versus a more traditional delayed rehabilitation.

Methods

A comprehensive search of Pubmed, Medline, Scopus, and Embase was performed on June 10, 2024 in accordance with the PRISMA guidelines to find studies that compared clinical outcomes between early and delayed rehabilitation protocols following reverse total shoulder arthroplasty.

Results

Six studies were found that met the inclusion criteria, which included a total of 1,654 patients with a mean age of 72.3 years. Of these six studies, five evaluated an early versus delayed rehabilitation protocol whereas one only examined the outcomes of an early rehabilitation protocol. Range of motion (ROM) was the most popular outcome score measured among the six included studies. The early rehabilitation protocol was found to have outperformed the delayed rehabilitation group in range of motion (ROM) measurements at early follow-ups in some studies, but this relationship was not consistently reported. Functional outcome scores such as American Shoulder and Elbow Surgeons (ASES) and Constant Scores showed no significant difference. Complication rates were slightly lower in the early rehabilitation group (10.8%) compared to the delayed group (13.1%), with no statistically significant differences reported.

Conclusion

Early rehabilitation following reverse total shoulder arthroplasty appears to offer similar clinical outcomes to delayed rehabilitation and may be a good rehabilitation option for patient's seeking to return to activity faster. However, due to the lack of quality evidence and inconsistent definition of what an early rehabilitation entails, further high-quality, long-term studies are needed to establish a definitive conclusion.

A Moving Target: Working Toward Comprehensive Maternity Care in Rural Upstate South Carolina

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Introduction

According to the 2024 South Carolina Maternal Morbidity and Mortality Review Committee, the upstate region experiences the highest rates of pregnancy-related deaths and rural counties have nearly twice the pregnancy-related mortality rate compared to urban areas. Oconee County, an upstate county, is 64.9% rural, with 17.5% of its population living in poverty and 19.12% being women of childbearing age. Access to comprehensive maternity care is therefore crucial for this population. This study assessed the impact of standardized obstetric care guidelines and an obstetric patient navigator on perinatal care metrics at a full-spectrum family medicine residency clinic in Oconee County.

Methods

A retrospective chart review was conducted, comparing two cohorts of prenatal patients: 73 receiving care from June to January 2023 and 75 receiving care from June to January 2024. These cohorts represent care before and after clinic-wide care initiatives. Key data points analyzed included demographics, prenatal visit numbers, maternal-fetal medicine (MFM) referral rates, sexually transmitted infection (STI) screening, group B strep (GBS) screening, glucose tolerance test (GTT) completion, preeclampsia screening, birth control use, and postpartum follow-up.

Results

The study involved 148 participants, with an average age of 26.89 years, primarily receiving Medicaid or uninsured. After the intervention, the average number of prenatal visits increased from 9.19 to 9.49; however, rate of adequate prenatal care (≥ 6 visits) decreased to 85.35% from 87.7%. MFM referrals rose significantly from 31.5% to 50.7%. Rates of bilateral tubal ligation (BTL) or long-acting reversible contraception (LARC) at six weeks postpartum improved from 46.6% to 55%. The percentage of patients without birth control at six weeks decreased from 30.1% to 21.1%. STI screening rates in the third trimester improved, but GTT and GBS screening rates decreased. Preeclampsia labs were obtained at similar rates in both cohorts.

Discussion

The clinic-wide initiatives showed positive results in MFM referrals, contraception rates, and STI screenings, suggesting that the implementation of standardized obstetric guidelines and an obstetric patient navigator can improve certain aspects of perinatal care. However, the study also identified areas for improvement, particularly in GTT completion, GBS screening, and preeclampsia lab tests, where neutral or negative effects were observed. While data from this study will drive future care strategies in the study clinic, a broader lesson can also be gleaned from the data: for clinics serving the populations of rural, upstate South Carolina, comprehensive maternity care is a moving target, requiring ongoing assessment of care and quality improvement measures.

