Risk Factors Associated with a Positive Tuberculin Skin Tests in Homeless Populations Across Six Student-run Clinics

Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

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Background: Student-run clinics (SRCs) are excellent resources for screening homeless patients for tuberculosis. However, limited grant funding and potential shortages of tuberculin may necessitate allocation of tuberculin skin tests (TST) to patients with increased risk of tuberculosis.

Goals: To determine which risk factors increase patients’ risk for a positive TST.

Methods: A retrospective, multisite chart review of homeless patients screened at 6 SRCs between January 1, 2017 through October 1, 2019 was performed. Relative risks (RR) were calculated for multiple categories to determine their impact on TST results.

Results: Over 33 months, 4,155 patients received TST and attended their follow-up appointment; 3,941 (94.85%) were negative and 214 (5.15%) were positive. When no additional risk factors were present, the following were independently associated with increased risk of a positive TST: A) close contact with an individual with active tuberculosis (RR 5.12, 95% confidence interval (CI) 2.68-9.80, p<0.0001), B) weight 10% or more below ideal body weight (RR 2.32, 95% CI 1.24-4.32, p=0.008), C) diabetes (RR 2.34, 95% CI 1.55-3.53, p=0.0001), and D) incarceration within the last 5 years (RR 1.36, 95% CI 1.004-1.834, p=0.05). Additionally, after controlling for if a patient had multiple risk factors for tuberculosis, the following were still independently associated with an increased risk of a positive TST: A) close contact with an individual with active tuberculosis (RR 4.21, 95% CI 2.24-7.90, p<0.0001), and B) weight 10% or more below ideal body weight (RR 1.89, CI 1.03-3.46, p=0.04). Overall,
patients with any risk factors were 1.52 times more likely to have a positive TST than those with none (RR 1.52, 95% CI 1.17-1.98, p=0.002).

Conclusions: This study identified risk factors associated with a positive TST. When necessary, screening for these risk factors may help allocate TST to those at greatest risk for tuberculosis.

Learning Objectives
Upon completion of this lecture, learners should be better prepared to
1. Identify general risk factors for tuberculosis
2. Identify which specific risk factors increased a homeless patient's risk of a positive TST
3. Consider the possibility of screening homeless patients based on tuberculosis risk factors

Table 1
Relative Risk of a Positive TST* Based on Tuberculosis Risk Factors

<table>
<thead>
<tr>
<th>Risk Factors for TB</th>
<th>RR***</th>
<th>95% CI****</th>
<th>P-Value</th>
<th>RR***</th>
<th>95% CI****</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close Contact with Active Tuberculosis</td>
<td>5.12</td>
<td>2.68-9.80</td>
<td>&lt;0.0001</td>
<td>4.21</td>
<td>2.24-7.90</td>
<td>1</td>
</tr>
<tr>
<td>Weight 10% or More Below Ideal Body Weight</td>
<td>2.32</td>
<td>1.24-4.32</td>
<td>0.008</td>
<td>1.89</td>
<td>1.03-3.46</td>
<td>0.04</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>2.34</td>
<td>1.55-3.53</td>
<td>0.0001</td>
<td>1.99</td>
<td>0.85-2.35</td>
<td>0.18</td>
</tr>
<tr>
<td>Incarceration within the Previous 5 Years</td>
<td>1.36</td>
<td>1.004-1.834</td>
<td>0.05</td>
<td>1.13</td>
<td>0.86-1.48</td>
<td>0.39</td>
</tr>
<tr>
<td>Prolonged Exposure to Corticosteroids/Immunosuppressants</td>
<td>1.47</td>
<td>0.70-3.10</td>
<td>0.31</td>
<td>1.18</td>
<td>0.57-2.44</td>
<td>0.66</td>
</tr>
<tr>
<td>Exposure to HIV/AIDS</td>
<td>1.25</td>
<td>0.52-3.02</td>
<td>0.61</td>
<td>1</td>
<td>0.42-2.37</td>
<td>1</td>
</tr>
<tr>
<td>Silicosis</td>
<td>0.39</td>
<td>0.02-6.14</td>
<td>0.50</td>
<td>0.4</td>
<td>0.03-6.25</td>
<td>0.51</td>
</tr>
<tr>
<td>Coal Workers Pneumoconiosis or Asbestosis</td>
<td>1.10</td>
<td>0.07-16.63</td>
<td>0.95</td>
<td>0.88</td>
<td>0.06-13.22</td>
<td>0.93</td>
</tr>
<tr>
<td>Intestinal Bypass</td>
<td>2.08</td>
<td>0.99-4.34</td>
<td>0.05</td>
<td>1.68</td>
<td>0.82-3.45</td>
<td>0.16</td>
</tr>
<tr>
<td>Chronic Kidney Failure</td>
<td>0.53</td>
<td>0.08-3.72</td>
<td>0.52</td>
<td>0.42</td>
<td>0.06-2.93</td>
<td>0.38</td>
</tr>
<tr>
<td>Cancer of Head, Neck, or Lung</td>
<td>0.58</td>
<td>0.04-8.98</td>
<td>0.69</td>
<td>0.46</td>
<td>0.03-7.12</td>
<td>0.58</td>
</tr>
<tr>
<td>Blood Disorders</td>
<td>0.81</td>
<td>0.12-5.63</td>
<td>0.83</td>
<td>1.06</td>
<td>0.62-1.81</td>
<td>0.84</td>
</tr>
<tr>
<td>IV Drug Use within the Previous 5 Years</td>
<td>1.30</td>
<td>0.88-1.92</td>
<td>0.19</td>
<td>1.04</td>
<td>0.73-1.50</td>
<td>0.82</td>
</tr>
<tr>
<td>Travel to Endemic Countries for &gt;2 Weeks within the Previous 5 Years</td>
<td>1.07</td>
<td>0.35-3.31</td>
<td>0.90</td>
<td>0.85</td>
<td>0.28-2.60</td>
<td>0.78</td>
</tr>
</tbody>
</table>

Any risk factor (1+)  
RR*** 1.52  
95% CI**** 1.17-1.98  
P-value 0.002

*Tuberculin Skin Test
**For example, if a patient had HIV, chronic kidney failure, and close contact with someone infected with tuberculosis, after controlling for HIV and chronic kidney failure, close contact with someone infected with tuberculosis was still independently associated with an increased risk of a positive TST.
***Relative Risk
****Confidence Interval
A Rare Case of COVID+ve Goodpasture Syndrome with Gastric Perforation

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Introduction:
Peptic ulcer disease (PUD) is a well-known complication seen in patients with chronic steroid use. However, gastric perforation is not as common as PUD. Diagnosis of bowel perforation should be considered in patients with high risk factors such prior history of PUD, chronic steroids use, in the setting of acute onset abdominal pain. High index of clinical suspicion and early diagnosis is required for timely intervention. Early diagnosis and treatment is imperative to prevent complications and decrease mortality secondary to bowel perforation.

Case report:
37 y/o Hispanic male with PMHx of Goodpasture's syndrome,( on cyclophosphamide and oral prednisone 60mg daily), End-stage Kidney disease (on Hemodialysis(HD)), HTN and COVID-19 presented to our hospital for hemoptysis. Initially, patient had minimal symptoms of COVID which progressed within a week. He developed SOB, acute hypoxic respiratory failure, requiring 5L of oxygen supplementation. He was admitted to our hospital for close monitoring. Patient was treated with guideline mediated medical management for COVID-19 with Vitamin C & Zinc supplementation, Remdesvir and 2 doses of convalescent plasma. Patient’s prednisone 60mg was continued for Goodpasture’s syndrome. Patient also had Pepcid 20mg qd for GI prophylaxis. We were successfully able to wean him to 1-2L of O2 after 5 days of hospitalization. On day 6 of his clinical course, the patient started to complain about sudden onset of abdominal pain. We obtained CT imaging of his abdomen and pelvis, which revealed a large amount of free air present within the anterior/upper aspect of the abdomen. Surgery was emergently consulted and he was taken for exploratory laparotomy. In the OR, a 4 inch gastric perforation at the greater curvature was found with leaking gastric contents. Partial gastrectomy was performed. Postoperatively, the patient was closely monitored in the ICU. The morning following his gastrectomy, code blue was called secondary to bradycardia. ROSC was achieved in 10 minutes. His post code blue EKG showed ST elevations in Inferior leads. Patient went into cardiogenic shock even on multiple pressors. Cardiologist on call was notified. Unfortunately, the patient went into PEA arrest and expired.

Discussion:
We present an interesting and unusual case of a patient with Goodpasture's syndrome who has had a deadly complication of steroid-induced gastric ulcer leading to bowel perforation. Bowel perforation is a lethal complication and mortality rate remains pretty high, especially those with NSAIDs, aspirin and steroid use[7,11]. High index of clinical suspicion and early diagnosis is required. If diagnosed in timely manner, emergent surgical consultation and surgery is required to decrease deadly complications such as peritonitis or septic shock. There has been evidence of chronic steroid use causing complications post-surgery such as increased bleeds, post-op leak, thrombotic complications [2,4,5,9,10,12]. The pathophysiology of corticosteroids promoting the development of gastric complications seems to occur via different mechanisms. One mechanism suggested is via suppression of biosynthesis of the gastric cytoprotective prostaglandins as well as suppression of peroxidase, increasing availability of hydroxyl radicals [1]. Corticosteroids is also known to increase acid secretion with gastrin and parietal cell hyperplasia [8]. Corticosteroids also delay wound healing by suppressing the production of...
inflammatory cells required for the initial process of wound healing [8]. Other explanations include decreased gastric mucus production and gastric bicarbonate secretion with steroids. Studies have shown that steroids in combination of NSAIDs are significantly more ulcerogenic, both together would add an additive effect that increases the risk of having gastric ulcer by 3-6 times [3,4,7]. Corticosteroids together can become a risk factor for PUD and increase risk for perforation if higher dosage of steroids if used greater than a month [6]. It is predominantly seen in elderly population and long term usage of steroids (> 1000mg for a month)]3,6,7]. In experimental studies some glucocorticoids such as dexamethasone have seemed potentially more ulcerogenic than others.

In patients more prone for gastric ulcers, in this case secondary to chronic steroid use, greater precaution must be taken for GI prophylaxis. Increased surveillance and vigilance for complications such as gastric perforation is deemed necessary in such population. Further studies would be required to establish recommended GI prophylaxis in patients prone to gastric ulcers and perforations secondary to chronic steroids use. In addition, in the setting of COVID 19, further studies should be conducted for risk vs benefit of anticoagulation in such hypercoagulable states, complicated with history of chronic steroid use.

Learning Objectives
- Discuss impact of chronic steroid use, GI complications
- Discuss potential complications post surgical intervention for gastric perforation on chronic steroids
- Discuss implications for anticoagulation in the setting of hypercoagulable state complicated by chronic steroid use

**STK11 Loss in Lung Adenocarcinoma Drives Putrescine and GABA: A Potential Target to Reverse Immunosuppression and Inhibit Altered Metabolism**

**Category:** Medicine & Medical Specialties, Poster Presentation

**Disclosure:** The authors did not report any financial relationships or conflicts of interest

[Supplemental Video]

Presenting Author: Trent Ryan Percy, BS, OMSI, Department of Molecular Oncology, Moffitt Cancer Center, Tampa, FL

Coauthors: Nick Gimbrone, PhD, Gabriela Wright, MS, W. Douglas Cress, PhD

**Background/Knowledge Gap:** STK11 (LKB1; liver kinase B1) loss of function is common in lung adenocarcinomas (LUADs) representing approximately 15-30%. Patients harboring these mutations tend to respond poorly to immunotherapy and currently there is no targeted therapy available for their genetic profile.

**Methods/Design:** Herein, we utilized two patient cohorts, The Cancer Genome Atlas' TCGA LUAD study and the Moffitt Lung Adenocarcinoma, Overall Survival (MLOS) dataset, representing approximately 1,000 LUAD patients, with available mutation and gene expression data. A subset of MLOS tumor tissues were used for metabolite level analysis via untargeted liquid chromatography-mass spectrometry (LC-MS). These data sets were used to identify metabolic pathways strongly associated with STK11 loss in support of a hypothesis that STK11 mediated metabolic disruption may contribute to an immunosuppressive microenvironment. A549 cells overexpressing STK11 and Ornithine decarboxylase 1 (ODC1) were used for validation of patient data findings.

**Results/Findings:** Multiple gene-set enrichment analyses reveal patient tumors with STK11 loss upregulate genes involved in amino acid catabolism and the urea cycle, and downregulate immune markers associated with immune infiltration and chemokine response. ODC1, a known immunosuppressant, is elevated in STK11 deficient tumors and is the rate-limiting enzyme for polyamine production. Additionally, monoamine oxidase A (MAOA) is responsible for the production of gamma-aminobutyric acid (GABA) and is also elevated in STK11 deficient tumors. Untargeted LC-MS revealed data supporting the influence of both elevated ODC1 and MAOA expression
in that tumors with STK11 loss have increased production of the polyamine putrescine, GABA, and pyridoxal (vitamin B6) with subsequent decreases in ornithine, arginine, and histamine. Further, in vitro overexpression of STK11 in STK11-deficient A549 cells diminishes the expression of MAOA, supporting an STK11 dependent regulation. ODC1 overexpression in these cell lines lead to an increase in MAOA expression as predicted. Inhibition of ODC1 in STK11-deficient A549 cells resulted in an upregulation of PD-L1 mRNA and protein, suggesting a potential therapeutic window for anti-PD-L1 therapy in and otherwise unresponsive cohort. Conclusions/Implications: These data suggest a non-canonical and neuroendocrine-like utilization of putrescine for GABA production in STK11 loss LUADs with downstream effects on immune surveillance. We hypothesize that this metabolic pathway plays a role in the immune cold nature of these tumors and predict that inhibition of these pathways could serve as STK11-targeted therapeutic approaches.

Learning Objectives
- Discuss the relevance and importance of identifying STK11 alterations in lung adenocarcinoma patients
- Compare and contrast patient expression data to that of A549 cells (an STK11 mutant cell line)

MIS-terious Presentation of Multi-Organ Failure
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Presenting Author: Maritza T Harper, MD, Internal Medicine-Pediatrics PGY-4, Department of Medicine, Department of Pediatrics, ChristianaCare, Newark, Delaware

Introduction
Multi-system Inflammatory Syndrome in Children (MIS-C) is a post-inflammatory syndrome related to SARS-CoV-2 (COVID-19) infection that has been well documented. It refers to patients under 21 years who present with fever and laboratory evidence of inflammation who develop clinically severe illness requiring hospitalization, with involvement of two or more organ systems and with laboratory results positive for current or recent SARS-CoV-2 infection. As more is learned about COVID-19 infection, a similar syndrome has been identified in adults.

Case Presentation
A 32-year-old Hispanic male presented with fever and shortness of breath for 4 days. Prior to admission, COVID-19 PCR testing was negative twice. On initial evaluation, he was febrile to 39.7°C, hypoxic to 70% on room air, improved with supplemental oxygen via nasal cannula, and was tachypneic to 50 breaths per minute. A CT of the chest was negative for pulmonary embolus, but demonstrated right hilar opacities in upper and lower lobes. He was admitted for pneumonia and was treated with antibiotics. Within 24 hours, the patient developed shock and multisystem organ failure (renal, liver and biventricular heart failure with 20% ejection fraction) and was transferred to the intensive care unit. Laboratory findings were notable for LDH of 10,354, CRP of 428, ferritin of 23,778, fibrinogen of 958, d-dimer of 3154, respiratory viral panel and EBV and CMV titers were negative. He was evaluated by numerous specialists including Infectious Disease, Pulmonary, Cardiology, Heart Failure, Nephrology and Hematology and after lengthy discussions, the unifying diagnosis was myocarditis causing cardiogenic shock. On hospital day 5, the patient developed right foot pain with skin discoloration, and was found to have a right peripheral external iliac and common femoral vein deep vein thrombosis. Given this finding, in addition to his multiorgan failure and marked elevation of inflammatory markers, consideration for COVID-19 infection was the cause of his condition. SARS-CoV-2 IgG testing was positive.

Discussion
As more is learned about COVID-19, cases suggest that adult patients with current or previous SARS-CoV-2 infection can develop a hyperinflammatory syndrome resembling MIS-C. The pathophysiology of MIS in both...
children and adults is currently unknown. As of October 2020, MIS-A is diagnosed when the following five criteria are met: 1) a severe illness requiring hospitalization in a person aged ≥21 years; 2) a positive test result for current or previous SARS-CoV-2 infection during admission or in the previous 12 weeks; 3) severe dysfunction of one or more extrapulmonary organ systems; 4) laboratory evidence of severe inflammation (e.g., elevated CRP, ferritin, D-dimer, or interleukin-6); and 5) absence of severe respiratory illness. In pediatric patients, MIS-C has been treated similarly to Kawasaki’s disease with IVIG, and cardiovascular support with vasoactive agents and ECMO for refractory shock. Glucocorticoids are recommended in the setting of severe shock and rising inflammatory markers. As it seems that this post-inflammatory syndrome is present in children and adults, it is important that multidisciplinary care be considered to ensure optimal treatment. Further research is needed to understand the pathogenesis and long-term effects of this newly described condition.

References

Learning Objectives
Upon completion of this lecture, learners should be better prepared to:
Consider Multi-system Inflammatory Syndrome in Adults (MIS-A) related to previous COVID-19 infection in their differential for multi-organ failure

The Grass is Gangrene-r on the Other Side: Shewanella Bacteremia Rooted in the Subtropical Soil
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Coauthors: Michael Pietrangelo, DO, PGY-2, Department of Internal Medicine, New Hanover Regional Medical Center, Wilmington, NC, Swapnil Patel, MS-3, Virginia College of Osteopathic Medicine - Carolinas, Spartanburg, SC

Introduction: Shewanella putrefaciens is a bacterium notorious for producing the well-known putrid smell from rotting fish. Typically thriving in marine environments and contaminated foods, it can also be found in coastal soils, and more recently has emerged as a potential source of nosocomial pneumonia given its ability to create biofilms. Shewanella is rarely pathogenic in humans, with less than 300 cases ever reported, with the majority of them being in tropical environments, and only a fraction being isolated in blood specimens. This case highlights the importance of proper diabetic foot care and an instance of a rare pathogen unique to living in a subtropical region.

Case: A 62-year-old Caucasian male with history of type 2 diabetes (A1c 7.0%), hypertension, and morbid obesity (BMI 51) presented after being found down at home by a friend who had last seen him 3 days ago. Patient stated he generally had not felt well for the past several days. Initial vitals were 99/65mmHg, 163bpm, 98.1F, respiratory
rate 12, pulse oximetry 96% on room air. Exam revealed necrotic wounds to bilateral feet consistent with dry gangrene as well as nonpurulent cellulitis of the pannus and scrotum. Labwork was notable for leukocytosis of 26.8K/μL with 16% bands, lactate 7.0mmol/L, and creatinine 3.02mg/dL. The patient was admitted to the intensive care unit with severe sepsis, borderline septic shock, and provided aggressive fluid resuscitation and broad-spectrum antibiotics. Clinically, the soft tissue infections were consistent with streptococcus, however blood cultures grew gram negative rods in 2/2 sets, raising concern for prevotella. Speciation revealed shewanella putrefaciens, resistant to imipenem and aztreonam. Patient denied recent saltwater exposure or seafood consumption, however stated he rarely wears shoes and frequently walks outdoors barefoot.

Diagnosis: Shewanella putrefaciens bacteremia secondary to contaminated soil exposure of bilateral feet dry gangrene.

Management: Antibiotic coverage was narrowed to cefepime per sensitivities (14-day course) and surgical debridement of gangrenous toes performed. Repeat blood cultures were negative at 5 days. The patient’s hospital course was complicated by development of gastrointestinal bleed and acute systolic heart failure requiring a 55-day hospitalization, and was ultimately discharged home with self-care.

Learning Objectives
- Know more about emergingly relevant human pathogens, how to recognize them clinically, and how to appropriately treat them.
- Identify preventive measures included in proper diabetic foot care and identify potential advanced complications.

Perceived Preparedness Regarding COVID-19 among Healthcare Workers in Correctional Settings
Category: Public Health & Environmental Medicine, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Author: William Boles, BS, Medical Student (L2), LSUHSC, New Orleans, LA

Authors: Lauren Nguyen, BS, Medical Student M2, Department of Medicine, Department of Global Health and Community Sciences, Tulane University, New Orleans, Louisiana; William Boles, BS, Medical Student (L2), LSUHSC, New Orleans, LA

Background:
Healthcare workers (HCWs) in correctional settings play a particularly important and challenging role in addressing the COVID-19 pandemic: U.S. jail and prison populations are especially vulnerable to the effects of COVID-19; there are significant obstacles to infection prevention and control in correctional settings; and correctional facilities in the U.S. have already become home to the country’s largest outbreaks. However, capturing an accurate picture of this population can be difficult due to a lack of uniformity in how correctional HCWs are hired. Facilities may hire their HCWs through their state’s Department of Corrections; through a private contract firm; or use a mixed model to serve their incarcerated populations. Furthermore, any individual correctional HCW may regularly work at one facility, or work at a variety of facilities. Now, in the context of the COVID-19 pandemic, evaluating different areas of perceived preparedness such as knowledge, attitudes, expectations, and access among correctional HCWs is critical as it will not only speak to the psychological wellbeing of our correctional healthcare workforce, but also reflects practice through social cognitive theory.
Methods:
The one-time, self-administered survey through Qualtrics collected data utilizing an abbreviated and modified version of the World Health Organization’s (WHO) Perceptions of Healthcare Workers regarding local infection prevention and control procedures for COVID-19 survey. It also collected basic non-identifiable demographic data (i.e., age, state, etc.) and information on the facility type, operating entity, and security level of the correctional facility. Survey questionnaires were distributed through paid e-newsletter advertisements and social media posts with the National Commission of Correctional Healthcare (NCCHC) in September and October 2020 to people who provided direct patient care since January 2020 for at least one month in a prison, jail, detention center, or juvenile detention center. In total, n=932 responses were collected from healthcare workers throughout the nation who work in correctional settings. Chi-square tests and ordinal logistic regression were used in analysis to determine associations between facility type and perceived preparedness variables.