Synchronous Metastatic Squamous Cell Carcinoma of the Spine from Primary Squamous Cell Carcinoma of the Urinary Bladder

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Introduction

Although composing only 5% of urinary bladder cancers, primary non-metastatic squamous cell carcinoma (SCC) comes with a survival rate of only 30-40%. It is the second most common type in histology and has worse survival outcomes. Synchronous bone metastases occur in 1.39-5.5% of bladder cancer patients, with 30-40% metachronous. Five-year survival rates of metastatic squamous cell carcinoma is only 8%. We report a case of metastatic squamous cell carcinoma of the spine from primary squamous cell carcinoma of the urinary bladder.

Case

A 69-year-old male presented after being found down with lower extremity (LE) weakness for two weeks, difficulty walking, fever, and new urinary incontinence. He is hemodynamically stable, strength 4/5 in bilateral LE and normal sensation and gait. He was admitted with cellulitis, rhabdomyolysis, and an acute kidney injury. Renal ultrasound and Computed Tomography chest abdomen and pelvis without contrast (CT) showed bilateral hydronephrosis and abnormal nodular wall thickening of the urinary bladder suggestive of malignancy. Pathologic fractures of ribs were also noted. Urology was consulted for bladder outlet obstruction and foley was placed. Cystoscopy demonstrated a tumor like mass in the upper superior area of the bladder at approximately 11 o'clock position, pathology later revealed squamous cell carcinoma. Bilateral nephrostomy tubes were placed due to obstruction from the bladder mass. On hospital day 18 he complained of back pain, lower extremity weakness. On exam, the patient had acute complete loss of function in bilateral lower extremities, motor and sensory, and recta tone. Urgent MRI demonstrated an erosive mass to the left T8 rib along with the T7-T8 neural foramen. He underwent urgent T5-T9 laminectomy and resection of tumor, pathology revealed SCC of bladder. The patient acutely decompensated within a few days of surgery and succumbed to his illness shortly after.

Discussion

Detection of SCC of urinary bladder and treatment recommendations often relies on small observational studies. Radical cystectomy and urinary diversion are the standard treatment for primary SCC of the urinary bladder, however there is limited data on metastatic SCC. It is considered a chemotherapy-resistant disease, immunotherapy represents a promising adjunct. This case report illustrates the swift and lethal nature of SCC of the bladder. It is important to shed light on this disease to promote future research and guideline development given limited research in this area.

From Exhaustion to Inspiration: The Impact of Medical Missions on Surgical Attendings

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Introduction

The demand for accessible, safe and affordable surgical care is increasing worldwide. However, medical missions face criticism for quality concerns and voluntourism. Meanwhile, physician burnout is rising, yet little research explores whether missions can both serve patients and reinvigorate physicians. This study examines surgical attending physicians' perspectives on the lasting impact of medical mission participation, with a focus on its role in mitigating burnout.

Methods

A 15-item online questionnaire was designed to assess physicians' perspectives on humanitarian missions. The survey elicited information regarding physician demographics, trip details, funding, and the influence of the trip on them and the community. This questionnaire was distributed to the surgical attendings at Prisma Health Upstate hospitals in the United States during the 2023/2024 academic year.

Results

Of 42 respondents, 71% had participated in an international mission, while 29% had not. Among participants, 30% agreed that this experience influenced their decision to pursue surgery, while 44% decided beforehand. Most respondents reported trips lasting 7 to 10 days (41%), while 30% took trips exceeding 11 days. When asked about the impact of surgical missions on physician reinvigoration, the response was overwhelmingly positive with 79% agreeing or strongly agreeing that medical missions reinvigorated them as surgeons.

Conclusion

Surgical attendings perceive medical missions as reinvigorating. These trips provide mutual benefits to the physicians and the communities they serve. Further research is needed to explore the long-term effects of these experiences and how structured mission programs can be optimized to support both global health initiatives and physician well-being.

Unveiling the Risk: Identifying Patient-Specific Factors in Blood Culture Contamination

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Introduction

Blood culture contamination is a significant issue in hospitals, with a recommended target of less than three percent contamination rate. Our healthcare system experienced contamination rates exceeding three percent in some units, prompting a quality improvement initiative. We aimed to explore whether certain patient populations are more prone to blood culture contamination.

Methods

We retrospectively reviewed a random sample of patients from four hospitals in the Midlands region of South Carolina who had blood cultures drawn in the Emergency Department (ED) during August and September 2024. We excluded patients under 18, duplicate blood cultures, and those with incomplete data. Blood cultures were classified as contaminated (false positive), true positive, or true negative after clinical review using the National Healthcare Safety Network commensals list and agreement between two clinicians. Statistical comparisons between false positives and true positives/negatives were performed using chi-square or t-tests with a significance level of 0.05.

Results

Of 243 patients reviewed, 97 (39.9%) had contaminated blood cultures. The laboratory report for the same period showed a contamination rate of 4.63%. Patients with contaminated cultures were older (62.7 vs. 55.7 years, $p=0.0082$), and there was a significant racial difference in contamination rates ($p=0.0069$), though no gender difference. Body mass index did not differ between groups ($p=0.08$). Higher Charlson Comorbidity Scores were also associated with contamination ($p<0.005$). No significant differences were found in housing status, injection drug use, bedbound status, contractures, or recent medical contact. Additionally, there was no difference in contamination based on the time of culture collection.

Conclusion

The traditional metric for blood culture contamination is inadequate for understanding patient-specific contamination risks. Older patients, Black patients, and those with multiple comorbid conditions are more likely to have contaminated cultures. Other social determinants of health did not contribute to contamination rates in our EDs.

Concealed By Complexity: A Case of Metastatic Bladder Cancer in a Patient with Concurrent Renal and Ureteral Pathologies

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Introduction

Urothelial cell carcinoma is the most common type of bladder cancer and the second most common urological malignancy in developed nations. Metastatic urothelial carcinoma (UC) can often present with non-specific symptoms that are misattributed to pre-existing conditions, potentially delaying diagnosis and treatment. This case highlights the challenges in diagnosing metastatic bladder cancer in a patient with significant renal and ureteral pathology, underscoring the importance of thorough evaluation despite a complex clinical history.

Case

A 57-year-old male with a history of chronic left-sided hydronephrosis secondary to stone in the ureteropelvic junction and stage II chronic kidney disease presented to the emergency department with worsening left sided back and flank pain. No imaging was obtained as the patient had a CT abdomen/pelvis done two months prior showing previously documented chronic hydronephrosis without acute findings. He followed up with orthopedics and underwent MRI showing a L1 vertebral fracture and a retroperitoneal mass posterior to the left psoas muscle.

Biopsy of the psoas mass confirmed metastatic squamous cell carcinoma with unclear source. Cancer Type testing identified UC with squamous differentiation, ultimately diagnosed as stage IV. The diagnosis had been obscured by his chronic renal issues, a CT scan without acute abnormality two months prior to presentation, and nonspecific symptoms. Due to the advanced staging at time of diagnosis, palliative radiation and chemotherapy were offered and the patient died within six months of diagnosis.

Discussion

This case emphasizes the diagnostic challenges in patients with complex, chronic renal and urologic issues, where symptoms of metastatic disease may be misattributed to pre-existing or more common conditions like kidney stones, hydronephrosis, or even musculoskeletal pain. In this case, persistent low back and flank pain were initially attributed to renal and musculoskeletal causes, leading to delays in diagnosing metastatic cancer.

Conclusion

Metastatic urothelial carcinoma can present with symptoms that mimic chronic, benign urologic conditions, leading to potential delays in diagnosis. This case emphasizes the importance of maintaining a high index of suspicion for malignancy, even in patients with complex and longstanding renal pathologies. Prompt and thorough investigation, including advanced imaging and biopsy, is crucial in ensuring timely diagnosis and appropriate treatment.