Results: Preliminary results indicate that correctional healthcare workers with the lowest levels of perceived preparedness for COVID-19 were significantly more likely to have worked in a jail than other correctional settings. Further analysis is in progress.

Conclusions/Implications: The implications of this study will point out which areas of perceived preparedness, such as knowledge, attitudes, and environmental resources, may be weakest among correctional HCWs. It may also demonstrate that some correctional facility type’s HCWs feel significantly less prepared than others for COVID-19.

Learning Objectives
1) To name at least 3 ways in which HCWs who work in jails felt worse-prepared for handling COVID-19 compared to other correctional facilities.
2) To name at least 2 ways in which HCWs who work in juvenile detention centers felt better-prepared than other facility types to handle COVID-19.
3) To identify how many weeks after their facility had its first COVID-19 patient most correctional HCWs reported that it took until adequate protocols were in place for COVID-19 patient care and adequate PPE was available to them.

Business Resilience and Community Education (BRACE) for COVID-19: Helping Businesses Adopt Safer Practices During a Global Pandemic

Category: Public Health & Environmental Medicine, Oral Presentation

Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background: New Orleans, Louisiana is no stranger to disaster, yet nothing prepared this city for the impact of the COVID-19 pandemic, which hit the community as swiftly and forcefully as a category 5 storm. In April 2020, businesses lacked trusted sources of information and direction on how to proceed in this unfamiliar and ever-changing landscape. Business Resilience and Community Education (BRACE) for COVID-19 was founded to prioritize the needs of the small business community to help them process the flood of information and misinformation disseminated throughout the COVID-19 pandemic. BRACE aimed to empower small businesses to implement safer business practices to protect employees, customers, and the New Orleans community. Design: The project progressed through 7 distinct phases: (1) Needs assessment within the New Orleans business community; (2) Creation of a business reopening guide; (3) Expansion of community partnerships; (4) In-person business canvassing; (5) In-person and virtual business consultation services; (6) Creation of BRACE pledge; (7) Continued COVID-19 education with a focus on vaccine information and access. Results/Impact: In our Phase 1 assessment, over 68% of respondents indicated that no organization had yet provided guidance on how to navigate the new restrictions. While over 84% of respondents noted that they had policies for employee use of personal protective equipment and hand sanitizer and indicated extra cleaning of high touch surfaces, only 50% provided hand sanitizer for customers and 40% were actively screening employees for illness. Almost 44% of respondents did not yet have a protocol in place for determining when an employee could return to work after illness. We have conducted 30 in-person and 20 virtual consultations to date, and 42 businesses have taken the BRACE pledge. The program has been endorsed by city and state health department officials for local business guidance. Conclusion: BRACE has worked directly with over 40 businesses and become a trusted resource to educate and empower businesses. Our consultations and BRACE pledge provide a malleable model to increase awareness, education, and safer COVID-19 practices across the entire business sector and can be expanded to reach communities across the state, nation, and around the globe.

Learning Objectives
By the end of this presentation, the audience will be able to implement a formulaic model to help small businesses in their community adapt to the COVID-19 pandemic.

Learning Objective 1
The audience will be able to better identify the needs of their community’s small businesses and subsequently apply meaningful protocols for change.

Learning Objective 2
Medical students especially will be able to implement new strategies to help their community’s small businesses during the COVID-19 pandemic.

Learning Objective 3:
The audience will examine methods to engage with their community as healthcare leaders.
Figure 1: BRACE for COVID-19 Reopening Guide (front)

Figure 2: BRACE for COVID-19 Reopening Guide (back)
**Characterize endogenous expression patterns of Ghrelin Receptor in the brain of reporter mouse line**

Category: Medicine & Medical Specialties, Oral Presentation  
Disclosure: The authors did not report any financial relationships or conflicts of interest  

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Abstract
Ghrelin, acting through its receptor growth hormone secretagogue receptor (GHS-R), is an important energy sensor and metabolic regulator. However, the regulatory mechanisms of ghrelin signaling are largely unknown due to limited knowledge in sites of expression of GHS-R. Due to the absence of a specific antibody for GHS-R, the study of GHS-R expression has been limited to RNA level by in situ and transgenic reporter. In this research, GHS-R expression is investigated using GFP-Ghsr reporter mice, where GFP reporter is integrated into endogenous Ghsr gene; thus, GFP expression precisely correlates with endogenous GHS-R expression. Immunohistochemistry and immunofluorescence staining of GFP-Ghsr reporter mouse brain was used to identify expression sites of GHS-R. Images were obtained using light microscopy and confocal microscopy, and detailed image analysis was performed. These approaches enabled us to map the precise expression patterns of endogenous GHS-R, which can helped shed more light on the sites of action of ghrelin. Understanding the expression pattern of GHS-R can help researchers further expand their research on the role of ghrelin and possible future receptor targeted drug therapy in obesity and insulin resistance

Learning Objectives  
1) Examine the location of Growth Hormone Secretagogue Receptor (GHSR) or ghrelin receptor in various parts of the brain?  
2) Discuss the use of immunohistochemistry and confocal microscopy in identifying ghrelin receptor on mouse brain?  
3) Discuss the use of these obtained images for further future studies?

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**Endothelial glycocalyx damage is induced by elevated plasma succinate**

Category: Surgery & Surgical Specialties, Poster Presentation  
Disclosure: The authors did not report any financial relationships or conflicts of interest

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Background
Hypoxia-inducing events such as hemorrhagic shock have been shown to cause sloughing of a carbohydrate-protein matrix found on the luminal surface of endothelial cells. Shedding of this luminal coating, called the glycocalyx, has become a known hallmark for coagulopathies in trauma. Plasma succinate levels have also been shown to be elevated in critically ill and trauma patients. Furthermore, succinate buildup has been implicated in a variety of ischemia-reperfusion injuries, through eliciting an increase in mitochondrial reactive oxygen species. Our lab has previously reported that glycocalyx shedding in a cell culture model of hypoxia-reoxygenation is dependent on mitochondrial reactive oxygen species.

Methods
This study attempts to further elucidate the relationship between glycocalyx shedding and coagulopathy in trauma by exploring a possible causative mechanism between succinate buildup and glycocalyx damage. We hypothesized that succinate administration alone could cause glycocalyx degradation in otherwise healthy rats. We injected 1000 mg of succinate in 1.5 ml of lactated Ringer’s solution through the external jugular vein. Control animals were injected with lactated Ringer’s alone. After 60 minutes, intestinal tissues were harvested and the rats euthanized. Tissue was flash frozen and sectioned, followed by methanol fixation. Glycocalyx damage was measured via fluorescent-labelled wheat germ agglutinin.

Results
Glycocalyx damage was found to be significantly elevated in the intestinal vasculature of rats exposed to plasma succinate.

Conclusions
We conclude that succinate buildup alone is sufficient to damage the glycocalyx, and thus may be the primary means of glycocalyx damage in trauma patients. Future experiments aim to explore specific mechanisms by which succinate buildup and glycocalyx damage may be causally linked.

Learning Objectives
Describe how the human endothelial glycocalyx is implicated in complications in trauma
Discuss how increased succinate levels can negatively affect glycocalyx structure
Identify how future therapies may improve trauma patient outcomes by inhibiting glycocalyx degradation

Safety and Effectiveness of Grafts to Increase Nasal Tip Projection: Comparing Columellar Strut Graft versus Septal Extension Graft

Category: Surgery & Surgical Specialties, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Coauthors: Magnus Chun, BS, Medical Student MS2, Department of Plastic Surgery, Tulane University School of Medicine, New Orleans, LA, Stephen Metzinger, MD, MD, FACS, Department of Plastic Surgery, Tulane University School of Medicine, New Orleans, LA

Background/Knowledge Gap: In surgical rhinoplasty, there are three key parameters that plastic surgeons must take into account: nasal tip projection, length, and rotation. In many congenital or post-traumatic deformity cases,
increasing nasal tip projection is essential for both nasal functioning and visual aesthetics. Two common grafts used to increase nasal tip projection are columellar strut graft and septal extension graft. There is a lack of high-level evidence found on determining which grafts are safe and effective at increasing nasal tip projection. The purpose of this study is to review and evaluate the safety and effectiveness of two commonly used grafts, columellar strut graft and septal extension graft.

Methods/Design: A review of PubMed, Embase, and Web of Science was performed according to Preferred Reporting Items for Systematic Review and Meta-Analyses guidelines. All English-language studies presenting findings on increasing nasal tip projection in surgical rhinoplasty published between 2000 to 2020 were included. We excluded any interventions that did not use columellar strut graft or septal extension graft, literature reviews/letters/commentaries, and non-human or cadaver studies. A total of 1919 patients enrolled in 33 studies were included in our review.

Results/Findings: Thirty-three qualified studies were included, with a total of 1919 patients of which 1336 patients received columellar strut graft and 583 received septal extension graft for increasing nasal tip projection. We found that 150 patients suffered post-operative complications (Table 1). Eighty-eight patients suffered complications after receiving columellar strut graft [88 of 1336 (6.6%)] of which 84 patients suffered simple contour irregularity [84 of 1336 (6.3%)]. Sixty-two patients suffered complications after receiving septal extension graft [62 of 583 (10.6%)] of which 19 patients suffered tip or nostril asymmetry [19 of 583 (3.3%)] and 14 patients suffered columella stiffness or excessive showing of the columella [14 of 583 (2.4%)]. We also found that with increasing nasal tip projection, 95.5% of patients were highly satisfied or satisfied with the results after using columellar strut graft and 95.2% of patients were highly satisfied or satisfied after using septal extension graft.

Conclusion/Implications: Columellar strut graft and septal extension grafts are safe and effective grafts for increasing nasal tip projection. Columellar strut graft for nasal tip projection may be safer and slightly more effective than septal extension grafts. However, further prospective studies should be conducted to explore the differences and underlying mechanisms in patient satisfaction and safety for increasing/maintaining nasal tip projection in surgical rhinoplasty.

Learning Objectives
Upon completion of this lecture, learners should be better prepared to compare the prevalence of postoperative complications between patients receiving columellar strut grafts and septal extension grafts.

Table 1. Postoperative Complications in Both Groups

<table>
<thead>
<tr>
<th></th>
<th>Columellar Strut Graft, n (%)</th>
<th>Septal Extension Graft, n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Patients</td>
<td>1336</td>
<td>583</td>
</tr>
<tr>
<td>Complication(^a)</td>
<td>88 (6.6%)</td>
<td>62 (10.6%)</td>
</tr>
<tr>
<td>Simple contour irregularity</td>
<td>84 (6.5%)</td>
<td>2 (0.3%)</td>
</tr>
<tr>
<td>Tip or nostril asymmetry(^b)</td>
<td>1 (0.07%)</td>
<td>19 (3.3%)</td>
</tr>
<tr>
<td>Columella stiffness or excessive showing</td>
<td>0 (0.0%)</td>
<td>14 (2.4%)</td>
</tr>
<tr>
<td>Implant buckling</td>
<td>0</td>
<td>9 (1.5%)</td>
</tr>
<tr>
<td>Nasal obstruction(^c)</td>
<td>2 (0.1%)</td>
<td>2 (0.3%)</td>
</tr>
<tr>
<td>Notable transcolumnellar scar</td>
<td>0 (0.0%)</td>
<td>3 (0.5%)</td>
</tr>
<tr>
<td>Infection(^d)</td>
<td>0</td>
<td>3 (0.5%)</td>
</tr>
<tr>
<td>Inadequate nasal tip projection</td>
<td>0 (0.0%)</td>
<td>3 (0.5%)</td>
</tr>
<tr>
<td>High-density polyethylene implant exposure</td>
<td>0 (0.0%)</td>
<td>2 (0.3%)</td>
</tr>
<tr>
<td>Nasal or alar deviation</td>
<td>0</td>
<td>2 (0.3%)</td>
</tr>
<tr>
<td>Retroauricular keloid</td>
<td>1 (0.07%)</td>
<td>0</td>
</tr>
<tr>
<td>Cartilage gauziness</td>
<td>0</td>
<td>1 (0.2%)</td>
</tr>
<tr>
<td>Septal hematoma</td>
<td>0</td>
<td>1 (0.2%)</td>
</tr>
<tr>
<td>Nostril rim retraction</td>
<td>0</td>
<td>1 (0.2%)</td>
</tr>
</tbody>
</table>

\(^a\) Complications include: residual bumps or dorsal irregularities, tip or nostril asymmetry, columella stiffness or excessive showing, implant buckling, nasal obstruction, notable transcolumnellar scar, infection, inadequate nasal tip projection, high-density polyethylene implant exposure, nasal or alar deviation, retroauricular keloid, cartilage gauziness, septal hematoma, nostril rim retraction.

\(^b\) I.E. caused by reposition hunched “I-beam”

\(^c\) I.E. caused by declined columnellis

\(^d\) Infection caused by staphylococcus species
A Case report: Essential Thrombocythemia in Arterial Insufficiency related skin ulcer

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Case Presentation:
74 year old Caucasian male with a past medical history of Essential Thrombocythemia, Hypertension, Peripheral arterial disease and chronic tobacco use disorder presents with a 10x8cm non-healing right lower extremity necrotic ulcer. The ulcer is hyperkeratotic with erythematous borders overlying the Achilles tendon. Nearly 10 months ago, a blister erupted, later ulcerating and forming an enlarging wound. He subsequently underwent bilateral atherectomies by vascular surgery. Patient’s Essential Thrombocythemia was treated by his hematologist with Hydroxyurea 200mg daily, leading to a platelet count of 450,000/ul prior to his procedure. Post-procedure, Hydroxyurea was discontinued to allow for improved wound healing. He was eventually lost to follow up with podiatry, leading to progressive worsening of his wound and further limitations in his daily abilities. His pain became severe, prompting him to visit the Emergency Department. On arrival, his platelet count was markedly elevated at 1,949,000/ul, along with a leukocytosis and normocytic anemia. Diminished peripheral pulses were palpated on physical examination. Patient was initially started on broad spectrum antibiotics and full dose enoxaparin. His wound cultures grew Stenotrophomonas and he was switched to Trimethoprim/Sulfamethoxazole. Lower extremity arterial ultrasound showed monophasic waveforms.

Working diagnosis: Infected Arterial Insufficiency Ulcer

Management:
Vascular surgery along with podiatry were consulted. Lower extremity aortogram with runoff showed significant stenosis of the femoral, popliteal and tibial arteries. Successful revascularization was completed via atherectomy, drug coated balloon therapy and placement of 2 EverFlex stents. Podiatric surgery subsequently performed incision and drainage of the wound followed by placement of an Achilles tendon graft. Patient was transferred to inpatient rehab for further ongoing care and therapy with a platelet count of 1,166,000 on dual anti-platelet therapy, Aspirin and Clopidogrel.

Learning Objectives
Describe the impact of thrombocytosis on peripheral arterial disease.
Examine patients with arterial insufficiency ulcers
Identify risk factors that increase arteriothrombotic events
An Unusual Case of Large, Multifocal Cardiac Rhabdomyomas in Suspected Fetal Tuberous Sclerosis

Category: Women's & Children's Health, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Introduction:
Cardiac rhabdomyomas are the most prevalent form of fetal intracardiac tumors. Such tumors may be detectable by echocardiography at as early as 22 weeks gestation. Cardiac rhabdomyomas often but do not always spontaneously decrease in size postpartum. While many are not hemodynamically significant, some rhabdomyomas may cause arrhythmias, obstruction of flow, or heart failure. Fetal cardiac rhabdomyomas are usually discovered as small, solitary masses and may be the earliest sign of tuberous sclerosis, especially in cases of multifocality. This case report presents a rather rare finding of multiple large intracardiac rhabdomyomas during the prenatal period.

Case presentation:
A patient presenting at 36 weeks gestation was referred for a fetal echocardiogram due to concern for fetal tuberous sclerosis given maternal history. Transabdominal fetal echocardiogram was notable for 2 nodular
masses, one in the interventricular septum and one near the mitral valve apparatus (Figure 1a). Despite the unusually large size of the multiple rhabdomyomas, bilateral ventricular inflow and outflow was unobstructed. An additional 2 masses were also noted near the moderator band (Figure 1b). Cardiac rhythm was notable for repeated premature beats likely classified as premature atrial contractions. Postnatal echocardiography confirmed the prenatal findings but also revealed an additional two masses.

Working Diagnosis:
The multifocal cardiac rhabdomyomas served to confirm the likelihood of fetal tuberous sclerosis.

Follow-up and discussion:
Postnatal echocardiography confirmed the prenatal findings but also revealed an additional two masses. For one, the case illustrates how fetal echocardiography can serve as a cost-effective and non-invasive method of detecting tuberous sclerosis. However, as displayed in this case, prenatal echocardiography may be somewhat limited and can miss even large masses in significant regions. As such, longitudinal postnatal follow-up of cardiac masses and function is essential. Moreover, the case emphasizes the importance of early prenatal echocardiography especially in instances of known maternal tuberous sclerosis. While the ubiquitous multifocality of cardiac tumors in this case was not hemodynamically significant, the early application of fetal echocardiography can allow early detection and treatment in cases where the tumor burden does affect cardiac function. In sum, this report presents an unusual instance of heavily multifocal cardiac rhabdomyomas without hemodynamic effect and highlights the utility and limitation of echocardiography in the prenatal workup of tuberous sclerosis.

Learning Objectives
1) Identify early signs of tuberous sclerosis in utero and associated abnormalities.
2) Identify cost-effective and safe strategies to detect tuberous sclerosis in cases of high suspicion.
3) Identify guidelines and indications for medical treatment in cases of cardiac rhabdomyomas.

Figure 1a) Prenatal echocardiography revealing a cardiac rhabdomyoma near the mitral valve apparatus.
Figure 1b) Postnatal echocardiography revealing multiple cardiac rhabdomyomas, two of which were not visible during prenatal examinations.
Acute appendicitis possibly related to COVID-19 infection.

Introduction:
COVID-19 infection and pandemic restrictions have led to delay in the hospital presentations of acute appendicitis, thereby causing an alarming increase in complicated appendicitis. Although fecalith is a common cause of appendiceal obstruction, lymphoid hyperplasia and infectious processes also lead to lumen obstruction causing appendicitis. Viruses as an etiology of appendicitis in immunocompetent patients is well established with different strains of viruses like adenovirus, cytomegalovirus, Epstein - Barr virus and enterovirus.

Case Presentation:
A 41 years old female patient presented to ER with complaints of 1-week history of diffuse abdominal pain. She was paraplegic after her spine tumor removal and had scoliosis. Her surgical history was significant for cholecystectomy. She denied fever, chills, dyspnea or diarrhea. She was tachycardic on presentation, but vitally stable otherwise. Abdominal examination revealed diffuse tenderness without signs of peritonitis. Her initial laboratory workup showed leukocytosis of 11,800. Electrolytes and liver function tests were normal while lipase was 58. Her SARS-CoV2-RNA PCR test was positive. A contrast CT of the abdomen and pelvis showed an appendix which was distended up-to 12 mm with intraluminal fluid without adjacent inflammatory fat stranding. There were nonspecific fluid containing loops of small bowel and right colon which was consistent with viral illness. She was admitted for management of acute appendicitis.

She was managed with intravenous hydration, ceftriaxone and metronidazole, with which she improved clinically, hence surgical intervention was deferred. She was observed for three days during which time there was complete resolution of symptoms. Patient’s lack of respiratory symptoms led to withholding steroids and remdesivir.

Final Diagnosis:
Acute Appendicitis possibly related to COVID infection.

Follow up and Discussion:
Studies have demonstrated the role of virus in inflammation of peyers patches through uptake of antigens from the gut lumen by extending dendrites into epithelium, thereby producing an immune response. Coronavirus infects the gut, and is uptaken by these lymphoid peyers patches. Hyperplasia of these peyers patches causes obstruction of appendicular lumen and triggers appendicitis.

Learning Objectives
1. Although enteritis with diarrhea has been proven to be the commonest gastrointestinal manifestation of coronavirus infection, instances like this demonstrate appendicitis as a potential complication of COVID-19 infection.
2. While surgical intervention is the gold standard in the management of appendicitis, occasionally clinical improvement with conservative management, calls for a non-surgical management.
Clinical Utility of Serum Cystatin C to Avoid Misinterpreting Kidney Function by Using Serum Creatinine

Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Introduction: While serum creatinine (SCr) remains the most common biomarker used to determine kidney function, it is affected by race, gender, and muscle mass. We present a case of a woman with focal segmental glomerulosclerosis (FSGS) who had acute kidney injury (AKI) of unclear etiology; however, estimated glomerular filtration rate (eGFR) by using serum cystatin C (SCc) showed improved kidney function.

Case Presentation: The patient is a 45-year-old Hispanic woman with nephrotic-range proteinuric stage 2 chronic kidney disease (CKD) secondary to biopsy-proven primary FSGS. She was initially treated with tacrolimus and prednisone 20 mg daily. Lisinopril 20 mg daily was started for antiproteinuric effect. Urinary total protein/urinary creatinine (UPCR) was 9.4 g/g of Cr. She developed non-oliguric AKI with a SCr of 1.1 mg/dL from the baseline of 0.7 – 0.9 mg/dL. FENa and FEurea was 1.08% and 37.95% respectively. A 12-hour tacrolimus trough level had been in the therapeutic range of 1.5 to 4.7 ng/mL. She denied loss of appetite, vomiting, diarrhea, or lower urinary tract symptoms. She did not take over-the-counter medications. Vital signs were unremarkable. Over the past year, SCr has been at 1.2-1.4 mg/dL despite lisinopril dose being decreased. SCc initially increased from 1.57 mg/L to 1.67 mg/L during the period of acute rising of SCr, but trended down to 1.35 mg/L. UPCR has trended down to 0.17 g/g of Cr with a prednisone slowly tapered to 5 mg/day. Serum albumin improved from 2.4 to 4 g/dL, concomitant with improved subjective symptoms. She had no history of volume depletion, nor showed signs of urinary tract obstruction. FENa and FEurea did not clearly suggest prerenal or intrinsic renal causes. She was not exposed to nephrotoxic medications.

Final Diagnosis: Though her rising SCr level met AKI criteria, her clinical picture was not consistent with AKI suggesting that her SCr levels were likely confounded by race, gender, and chronic steroid use.

Outcome: SCc is a new biomarker of kidney function that is not affected by patient characteristics. Our case illustrates how SCc should be incorporated with SCr for interpretation of kidney function, particularly in patients with factors that affect SCr.

Learning Objectives
In assessing kidney function, serum cystatin C is not confounded by patient characteristics such as race, gender, and muscle mass, and should be utilized in conjunction with serum creatinine.
African American/Black communities have been at a disproportionately higher risk of various social, health, and racial disparities. These disparities exist due to factors such as limited access to resources, financial instability, reduced access to care, discrimination due to their race, lack of trust on political leaders, and several other factors. With the current onset of the COVID-19 pandemic many of these disparities have been on the rise and further segregating the African American/Black communities in the health care system. In order to systematically gage and come up with some solutions to bridge the gap between such disparities and prevention plans, a community based organization Colorado Black Health Collaborative wanted to explore the effects of this pandemic on such disparities in the state of Colorado by providing a survey to their directory members as well as other community members. The survey focused on themes including but not limited to general demographics, vulnerability to the COVID-19, impact on testing, vaccine, exposure, social distancing, mental health, physical health, financial impact, employment changes, and public transportation. It had 33 questions; 2 free responses, 1 Likert scale, 28 Multiple choices, and 2 check the boxes. It was in the field from 07/06/2020 – 09/02/2020. A total of 134 responses were analyzed. Some of the key findings include: 78.4% of respondents identified as Black American, 40.9% have pre-existing conditions such as asthma, diabetes, hypertension, and obesity, 88% think that African Americans/Blacks are more impacted by COVID-19 than any other group, 74.6% do not trust the law enforcement on fairly and equally enforcing rules about social distancing and wearing masks. Future steps include but are not limited to identifying assets in the community to help close the gap for concerns that were shown through this survey, creating a phone interview method for people who do not have access to the internet, to utilize the information obtained to inform awareness and educational campaigns and to create a resource hub for the community.
Learning Objectives
Understand the perspective of the Black population regarding the impact of the COVID-19 pandemic on health and wellness, financial well-being, and equitable care, and it's relationship with the social determinants of health.

Appreciate the value of an innovative community-based Resource Hub development initiative aimed at addressing the health disparities from COVID-19 through education outreach and health and wellness resources.

COVID-19-related Pulmonary Fibrosis: novel sequelae of the current pandemic
Category: Medicine & Medical Specialties, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background/Knowledge Gap: In critically ill COVID-19 patients, there is a high prevalence of respiratory failure requiring mechanical ventilation, often complicated by acute respiratory distress syndrome (ARDS). This has led to increasing concern about long-term pulmonary sequelae of COVID-19, most notably pulmonary fibrosis. Several recent studies have described COVID-19 survivors with residual radiographic abnormalities consistent with fibrotic lung disease. Given that survivors who develop persistent pulmonary disease will require long term specialty care, far beyond acute hospitalization, clinicians have a vested interest in building an understanding of COVID-19-related chronic lung disease.

Methods/Design: We conducted a narrative review of the available literature on COVID-19-related pulmonary fibrosis, focusing on risk factors and clinical features of the disorder.

Results/Findings: There are numerous postulated mechanisms for respiratory failure in COVID-19, including viral pneumonia, ARDS, mechanical ventilator-associated trauma, and thromboembolism. There are additionally less well defined but intriguing possible roles for cytokine storm and hyperoxia. Risk factors for COVID-19-related pulmonary fibrosis may include older age, patient presenting with more severe respiratory symptoms, hypertension, length of hospital stay, ICU admission, higher inflammatory markers, and lower lymphocytes. Treatment with corticosteroids may play a role in prevention and management of pulmonary inflammation and fibrosis, along with established evidence-based guidelines for ventilator management.

Conclusions/Implications: The burden of chronic pulmonary sequelae following COVID-19 respiratory failure may overwhelm existing pulmonary clinic capabilities and create a new population of chronic lung disease patients. COVID-19-related pulmonary fibrosis is a heterogeneous process that can present anytime from initial hospitalization to long term follow-up. Defining features of this disorder in a systematic way is necessary in order to identify modifiable risk factors or preventive strategies.

Learning Objectives
1. Describe potential risk factors for COVID-19-related pulmonary fibrosis.
2. Discuss possible contributors to COVID-19-related pulmonary fibrosis.
3. Identify potential strategies to mitigate the risk of COVID-19 related pulmonary fibrosis
A Night of Resilience: Second Annual Mental Health Programming Event for Tulane University School of Medicine

Category: Mental Health, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background: The need to address medical students’ mental health has grown significantly in recent years. At Tulane University School of Medicine (TUSOM), several groups including the Office of Student Affairs, Phoenix Society, Psychiatry Interest Group, and the Mental Health and Wellness Coalition are dedicated to the mental health and well-being of students.

A 2017 study on student-centered approaches to well-being mapped student-identified indicators to their self-care. The study suggested that effective wellness programing should create a culture that supports self-care and addresses maladaptive strategies. Other studies have found that contributors to burnout include the fear of failure, self-doubt, and imposter syndrome. The Night of Resilience was a program created to address the issues of how to survive setbacks and self-doubt while providing a creative outlet for mentors and peers to share stories of resilience.

Following a successful inaugural event, the Night of Resilience returned for a second annual event featuring similar stories and music centered around resilience. This year, the focus was on the definition of resilience and whether this event could accurately depict the colloquial understanding of what medical students believe resilience is.

Methods: A slideshow of faculty and students’ struggles was gathered through a Google Form survey sent to TUSOM student and faculty listservs. Speakers and performers were invited prior to the event. Food was catered with funds provided by TUSOM Office of Student Affairs and Phoenix Society.
A pre-survey was completed at the start of the event that featured a single question: define resilience. A post-survey was emailed to attendees who signed in at the event. Questions ranged from new definitions of resilience to enjoyability of various aspects of the event.

Outcome: Pre-survey: 32 of 57 (56%) attendees completed the pre-survey. 25 (78%) of the respondents reported a theme of overcoming challenges as the definition of resilience. Example responses included phrases such as “the will to get back up”, “bouncing back”, and “the ability to face challenges”.

Post-survey: 15 (26%) attendees completed the post-survey. 12 (80%) of the respondents answered “No” to whether their definition of “resilience” has changed. 100% of respondents identified “Knowing others have struggled to get to where they are” as a theme.

The most well-received component of the event was the keynote speaker, Dr. Elma LeDoux (4.9/5 rating). Dr. LeDoux’s keynote addressed her personal experiences of resilience, including stories of how she became involved in medicine, her struggle to cope with death and hardship, and her ability to overcome such challenges. Her examples were not dissimilar to many medical students who aspire to become strong-willed physicians, and allowed students to connect well with her story.

Using the feedback provided from this event, the TUSOM Mental Health and Wellness Coalition will be working with future Tulane groups to improve future well-being related events.

Learning Objectives
Provide mental health programming to their medical students at respective institutions.
Use pre- and post-surveys to determine if students learned the lessons the event planners were hoping for.

Bench to Bedside Research Proposal: Novel Application of Neurofibromin in treatment of Breast as an Agonist of SERDs
Category: Quality Health Care, Patient Safety & Best Practices, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Authors: Nhu Chau Tiffany Nguyen, BS, Osteopathic Medical Student, Department of Pathology, Arkansas College of Osteopathic Medicine, Fort Smith, AR

Coauthors: Gurjit Nagra, Assistant Professor of Pathology, Arkansas College of Osteopathic Medicine

Research shows that neurofibromin has protective mechanisms to decrease ER hypersensitivity and aid in SERD therapy as an agonist. A decrease in neurofibromin in patients with ER+ breast cancer will initially respond well to selective ER degraders (SERDs). Subsequently, an acquired resistance to SERD therapy may occur in patients that are neurofibromin depleted. Having discovered the role that neurofibromin plays on a molecular level in mouse models, we propose steps toward clinical trials. The first step would be to explore the relevance of this finding in clinical settings. To do that, we will do a literature review to gather data from other studies on related research with findings that support our conclusion. We will also explore possible collaborations with pharmaceutical companies and Breast Cancer centers on a national and international level. With the collaborations, we will have better estimates about the cost of this study and hence, will write grant NIH proposal for funding. The final step is to carry out the clinical trials in all the centers in four phases. We will begin in phase 1 with a small sample size of healthy adult volunteers for safety purposes. Phase 2 will have an increased number of volunteers or patients to assess for efficacy and adverse effects. Phase 3 will have a larger number of patients that are randomly assigned.
for treatment or a placebo to compare the new treatment to the current standard of care. The final phase will be to observe the patients after the treatment has been approved to monitor adverse effects that may result long-term. We hope to have this novel therapeutic approved by the FDA in order to help the ER+ breast cancer patient population in the near future.

Learning Objectives
To learn about:

- One of the most recent therapeutic research in breast cancer pathophysiology
- New adjunct therapy to the standard of care for ER+ breast cancer
- Propose bench to bedside translation of this particular potential therapeutic agent

Virtual Implementation of Wellness Initiatives for Medical Students during the COVID-19 Pandemic
Category: Mental Health, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Author: Christine M. Nunez, BA, Virtual Implementation of Wellness Initiatives for Medical Students during the COVID-19 Pandemic, Office of Student Services, University of Miami Miller School of Medicine, University of Miami Miller School of Medicine, Miami, FL

Coauthors: Rikera Taylor, Office of Student Services, University of Miami Miller School of Medicine, Miami, FL, Cristina Garcia, MBA, Office of Student Services, University of Miami Miller School of Medicine, Miami, FL, Christina Barkas, Office of Student Services, University of Miami Miller School of Medicine, Miami, FL, Natalie Hickerson, Office of Student Services, University of Miami Miller School of Medicine, Miami, FL, Hilit F. Mechaber, MD, Office of Student Services, University of Miami Miller School of Medicine, Miami, FL

Introduction:
The Wellness Advisory Council (WAC) is a student-led organization created at the University of Miami Miller School of Medicine to support medical student well-being. A chairperson leads each of the five domains of wellness (Academic & Professional Development, Interpersonal, Community & Service, Mind, and Body) identified in our school community, and student leaders collaborate with other organizations and the administration to implement supportive programs.

Medical students show higher rates of depression, suicidal ideation, and stigmatization and are less likely to seek support when compared to their non-medical peers. [1] The COVID-19 pandemic posed significant challenges to students’ physical and mental health. Technology has been integral in overcoming challenges of implementing wellness programming. [1] Nationally, educators recognized the essential need for strategies to support students’ physical and mental health remotely and safely. [2]

Program Description:
To address the difficulties maintaining student engagement, the WAC created a novel series of virtual activities to promote student wellness during the pandemic. These included school-wide fitness challenges, scavenger hunts, and weekly workshops. Multiple social media platforms and word of mouth were employed to promote, market, and engage with participants weekly, communicating updates on challenges, and to promote group camaraderie. Student organizations also hosted hour-long zoom workshops called “Virtual Wellness Wednesdays.” Creative efforts included welcoming pets to events online, offering raffle prizes, and Instagram student takeovers to
promote interest. Phone apps were used to track miles and steps, and overall participation. Hosts selected activities suitable for at-home participation with little need for additional materials. In total, 185 students/faculty participated in outdoor challenges yielding a total of 8,785,843 steps!

Outcome/Significance:
COVID-19 limitations drove innovation, resulting in successful implementation of virtual initiatives. Despite “zoom fatigue,” the team witnessed an increase in participation in weekly events, monthly challenges, exceeding pre-pandemic engagement. The busy student schedule historically challenged live attendance. The success of these virtual wellness initiatives has confirmed WAC’s decision to incorporate virtual offerings in ongoing and future programming. WAC’s implementation of virtual wellness activities and effective maintenance of engagement during the pandemic can serve as a model for maintaining student wellness during future challenging times.

References:

Learning Objectives
● Identify alternative methods to deliver virtual wellness programming that maintains maintain medical student well-being during a time of increased isolation, anxiety, and depression.
● Identifying and promoting aspects of wellness that are not often discussed in the context of medical education (ex. sexual well-being, performing arts, skin care).
● Increase medical student engagement and participation in virtual activities.

Race Association with Delayed Recognition of Tuberous Sclerosis Complex: A Retrospective Study
Category: Quality Health Care, Patient Safety & Best Practices, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Coauthors: Tanjala T. Gipson, MD, Tuberous Sclerosis Center of Excellence at Le Bonheur Children’s Hospital, Memphis, TN, Sonal Desai, Department of Neurology and Developmental Medicine at the Kennedy Krieger institute, Baltimore, MD, Barenq Aletta Sanny Nonyane, PhD MSc, Department of International Health at the Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, Emily A Thomas, Department of Neurology and Developmental Medicine and Tuberous Sclerosis Center of Excellence at Le Bonheur Children’s Hospital, Memphis, TN, Katherine B Püttgen, Departments of Dermatology & Pediatrics at the Johns Hopkins University School of Medicine, Baltimore, MD, Anna L Grossberg, MD, Departments of Dermatology & Pediatrics, Johns Hopkins University School of Medicine, Baltimore, MD, Bernard Cohen, Departments of Dermatology & Pediatrics, Johns Hopkins University School of Medicine, Baltimore, MD

Background: Tuberous sclerosis complex (TSC) is a genetic disorder that results in the growth of hamartomas in various organs. It is caused by an autosomal dominant or spontaneous mutation in TSC1 or TSC2 genes. Diagnosis is based on the presence of a specific combination of major and minor features. The objective of this report is to determine if the diagnostic timing of TSC may be impacted by race due to differences in skin lesion appearance.
Methods: We conducted a retrospective chart review of patients with TSC evaluated in our TSC clinic as of 2015. Chi-squared tests for independence between race and age at diagnosis and features identified were conducted. Multivariable logistic regression was used to investigate the effect of race on the timing of diagnosis, adjusting for sex and the number of major features.

Results: Forty-one individuals were included in the analysis. Black patients were more commonly diagnosed at later ages with 50% (9/18) diagnosed before age 1 year, compared with 70% (16/23) of non-Black patients (White/other). Black patients had decreased odds of diagnosis by age 1 year, but this association was not statistically significant (odds ratio [OR], 0.27; P = 0.091). Having ≥5 major features led to significantly higher odds of being diagnosed earlier compared with having one to four features (OR, 0.14; P = 0.02).

Conclusion: Differences in diagnostic timing of TSC between races warrant further study in larger multisite populations, as this study identified a trend toward a later diagnosis in Black patients compared with White patients.

Learning Objectives
Be aware that the dermatologic manifestations of TSC, which are often a key feature in diagnosis, appear differently across the races.

Notice the differences in dermatological features include the presentation of angiofibromas. In Black patients, facial angiofibromas may be confused for seborrheic keratoses or other benign epidermal growths

Recognize these differences within Black patients might delay the timing of diagnosis or lead to a misdiagnosis.
Ungual fibromas (≥2)  
Intraoral fibromas (≥2)  
Shagreen patch  
Retinal achromatic patch  
Multiple retinal hamartomas  
Multiple renal cysts  
Cortical dysplasias*  
Nonrenal hamartomas  
Subependymal nodules  
Subependymal giant cell astrocytoma  
Cardiac rhabdomyoma  
Lymphangioleiomyomatosis†  
Angiomyolipomas (≥2)  

Definite diagnosis: 2 major features or 1 major feature with ≥2 minor features.  
Possible diagnosis: Either 1 major feature or ≥2 minor features.  
*Includes tubers and cerebral White matter radial migration lines.  
†A combination of 2 major clinical features (lymphangioleiomyomatosis and angiomyolipomas) without other features does not meet the criteria for a definitive diagnosis.

Table 2. Patient demographics and characteristics.

<table>
<thead>
<tr>
<th>Demographic/characteristic</th>
<th>N = 52</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at data capture, median (interquartile range), years</td>
<td>14 (6.5–30)</td>
</tr>
<tr>
<td>Sex, n (%)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>22 (42)</td>
</tr>
<tr>
<td>Male</td>
<td>30 (58)</td>
</tr>
<tr>
<td>Race, n (%)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>21 (40)</td>
</tr>
<tr>
<td>White</td>
<td>6 (26)</td>
</tr>
<tr>
<td>Other</td>
<td>1 (4)</td>
</tr>
</tbody>
</table>

An exact test for independence between age at diagnosis and race gave P = 0.22 when the unknowns were excluded.

*In patients whose age at diagnosis was known.

Table 3. Distribution of age at diagnosis* by race.

<table>
<thead>
<tr>
<th>Age at diagnosis*</th>
<th>Black, n (%)</th>
<th>White/other, n (%)</th>
<th>Total, n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤1 year</td>
<td>9 (50)</td>
<td>16 (70)</td>
<td>25 (61)</td>
</tr>
<tr>
<td>1–17 years</td>
<td>5 (28)</td>
<td>6 (26)</td>
<td>11 (27)</td>
</tr>
<tr>
<td>≥18 years</td>
<td>4 (22)</td>
<td>1 (4)</td>
<td>5 (12)</td>
</tr>
<tr>
<td>Total</td>
<td>18 (100)</td>
<td>23 (100)</td>
<td>41 (100)</td>
</tr>
</tbody>
</table>

An exact test for independence between age at diagnosis and race gave P = 0.22 when the unknowns were excluded.

Table 4. Distribution of number of major features by race.

<table>
<thead>
<tr>
<th>Number of major features</th>
<th>Black, n (%)</th>
<th>White/other, n (%)</th>
<th>Total, n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–4</td>
<td>11 (52)</td>
<td>16 (52)</td>
<td>27 (52)</td>
</tr>
<tr>
<td>5–8</td>
<td>10 (48)</td>
<td>15 (48)</td>
<td>25 (48)</td>
</tr>
<tr>
<td>Total</td>
<td>21 (100)</td>
<td>31 (100)</td>
<td>52 (100)</td>
</tr>
</tbody>
</table>

Chi-squared test for independence gave a P value of 0.957.

Table 5. Logistic regression model for being diagnosed before age 1 year versus later (N = 41 with complete case data).

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Odds ratio</th>
<th>P value</th>
<th>95% confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Lower bound</td>
</tr>
<tr>
<td>Sex (female as reference)</td>
<td>2.63</td>
<td>0.23</td>
<td>0.55</td>
</tr>
<tr>
<td>Race (Black as reference)</td>
<td>0.27</td>
<td>0.09</td>
<td>0.06</td>
</tr>
<tr>
<td>Number of major features (1–4 as reference)</td>
<td>0.14</td>
<td>0.02</td>
<td>0.03</td>
</tr>
</tbody>
</table>

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Portal Vein Thrombosis: A Complication of Umbilical Artery Catheterization as an Infant
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Ryan Kirk, DO, Family Medicine Resident PGY3, Department of Family Medicine, UTRGV, Edinburg, TX

Introduction:
This case represents a rare yet important adverse outcome to umbilical artery catheterization in a newborn. This case demonstrates the lifelong effects that can be had after this procedure and provides caution to those performing the procedure.

Case Presentation:
This patient is a 23 year old female with past history of premature birth at 27 weeks gestation, portal vein thrombosis and portal hypertension presented to hospital for acute large-volume hematemesis. Patient has experienced this three times previously and had EGD banding done two years ago. Patient's physical exam was remarkable for spleen palpable at mid abdomen. No hepatomegaly appreciated on exam. Labs significant for Hemoglobin of 6.5 and Hematocrit of 20. Patient states she is not sure why she developed portal vein thrombosis and denies any other history of blood clots. Denies history of alcohol use.

Final/Working Diagnosis:
Differential diagnosis consisted of esophageal varies vs Boerhaave Syndrome vs Mallory Weiss Tear vs Gastric Ulcer
Differential for cause of her portal vein thrombosis consist of hyper coagulable state (such as prothrombotic condition, malignancy, etc), liver cirrhosis or local infection/inflammation to the portal vein area.

Management/Outcome/Follow up:
Patient found to have negative work-up for any hyper coagulable condition and had two liver biopsies that were negative for cirrhosis. As no other source of thrombosis was identified, umbilical vein catheterization as a newborn was determined to be the most likely source for portal vein thrombosis in this patient. Patient during this admission, after initial resuscitation, had EGD with banding and left hospital in stable condition. Patient subsequently had splenorenal shunt placement and will potentially get splenectomy in the future.

Learning Objectives
identify the etiology of portal vein thrombosis and/or portal hypertension in patients with a history of umbilical vein catheterization.

Posterior Reversible Encephalopathy Syndrome (PRES): A new pediatric SARS-CoV-2 Multisystem Inflammatory Syndrome in Children (MIS-C) Complication?
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Ashley Hacker, DO, Pediatrics Resident PGY1, Pediatrics, University of Oklahoma, Oklahoma City, OK
Coauthors: Eric Friedrich, Pediatric Emergency Medicine Fellow PGY5, University of Oklahoma, Oklahoma City, OK, Yash Nathani MD, Assistant Professor of Pediatric Emergency Medicine, University of Oklahoma, Oklahoma City, OK

Posterior reversible encephalopathy syndrome (PRES) has symptoms of headache, altered mental status, visual changes, and seizures with radiographic evidence of edema in the posterior cerebral hemispheres that is typically benign with complete symptomatic resolution in days-weeks. The etiology is thought to be a combination of endothelial dysfunction and hypertension caused by autoregulatory failure. PRES has been documented to occur in patients with hypertension, renal disease and immunosuppression. Recently several case studies have shown association with COVID-19 in adults. This case demonstrates a previously undescribed association between PRES and a child with SARS-CoV-2 Multisystem Inflammatory Syndrome in Children (MIS-C).

A previously healthy 12-year-old female, who was diagnosed and treated for mild-moderate MIS-C five days prior, re-presented with worsening headache and weakness. In the emergency department she had two generalized tonic-clonic seizures lasting approximately 90 seconds. She did not return to baseline after second seizure and was noted to have elevated blood pressure readings. She was admitted to the Pediatric Intensive Care Unit where she remained hypertensive with blood pressures as high as 165/110 (>99th percentile for age, gender and height). MRI of the brain showed multifocal areas of abnormalities in the cerebral and cerebellar hemispheres consistent with PRES. She had continued seizure activity and alteration in her level of consciousness requiring intubation, and blood pressure control with nicardipine. Over the next five days, as the blood pressure stabilized, patient’s seizure activity abated, and she returned to neurologic baseline.