Concurrent Immune Checkpoint Inhibitor Associated Necrotizing Myopathy and Acute Inflammatory Demyelinating Polyneuropathy Following Pembrolizumab Therapy

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Introduction

Pembrolizumab is a PD-1 inhibitor indicated for a variety of malignancies, including advanced melanoma, head and neck squamous carcinoma, and renal cell carcinoma. Previously reported neurologic and musculoskeletal immune-related adverse events (IrAEs) linked to PD-1 inhibitors include immune checkpoint inhibitor-associated necrotizing myopathy (ICIAM), polymyositis, and acute inflammatory demyelinating polyneuropathy (AIDP). We report a case of concurrent ICIAM and AIDP in association with pembrolizumab.

Report of Case

A 71-year-old female with a past medical history of metastatic renal cell carcinoma, aortic stenosis, and chronic plantar neuropathy presented with a three-week history of proximal bilateral upper and lower extremity weakness, neck weakness, and associated rapid-onset muscle pain following one cycle of treatment with pembrolizumab for metastatic renal cell carcinoma. At initial presentation, she had 0/5 strength in thighs and deltoid abduction and 2/5 strength in bicep flexion and plantarflexion. Lab studies were notable for creatine kinase (CK) of 41,000 and myoglobinuria. Magnetic Resonance Imaging showed increased thigh muscle edema and areas of possible myonecrosis, suggestive of possible myositis and necrotizing myopathy. Electromyography showcased evidence of AIDP with superimposed myopathy of proximal upper and lower extremities; muscle biopsy showed necrotizing myopathy and type 2 myofiber atrophy. The patient underwent plasma exchange and was started on pulse steroids with good clinical response, as noted by a significant reduction in CK and improved strength; however, she subsequently developed worsening weakness, dysphagia, and acute hypoxic respiratory failure leading to aspiration pneumonia. Treatment with intravenous immunoglobulin and high-dose steroids was initiated leading to marked clinical improvement.

Conclusion

Concurrent ICIAM and AIDP represent a serious and previously unreported autoimmune phenomenon arising from pembrolizumab therapy. Given the increasing use of PD-1 inhibitors and the significant morbidity and mortality associated with neurologic IrAEs, this case underscores the importance of timely interdisciplinary diagnostic and therapeutic intervention in suspected cases.

Laser Speckle Imaging of an Atypical Junctional Melanocytic Proliferation: A Case Report

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Introduction

Laser Speckle Imaging (LSI) is a well-established, non-invasive technique for assessing blood flow dynamics. While widely used in fields such as rheumatology, neurology, and ophthalmology, its application in evaluating melanocytic proliferations remains limited. Here, we present a case demonstrating LSI's potential role in characterizing vascular patterns in an atypical melanocytic lesion.

Case Presentation

A 73-year-old female with a history of BRCA2 mutation and significant sun exposure presented with multiple concerning skin lesions. A shave biopsy of a mid-chest lesion revealed an atypical junctional melanocytic proliferation extending to the peripheral margin. SOX-10 immunohistochemical staining highlighted increased single-unit junctional melanocytes with focal pagetoid scatter, raising concern for evolving melanoma in situ. Complete excision was performed, with the total lesion and margin measuring 2.1 cm.

Results

LSI demonstrated increased vascularity with an irregular vascular network throughout the lesion, reflected in the speckle flow index. Dermoscopic analysis similarly revealed a hypopigmented lesion with a pinkish background, irregular vascular structures, and an absent pigment network. The concordance between LSI and dermoscopy highlights the potential of LSI in evaluating vascular patterns in melanocytic proliferations.

Conclusion

LSI is a safe, non-invasive modality that may enhance the assessment of vascular features in atypical melanocytic lesions. The advent of handheld LSI devices expands its clinical utility, potentially reducing reliance on invasive procedures. Further studies comparing LSI, dermoscopy, and histopathology are warranted to refine its diagnostic applications in dermatology.

Recurrent Pleural Effusions Secondary to Chronic Paget's Disease

Alina Smoleva, Ravi Kant, MD – MUSC College of Medicine

Introduction

While the Paget's disease of bone can be associated with pleural effusions, they are more frequently linked to secondary malignancies. This case highlights a rare instance of recurrent pleural effusion in a patient with Paget's disease of the bone with no signs of malignancy.