The correlation between COVID-19 and MIS-C has been well demonstrated and is thought to be caused by immune dysregulation. Neurologic symptoms such as altered mental status, cerebellar abnormalities, and seizures have been documented in children with MIS-C. One study shows SARS-CoV-2 attaches to angiotensin-converting-enzyme 2 (ACE2) receptors that are present on neurons and glial cells which can potentially lead to cerebral edema. Studies showing PRES in adult patients with COVID-19 hypothesize that SARS-CoV-2 attachment to ACE2 receptors in the brain may cause endothelial dysfunction leading to PRES. It is unclear if SARS-CoV-2 MIS-C directly caused PRES in our patient, though the correlation should be further examined and pediatric providers should be aware of this association.

Learning Objectives
Upon the completion of this lecture, learners should be better prepared to identify a potential new life-threatening sequela of Covid-19 infection in a pediatric patient.

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Losartan reverses age-related but not chronic inflammation-related changes in cardiac calmodulin-kinase II

Category: Medicine & Medical Specialties, Poster Presentation

Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Ninoshka Mendonca, BS, Tulane University Medical Student, Tulane University Medical Student, Tulane University, New Orleans, LA

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Chronic elevation of inflammatory mediators is common in frail older adults and predicts a host of adverse cardiovascular outcomes, including heart failure and sudden death. To date, few specific molecular mechanisms have been identified that connect chronic inflammation to age-related cardiomyopathies. Dysregulation in Ca2+ and calmodulin-dependent protein kinase II (CaMKII) signaling has been implicated in promoting inflammatory responses in cardiomyopathies but is understudied in the context of aging. We compared myocardial CaMKII signaling in young (32 weeks) and old (104 weeks) wild type (WT) and interleukin 10 null mice (IL-10tm/tm), a model of chronic inflammation and frailty. Aged cohorts were treated with 0.6 mg of losartan. Hearts from mouse cohorts were assayed for total and autophosphorylated CaMKII (P-CaMKII) and the phosphorylation status of phospholamban (PLN) (downstream signaling pathway) using western blot techniques. We observed significant increases in total and activated, autophosphorylated, CaMKII (P-CaMKII) (2.4 ± 0.38 vs 1.2 ± 0.12 p< 0.02; 9.0 ± 1.9 vs 0.03 ± 0.01 p< 0.002), but decreases in the phosphorylation of PLN (0.6 ±0.3 vs 1.7 ± 0.3 p<0.03) at a validated CaMKII target site (T17) in old compared to young WT hearts. Similarly, we found increased P-CaMKII (6.9 ± 1.5 vs 0.7 ± 0.4 p< 0.004) and diminished PLN T17 phosphorylation (0.8 ± 0.2 vs 1.5 ± 0.2 p<0.02) in old compared to young IL-10tm/tm mice. Old IL-10tm/tm mouse hearts had less total CaMKII compared to old WT mouse hearts (1.1 ± 0.3 vs 2.9 ±0.2 p< 0.002). Four weeks treatment of old WT mice with Losartan was associated with reversal of observed age-related changes in the CaMKII signaling pathway. We observed decreases in total CaMKII, P-CaMKII (2.9 ± 0.2 vs.1.5 ± 0.2 p<0.001; 2.2 ± 0.9 vs 0.47 ± 0.1 p <0.03), and an increase in PLN T17 phosphorylation (0.55±0.3 vs 2.23 ± 0.4 p< 0.007). The effects of Losartan on the animals aging with chronic inflammation (old IL-10tm/tm) was less clear. We observed a losartan associated increase in total CaMKII (1.41 ± 0.02 vs 1.3 ± 0.02 p<0.02) but no impact on P-CaMKII or PLN T17 phosphorylation. We interpret our findings to suggest that changes in myocardial CaMKII signaling are a feature of aging that is affected by chronic inflammation.

Learning Objectives
Upon completion of this lecture, learners should be better prepared to
1. describe the concept of frailty
2. examine the effects frailty has on the cardiovascular system, specifically cardiac myocytes
3. identify the potential of a main cardiac pathway and its potential role in age related cardiomyopathy

A Rare Complication of Breast Cancer Treatment: Radiation Induced Sarcoma
Category: Medicine & Medical Specialties, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Author: Natalia Maria Rivera, MD, Medical Intern, Rotatory Internship Program, Hospital Auxilio Mutuo, San Juan, PR

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Introduction: Sarcomas are a rare type of tumor that account for about one percent of all cancer, arises from mesenchymal cells, and are often asymptomatic until they become very large. Post-radiation sarcomas, or radiation induced sarcomas (RIS), are rare complications of radiotherapy that occur within a previously irradiated field over a latency period of 10 to 15 years. RIS has an incidence of 3.2 per 1,000 patients, and accounts for 0.5% to 5.5% of all sarcomas. Despite RIS having a poor prognosis, with a 5-year survival rate of about 40%, surgical resection is the standard treatment to improve patient outcome, if able to obtain an adequate surgical margin.
Case Presentation: A case of a 64 year old female with a history of hypertension, Von Willebrand disease, osteoporosis, and right breast cancer, that comes to the surgeon’s office with a recent diagnosis of Sarcoma. In 2010, she was diagnosed with HER 2 positive, estrogen positive right breast intraductal cancer. Started treatment with neoadjuvant chemotherapy Taxotere (TCH) followed by a lumpectomy. After lumpectomy surgery, the patient was treated with 36 sections of radiotherapy. She completed one year of Herceptin and has been on surveillance with Femara. In 2020, ten years after undergoing radiation therapy, the patient noticed a new hard lump on her right chest, and symptoms of persistent pain in the right hemithorax. Chest CT with IV contrast results shows findings of an extrinsic pleural-based lobulated solid mass with heterogeneous area of contrast enhancement at the upper right hemithorax from apex to the midlung zone, measuring approximately 13.3 cm x 6.7 cm x 14.5 cm. Findings compatible with metastatic disease. There was a prominent mass effect/compression on the right upper lobe at the right internal mammary artery. Additionally, erosive osteocytic changes involving the adjacent anterolateral right 1st to 3rd ribs, concerning intraosseous invasion of tumor. After the case was reviewed by the surgeon, thoracic surgery was scheduled.

Final/Working Diagnosis: Sarcoma of Thoracic Wall

Management/Outcome/Follow-up: If there is no contraindication, the established treatment for RIS is surgical resection that includes wide excision. Previous irradiation to the area impairs anatomic and tumor planes, preventing surgeons from appreciating true tumor margins, therefore the procedure is adapted according to the findings during surgery. The patient underwent a sternotomy with excision of the tumor, biopsies of right upper and lower lobes of the lung, thymectomy, and chemical tumor ablation with alcohol 100%. Findings during surgery include a 2.5 pound huge multilobulated right chest wall tumor invading the right upper and lower lobes of the lung, attached to the pericardium, superior vena cava, and the innominate vein. There was no mediastinal or right lung hilar lymphadenopathy, and the frozen section report shows a highly poorly differentiated sarcoma. Specimens were biopsied for further examination from the chest wall tumor with portions of the right upper and lower lobes of the lung, and the thymus gland. Surgical pathology report reveals epithelioid cell positive for keratin, p53, and TTF-1, and negative for GATA3, which supports a diagnosis of Sarcomatoid Carcinoma most likely from lung. Patient remained admitted in the hospital for 16 days post surgery and was then discharged home to continue monitoring and adjuvant therapy with a hemato-oncologist.

Learning Objectives
1. Describe the clinical presentation of an uncommon consequence years after radiation therapy.
2. Enhance awareness and early detection by clinicians, which is essential to improve outcomes of patients with RIS.
3. Describe management for RIS
A Case of Catatonia - an Under-recognized Malady of Medicine
Category: Mental Health, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Emily Goodwin Hunter, BS, Third Year Medical Student, University of South Alabama College of Medicine, University of South Alabama College of Medicine, Mobile, AL

Coauthors: Sina Parikh, MD, Internal Medicine, USA Health University Hospital Mobile, AL, Tyeler Rayburn, BS, Third Year Medical Student, University of South Alabama College of Medicine Mobile, AL

Introduction:
Catatonia is found to be present in 7.6% - 38% of psychiatric patients presenting to US hospitals. Catatonia is a behavioral syndrome characterized by dyskinesia, most commonly found in the context of underlying organic or psychiatric diseases. The presentation often goes unrecognized and misdiagnosed. Better recognition of catatonia will decrease hospital admission and improve overall patient outcomes. We present a rare case of catatonia in a 51-year-old Caucasian male with acute changes in neurological baseline.

Case Presentation:
A 51-year-old male presented to the ED with his spouse due to lethargy and strange behavior. Per the family, the patient was experiencing psychosocial stressors which had exacerbated his underlying depression. Four days prior, the patient became unresponsive and began having difficulties with ADLs. The wife reported an intermittent tremor present in all extremities.
The patient’s medical history included diabetes, hypertension, depression, anxiety and hyperlipidemia, with no recent changes in medication. One year prior, the patient had a MVC and received pelvic ring fixation. He denied alcohol or tobacco use, but confirmed use of marijuana and alprazolam.
On admission, the patient was unresponsive and staring vacantly. The patient was hypertensive and routine chemistry was found to be WNL. On examination, the patient appeared nutritionally well, in no acute distress but was disheveled and immobile. He had flat affect, upper extremity rigidity, and bilateral eyelid twitching. He was able to follow the command of squeezing fingers. The remaining exam was normal.
Patient evaluation excluded metabolic or infectious etiologies. Head CT was unremarkable. Neurology consult determined the patient’s disposition was unlikely neurological in nature. EKG showed sinus tachycardia, an old infarct, and left atrial enlargement. Psychiatry was consulted and suggested catatonia as the possible etiology.
Patient was given a lorazepam trial.

Final Diagnosis:
Catatonia

Outcome:
After 5 hours of lorazepam, the patient was more alert, oriented, and responsive. The following day, he was effectively communicating, ambulating with assistance, and reported feeling more in control of himself. On day 3 of lorazepam, the patient returned to baseline and was discharged home with his wife to begin treatment of his underlying psychiatric condition.

Learning Objectives
Recognize the gap in identification of catatonia as a medical diagnosis.
Enhance understanding of catatonia, its treatment, and how increased recognition will improve healthcare.
Arkansas College of Osteopathic Medicine Simulated Emergency Response Team: A Student Driven Pilot Program

Category: Bioethics & Medical Education, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Corey Wayne Newman, BS, 2nd year Osteopathic Medical Student, Simulation Department, Arkansas College of Osteopathic Medicine (ARCOM), Fort Smith, Arkansas

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Background: Despite the rigors of pre-clinical medical education, medical students are often ill prepared for what they encounter during clinical rotations. The integration of simulation-based learning into medical curriculums affords students a hands-on opportunity to make the connection between their classroom education and their clinical skills in preparation for clinical rotations. However, it is constrained to the course material being covered and is often omnidirectional in diagnosis and simplistic in treatment. While this method certainly gives the beginning learner an overview of how the most common illnesses may present, it often fails to capture the complex, critically ill patients encountered during Emergency Medicine (EM) rotations.

Goals: This student-driven pilot program was designed to provide a more realistic and robust simulation experience beyond the scope of the standard curriculum for student volunteers interested in Emergency Medicine. Our goal was to investigate if the program could better prepare students for their future EM rotations.

Methods: Students participated in two critical care simulations, and completed a 5-point Likert Scale Survey to assess the perceived benefit of the program before and after each simulation.

Results: Ten student volunteers participated, three first year and seven second year osteopathic medical students from The Arkansas College of Osteopathic Medicine. 100% of participants felt this program would increase awareness of the members of a healthcare team. 80% felt this program would increase their ability to adapt to an unknown clinical scenario. 90% felt it would increase their ability to treat a patient in a clinical setting and increase in their environmental awareness of an Emergency Department. 100% felt the program increased their ability to apply information learned in the school curriculum and 90% felt it would increase retention of learned curriculum. 100% of participants felt a program like this should be added to the curriculum.

Discussion: Our results suggest the majority of participants felt this program would increase their preparedness for EM rotations. Responses also showed that students felt this program would increase their ability to apply and retain information learned within the school curriculum. These results are consistent with the current consensus regarding the use of simulation-based learning to improve clinical performance. Limitations include small sample size due to logistical difficulties with class scheduling and the COVID-19 pandemic; self-report bias should also be considered. Further implementation of this program will need to take closer consideration of scheduling to increase sample size.

Learning Objectives
Compare and contrast patient scenarios students encounter in the simulation-based learning
included in school curriculum versus the complex patient scenarios encountered on emergency medicine clinical rotations.

Describe how the Arkansas College of Osteopathic Medicine Emergency Response Team can help better prepare students for emergency medicine clinical rotations.

Discuss perceived benefit of the Arkansas College of Osteopathic Medicine Emergency Response Team, as reported by participants.

Rethinking Hydrocephalus via Interventional Pathophysiology
Category: Medicine & Medical Specialties, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Hydrocephalus is a condition affecting 3 per 1000 live births. However, despite the advancement in the research arena, its clinical treatment remains primitive primarily dictated by the oversimplified etiological understanding of this condition. Indeed, novel ideas regarding the ventriculomegaly lack cellular and molecular foundation. The goal of this presentation is to explore hydrocephalus treatment via traditional and modern interventional approaches, imposed primarily by etiology. Clinical approaches predominantly involve surgery with the placement of a shunt. Some altered forms of this have been introduced considering the role of choroid plexus producing Cerebrospinal Fluid (CSF). Additionally, pharmacological approaches can be utilized to decrease the amount of fluid buildup in the brain ventricular system. We will focus on highlighting some experimental models that have been utilized i.e. the kaolin model, HTx rat mutation genetic model, to test various therapeutic agents. Exploring alternative treatments will allow us to move away from traditional methods of treatment. This will begin justifying different avenues to take a novel innovative treatment approach based on the etiological pathophysiology of hydrocephalus.

Learning Objectives
To learn about
- the condition of hydrocephalus and its classification
- understanding its treatment
- what is available to know about it in research world via research model
- new way of thinking about it
- how this new concept of brain parenchyma playing an active role in the pathology would help define therapeutics

Parotitis as a presentation of COVID Infection
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video
Introduction:
Coronavirus disease (COVID) usually presents with fever, respiratory and gastrointestinal issues. COVID infection presenting as parotid inflammation is sparsely reported in literature to date, though other viruses like mumps and rubella commonly cause parotitis. We present a patient with parotitis who tested positive for COVID.

Case Presentation:
A 71-year-old Caucasian gentleman presented to the emergency with complaints of neck pain for 1 week. He also had episodic chest pain and dyspnea for past 2 months. He had been started on doxycycline for parotitis prior to this visit. After starting doxycycline, his parotid swelling had significantly reduced, but he developed diarrhea, headache and visual hallucinations, which prompted the ER visit. He did not have any significant risk factors for parotitis. Two months before this presentation, he had contracted COVID which was appropriately managed and repeat tests were reportedly negative.

On admission patient was afebrile and vitally stable. He had no swelling over the face or neck, but mild tenderness at the angle of mandible could be elicited. Respiratory system was unremarkable.

Initial investigations revealed neutrophil predominant leukocytosis. CT scan of the neck showed bilateral prominent parotid glands and inflammatory changes on right side of the neck predominantly posterior to the right sternocleidomastoid muscle, with prominent level 2 lymph nodes measuring 18 x 7 mm. Incidentally, ill-defined patchy bilateral upper lobe lung opacities were noted with 3.8cm bulla in the lateral aspect of the left upper lobe. Chest X-ray showed no acute infiltrates but linear fibrotic changes were noted bilaterally. In view of this finding, he was tested for COVID with qualitative detection of RNA and was found to be positive.

Final Diagnosis:
Parotitis likely secondary to SARS-CoV2 infection.

Followup and discussion:
As knowledge about COVID is evolving everyday, our patient highlights the rare presentation of parotitis in the setting of COVID. Atypical presentations could be related to COVID induced cytokine storm which has a potential to affect any organ. A case series reported 3 patients with parotitis in COVID and suggested possible intraparotid lymph node enlargement, which is different from other viral parotitis. This could be an explanation for the pathophysiology.

Learning Objectives
1. Acute viral parotitis begins as a systemic infection that localizes to the parotid gland, resulting in inflammation and swelling of the gland. Mumps, or paramyxovirus, has a predilection for the parotid gland and classically has been linked to parotitis. The virus replicates in the upper respiratory tract and spreads by direct contact or airborne transmission.

2. Parotitis in COVID, could be related to intraparotid lymph node enlargement. The parotid gland contains 3 to 24 lymph nodes.
Inception and Creation of a Scholarly Activity Committee: A Community Residency Program

Category: Bioethics & Medical Education, Poster Presentation

Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Introduction
The Accreditation Council for Graduate Medical Education (ACGME) has established guidelines requiring specific standards for scholarly activity in post-graduate medical education accreditation. Being unable to meet these standards is often a common citation by Residency Review Committee. Devoting more financial resources has been shown to improve compliance and avoid punishment. However, establishing a structured scholarly activity program has also been shown to be beneficial. Community residency programs often present with more barriers to conducting scholarly activity than academic center residency programs. Here, we discuss the significant improvements made from establishing a scholarly activity committee (SAC) at our institution.

Methods/Results
Since inception of our residency program in 2017, we have successfully met ACGME scholarly activity requirements. Over the past three years, our achievements included twelve publications, four awards, four QI projects and at least fifteen abstract presentations at national conferences. However, we felt our potential could be greater and that we also lacked the necessary infrastructure for greater variety of projects. We initiated the SAC in June 2020 composed of three upper-level residents with extensive research experience. In the 6 months since SAC formation, we have approximately nineteen publications, four awards, six QI projects and twelve abstract presentations. In coordination with program administration, we have devoted greater financial resources for resident-led research. We also started a resident-led community health literacy project with the local newspaper on a biweekly basis yielding twelve articles already. SAC also partnered with our IT department and created a data abstraction request form, enabling greater number of chart reviews and retrospective studies. In addition, we enhanced access to Microsoft Office and a reference managing software. SAC also revised the program awards structure in order to recognize more residents and to encourage more scholarly activity and professionalism.

Conclusion
In conclusion, our institution has showed the benefit of creating a SAC in order to enhance scholarly activity. Our results over the past six months have been quite remarkable. Our hope for the future is to continue improving our infrastructure, supporting more complex projects and increasing research coordination with other local institutions.

Learning Objectives
Upon completion of this lecture, learners should be better prepared to identify means of improving scholarly activity among community residency programs.
Autoimmune Gastrointestinal complications in a patient with Crohn Disease: Coexisting Autoimmune Hepatitis and Autoimmune Pancreatitis.

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Introduction:
Inflammatory Bowel disease (IBD) frequently has extra-intestinal manifestations, of which Hepatopancreaticobiliary (HPB) complications are the most common. Of the HPB manifestations, Primary Sclerosing Cholangitis is the most common and Autoimmune pancreatitis (AIP) is one of the less common HPB manifestations of IBD[1]. Most studies are reported in the east where the prevalence of AIP was found to be 4.6/100,000. AIP in the west is still not well recorded, and prevalence of AIP associated with other autoimmune conditions are even less reported [2]. We present a patient, with Crohn’s disease, who presented with autoimmune hepatitis and autoimmune pancreatitis.

Case Presentation:
45-year-old African-American lady with Crohn’s disease, post small bowel resection, on Certolizumab, a monoclonal antibody specific to TNF- A, presented to us with mild abdominal discomfort and chills. She had a reported recent diagnosis of autoimmune hepatitis based on liver biopsy 1 week ago.

On examination, she generally unwell, tachycardic and normotensive. She was drowsy but arousable and also had mild scleral icterus. She had mild epigastric tenderness to palpation, but no guarding or rebound. Bowel sounds were present. Examination of cardiovascular and pulmonary systems were unremarkable.

Initial investigations showed deranged liver functions (LFT): Aspartate aminotransferase 622 and Alanine aminotransferase 419, total bilirubin 13.1 and direct bilirubin 10.5, with elevated Alkaline Phosphatase of 274. Amylase was 188 and Lipase was 287. Computerised tomography of Abdomen showed heterogeneous appearance of hepatic parenchyma and inflammatory changes around the pancreas indicating acute pancreatitis (Fig 1). Recent investigations 1 week prior to presentation showed IgG4 levels over 2000+, Anti-smooth muscle antibody 1:160.

Final Diagnosis:
Autoimmune Hepatitis and Autoimmune Pancreatitis

Management and Follow-up:
Patient was managed as for AIP with AH and was started high dose prednisolone, rifaximin and lactulose. Following adequate management with steroids, patient improved clinically and was asymptomatic on day 7 of admission. Her diet was advanced as tolerated and she was discharged well on steroid therapy with plans to follow up in GI clinic in 10 days.

Learning Objectives
• IBD frequently has extraintestinal manifestation, of which Hepato-pancreatico-biliary manifestation are the commonest. AIP is one of the less common HPB manifestations.
• The diagnostic criteria for AIP - the "HISORt" criteria, is most commonly used in the US and includes the presence of one or more of the following:
  - Diagnostic Histology
  - Characteristic Imaging on computed tomography (CT) and/or pancreatography
  - Elevated serum IgG4 levels on Serologic testing
  - Other organ involvement
  - Response of pancreatic and extra pancreatic manifestations to glucocorticoid therapy

• AIP often responds to glucocorticoids with improvements in clinical manifestations and potentially preventing complications. Time to response is variable, usually ranging 2 weeks to 4 months. Follow up studies include serum IgG4 levels, liver function tests, and occasionally by computed tomography (CT) scan while on therapy.

Figure 1

The Effect of ACGME Case Volume Minimums on Resident Performance of Shoulder and Knee Arthroscopies

Category: Surgery & Surgical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background/Knowledge Gap: The purpose of this study was to examine how the implementation of Accreditation Council of Graduate Medical Education (ACGME) case minimums in 2013 has affected the number of shoulder and knee arthroscopies performed by orthopaedic surgery residents during their clinical training.

Methods/Design: The ACGME orthopaedic surgery case log data from graduation years 2007-2019 was used to evaluate the number of shoulder and knee arthroscopies performed. The mean and median number of cases performed per resident were compared for the years prior to implementation of the ACGME case minimums (2007-2012) and after (2013-2019).

Results/Findings: The ACGME orthopaedic surgery case minimums resulted in a significant decrease in the mean number of shoulder and knee arthroscopies performed. The mean number of shoulder arthroscopies performed in the years before and after the case minimum requirement were 109.8 and 82.0 \((p = 0.025)\), respectively. The mean number of knee arthroscopies performed in the years before and after the case minimum requirement were 178.6 and 124.8 \((p = 0.006)\), respectively. The mean total of all surgical cases performed in the years before and after the case minimum requirement were 2045.5 and 1699.3 \((p = 0.038)\), respectively. Residents in the 10th percentile of cases still met the required ACGME case minimums each year.

Conclusions/Implications: This study may demonstrate the effect of the implementation of the ACGME case minimums on the number of shoulder and knee arthroscopies performed by orthopaedic surgery residents. The implementation of case minimums by the ACGME may have resulted in decreased reporting of shoulder and knee arthroscopies performed by orthopaedic surgery residents. The ACGME should consider increasing the case minimums for shoulder and knee arthroscopies to promote accurate logging of cases.

Learning Objectives
Describe the trends in the number of shoulder and knee arthroscopies performed by orthopaedic surgery residents before and after the implementation of case minimums by the ACGME.

<table>
<thead>
<tr>
<th>Graduation Year</th>
<th>Shoulder Arthroscopies</th>
<th>Knee Arthroscopies</th>
<th>Total of All Procedures Performed</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-2012</td>
<td>109.8</td>
<td>178.6</td>
<td>2045.5</td>
</tr>
<tr>
<td>2013-2019</td>
<td>82.0</td>
<td>124.8</td>
<td>1699.3*</td>
</tr>
<tr>
<td>Percent Decrease</td>
<td>25.3%</td>
<td>30.1%</td>
<td>16.9%</td>
</tr>
<tr>
<td>Fold Decrease</td>
<td>1.34</td>
<td>1.43</td>
<td>1.20</td>
</tr>
<tr>
<td>P-value</td>
<td>0.025</td>
<td>0.006</td>
<td>0.0375</td>
</tr>
</tbody>
</table>

*Data only available from graduation years 2013-2018.
Raising patient awareness of illnesses and vaccines through an educational video platform on head and neck cancers

Category: Public Health & Environmental Medicine, Oral Presentation

Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Introduction

Each year, more than 50,000 new cases of oropharyngeal cancers are diagnosed. Studies have shown that early detection and treatment can help improve patient outcomes. If the cancer is localized, the 5-year survival rate is 86% as compared to 36% in those with metastases. However, it is challenging to detect head and neck cancers early if patients are unaware of risk factors and symptoms that may warrant a physician follow-up. One study reports that American adults have limited understanding of head and neck cancer risk factors, such as tobacco use and HPV. Therefore, efforts to increase patient awareness are being studied. One study successfully implemented community-focused educational sessions in faith-based communities to improve knowledge about the link between HPV and head and neck cancers. However, few studies have assessed the efficacy of using an educational video to help increase awareness of head and neck cancers in the general population. We expect that implementing an educational video can help improve patients’ understanding of head and neck cancers and HPV vaccines.

Goals

Through this project, we aim to study and improve the knowledge, attitudes, and practices regarding head and neck cancer risk factors among the general population of New Orleans. We will implement an educational platform that involves an educational animated video and pre-survey and post-surveys to assess patients’ knowledge, attitudes, and practices. In the future, we aim to share this educational platform with various institutions.

Though our study focuses on educating patients about head and neck cancers and the HPV vaccine, this study is also an opportunity to gain a better understanding of patient awareness regarding vaccines in general. This is particularly relevant in the midst of the COVID-19 pandemic, in which patient awareness may play an important role in influencing patients to receive a new vaccine. Ultimately, we aim to increase vaccination rates among underserved populations.

References


Learning Objectives

1) Gain an understanding of the knowledge, attitudes, and practices among patients regarding head and neck cancers
2) Understand the role that patient awareness may play in receiving vaccines to prevent various illnesses, such as cancer or COVID-19
3) Consider wide-spread implementation of patient educational platforms through various academic hospitals.
Nuclear Receptor Synergism: A New Paradigm for Differentiation Therapy in Cutaneous T-cell Lymphoma

Category: Click to Select, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background/Knowledge
Exploiting retinoids, natural and synthetic vitamin A derivatives, to induce cellular differentiation embodies a milestone in cancer therapeutics. Retinoids elicit the obligate changes in gene expression to drive differentiation through the retinoic acid receptor (RAR) and retinoid X receptor (RXR) families of ligand-dependent nuclear receptors. While retinoids have been used for over three decades to treat cutaneous T-cell lymphoma (CTCL), it remains unknown if retinoid-dependent changes in differentiation, through RAR and RXR activity, account for the clinical benefit in CTCL.

Methods/Design
Protein expression analysis was performed by flow cytometry. We first identify that CTCL lines express the hallmark transcription factor for regulatory T (Treg) cells, FOXP3, whereas lymphoma lines not of CTCL origin lack FOXP3 expression.

Results/Findings
We found that various synthetic and natural retinoids, including Bexarotene, a pan-RXR agonist and the only FDA-approved retinoid for CTCL treatment, significantly decrease FOXP3 expression in six different human CTCL cell lines. We additionally delineate that the RARα and RXRα isoforms account for the decreased FOXP3 response. Importantly, RAR and RXR receptors function synergistically to decrease FOXP3 expression.

Conclusion/Implications
This work establishes that the differentiation marker of Tregs is routinely expressed by CTCL cell lines, and that therapeutic retinoids decrease the expression of this transcription factor. Furthermore, the clarification of synergistic activity among select RAR and RXR isoforms provides justification for the further refinement of this proven CTCL treatment modality. Identifying the nuclear receptors that transduce retinoid exposure into CTCL cellular responses may reveal more specific points of therapeutic intervention that avoid the metabolic sequelae common to retinoid treatments.
Learning Objectives

Describe the parental structure of all retinoids
Discuss the potential clinical impact of receptor synergism in retinoid-based modalities for Cutaneous T-cell Lymphoma

Investigation of post-surgical rod deflection using instrumentation with manufactured curvature in scoliosis corrective surgery

Category: Surgery & Surgical Specialties, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Introduction

Adolescent idiopathic scoliosis (AIS) is a three-dimensional spinal deformity without a known cause. Ideally, most scoliosis can be managed nonoperatively. Yet with spinal curvatures beyond 45-50°, surgical treatment is considered. In order to surgically correct spinal deformities a multi-level spinal fusion, stabilized with rod implants, is the standard approach. During surgery, the rods are bent in the stagittal plane to achieve a natural lordosis/kyphosis profile, which introduces imperfections within the implant and can decrease stiffness. When the rods are loaded as part of the correction maneuver, they tend to lose their stagittal curvature resulting in a reduction of the deformity correction. This process is known as post-surgical rod deflection.

Traditionally, the implants are manufactured as straight rods and post-surgical rod deflection can be controlled by changing other aspects about the implant, such as the stiffness or rod diameter. However increasing implant stiffness or rod diameter can lead adverse consequences, such as osteonecrosis. A newer alternative is a rod with a patient-specific, pre-manufactured stagittal curvature. While there are various structural characteristics that influence rod stability, a pre-manufactured stagittal curvature is hypothesized to provide additional stability to the implant and help prevent post-surgical rod deflection.

Goals

Using a retrospective chart review, the authors will measure the implant curvature from pre-surgical imaging with intra-operative and post-operative imaging. Using a case-control study, our ultimate goal is to track deflection in three dimensions by using tangent lines. The authors will match subjects and controls on various factors, such as age and sex.

Through this project we aim to compare the amount of rod deflection between the newer, alternative to the traditional, straight rod implant. Although most research that explores rod stability focuses on rod diameter and composition, the authors see this as an opportunity to increase awareness of patient-specific implants and hope that the results of this study can help highlight novel characteristics that can provide additional stability to orthopaedic implants.
References


Learning Objectives
1. Evaluate the differences in post-operative stability and rod deflection among patients treated for scoliosis using straight rods versus curved rods
2. Expand awareness of patient-specific, pre-manufactured rods used for scoliosis correction surgery
3. Expand awareness of various characteristics that affect implant stability in orthopaedic surgery

Validation of a Risk Stratification Questionnaire for Tuberculosis Screening in Homeless Patients Across Six Student-run Clinics

Category: Public Health & Environmental Medicine, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background: Student-run clinics (SRCs) significantly aid in screening homeless patients for tuberculosis. However, with budgets dependent on limited grant funding, administration of tuberculin skin tests (TSTs) to patients with increased risk of tuberculosis may be necessary. Tulane University School of Medicine Tuberculosis Program (TSOM-TB) utilizes an evidence-based risk stratification questionnaire to categorize patients based on their risk for
a positive TST. This questionnaire categorizes patients as “low-,” “intermediate-,” or “high-risk” based on a cumulative numerical score calculated from their active symptoms of and risk factors for tuberculosis.

Goal: To validate if TSOM-TB questionnaire can identify homeless patients at increased risk of a positive TST.

Methods: A retrospective, multisite chart review of patients screened via TSOM-TB at 6 SRCs between January 2017 through October 2019 was performed. Relative risks (RR) of a positive TST were calculated for those stratified as “low-,” “intermediate-,” or “high-risk.”

Results: Over 33 months, 6,198 patients at homeless shelters were seen in SRCs. Of those patients, 238 received 30-day clearances without the placement of TST due to “low-risk” stratification and <30 day period of stay. Of the 4,155 patients who received TST and attended their follow-up appointments, 2,254 (54%) were “low-risk” with >30 day period of stay, 1,825 (44%) were “intermediate-risk,” and 76 (2%) were “high-risk.” Compared to “low-risk” patients, “intermediate-risk” patients were more likely to have a positive TST (RR 1.32, confidence interval (CI) 1.01-1.72, p=0.04). This association was not seen with “high-risk” patients. Additional analysis revealed that, compared to patients with no risk factors, patients with 1-2 total risk factors (RR 1.47, CI 1.12-1.93, p=0.006) and 3-5 total risk factors (RR 2.21, CI 1.29-3.79, p=0.004) had an increased risk of a positive TST. This trend was not seen for those with 6-8 total risk factors.

Conclusion: The TSOM-TB questionnaire was modestly effective at identifying homeless patients with increased risk of a positive TST. Implementation of the TSOM-TB questionnaire may aid SRCs in the preservation of TSTs for those at increased risk of tuberculosis.

Learning Objectives
Upon completion of this lecture, learners should be better prepared to
1. Consider the efficacy of screening questionnaires in identifying homeless patients with increased risk of tuberculosis
2. Implement a validated risk stratification questionnaire to aid in preserving tuberculin screening tests for patients at increased risk of tuberculosis.

Table 1
Risk Stratification Category and Risk of Positive TST*

<table>
<thead>
<tr>
<th>Risk Stratification Category from TSOM-TB**</th>
<th>Patients with Positive TST*</th>
<th>Patients with Negative TST*</th>
<th>RR***</th>
<th>95% CI****</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low-risk</td>
<td>101</td>
<td>2153</td>
<td>1</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Intermediate-risk</td>
<td>108</td>
<td>1717</td>
<td>1.32</td>
<td>1.01-1.72</td>
<td>0.04</td>
</tr>
<tr>
<td>High-risk</td>
<td>5</td>
<td>71</td>
<td>1.47</td>
<td>0.52-3.50</td>
<td>0.39</td>
</tr>
</tbody>
</table>

*Tuberculin skin test
**Tulane University School of Medicine Tuberculosis Program
***Relative Risk
****Confidence Interval
### Table 2
Total Risk Factors and Risk for Positive TST*

<table>
<thead>
<tr>
<th>Total Risk Factors for Tuberculosis</th>
<th>Patients with Positive TST*</th>
<th>Patients with Negative TST*</th>
<th>RR**</th>
<th>95% CI***</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>88</td>
<td>2053</td>
<td>1</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1-2</td>
<td>112</td>
<td>1746</td>
<td>1.47</td>
<td>1.12-1.93</td>
<td>0.006</td>
</tr>
<tr>
<td>3-5</td>
<td>14</td>
<td>140</td>
<td>2.21</td>
<td>1.29-3.79</td>
<td>0.004</td>
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<td>6-8</td>
<td>0</td>
<td>2</td>
<td>4.03</td>
<td>0.32-51.07</td>
<td>0.28</td>
</tr>
</tbody>
</table>

*Tuberculin skin test  
**Relative Risk  
***Confidence Interval

---

**Figure 1**  
Tulane University School of Medicine Student-Run Clinics  
TB Screening Questionnaire

I. Preliminary Patient Data:

Name: ___________________________________________________

Patient ID: _______________________________ DOB: ______/______/______________

Last 4 SSN: ____________________________________________

Phone Number: _________________________ Clinic Site: _______________________________

Health Care for the Homeless Patient: Yes          No

II. Risk Assessment:

1. Active Symptoms (check all that apply):
   - Cough lasting 3+ weeks* – 3
   - Blood in urine – 1
   - Coughing up blood* – 3
   - Severe headache – 1
   - Chest pain* – 3
   - Changes in bowel habits – 1
   - Fever/Chills* – 3
   - Swelling of Cervical lymph nodes – 1
   - Night sweats* – 3
   - Persistent shortness of breath – 1
   - Unexplained weight loss – 1
   - Unexplained fatigue – 1

Total Score: __________  
*If no active symptoms, check here

2. Risk Factors (check all that apply): [mm refers to induration size for skin test]

   - Prolonged corticosteroid and other immunosuppressive therapy [e.g. drugs used for organ transplant, autoimmune disease, severe asthma] (use 5 mm) - 2
   - Exposure to HIV or AIDS (use 5 mm) – 3
   - Close contact with known or suspected active TB? (use 5 mm) - 3
   - Lung Disease due to inhaled silica particles [Silicosis-have you ever used a sand blaster?] (use 10 mm) – 1
Lung Disease due to inhaled dust or coal particles (use 10 mm) – 1
Stomach Surgery (use 10 mm) – 1
Intestinal Surgery [bypass] (use 10 mm) – 1
Weight 10% or more below ideal body weight (use 10 mm) – 1
Chronic kidney failure (use 10 mm) – 1
Diabetes mellitus (use 10 mm) – 3
Cancer of head, neck, or lung (use 10 mm) – 1
Blood disorders [e.g. Leukemia, Lymphoma] (use 10 mm) – 1
Previous incarceration within the last 5 years (use 10 mm) – 3
History of IV drug use within the last 5 years (use 10 mm) – 2
Lived/traveled outside the country in last 5 years?
>2 weeks
TB endemic country [SEE LIST] (use 10 mm) – 3

Country: ____________________________
Total Score: ________ If no risk factors apply, check here
Will you be able to come back in 48-72 hours (circle one)?       Yes          No    Uncertain

3. Action Taken: Total Risk Stratification Score: ________ (add scores from I.1 and I.2)
   - High Risk - Refer to Emergency Department:
     (A risk stratification score of 10 points or greater, with at least one (*) active symptom)

   - Intermediate Risk - Complete Tuberculin Skin Testing:
     (A risk stratification score between 3-9 points, or greater than 9 points with no active symptoms) proceed to III

   - Low Risk - Tuberculin Skin Testing: (A risk stratification score between 0-2 points + patient intends to stay >30 days) proceed to III

   - Low Risk - TB Clearance for 30 Days:
     (A risk stratification score between 0-2 points + patient intends to stay <30 days) proceed to IV

   - Unable to Follow-Up in 48-72 hours– Temporary TB Clearance

III. Tuberculin Skin Test:
Have you had a previous Positive TB Test (circle one)?       Yes          No         Unknown
Date of Last TB Test: ______/_____/______   Clinic Site __________________________________
Have you ever been treated for TB (circle one)?                      Yes          No
If yes, what kind of TB (circle one)          Latent       Active Unclear
Did you complete treatment (circle one)?               Yes          No
Have you ever received the BCG vaccine (circle one)?        Yes        No
(If yes to any of the above, refer to Wetmore Clinic for further testing, DO NOT place TST. If no to all of the above, proceed with TST placement)
Test placement: If PPD contraindicated, check here  
Visit Number__________________________________________  Date of Test: ______/_____/______
Lot Number: ________________________________________Expiration Date: ______/_____/______
Time of Test Administration: ____________________   Arm (circle one):       Right        Left
Student Administering Test: _____________________________________
Results: If PPD contraindicated, check here
Date of Reading: ______/_____/______         Result (circle one)   Negative           Positive
For Positive Result: Induration (size in millimeters): ________________________
Referred to University Hospital ER (High Risk)
Referred to Wetmore Clinic (Low Risk: Patient has no active symptoms [*])
Student Reading Test: ____________________________________________
IV: TB Clearance:
YES: offer patient TB clearance card for 6 months
Patient has no active symptoms and is low-risk stratification
Patient has completed PPD testing with negative result
NO: clearance pending further evaluation
Patient referred to ER for emergent evaluation for active TB
Patient referred to Wetmore due to previous/new positive PPD, or BCG vaccine
TEMPORARY CLEARANCE: clearance offered for short-term residents
Patient has no active symptoms and is low-risk stratification
Patient will not be able to return for PPD reading in 48-72 hours

V: Documentation
POSITIVE PPD results explained to the patient
Clearance card explained to patient
Follow-up procedure with Wetmore explained
ER referral for emergent evaluation for active TB explained to patient
NEGATIVE PPD results explained to the patient
Clearance card explained to patient
ER referral for emergent evaluation for active TB explained to patient
Free response section for anything that isn’t captured that the clinic leader discussed with patient and needs to be documented

VI: Comments
Free response section for anything that isn’t captured that the clinic leader felt was clinically relevant.

The Young Professionals Pen Pal Program: An Exercise in Pediatrics Communication Skills for Adult Participants
Category: Bioethics & Medical Education, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Presenting Author: Joseph Jude Burns, MD, Pediatrics Resident, PGY2, Department of Pediatrics, Cohen Children's Medical Center of New York, New Hyde Park, NY
Coauthors: Maria K. Hargroves, Curriculum Resource Teacher, Seminole Springs Elementary School, Eustis, FL, Sarah E. Stumbar, MD, Assistant Dean for Clinical Education and Assistant Professor, Humanities, Health and Society, Herbert Wertheim College of Medicine, Florida International University, Miami, FL

Introduction: As the Hispanic population booms across the United States, Latino students are becoming more represented in science, technology, engineering and mathematics (STEM) disciplines. Simultaneously, many medical students report deficits in their comfort communicating with pediatric patients in their early clinical training. The Young Professionals Pen Pal Program (YP4) was developed out of both the need for mentorship and English language practice for students in the Supplemental Education for English Language Learners Program at Seminole Springs Elementary School and improved pediatric communication skills for students completing health professions training. Through YP4, elementary school students in Eustis, FL communicate on a monthly basis with health professions students.

Methods: The program was first implemented during the 2018-2019 academic year, and included 8 students in the health professions. To evaluate YP4, the health professions students were administered an anonymous survey composed of free responses and Likert scales to evaluate their perceptions of the program and its educational outcomes. These responses were considered a data set subjected to a quantitative and qualitative analysis.
Results: Among adult participants, 87.5% “Strongly Agree” with the statements, “I enjoyed participating in YP4”, “I would participate in YP4 again if the opportunity arises”, “The time commitment for YP4 was appropriate”, and “YP4 offered an extracurricular opportunity to improve communication skills with children”. When reviewing free responses, themes emerged including improved age appropriate vocabulary, identifying YP4 as a valuable opportunity to connect children with professionals of a similar background, offering mentorship and improved confidence.

Discussion: These results support that the program objectives of improving the communication skills of health professions trainees by participation in YP4 were achieved. These responses also indicate an improved understanding of the social determinants of health, including more open communication as the relationships developed with increased understanding of the impact of living conditions, access to resources, family dynamics and language on access to healthcare. Further, the elementary school students gained valuable mentors in their pursuits of higher education, particularly in STEM disciplines. In striving toward both social justice and educational equity, YP4 represents proactive programming on the part of Seminole Springs Elementary School and the Herbert Wertheim College of Medicine to better serve their communities and their changing demographics.

Learning Objectives
- Describe improvement in communication skills and understanding of the social determinants of health following participation in the Young Professionals Pen Pal Program
- Report methods of evaluation of community program success
- Consider bidirectional learning in programming connecting adults and children

<table>
<thead>
<tr>
<th>Table 1: Likert Responses to Survey Statements</th>
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<tbody>
<tr>
<td><strong>Statement</strong></td>
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<tr>
<td>----------------------------------------------</td>
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<tr>
<td>I enjoyed participating in YP4.</td>
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<tr>
<td>I would participate in YP4 again if the opportunity arises.</td>
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<tr>
<td>The time commitment for YP4 was appropriate.</td>
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<tr>
<td>YP4 offered an extracurricular opportunity to improve communication skills with children.</td>
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</tbody>
</table>

*Likert Scale converted to a continuous variable in which 1 equals “Strongly Disagree” and 5 equals “Strongly Agree”.

<table>
<thead>
<tr>
<th>Table 2: Summary of Common Themes</th>
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</thead>
<tbody>
<tr>
<td><strong>Question</strong></td>
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<tr>
<td>How did YP4 improve your communication skills with children?</td>
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<tr>
<td>How did YP4 improve your understanding of the social determinants of health?</td>
</tr>
<tr>
<td>What do you perceive as some of the benefits of the program?</td>
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Pseudocholinesterase Deficiency: A Case Study
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video
Introduction
The enzyme pseudocholinesterase metabolizes many drugs commonly used during anesthesia. Most individuals can quickly metabolize these drugs leading to a short duration of action. Individuals with an acquired or inherited deficiency are slow to metabolize anesthetics and may take up to 8 hours to recover from anesthetic administration. About 1 in 3,200 to 1 in 5,000 patients inherit this autosomal recessive trait. It is important to quickly recognize this rare condition as patient care post-surgery will need to include mechanical ventilation until the medication has been fully metabolized.

Case Presentation
Our patient was a 26-year-old female who presented to the emergency department after having a right ovarian cystectomy at a surgery center. After the surgery was completed, the anesthesiologist was unable to extubate the patient safely as the patient was having difficulty recovering from general anesthesia facilitated by succinylcholine. She was under observation for 4 hours without any improvement in her respiratory status. Upon arrival in the emergency department, the patient was able to nod yes and no to certain questions but was unable to lift her legs or head safely. The patient was intubated and ventilated, alert, and awake. Vitals on admission were as follows: BP 123/76 mmHg, pulse 100 bpm.