Case

A 54-year-old female noted to have persistently elevated alkaline phosphatase (ALP) levels and was diagnosed with Paget's disease of bone on subsequent evaluation. ALP was 179 IU/L (normal 30-120 IU/L), N-terminal pro-peptide/creatinine (NTx/Cr) was 138 (normal 0-89) and Nuclear medicine-whole body bone scan (05/2023) showed extensive osteoblastic activity involving the left rib cage, with bulky activity within the left third to seventh lateral ribs. Patient was treated with Zoledronic acid infusion in December 2023. Despite treatment, her NTx/Cr remained elevated at 124, and her ALP only dropped to 153 IU/L on initial post-treatment labs. Months later, she presented to the emergency department with progressive dyspnea. Computerized Tomography Angiography revealed a large left-sided pleural effusion with extensive underlying rib deformities. She underwent three thoracenteses over several weeks, each removing over one liter of exudative fluid. Because of the recurrent pleural effusions, she underwent a video-assisted thoracoscopic surgery (VATS) that included pleural biopsies and placement of two chest tubes. The procedure confirmed the significant rib deformities directly adjacent to the pleural thickening. Pathology showed no evidence of malignancy. Follow-up imaging showed ongoing radiotracer uptake in the ribs, consistent with Paget's disease of the bone. ALP and NTx/Cr normalized over next few months with ALP of 92 IU/L and NTx/creat of 71 in December 2024.

Discussion

This case shows a rare but potentially significant manifestation of Paget's disease of the bone contributing to recurrent pleural effusions. Further studies are needed to explore this association and management strategies in similar cases.

Political Engagement Among Physicians- Unattainable or Within Reach?

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Introduction

Supporting specialty societies and their associated advocacy groups, attending local and regional meetings with lawmakers, and testifying at House and Senate committees are just some of the actions that any physicians can take to engage with the political system. Policies created at the local, state, and federal levels can impact physicians and patients both positively and negatively, through access to care, scope of practice, and licensure. With or without physician engagement, individuals who are not physicians will testify and meet with lawmakers about legislation. If physicians do not engage with the political system, these non-physician opinions will prevail, leaving physicians without a voice in government. Barriers do exist to physician engagement with the political system. As physicians are committed to their patients and clinical duties, it is difficult for physicians to change their clinic hours to become politically engaged. Additionally, physicians have not traditionally been engaged in political matters.

Methods

Through work with the MUSC Government Affairs team and interviews with leaders at the intersection of politics and healthcare, this project seeks to identify the opportunities and barriers for physician engagement with the political system at all levels (local, state, federal, and interest groups).

Results

While data is still being gathered and compiled, initial observations show that leaders in this field agree on several areas. Most leaders agree that politics starts small via relationships and grows. These leaders also agree that physicians' primary interests are, unsurprisingly, their patients and not the political system. Disagreement exists over how actively physicians should interact with the political system and what methods most effectively influence legislation. However, many leaders agree that it is important for physicians to engage with the political system in some capacity to ensure lawmakers are well informed on bills relating to healthcare.

Conclusion

Abundant opportunities exist for all physicians to engage with the political system as actively as they prefer to ensure the physicians' perspective is heard. Physicians interested in the political system can take initiative to make political engagement a priority, just as other physicians take on administrative duties, research labs, and medical education.

Risk of Infective Endocarditis in Monomicrobial and Polymicrobial *Enterococcus* Species Bloodstream Infection

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Background

Enterococcus faecalis is recognized as a typical pathogen in infective endocarditis according to the 2023 Duke-International Society for Cardiovascular Infectious Diseases Criteria for Infective Endocarditis. It remains unclear if there is a difference in the risk of infective endocarditis (IE) between monomicrobial and polymicrobial *Enterococcus* species bloodstream infection (BSI). This retrospective cohort study examined the risk of IE in patients with BSI due to *Enterococcus faecalis* versus *Enterococcus faecium*. Second, the risk of IE was compared among patients with monomicrobial vs. polymicrobial *Enterococcus* species BSI.