Final Working Diagnosis
The patient was found to have acute hypoxic respiratory failure secondary to respiratory muscle paralysis requiring mechanical ventilation. This was considered to be secondary to a pseudocholinesterase deficiency. This required the patient to be on mechanical ventilation. She then went through a successful spontaneous breathing trial, was extubated, and stabilized.

Management/Outcome/Follow-up
After four hours of observation without recovery from anesthesia at the surgery center, the patient was transferred to a nearby ICU. Management of pseudocholinesterase deficiency is typically conservative treatment. She was monitored overnight while intubated and sedated. The next morning, she underwent a successful spontaneous breathing trial and was extubated. Prior to extubation, the patient had an O2 saturation of 100% and FiO2 of 30%. A chest CT was performed and showed no evidence of cardiopulmonary disease. The patient was then deemed stable and medically cleared for discharge home with instructions to follow up with primary care in 3-5 days.

Learning Objectives
Upon completion of this lecture, learners should be better prepared to: describe the management of patients with pseudocholinesterase deficiency.

Upon completion of this lecture, learners should be better prepared to: explain the importance of identifying patients with pseudocholinesterase deficiency.

Prolapsed rectal hemorrhoid, A rare presentation of anorectal melanoma
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video
Introduction:
The anorectal mucosal melanoma accounts for approximately 0.05 percent of all colorectal malignancies and 1 percent of all anal canal cancers. The mucosal melanomas are rare and account for approximately 1 percent of all melanomas. The risk factors for anorectal mucosal melanoma are not known, epidemiologic data suggest that there is an increased risk associated with human immunodeficiency virus infection.

Case Presentation:
We had a 39-year-old female with past medical history of chronic anemia presented with lower abdominal pain. Per patient she had noticed worsening of abdominal pain from last 3 days after picking up heavy box. She was having feeling of incomplete evacuation. She also noticed a mass protruding from rectum. The pain was severe with defecation and also noted blood on tissue paper. The rectal exam showed a large, nodular appearing, firm mass protruding from the rectum, tissue appears to be mottled in color and has purulent discharge- (massive hemorrhoid with partial rectal prolapse). Patient labs showed anemia with Iron deficiency. The rest of exam was benign. General surgery was consulted, patient was taken to operation theater for excision of mass. During operation there was a large lump with flattened base, pedunculated and originating from the anorectal ring. An elliptical incision was made at the stalk and it was deepened through the mucosal layer with a grossly health margin of 5 mm. The patient recovered from surgery and discharged next day home in a stable condition.

Final Diagnosis: The pathology report showed the ulcerated polypoid malignant melanoma, 9.8 cm tumor was invading muscularis propria, lympho vascular invasion by tumor was present. The patient was immediately called and set up with hematology/oncology for further evaluations.

Management: The treatment recommendations for patients with mucosal melanoma is based on single center retrospective trial. Initial management for locoregionally confined mucosal melanoma is complete wide local surgical resection. Most patients will ultimately develop distant metastatic disease regardless of the achievement of local control. The radiation therapy is the option for inoperable disease. The adjuvant chemotherapy is also an option for extensive disease.

Learning Objectives
In every case of suspected hemorrhoids, must perform a thorough rectal examination. Consult surgery early in the course of treatment to get their expert opinion.

Upon completion of this lecture, learners should be better prepared to:
Have wide variety of differential diagnosis in mind for prolapsed rectal mass
Pathology evaluation of all excised masses are necessary to reach to final diagnosis
Know the available treatment options for anorectal melanoma

How does Insurance Status correlate with Trauma Mechanism and Outcomes? A Retrospective Study at a Level 1 Trauma Center
Category: Surgery & Surgical Specialties, Poster Presentation
Background:
Insurance status is known to correlate with outcomes for patients hospitalized after acute traumatic injury. However, more research is needed to determine how insurance status is associated with certain mechanisms of injury and subsequently plays a role in influencing treatment outcomes of trauma patients receiving exploratory or reparative surgery in a diverse, metropolitan city.

Goals:
The purpose of this study is to determine how insurance status correlates with certain mechanisms of trauma and influences treatment outcomes of trauma patients admitted for emergent surgery. We hypothesized that patients with Medicaid or no insurance suffer from a higher incidence of penetrating injuries and experience worse treatment outcomes compared to patients of other insurance statuses.

Methods:
We conducted a retrospective cohort study on patients admitted for emergent surgery at a level 1 trauma center in a diverse, metropolitan city. A multivariate logistic regression analysis was performed to investigate how different factors, such as insurance status, affected mortality and hospital length of stay after admission for emergent surgery post-trauma.

Results:
A total of 738 patients met inclusion criteria. The mean age for the study cohort was 35.7 ± 15.6 years. 84% of the study cohort were male and 76% were minorities. The mean age for patients in each insurance cohort are as follows: private insurance (38.5 years), Medicaid (32.7 years), Medicare (69.6 years), other insurance (43.4 years) and no insurance (34.5 years). African Americans were disproportionately more likely to have Medicaid (80.8%) compared to other race cohorts. In terms of trauma modality, Medicaid patients were more likely to suffer penetrating injury compared to other insurance cohorts, as shown in Figure 1. Logistic regression analysis shown in Figure 2 demonstrated that patients with private insurance (OR= 0.139, 95%CI: 0.055-0.353, p<0.05), Medicaid (OR=0.192, 95%CI: 0.105-0.350, p<0.05), Medicare (OR=0.651, 95%CI: 0.281-1.511, p=0.318) and other insurance (OR=0.442, 95%CI: 0.224-0.871, p<0.05) experienced lower mortality than uninsured patients. Trauma patients with private insurance (12.5 days, 95%CI: 7.0-21.5, p<0.05) and Medicare (7.0 days, 95%CI: 2.5-12.0, p<0.05) had the longest length of stay in the hospital and ICU, respectively.

Conclusions:
More clinical and research attention should be given to help improve outcomes of uninsured patients. This may include expanding primary intervention programs to help reduce comorbidities and mortality, as well as broadening Medicaid registration for uninsured patients. Furthermore, closer follow-up of uninsured patients...
upon admittance could reduce incidences of abandoning medical care against advice due to perceived cost or other misunderstandings. More research should also be conducted to explore the underlying mechanisms that lead to differences of clinical outcomes among different insurance cohorts.

Learning Objectives
Upon completion of this lecture, learners should be better prepared to discuss how insurance status correlates with injury mechanisms and influence trauma outcomes such as length-of-stay and mortality.

Diltiazam induced reversible cardiogenic shock in thyroid storm.
Category: Emergency & Disaster Medicine, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video
Presenting Author: Rami Sakaan, MD, Internal Medicine resident PGY2, Department of medicine, Magnolia Regional Health Center, Corinth, MS

Coauthors: Mary Avery poole DO, internal medicine PGY2, Corinth, MS, Ben Long MD, Internal Medicine

Abstract:
Early recognition of underlying thyroid disease in patients presenting with new onset tachyarrhythmia’s is central to management, as usual rate-control strategies can result in significant mortality and morbidity. Hyperthyroidism induced cardiomyopathy complicated by cardiogenic shock is a life threatening condition. Thyroid storm can lead to irreversible cardiovascular collapse and death if proper treatment is not initiated as soon as possible (1). In this case, we report a previously healthy 44-year-old female with a past medical history of anxiety who presented to the ED with complaints of anxiety and palpitations, and symptoms of early menopause. An (ECG) in the ED demonstrated (A. fib) with (RVR) felt to be secondary to thyroid storm based on the Burch-Wartofsky point scale (2). The patient was initially managed with a continuous infusion of Diltiazem. Shortly after initiating the infusion, the patient developed signs and symptoms consistent with cardiogenic shock. Bedside echocardiogram revealed an estimated (EF) <10% with concomitant pulmonary edema. Repeat echocardiogram Within 72 hours after stopping Diltiazem and starting appropriate treatment for thyroid storm showed improvement of EF to 35%.

Learning Objectives
- The diagnosis of thyroid storm is based on clinical criteria alone. Therefore, maintaining high clinical suspicion when laboratory evidence is suggestive of thyrotoxicosis is paramount in guiding clinical management.
- Burch and Wartofsky is one of the scoring systems originally developed in 1993 in an effort to delineate thyroid storm and thyrotoxicosis. The system is based on vital signs, symptoms, and cardiovascular condition.
- Once diagnosed, guidelines suggest that patients with tachyarrhythmia be immediately started on beta-blocker (i.e. propranolol typically 60 to 80 mg orally every 4-6 hours) to maintain heart rate below 90, in addition to thionamide "propylthiouracil" (PTU) 200 mg every 4 hours or methimazole 20 mg orally every 4-6 hours). Also, saturated solution of potassium iodide 5 drops orally every six hours or Lugol's solution 10 drops every eight hours should be started 1 hour after starting thionamide to prevent the iodine from being used as a substrate for new hormone synthesis in patients with toxic adenoma or toxic multinodular goiter. Depending on patient’s condition and severity of thyroid storm, administration of glucocorticoids (hydrocortisone 100 mg IV every 8 hours) or cholestyramine 4 g orally 4 times daily can be beneficial in patients with severe presentations to reduce enterohepatic recycling of thyroid hormone.

My HbA1C is giving me Palpitations
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Amaraoma Ugoji, BS, Medical Student, Internal Medicine, Tulane University School of Medicine, New Orleans, Louisiana

Coauthors: Phoebe Jensen, Chief Resident, Internal Medicine, Tulane University School of Medicine

Introduction:
Tachycardia as a presenting symptom is nonspecific and could be due to a variety of disease processes. While cardiovascular causes are often suspected first in the etiology of tachycardia, endocrine related causes should also be considered. This case is about a patient who presented with tachycardia secondary to undiagnosed Type 2 Diabetes Mellitus.
Case presentation:
A 41-year-old woman presented with 3 days of progressive dyspnea on exertion associated with chest pain and palpitations. Her history was significant for hypertension treated with hydrochlorothiazide and persistent low-level tachycardia at her PCP’s office for the past 3 weeks. On presentation her vitals were BP: 104/66, HR: 160, RR: 24, and SpO2 100% on room air. Cardiovascular exam revealed tachycardia with no murmurs, rubs or gallops. Pulmonary exam was normal. Triage EKG demonstrated sinus tachycardia with non-specific T wave abnormalities. Initial efforts focused on treating her tachycardia. She was given 6mg IV adenosine three times without any change in heart rate. Laboratory evaluation then demonstrated a glucose of 600mg/dL, a lactic acid of 4.0mmol/L, and a normal TSH level. Urinalysis showed glucose ≥500mg/dL and blood 0.20 mg/dL. Echocardiogram showed no abnormalities. Her tachycardia, hyperglycemia and lactic acidosis resolved following fluid resuscitation. The next morning her hemoglobin A1C returned as 10.1%.

Final Diagnosis:
The patient had hyperglycemia induced osmotic diuresis. Excess glucose in the blood is filtered by the kidneys and accumulates in the renal tubules. The increased renal concentration of glucose facilitates an increased loss of volume via osmotic diuresis, usually resulting in polyuria and compensatory polydipsia. This increase in frequency might have been missed by the patient because she was already on the diuretic hydrochlorothiazide to treat her hypertension. Her hyperglycemia in combination with the use of a diuretic led to severe volume depletion and compensatory tachycardia. It is important for hospitalists to consider a broad differential for tachycardia and lactic acidosis and recognize compensatory tachycardia and volume depletion as an uncommon initial presentation of Type 2 Diabetes Mellitus.

Outcome:
The patient was educated on diabetes and discharged home with a prescription for metformin, referral for outpatient diabetes education, and close PCP follow up.

Learning Objectives
1. Recognize an uncommon initial presentation of Type 2 Diabetes Mellitus
2. Explain the pathophysiology of hyperglycemic osmotic diuresis

Dislodged Biliary Stent As An Unusual Cause of Rectal Perforation
Category: Emergency & Disaster Medicine, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Author: Luther Newton Daniel, BS, OMS 3, General Medical Education, Magnolia Regional Healthcare, Corinth, Mississippi
Coauthors: Oneka Richardson, MD, Magnolia Regional Healthcare, Gene Combest, MD, Magnolia Regional Healthcare

Introduction:
Endoscopic biliary stent placement is a common procedure in the settings of obstructive jaundice or postoperative biliary leaks. Stent dislodgement and migration through the GI tract has been reported, although this usually occurs without complication and the stent passes spontaneously. In rare cases, however, dislodged biliary stents have been reported to cause intestinal or colonic perforation. Here, we present the case of a 70-year old male with rectal pain resulting from perforation of a dislodged biliary stent.
Presentation of Case:

70-year old male nursing home resident presented to the emergency department with a complaint of 7 days of rectal pain and a possible foreign body protruding from the anus as per nursing home staff. The patient was hemodynamically stable and afebrile at the time of arrival. On examination, there was what appeared to be a plastic foreign body protruding 1-2cm from the anus. CT of the pelvis confirmed the presence of a dislodged biliary stent in the rectum with protrusion from the anus. A right anterolateral rectal perforation approximately 6cm superior to the anal verge was noted as well, with the barbed end of the stent protruding through the rectal wall. The patient reported that he had undergone a cholecystectomy with stent placement in 2015. He was taken to surgery, where the stent was removed under general anesthesia. The perforation was unable to be visualized or repaired due to stool filling the rectum. The patient tolerated the procedure well, and after 1 day of admission for observation, he was discharged back to the nursing home.

Final Diagnosis:
Rectal perforation from a dislodged biliary stent

Management:
The stent was removed under general anesthesia. Surgical repair was not possible and he did well with subsequent observation.

Learning Objectives
1. Identify a rare cause of a patient presenting with new onset rectal pain and foreign body.

Vertebral Osteomyelitis and Early Spinal Epidural Abscess Presenting as Abdominal Pain Following an Episode of Sepsis
Category: Emergency & Disaster Medicine, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video
Presenting Author: William David Wynn, MD, Emergency Medicine Resident PGY1, Department of Emergency Medicine, Magnolia Regional Health Center, Corinth, MS

Introduction: Spinal epidural abscess (SEA) is uncommon but increasing in frequency. It presents along a spectrum and may not be considered, especially if encountered early in its course, unless a high index of suspicion is maintained.

Case Presentation: A 42-year-old man presented to the ED with pain in both upper quadrants of his abdomen for 2 days that was worse on the left side. The pain radiated to his back and was worsened by eating which also caused nausea and abdominal distention. There was no recent history of fever. He had a history of chronic back pain and had been hospitalized three months prior with sepsis. Past medical history was remarkable for dyslipidemia, hypertension, type 2 diabetes and obstructive sleep apnea. Physical exam was remarkable for being afebrile with a resting tachycardia of 117, obesity, abdominal tenderness in both upper quadrants, worse on the left and extending into the left flank. His back was mildly tender to palpation but was at baseline and there were no neurologic deficits. Investigation revealed a CRP of 6 and a CT abdomen with IV and oral contrast showed no intra-abdominal pathology but findings in the thoracic spine concerning for discitis and osteomyelitis. An MRI of the thoracic spine revealed discitis and osteomyelitis of T8-T9 with a posterior phlegmon and evidence of infectious enhancement in the posterior epidural space at this level.

Final Diagnosis: Osteomyelitis of thoracic vertebra with developing spinal epidural abscess

Management: IV Vancomycin was begun and he was transferred to a facility with neurosurgical capabilities. He did well with treatment and had a full recovery.

Learning Objectives
1. Identify vertebral osteomyelitis and spinal epidural abscess in patients with otherwise unexplained upper abdominal pain.

2. Identify the correct imaging modality needed to diagnose vertebral osteomyelitis and/or spinal epidural abscess.

The Impact of the 2020 Coronavirus Pandemic on Psychiatric Hospitalization and Mental Health

Category: Mental Health, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Kristen B. Dzeda, BS, Medical Student, College of Medicine, University of South Alabama, Mobile, AL

Introduction
On December 31, 2019, the Wuhan Municipal Health Commission reported a cluster of cases of pneumonia that were later found to be due to a novel coronavirus. Over the next several months, a pandemic emerged, spreading around the globe. By March 2020, the world was nearly unrecognizable. Many countries, including the United States, had enacted travel restrictions. Many countries, states, and local officials were ordering residents to stay...
at home except for emergencies. Every major news source had the novel pandemic as their main story, and news of the virus’s spread flooded social media. It seemed as though the country was in a state of mass hysteria. It is unsurprising, considering these circumstances, that many would struggle with new onset mental illness or face exacerbations of previously diagnosed mental illness. In the most severe cases of new onset mental illness or exacerbation of previously diagnosed mental illness, inpatient psychiatric care would be required. In this report, we will discuss three such cases: one of an exacerbation of general anxiety disorder, one of a new onset brief psychotic disorder, and one of an exacerbation of bipolar I disorder.

Case 1- Presentation
The first case is that of a 23-year-old female with a past psychiatric history significant for general anxiety disorder who presented with increased anxiety accompanied by somatic complaints. The patient reported a similar event two years prior, which led to a psychiatric hospitalization and subsequent diagnosis of general anxiety disorder. The patient was prescribed Vistaril (hydroxyzine) at that time but discontinued the medication six months prior to the current episode due to lack of symptoms. In the current episode, patient noted that she was having increasing anxiety over the coronavirus pandemic starting in March 2020. This was worsened by a miscarriage of her child in March 2020. In addition to anxiety, patient endorsed feeling overwhelmed and feeling like she was going to die. She also had somatic complaints, including gastrointestinal disturbances, shortness of breath, numbness, and insomnia. The combination of these symptoms led her to seek care in the emergency department and led to an eventual admission to a psychiatric inpatient service.

Case 1- Diagnosis
Inpatient evaluation led to a diagnosis of adjustment disorder with anxiety due to her development of symptoms in response to the coronavirus pandemic and her recent miscarriage. Her symptoms caused her significant impairment in functioning.

Case 1- Outcome
The patient improved throughout her six day stay in the inpatient unit. She was discharged on Remeron (mirtazapine) and BuSpar (buspirone) daily, as well as Vistaril (hydroxyzine) as needed for anxiety. Patient was enrolled in outpatient follow-up and cognitive behavioral therapy.

Case 2- Presentation
The second case is that of a 50 year old male with no significant past psychiatric history. He was admitted to the inpatient psychiatric unit due to severe anxiety, suicidality and paranoia all directly linked to the coronavirus pandemic. The patient noted that he was depressed and anxious and had trouble thinking of anything other than the coronavirus pandemic. To cope with these feelings, he increased his alcohol intake and started smoking marijuana on a daily basis. This led to difficulty completing responsibilities, including missing work. The patient noted that he came close to suicide twice before hospital admission, once with a gun and once with a knife.

Case 2- Diagnosis
The patient was diagnosed with brief psychotic disorder due to less than one month of severe emotional distress, paranoid behaviors, and emotional instability.

Case 2- Outcome
The patient remained in the inpatient psychiatric unit for four days, throughout which he improved on Zyprexa (olanzapine). He was discharged with on Zyprexa (olanzapine) when he was considered stable and no longer at acute risk of harm to himself.
Case 3- Presentation
The third case is of a 55 year old female with longstanding Bipolar I disorder who presented to the emergency department with suicidal ideation and hallucinations. She was subsequently admitted to the inpatient psychiatric unit, where she described disturbed sleep, feeling fearful, anxiousness, depression and suicidal ideation. She believed that she was being watched by the president and others due to the coronavirus pandemic. The patient exhibited paranoid grandiose delusions relating to the coronavirus pandemic. She admitted to watching television news channels and seeing information about the coronavirus pandemic. Family members believe symptoms may have been worsened due to the patient’s mother being diagnosed with coronavirus.

Case 3- Diagnosis
The patient was diagnosed with an exacerbation of longstanding Bipolar I Disorder.

Case 3- Outcome
The patient remained on the inpatient psychiatric ward for one week. During this time, she required several psychotropic medications for agitation. She was discharged on Tegretol (carbamazepine), Abilify (aripiprazole), and Desyrel (trazodone). Patient was further followed by an outpatient psychiatric clinic.

Learning Objectives
- Describe the impact of the coronavirus pandemic on mental health.
- Compare and contrast the effects of the coronavirus pandemic on those with previously diagnosed mental health disorders and those without such prior diagnoses.

Periodontitis among non-Hispanic African Americans versus other populations
Category: Public Health & Environmental Medicine, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Author: Lynn Tong, BA, OMS-II, ARCOM medical student, Arkansas College of Osteopathic Medicine, Fort Smith, AR

Coauthors: Nicholas Bolan, PharmD Student, Thomas J. Long School of Pharmacy, Stockton, CA

BACKGROUND:
-A study completed in 2009 reports that periodontitis affects about 46% of American adults (64 million people).1
-Periodontitis is a chronic inflammatory oral disease that damages the gums and supporting structures of the teeth.
-It is triggered by bacteria in dental plaque and typically manifests from the worsening progression of gingivitis.2
-Symptoms include loosened teeth, tooth loss, erythematous and swollen gums that are tender to the touch, gum line recession, halitosis, and easy gum bleeding.3
-Periodontitis is of public health concern because of the high potential for exacerbated comorbidities to the underserved communities that are most commonly affected.
- Non-Hispanic blacks are genetically predisposed to heart disease and periodontitis has been shown to increase the risk of development and progression of heart disease.4
-There are systemic diseases that can directly cause secondary periodontitis, however, discerning if a disease is the main cause or just a contributing factor to periodontitis is often difficult. This is typically seen in patients who have a significant ratio of inflammation versus plaque.
-Risk factors that also contribute to periodontal disease include smoking, obesity, and diabetes (especially type 1).2 Addressing these concerns can potentially improve treatment outcomes.
IMPORTANCE OF THIS ISSUE FROM A PUBLIC HEALTH POINT OF VIEW:
-Dental care is extremely expensive and when conditions are left untreated it is then up to government provided insurance to cover the procedures or commercial insurance.
-Periodontitis is easily avoidable with regular oral hygiene and becomes an unnecessary burden on the healthcare system which will in turn, increase premiums for everyone covered because of the increase of insurance payments to dentists.
-If periodontitis can be avoided all together, these large sums of money not being spent by insurance companies can go towards lowering premiums and will allow for a greater amount of people to afford dental coverage and further prevent oral diseases.
-This poses a threat to the healthcare system because dental care is very expensive when dealing with diseases that are left untreated and that can easily be prevented with oral health care education with regular flossing, brushing at least twice daily, avoiding tobacco products and excessive consumption of alcohol.