Methods

Patients admitted to Prisma Health hospitals with BSI due to *Enterococcus* species from January 2021 to June 2023 were screened for the study. Patients under the age of 18 and those with positive blood cultures for *Enterococcus* species other than *E. faecalis* and *E. faecium*, were excluded. Chi-square or Fisher's exact, as appropriate, were used to compare the proportion of patients diagnosed with IE in *E. faecalis* vs. *E. faecium* BSI and monomicrobial vs. polymicrobial BSI.

Results

Among 476 patients screened, 452 adults were included in the final analysis: 402 had BSI due to *E. faecalis* and 50 had BSI due to *E. faecium*. Overall, median age was 70 years, 283 (63%) were men, and 301 (67%) were white. IE was diagnosed in 55 of 401 patients (14%) with *E. faecalis* BSI and in 1 of 49 patients (2%) with *E. faecium* BSI ($p = 0.02$). Among *E. faecalis* BSI patients, 257 and 144 had monomicrobial and polymicrobial BSI, respectively. The risk of IE was higher in monomicrobial compared to polymicrobial *E. faecalis* BSI, (48/257 [18%] versus 7/144 [4%]; $p < 0.001$). There was no significant difference in the performance of echocardiograms between patients with *E. faecalis* and *E. faecium* BSI (76% vs. 90%, respectively; $p = 0.15$) or between monomicrobial and polymicrobial BSI (79% vs. 71%, respectively; $p = 0.43$).

Conclusion

The risk of infective endocarditis in enterococcal BSI is species-specific. Results of this study are consistent with previous literature and support recognition of *E. faecalis*, but not *E. faecium*, as a typical pathogen of IE. The current study adds that risk of IE is significantly higher in monomicrobial than polymicrobial *E. faecalis* BSI. Whereas confirmation of the second observation in further larger studies would be valuable, the results help inform diagnostic stewardship efforts in hospitals. Obtaining echocardiograms should be encouraged in patients with high risk of IE (monomicrobial *E. faecalis* BSI) and discouraged in low-risk populations (*E. faecium* and polymicrobial BSI).

Bridging Primary Care and Community Health: A Multi-faceted Approach to Hypertension Control Through Screening, Treatment Protocols and Produce Access Initiatives

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Background

Prisma Health is South Carolina's largest healthcare organization. It sets clinical quality goals based on insurance contracts and community needs. Hypertension is a key focus for Primary Care Departments. The Prisma Health Family Medicine Center has focused on controlling hypertension for the past two years in an underserved, high-minority urban area with high rates of vascular disease.

Methods

Using the American Heart Association's MAP model (Measure Accurately, Act Rapidly, and Partner with Patients), we employed a driver diagram to identify interventions for better blood pressure control (below 140/90 mm Hg). Interventions included: (M) – nurses averaging three blood pressure readings if the initial was above 139/89 mm Hg; (A) – implementing a pharmacotherapy guideline for uncontrolled blood pressure; (P) – enrolling food-insecure or low-income patients in a produce voucher program. Monthly reports tracked progress: (M) – rate of repeated elevated blood pressures; (A) – blood pressure control rate at six weeks; (P) – number of enrolled patients and redeemed vouchers. Data was collected from clinic aggregated data from the medical record, Epic, and the Food Insecurity Grant database.

Results

Compared to other Prisma Health primary care offices, at the end of 2 years, our office ranked in the top quartile for confirming elevated blood pressures and achieving target blood pressures within six weeks. The Food Voucher program served over 900 patients, with 2,483 vouchers redeemed. Our hypertension control rate has improved from 61.4% to 71.14%.

Conclusions

In the context of a primary care residency clinic, in an urban underserved community, controlling hypertension at a practice level requires a multiprong approach. This approach needs to address physician and nurse inertia as well as patient social needs. Thus, chronic disease interventions are most effective when involving nurses, physicians, and patients. Patient engagement improves with community partner connections. As value-based payments grow, healthcare systems must extend efforts beyond clinic walls. Additionally, utilizing protocols standardize hypertension control and address unconscious bias.