HEALTH DISPARITIES WITH NON-HISPANIC BLACKS
-There was a higher prevalence of periodontitis in non-Hispanic blacks compared to non-Hispanic white and Hispanic American populations.5
-Periodontal disease has a greater prevalence in minorities and in those with lower socioeconomic status (SES).5 With less disposable income, this limits access and ability to purchase dental products that could prevent infection.
-African American participants of this study were more likely to be obese and current smokers than the rest of the races/ethnicities, which increases the risk for periodontitis.5
-Exposure to stress is another risk factor for periodontitis and thus is a potential explanation for the unequal distribution of periodontal disease across different races and ethnicities. Black and Hispanic Americans may experience greater levels of stressors including perceived discrimination than non-Hispanic white Americans.5
-In all racial populations, self-reported cases of periodontitis had higher prevalence in those with health insurance and those who experienced stress.5

INTERVENTIONS:
-Increase dental screenings at local churches and shelters to prevent Periodontitis among African American patients. Screening, early diagnosis and treatments increase better outcomes.
-Provide additional screening for diabetes, and discussions about smoking cessation and obesity at local churches and shelters to spread awareness of Periodontitis prevention among African American patients.
-Large donations of toothbrushes, floss, and toothpaste will be very helpful.
-Teachers should be educated about oral health by dental professionals who can then pass down the information to all of their students to solidify the importance of oral care at a younger age. Since periodontitis is a slowly progressing disease, it is important to begin prevention at the youngest age possible to decrease the risk of developing oral diseases.

LIMITATIONS:
-Sufficient numbers of willing dentists, dental hygienists, or dental students to perform screenings.
-Not enough donations to supply all those that need dental hygiene products.
-Getting school’s approval to educate the current faculty on the effects of poor oral hygiene and the comorbidities.

REFERENCES:


Learning Objectives
Identify the Health Disparities of Periodontitis among non-Hispanic African Americans versus Other Populations

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<th>Black (n=1642), %</th>
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Foundation and Development of a Virtual Educational Platform
Category: Bioethics & Medical Education, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Introduction
PhysioCamp is a nonprofit organization that has been engaged in K-12 tutoring and educational projects for the past several years, but these in-person efforts had to be paused due to the COVID-19 pandemic. In response to the continued educational barriers within the K-12 school system, PhysioCamp designed a virtual platform for free K-12 tutoring (TeleTutors) and educational sessions (TeleCamps), with the goal of improving learning achievements. TeleTutors achieved the original goal of designing a safe program by August 15th of 2020. By the start of the 2021 Fall semester, we aim to increase the number of K-12 students by 50% compared to at the start of the 2021 Spring semester.

Methods
Upon creating our current model of functioning for TeleTutors and TeleCamps, we applied change management principles and a systems approach in adjusting organizational structure, responsibilities, and procedures. After the pilot launch of TeleTutors in Spring of 2020, we created a virtual training process for volunteer tutors, which includes background checks, and a database where all up-to-date information is kept. We implemented ‘after session feedback’ forms for volunteers to provide updates, and an optional survey for tutees to provide general background information and feedback on the tutoring experience. Similar changes were also applied to TeleCamps, with a new tracking system and ‘after session feedback’ forms given after each session. Operational responsibilities were delegated among a team of interprofessional board members and interns, including correspondence, tutor training and matching, data management, and research. Promotional, Technical, and Volunteer Committees also provided support services for TeleTutors.

Results
In Spring 2020, the initial transition from in-person activities to TeleTutors involved only local advertising, no background check requirement to volunteer, and tutor training consisted of matching students with a tutor without consistent follow-up.

Spring Semester of 2020 results:
K-12 Students Enrolled: 14
Volunteers Tutors Signed Up: 69
Tutor-Tutee Matches: 14
Lost to follow-up over the summer: 14

Over the Summer of 2020 various adjustments to the program included implementing organizational changes, performing background checks on volunteers, virtual training, an updated database, and volunteer advertising to over 200 colleges/locations across the US.

Start of Spring Semester of 2021 results:
K-12 Students Enrolled: 42 total enrolled; 39 currently active
Volunteers Tutors: >700 signed up, >100 completed background checks and training.
Total Tutor-Tutee Matches: 46 total; 42 currently active (some individual students matched to multiple tutors)

During the Summer and Fall of 2020, PhysioCamp also worked to reformat previous in person presentations to be better suited for online delivery. Unlike the individualized tutoring format, TeleCamps were designed to allow and encourage multiple students to participate virtually. TeleCamp sessions include short interactive lecture style presentations focusing on specific educational topics, combined with interspersed activities to help engage the learners. The pilot period for these sessions were started part way through the Fall 2020 semester, and were restricted to high school students to begin with.

Start of Spring Semester of 2021 results:
Total sessions: 5
Participant: High School -11
Volunteers: >400 signed up, >60 completed background check and training (Including 8 graduate level instructors); Only graduate level instructors have been used to teach camps so far.

Discussion
Initial participation from tutors and tutees has continued to grow in proportion to our advertising efforts, and suggests a positive effect of the changes that were implemented. We initially focused our advertising efforts on ensuring we had enough volunteer tutors. As more tutors complete background checks and are trained, we will continue to expand our advertising efforts towards K-12 students and parents, especially within disadvantaged and underserved communities.
Analysis of data gathered through future survey responses will offer more objective information regarding the impact the program has on the community and possible areas for improvement. Data about similar projects surrounding COVID is still emerging, and will continue to be referenced when making improvements of our program in the future.

Conclusion
The program’s leadership has made the necessary adjustments that allowed the program to operate effectively in the constantly changing environment of COVID-19. Quality improvement of management and operations at an organizational level have led to improved impact for the target community.

References

Learning Objectives
Upon completion of this lecture, learners should be better prepared to:
1. Discuss possibilities for community engagement during the COVID-19 pandemic.
2. Compare and contrast the results of an organization before and after implementing quality improvement principles.

The Benefits of Peer-Lead Mock Focused Exam Workshops
Category: Bioethics & Medical Education, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Author: Steven Eugene Carter, MS, Student Doctor, Medical School, Philadelphia College of Osteopathic Medicine Georgia Campus, Suwanee, GA

Coauthors: Aarushi Kalra, BS, Student Doctor, Philadelphia College of Osteopathic Medicine Georgia Campus, John Lee, BS, Student Doctor, Philadelphia College of Osteopathic Medicine Georgia Campus, Andrew Manhan, MPH, Student Doctor, Philadelphia College of Osteopathic Medicine Georgia Campus, Fahad Marmarchi, MS, Student Doctor, Philadelphia College of Osteopathic Medicine Georgia Campus, Ali Moradi, MD, MPH, Assistant Dean of Clinical Integration, Clinical Education, Philadelphia College of Osteopathic Medicine Georgia Campus

Context
Mock examinations are commonplace in many academic settings and are offered as a study aid to students with the hope of lowering stress levels and increasing their preparedness for the actual exam. In contrast, mock exams are rarely offered by faculty in clinical training due to their expense and administrative burden (1). Students taking objective structured clinical examinations, (OSCEs), have been proven to benefit from participating in mock exams (2). However, this is something that has not been explored in the context of the Focused Exam Workshop (FEW). While OSCEs focus solely on biomechanical skills, the FEW allows students to choose which physical exams are important for gathering information pertinent to creating a diagnosis and writing a SOAP note. In this study, we assess the efficacy of providing first year medical students with a mock exam prior to taking their FEW. This will stress the importance of implementing peer-organized mock examinations.

Our study objective is to draw correlations between mock Focused Exam Workshop participation and overall performance on the course examination including final score, student stress levels, and biomechanical performance. This study will create a fundamental basis for understanding the effectiveness of participating in mock exams as preparation for all physical and clinically based skill examinations.

Methods
The students were offered a SOAP note workshop and provided with complete exams specific to PCOM-GA curriculum as preparatory work prior to testing. Mock exams were then performed virtually with second year students acting as standardized patients (SP) with prepared case presentations. Thirty first year students acting as the doctor were asked to join the virtual rooms at different times and then perform a History and Physical with their SP focusing around a specific chief complaint that the students were unaware of before beginning the exam. Instructions were given on how the mock exam process will be conducted but no other hints were given to students regarding the context of the exam. Following the history and physical exam, the students were asked to create a SOAP note within the 9 minute limit offered by the COMLEX Level 2 PE exam (3). These SOAP notes were graded based on course description and COMLEX Level - 2 PE guideline by the student’s respective SP before the data was compiled. We also asked students to provide us with feedback through a Google Form that was sent out after the actual FEW was completed, so that they could provide us with extra information regarding their state of mind and chief complaint preferences among other things. All of this data was compiled and analyzed before being compared to student’s actual FEW scores which were provided to us without any identifying information, as to preserve student anonymity. IRB approval was obtained through the committee at the Philadelphia College of Osteopathic Medicine Georgia Campus.

Results
Results are pending further study. It is our goal to have finalized results by March 5, 2021.

Conclusions
Conclusions are pending further study. It is our goal to have finalized conclusions by March 5, 2021.

Learning Objectives
Learning Objective 1: Upon completion of this lecture, learners should be better prepared to help organize students in preparing for and executing effective mock focused exam workshops by understanding their benefit to clinical education.

Raising Vaccine Awareness Through a Novel Education Platform for Students on Head and Neck Cancers
Category: Public Health & Environmental Medicine, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video
Introduction

Early treatment of head and neck cancers is known to significantly improve patient outcomes. In fact, if the cancer is localized, the 5-year survival is 86%, but it is only 36% with distant metastases. Notably, early detection of head and neck cancer is difficult among underserved patients, who do not have routine medical visits. Medical students have the unique opportunity to interact with patients through student-run clinics and are often the only medical personnel to spend significant time with these high-risk individuals. However, many students do not have sufficient knowledge of head and neck cancer prevention and screening. For example, only half of graduating medical students are aware that the human papillomavirus (HPV) vaccine can protect against the development of these cancers.

While the inadequacy of medical student head and neck cancer education has been well-demonstrated, little has been done to improve this problem. Comparatively, a community-based educational platform has previously been successful in teaching patients about the link between the HPV vaccine and prevention of a variety of cancers. We expect that using a similar educational platform for medical students may better prepare students to teach patients about this link, thus improving HPV vaccination participation.

Goals

Through this project, we aim to educate medical students on head and neck cancer for the purpose of improving patient care. Although our focus is on head and neck cancers and HPV vaccination, we see this as an opportunity to increase understanding of vaccines as an important part of preventative health practices.

We are studying the efficacy of our educational platform, which is administered in an animated video format, through a pre-video and post-video survey of knowledge, attitudes, and practices. In the future, medical students will show this video to their patients. This will allow for the greatest spread of knowledge into the community. Our ultimate goal is to determine methods to increase vaccination rates in underserved communities. We hope our platform proves to be effective and transitive to increasing understanding of the new COVID-19 vaccine, since vaccination is the most promising key to slowing its spread.

Learning Objectives

1. Consider the value of teaching medical students as a way to pass knowledge into underserved populations.
2. Understand the varied utility of vaccine adherence - from cancer prevention to prevention of viral illnesses, such as COVID-19.
3. Gain a general understanding of the program used to educate Tulane University medical students on head and neck cancers, and replicate the program as desired at your home institution.

Quadriceps Tendon Rupture: A Clinical Summary

Category: Surgery & Surgical Specialties, Poster Presentation
Background: Quadriceps tendon ruptures (QTRs) are uncommon, yet serious, injuries that occur most frequently in individuals older than 40, peaking in the sixth and seventh decades of life. The incidence of QTRs is estimated to be 1.37 per 100,000/year.

Methods/Design: A literature review was conducted using the PubMed database with the keywords “quadriceps tendon rupture” as the search terms. Articles were assessed for information regarding the epidemiology, risk factors, clinical presentation, diagnosis, treatment, and outcomes of QTRs.

Results/Findings: The exact etiology of QTRs is unknown, though underlying comorbidities are thought to increase risk by causing degenerative tendon changes. The mechanism of rupture is most often the result of an indirect trauma, typically a simple fall. The classic presentation is a triad of acute pain, limited knee extension, and a suprapatellar gap. Diagnosis is based on exam findings as well as imaging studies. Treatment is variable – partial tears are typically managed with immobilization and protected weight-bearing, while complete tears must be surgically repaired. Prompt intervention is key to achieving good outcomes, with early intervention often considered to be within one month of injury.

Conclusion/Implications: QTRs are serious injuries that most commonly affect the elderly population. Early intervention typically affords the best clinical outcomes. Several techniques exist for surgical management, with the predominant method utilizing transosseous sutures passed through longitudinal patellar drill holes. Patients achieve excellent outcomes in most cases. The most common complication of tendon repair is loss of full knee motion, though long-term decreases in muscle strength have been reported in up to 67% of cases. Tendon re-rupture is a concerning complication, however there appears to be no significant association between specific postoperative rehabilitation regimens and rates of tendon re-rupture. There is limited evidence to support the prevention of ruptures, but strength and flexibility training may have some efficacy. Further research on prevention would be invaluable for decreasing rates of QTRs, which tends to affect more vulnerable populations.

Learning Objectives
1. describe the clinical presentation of a quadriceps tendon rupture
2. identify the most common complications of quadriceps tendon rupture treatment
3. discuss prevention of quadriceps tendon ruptures, and a need for further research into this area
Background: Holt-Oram syndrome is a rare disease that is typically diagnosed at birth after multiple extremity defects are found at birth. Typical cardiac findings are heart blocks, VSD, ASD, and sick sinus syndrome. This case is particularly interesting as the diagnosis was discovered after hemodynamic collapse after Type B aortic dissection. 

Case: 35-year-old African American male with history of HIV on HAART therapy and infantile anal atresia s/p rectum creation who presented to the emergency department after a syncopal episode. On assessment, the patient was noted to have a widened pulse pressure. EKG was performed and was noted to show left anterior fascicular block. CT angiogram of the chest, abdomen, and pelvis which showed a thoracic aortic aneurysm with type B aortic dissection. CT surgery performed an emergent thoracic endovascular aortic repair. Transthoracic echocardiogram showed severe aortic regurgitation and left ventricular ejection fraction of 15-20%. The patient was noted to become cool and clammy post-operatively and was found to be in cardiogenic shock. The patient was started on dobutamine, intravenous furosemide, and sacubitril/valsartan. It was noticed the patient had a left triphalangeal thumb, missing right thumb, and decreased range of motion at the elbow. Forearm x-ray showed radioulnar synostosis in addition to the above apparent findings. The patient was thus diagnosed with Holt-Oram Syndrome after positive TBX5 gene mutation.

Decision-making: The patient ultimately, recovered from his cardiogenic shock. The patient was noted to be at high risk for ischemic workup. It was concluded that the patient needed to be evaluated. Ischemic work up was negative. It was concluded that the patient’s heart failure could possibly be multifactorial in etiology as the patient was noted to have HIV and the diagnosis of Holt-Oram syndrome is associated with an increased risk of cardiovascular complications. 

Conclusion: The patient was discharged on goal directed medical therapy and follow up with cardiothoracic surgery as he was noted to have abdominal aortic aneurysm that needed intervention. The patient was educated on his disease and follow up with genetic counseling.

Learning Objectives
To inform the audience about a rare cardiac disease

The Liver Made Me Do It: Hepatoellular Carcinoma Derived Hypercalcemia of Malignancy
Category: Medicine & Medical Specialties, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Author: Lauren Ellis, BS, Medical Student MS3, School of Medicine, University of North Carolina, Chapel Hill, NC
Coauthors: Michael Pietrangelo, DO, PGY-2, Internal Medicine, New Hanover Regional Medical Center, Jeremy Hess, DO, PGY-2, Internal Medicine, New Hanover Regional Medical Center

Introduction
Hypercalcemia is commonly seen in the hospital setting, with multiple etiologies including hyperparathyroidism, malignancy, and drug side effects. In order to effectively determine the reversibility and treatment of hypercalcemia, the appropriate cause must first be ascertained with laboratory tests and imaging. 

Case Report
A 71-year-old female with bipolar disorder, hepatitis C, and hypertension presented with altered mental status (AMS) and hypercalcemia. The patient was noted to be on lithium and hydrochlorothiazide (HCTZ). Calcium was elevated to 14.8 mg/dL with normal renal function. Extensive workup revealed normal parathyroid hormone
(PTH), low vitamin D, normal lithium levels, and elevated PTH-related peptide. Lithium and HCTZ were held and initially thought to be the cause. Despite aggressive fluids and bisphosphonate therapy the patient’s calcium levels remained high. Her AMS did not improve, therefore calcitonin therapy was initiated. After seven days of therapy, her calcium levels normalized. In the setting of hypercalcemia and mild anemia, Oncology was consulted for evaluation of multiple myeloma (MM). Serum protein electrophoresis (SPEP) showed a 4.22 g/dL spike with a broad band in the gamma region. Her serum kappa/lambda ratio was elevated to 2.01. Skeletal survey was negative for bony involvement, making MM less likely.

Final/Working Diagnosis
In the setting of hepatitis C a right upper quadrant ultrasound showed evidence of cirrhosis with a hepatic mass. Alpha fetoprotein (AFP) was markedly elevated at 94500 ng/mL. Abdominal MRI confirmed a 12 cm space-occupying heterogeneous mass with early arterial enhancement and early venous washout. The patient was diagnosed with hepatocellular carcinoma (HCC), likely causing her hypercalcemia.

Management/Outcome/Follow-Up
This patient was ruled out for excess vitamin D, hyperparathyroidism, drug side effects, and MM. Despite having hypergammaglobulinemia on SPEP the patient had a broad band, concerning for polyclonal gammopathy, a nonspecific finding in any inflammatory or reactive process. Polyclonal gammopathy is rarely seen in MM but for MM to cause hypercalcemia there must be bony involvement, not seen here. It is most likely that the hypercalcemia was caused by HCC as the markedly elevated AFP, MRI findings, and polyclonal gammopathy was diagnostic for HCC. Patient and family elected to pursue hospice care.

Learning Objectives
Upon completion of this lecture, learners should be better prepared to discuss the workup of hypercalcemia and diagnose its etiology.

Doege-Potter Syndrome: A Case of Tumor-Induced Hypoglycemia
Category: Medicine & Medical Specialties, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Author: Jessa Fogel, BA, Medical Student MS3, Vanderbilt University School of Medicine, Vanderbilt University, Nashville, Tennessee

Coauthors: Kyle Kidwell, Internal Medicine Resident, PGY2, Vanderbilt University, Nashville, TN

Introduction:
Doege-Potter syndrome is a paraneoplastic syndrome characterized by hypoglycemia in association with solitary fibrous tumor. Hypoglycemia results from tumor secretion of IGF-2, a hormone with structural similarity to insulin. Definitive treatment of SFT is surgical resection; however, in unresectable cases, systemic therapy and selective embolization can be considered to slow tumor progression, while glucocorticoids can be used to treat hypoglycemia. This report presents the case of a patient with Doege-Potter syndrome secondary to SFT of the brain with metastases to the liver. He had experienced disease progression despite multiple chemo and immunotherapy agents, and was treated with oral steroids and transarterial chemoembolization (TACE) to his liver lesion.

Case Presentation:
A 54 year-old man with solitary fibrous tumor (SFT) of the brain and metastases to the liver developed acute onset right-sided hemiparesis, confusion, and dysarthria. EMS was called, and blood glucose was noted to be 38. The patient was given D50 during transport to the hospital with improvement in his blood sugar and resolution of his neurologic symptoms. He described slightly diminished oral intake over the preceding week but was able to eat a
full meal a few hours prior to symptom onset. He had no history of diabetes or recent medication changes. In the emergency department, his initial glucose after D50 was 102 but then dropped to 50 on subsequent check. He was started on D5LR at 125cc/hr and admitted to the hospital. Non-contrasted head CT scan showed no abnormalities. Over the next 48 hours, he had recurrent hypoglycemia when the D5LR infusion was weaned. Lab workup revealed normal liver function tests, Hgb A1c of 4.2%, low serum insulin level (<1.0), low serum C-peptide (0.5 ng/mL), and low insulin-like growth factor 1 (IGF-1) (21 ng/mL). Cortisol stimulation test demonstrated appropriate rise in cortisol levels. Infectious workup including UA, CXR, and blood cultures were unrevealing. CT abdomen/pelvis demonstrated multiple hepatic metastases from SFT.

Final Working Diagnosis:
Doege-Potter syndrome secondary to solitary fibrous tumor

Management/Follow-Up:
In this case, the patient had previously received bevacizumab/temozolomide, pazopanib, sorafenib, and trabectedin, and had disease progression with all of these agents. Due to need to control the SFT in order to wean the glucose drip, the patient was evaluated by surgical oncology and interventional radiology. His disease was not considered resectable, and the patient underwent transarterial chemoembolization (TACE) of the left lobe of the liver. He was started on oral steroids with the hope of suppressing IGF-2 (3, 7). Over a few weeks, the steroids were weaned. The patient later received a second TACE to the right lobe of the liver; however, within two months he began to experience recurrence of his hypoglycemia and was restarted on an increased steroid dose. He continues to follow with his primary oncologist and will undergo radiation therapy to his largest liver lesion in an attempt to treat both his disease progression and hypoglycemia.

Learning Objectives
Describe the workup and differential diagnosis of hypoglycemia
Explain the pathophysiology of Doege-Potter syndrome
List current treatment strategies for Doege-Potter syndrome and solitary fibrous tumor

Perceived Quality of Care and Maternal/Infant Health Outcomes and PPD
Category: Women’s & Children’s Health, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Annie Thai, BS, Medical Student, Department of Medicine, Tulane University, New Orleans, LA
Coauthors: Dr. Katherine Johnson, Department of Sociology, Tulane University

Background: Studies have shown that quality of care impacts health outcomes (Riedl et al. 2017, Stewart 1995) and emotional health (Stewart et al. 2000). Specifically, prenatal care is associated with birth outcomes such as birth weight (Cox et al. 2011, Ruiz et al. 2014), preterm birth (Willems Van Dijk et al. 2011; Cox et al. 2011), and infant mortality (Cox et al. 2011, Ruiz et al. 2014), and negative perceptions of care are associated with poor birth outcomes (Reichman and Keney 1998; Ruiz et al. 2014). The link between poor prenatal care and poor birth outcomes emphasizes the need to improve the quality of such care to improve maternal and infant health. Yet, more studies are needed to examine the influence of quality of care measures such as communication and the perceptions of quality of care to birth outcomes. Few if not any studies examine the relationship between quality of care to postpartum depression (PPD). Prior work suggests that there is a connection between women’s perceived birth experience and PPD (Bell and Andersson (2016).

Methods/Design: In this study, we examine whether perceived quality of prenatal care contributes to birth outcomes (preterm birth, normal birthweight, vaginal delivery), and postpartum depression. We use data from
the 3rd wave of the Listening to Mothers (LTM) dataset (2013), which is the only national dataset to examine maternity experiences among US women (n = 2400). Through linear and logistic regression analysis, we test the following hypotheses: 1) perceived quality of prenatal care will have a positive association with a) vaginal delivery, b) term pregnancy, and c) birthweight and 2) perceived quality of prenatal care will have a negative association with PPD risk. Quality of prenatal care items asked participants: if their prenatal care providers: 1) spent enough time with them (time spent), 2) answered questions to their satisfaction, and 3) encouraged them to ask questions. Medical jargon was also examined and indicated whether or not their prenatal care providers used medical words they did not understand (yes=1, no=0).

Findings: This study supports the association between quality of care measures and birth outcomes and PPD risk. Women reporting a better interaction quality with their healthcare providers are significantly less likely to have a preterm birth relative to women who report lower quality of interaction. Also, women who report medical jargon during their prenatal visits are less likely to have a normal birthweight baby. These findings suggest that negative experiences like medical jargon can have a negative impact on birth outcomes while positive experiences like better quality of interactions can be protective. In addition, quality of care measures were highly associated with PPD risk. Women who report medical jargon, a lower quality of interaction, and a lower perceived quality of maternity care in the U. S. were more likely to be in the depression risk cutoff group. Although there were inconsistent findings between quality of care measures and birth outcomes, the quality of care measures were a consistent predictor of PPD risk.

Conclusion: These findings demonstrate the importance of quality of care especially relating to postpartum mental health. Studying each of these components of quality of care can lead to strategies to improve both birth outcomes and postpartum experiences.

Learning Objectives
1) To examine the relationship between quality of care and birth outcomes.
2) To examine the relationship between quality of care and PPD risk.
### Table 1. Sample Descriptive Statistics (n = 2165)*

<table>
<thead>
<tr>
<th>Quality of Care</th>
<th>M or %</th>
<th>SD</th>
<th>Min-Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Jargon</td>
<td>0.48</td>
<td>0.50</td>
<td>0-1</td>
</tr>
<tr>
<td>Interaction Quality Scale*</td>
<td>6.92</td>
<td>2.19</td>
<td>0-9</td>
</tr>
<tr>
<td>Perceived Quality of US Maternity Care*</td>
<td>3.17</td>
<td>0.71</td>
<td>1-4</td>
</tr>
<tr>
<td>Time Spent (minutes)</td>
<td>30.02</td>
<td>17.18</td>
<td>1-99</td>
</tr>
</tbody>
</table>

#### Outcomes

<table>
<thead>
<tr>
<th>Delivery mode</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vaginal delivery</td>
<td>0.72</td>
<td>0.45</td>
<td>0-1</td>
</tr>
<tr>
<td>Cesaean</td>
<td>0.28</td>
<td>0.45</td>
<td>0-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Birthweight</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low birthweight</td>
<td>0.07</td>
<td>0.25</td>
<td>0-1</td>
</tr>
<tr>
<td>Normal birthweight</td>
<td>0.83</td>
<td>0.38</td>
<td>0-1</td>
</tr>
<tr>
<td>High birthweight</td>
<td>0.19</td>
<td>0.31</td>
<td>0-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gestational Age</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Preterm birth</td>
<td>0.07</td>
<td>0.26</td>
<td>0-1</td>
</tr>
<tr>
<td>Term birth</td>
<td>0.91</td>
<td>0.28</td>
<td>0-1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHQ 2 Clinical CutOff</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Score = 0 - 2</td>
<td>0.83</td>
<td>0.36</td>
<td>0-2</td>
</tr>
<tr>
<td>Score &gt; 3 (PPD risk)</td>
<td>0.15</td>
<td>0.36</td>
<td>3-6</td>
</tr>
</tbody>
</table>

#### Demographics

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>29.25</th>
<th>6.05</th>
<th>18-45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>0.67</td>
<td>0.47</td>
<td>0-1</td>
</tr>
<tr>
<td>Medicaid</td>
<td>0.31</td>
<td>0.46</td>
<td>0-1</td>
</tr>
<tr>
<td>Education (HS or less)</td>
<td>0.20</td>
<td>0.40</td>
<td>0-1</td>
</tr>
<tr>
<td>White</td>
<td>0.66</td>
<td>0.47</td>
<td>0-1</td>
</tr>
<tr>
<td>Black</td>
<td>0.14</td>
<td>0.35</td>
<td>0-1</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.29</td>
<td>0.46</td>
<td>0-1</td>
</tr>
<tr>
<td>Born in US</td>
<td>0.95</td>
<td>0.23</td>
<td>0-1</td>
</tr>
</tbody>
</table>

#### Obstetric risk factors

<table>
<thead>
<tr>
<th>First birth</th>
<th>0.47</th>
<th>0.50</th>
<th>0-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy Intent</td>
<td>0.95</td>
<td>0.23</td>
<td>0-1</td>
</tr>
<tr>
<td>Prior Cesarean</td>
<td>0.13</td>
<td>0.33</td>
<td>0-1</td>
</tr>
</tbody>
</table>

a. Weighted analyses. b. High = better perceived quality.

### Table 2. Logistic regression results for birth outcomes (n = 2168, unless indicated)*

<table>
<thead>
<tr>
<th>Quality of Care</th>
<th>Vaginal Birth</th>
<th>Preterm</th>
<th>Normal Birthweight (n = 1452)</th>
<th>PPD Risk (PHQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>S.E. OR</td>
<td>B</td>
<td>S.E. OR</td>
</tr>
<tr>
<td>Medical Jargon</td>
<td>-0.03</td>
<td>0.13 OR</td>
<td>-0.09</td>
<td>0.18 OR 1.09</td>
</tr>
<tr>
<td>Interaction Quality Scale*</td>
<td>0.01</td>
<td>0.03 OR</td>
<td>-0.08</td>
<td>0.04 OR 0.95</td>
</tr>
<tr>
<td>Perceived Quality of US Maternity Care*</td>
<td>0.05</td>
<td>0.09 OR</td>
<td>-0.17</td>
<td>0.12 OR 0.85</td>
</tr>
<tr>
<td>Time Spent (minutes)</td>
<td>0.00</td>
<td>0.00 OR</td>
<td>0.00</td>
<td>0.01 OR 1.00</td>
</tr>
</tbody>
</table>

#### Demographics

<table>
<thead>
<tr>
<th>Age</th>
<th>-0.07 ***</th>
<th>0.01 OR 0.94</th>
<th>-0.02</th>
<th>0.02 OR 1.02</th>
<th>-0.03 *</th>
<th>0.02 OR 0.97</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>0.17</td>
<td>0.15 OR 1.19</td>
<td>0.44</td>
<td>0.21 OR 1.55</td>
<td>0.47 *</td>
<td>0.21 OR 1.59</td>
</tr>
<tr>
<td>Medicaid</td>
<td>-0.03</td>
<td>0.15 OR 0.97</td>
<td>0.25</td>
<td>0.20 OR 1.29</td>
<td>-0.09</td>
<td>0.20 OR 0.92</td>
</tr>
<tr>
<td>Education (HS or less)</td>
<td>-0.23</td>
<td>0.17 OR 0.80</td>
<td>0.35 ***</td>
<td>0.21 OR 1.42</td>
<td>-0.05</td>
<td>0.22 OR 0.91</td>
</tr>
<tr>
<td>Black</td>
<td>0.14</td>
<td>0.19 OR 1.15</td>
<td>0.41</td>
<td>0.24 OR 1.59</td>
<td>-0.28 *</td>
<td>0.23 OR 0.96</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.20</td>
<td>0.18 OR 1.22</td>
<td>-0.18</td>
<td>0.25 OR 0.84</td>
<td>0.06</td>
<td>0.25 OR 1.06</td>
</tr>
<tr>
<td>Born in US</td>
<td>0.23</td>
<td>0.29 OR 1.26</td>
<td>0.07</td>
<td>0.40 OR 1.07</td>
<td>-1.01</td>
<td>0.61 OR 0.37</td>
</tr>
</tbody>
</table>

#### Obstetric risk factors

<table>
<thead>
<tr>
<th>First birth</th>
<th>-1.54 ***</th>
<th>0.15 OR 0.22</th>
<th>0.09</th>
<th>0.19 OR 1.10</th>
<th>-0.27</th>
<th>0.20 OR 0.76</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy Intent</td>
<td>0.33</td>
<td>0.27 OR 1.59</td>
<td>-0.01</td>
<td>0.07 OR 0.99</td>
<td>-0.46</td>
<td>0.44 OR 0.67</td>
</tr>
<tr>
<td>Prior Cesarean</td>
<td>-21.59</td>
<td>2398.82 OR 0.00</td>
<td>0.33</td>
<td>0.25 OR 1.42</td>
<td>-0.24</td>
<td>0.30 OR 0.79</td>
</tr>
</tbody>
</table>

a. Weighted analyses. b. High = better perceived quality. c. compared to low birthweight. d. High = higher PPD Risk.

### Table 3. Logistic and linear regression results for Medical Jargon and Interactional Quality (n = 2169)*

<table>
<thead>
<tr>
<th>Quality of Care</th>
<th>Medical Jargon</th>
<th>Interactional Quality*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>S.E. OR</td>
</tr>
<tr>
<td>Perceived Quality of US Maternity Care*</td>
<td>-0.16 *</td>
<td>0.07 OR 0.86</td>
</tr>
<tr>
<td>Time Spent (minutes)</td>
<td>0.02 **</td>
<td>0.06 OR 1.00</td>
</tr>
</tbody>
</table>

#### Demographics

<table>
<thead>
<tr>
<th>Age</th>
<th>-0.95 ***</th>
<th>0.01 OR 0.95</th>
<th>-0.04 ***</th>
<th>0.00 OR 0.99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>-0.23</td>
<td>0.11 OR 0.80</td>
<td>-0.13 **</td>
<td>0.04 OR 0.88</td>
</tr>
<tr>
<td>Medicaid</td>
<td>0.08</td>
<td>0.11 OR 1.08</td>
<td>0.01</td>
<td>0.01 OR 1.01</td>
</tr>
<tr>
<td>Education (HS or less)</td>
<td>0.30 **</td>
<td>0.12 OR 1.39</td>
<td>0.14</td>
<td>0.65 OR 1.15</td>
</tr>
<tr>
<td>Black</td>
<td>0.09</td>
<td>0.14 OR 1.09</td>
<td>0.11</td>
<td>0.65 OR 1.11</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.31</td>
<td>0.13 OR 1.36</td>
<td>0.17 ***</td>
<td>0.65 OR 1.18</td>
</tr>
<tr>
<td>Born in US</td>
<td>0.25</td>
<td>0.31 OR 1.78</td>
<td>0.14</td>
<td>0.68 OR 1.15</td>
</tr>
</tbody>
</table>

#### Obstetric risk factors

<table>
<thead>
<tr>
<th>First birth</th>
<th>0.22 *</th>
<th>0.30 OR 1.24</th>
<th>0.08 *</th>
<th>0.04 OR 1.09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy Intent</td>
<td>0.13</td>
<td>0.21 OR 1.66</td>
<td>0.03</td>
<td>0.08 OR 1.03</td>
</tr>
<tr>
<td>Oral contraceptives</td>
<td>-0.14</td>
<td>0.15 OR 0.71</td>
<td>-0.11</td>
<td>0.08 OR 0.90</td>
</tr>
</tbody>
</table>

a. Weighted analyses. b. High = better perceived quality.

p < 0.05, *p < 0.01, ***p < 0.001

b. Compared to low birthweight
Happy Hypoxic: unaware young man with DVTs and pulmonary emboli

Presenting Author: Christine Sykalo, DO, Internal Medicine PGY-1, Department of Medicine, Northeast Georgia Medical Center, Gainesville, GA

Coauthors: Rami Arfoosh, MD, Pulmonology, Critical Care, Sleep Medicine, NGMC

Intro: COVID-19, is a multi-systemic disease, which was announced to be a pandemic by the WHO within three months of the first reported case. It was initially characterized as a respiratory virus; however, hypercoagulability and development of strokes and deep vein thrombosis (DVTs) have also been seen. We present a case of a young patient with no past medical history who developed minimally symptomatic bilateral DVTs and pulmonary emboli (PE).

Case: A 26 year old male with no know past medical history, presented with complaints of cough, fever, and diarrhea. Per patient, his symptoms started two weeks prior to presentation, and tested negative on COVID nasal swab within that time frame. His cough was improving; however, he began developing vomiting after meals two days prior to his admission. Patient decided to come to the ED because of inability to keep food down. Additionally, he reported bilateral mid-calf pain with ambulation for three days prior to admission, and denied any shortness of breath. Family history was unremarkable, and social history was notable for binge drinking.

Admission vital signs were within normal limits, except for a fever of 38.1 C and oxygen saturation of 91% on room air. Notable aspects of physical exam were that patient had no increase in work of breathing, but did have fine inspiratory crackles at the bilateral bases. Musculoskeletal exam revealed cold feet and tenderness to palpation to midline calves bilaterally, without edema or erythema. Labs were positive for D-dimer > 4, and elevated inflammatory markers. A duplex ultrasound of the lower extremities showed thrombosis of the bilateral posterior tibial veins and left peroneal vein. Pulmonary CTA showed bilateral pulmonary emboli with numerous filling defects in the pulmonary arteries, along with peripheral interstitial densities.

Diagnosis: COVID nasal swab PCR was negative, but the IgG serum antibody was positive.

Management: Patient was started on a heparin drip, and received IV dexamethasone for four days. Patient received one day of Remdisivir, which was then stopped, due to significant improvement. Patient was weaned off supplemental oxygen, and discharged on apixaban and additional six days of 4 mg oral dexamethasone.

Learning Objectives
We would like to raise awareness of the effects it can have on seemingly healthy and young individuals, and recommend having a high index of suspicion of PE in patients with acute hypoxic respiratory failure, even if they lack other classic symptoms. Additionally, we ask all providers to address alcohol abuse with their patients, and have open discussions about mental health during the pandemic. Finally, we encourage use of evidence based medicine, and following treatment guidelines that are being developed and updated by the Infectious Disease Society of America, in concordance with new research.

Post-COVID Lymphadenopathy in Patient with Remote COVID-19 Infection

Presenting Author: Christine Sykalo, DO, Internal Medicine PGY-1, Department of Medicine, Northeast Georgia Medical Center, Gainesville, GA

Coauthors: Rami Arfoosh, MD, Pulmonology, Critical Care, Sleep Medicine, NGMC

Intro: COVID-19, is a multi-systemic disease, which was announced to be a pandemic by the WHO within three months of the first reported case. It was initially characterized as a respiratory virus; however, hypercoagulability and development of strokes and deep vein thrombosis (DVTs) have also been seen. We present a case of a young patient with no past medical history who developed minimally symptomatic bilateral DVTs and pulmonary emboli (PE).

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Learning Objectives
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Presenting Author: Chelsey Danielle Stewart, DO, Internal Medicine Resident PGY-1, Graduate Medical Education - Internal Medicine, Magnolia Regional Healthcare Center, Corinth, Ms

Coauthors: M. Hayes Baker, MD, Program Director of Internal Medicine Residency, MRHC

Introduction: Computed tomography (CT) is an informative tool in the diagnosis of COVID-19. Common CT imaging findings include bilateral ground-glass opacities and peripheral air space opacities. A more infrequent finding is lymphadenopathy. While rare, lymphadenopathy, especially hilar lymphadenopathy, has been reported on CT imaging of COVID-19 patients. Speculation has arisen as to this finding being isolated to severe cases of the disease. In this case report, we will discuss post-COVID lymphadenopathy in a 26 year-old female who was diagnosed with COVID-19, not requiring hospitalization, approximately 4 months prior to imaging findings.

Case Presentation: Patient is a 26 year-old female with past medical history of chronic sinusitis, pre-diabetes mellitus, morbid obesity, depression, and anxiety who initially presented with left lower abdominal pain that radiated into her lower back. Patient reported her pain was a 7/10 in intensity. She also reported associated subjective fever. On presentation vital signs were unremarkable except for patient’s blood pressure which was elevated at 172/82. Significant laboratory findings included a WBC of 10.9, AST 103, ALT 207, and an alkaline phosphatase of 354. CT of the chest/abdomen/pelvis was obtained which showed hilar and mediastinal lymphadenopathy as well as unchanged hepatomegaly from May of 2019, but newly identified splenomegaly. Recommended follow-up PET-CT confirmed pathologically enlarged hypermetabolic lymph nodes in the neck, chest, and abdomen as well as hypermetabolic lymphoid tissue in the palatine tonsils and adenoid tissue. Differential diagnosis at this time included lymphoma versus sarcoidosis.

Final/Working Diagnosis: Initial tissue sampling was attempted by bronchoscopy, but the tissue obtained did not appear to accurately represent the cell population present. An ultrasound guided biopsy was then performed on the right submandibular lymph node. Flow cytometry did not detect any clonal B-cells or any atypical T-cell population. These results along with the pathological examination confirmed the sample consisted of lymphoid tissue with reactive hyperplasia.

Management: A repeat CT scan will be obtained in 6 months to ensure resolution of lymphadenopathy. It is important to note this occurrence and that lymphadenopathy could be an associated finding on imaging well after the patient has recovered from COVID-19.

Learning Objectives

1.) Lymphadenopathy, especially hilar lymphadenopathy, can be an imaging finding associated with COVID-19.
2.) Lymphadenopathy could develop or persist well after the patient has recovered from COVID-19 and is not just associated with cases of severe COVID-19 infection as once speculated.
3.) Further investigation is needed to determine the relevance of lymphadenopathy in COVID-19 and if it plays a role in the overall disease process.

Double Inferior Vena Cava With Numerous Venous Anomalies - A Case Report

Category: Surgery & Surgical Specialties, Poster Presentation

Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Tristan Smyth, BS, OMS-2, Department of Anatomy - Arkansas College of Osteopathic Medicine, Arkansas College of Osteopathic Medicine, Fort Smith, AR

Coauthors: Garrett Schick, M.S., Second-year student, ARCOM, Fort Smith, AR, Zachary Throckmorton, PhD, Associate Professor, Anatomy, ARCOM, Fort Smith, AR
INTRODUCTION: Routine laboratory dissection revealed a double inferior vena cava (IVC) and numerous other venous anomalies. RESOURCES: A 76-year-old European-descended female whose cause of death was hemorrhagic infarction of the brain. BACKGROUND: Double IVCs occur in 0.2-0.3% of the population. They are congenital in nature, manifesting between the 7th and 10th weeks of development, due to failure of the left supracardinal vein to regress. Various types of double IVC have been described, each type differing from another based on the presence, location, and morphology of a communicating bridge at the base of the sacrum; however, there is yet to exist a description of the anatomic variation characterized herein. DESCRIPTION: The IVC bifurcates equally at the renal veins. The left and right renal veins join the left and right IVCs, respectively. The left gonadal vein joins the left IVC, whereas the doubled right gonadal veins join the right renal vein. At S1, an oblique communicating vessel conjoins the left and right IVCs. On the right, the communicating bridge gives rise to the right internal iliac vein (IIV) and a communicating branch between the right external iliac vein (EIV) and right IIV. On the left, the communicating bridge yields the left proper IIV. The left IVC gives rise to the left EIV, which produces an accessory left IIV. Initially, the left EIV drains the internal pelvic bowl. Here, there is a superior communicating branch connecting the left accessory and proper IIVs. Distally, the accessory IIV produces the superior gluteal vein. Level with the left superior gluteal vein, there is an inferior communicating branch between the accessory and proper IIVs. Beyond this branch, the left EIV proceeds typically. The left proper IIV drains the middle rectal and inferior gluteal veins. SIGNIFICANCE: Embryologically, this case presents vascular malformations spanning across both the abdominal IVC and the pelvic iliac veins. Such continuity is rarely reported in cases of double IVCs. Surgically, there are many implications, as this anatomic variation could complicate thromboembolism filter placement, ovarian vein embolization, labial varices pathogenesis, and trauma.

Learning Objectives
1. Discuss the embryogenesis of the abdominal IVC.
2. Contrast the typical structure of the abdominal IVC and common iliac veins to the structure of the case presented.
3. Propose ways that this anomaly could complicate common pathologies and procedures.

Hyperbaric Oxygen for Threatened Post-Mastectomy Skin Flaps in a Patient Undergoing Breast Reconstruction in the Setting of Adjuvant Radiation Therapy

Category: Surgery & Surgical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Roxana Azimi, MS, Medical Student, Year 3, Department of Medicine, Carle Illinois College of Medicine at the University of Illinois Urbana-Champaign, Champaign, Illinois

Coauthors: Victor Earl Stams, MD, Plastic and Reconstructive Surgery, Carle Illinois College of Medicine, Champaign, IL

Introduction

This is a case of a patient who underwent radiation therapy after the first stage of post-mastectomy breast reconstruction using Wise pattern approach, posing ischemic threat to one of her skin flaps and the underlying tissue expander. Hyperbaric oxygen was considered as a potential therapy to restore skin flap viability.
Case Presentation

A 59-year-old woman with type 2 diabetes mellitus, hypertension, obesity, and stage IIB triple-negative invasive ductal carcinoma of the right breast presented for bilateral mastectomy and reconstruction with implantation of bilateral tissue expanders (Allergan 750 mL) with acellular dermal matrix slings (AlloDerm). Preoperatively, the patient underwent neoadjuvant chemotherapy, receiving doxorubicin and cyclophosphamide followed by paclitaxel and carboplatin. Two weeks post-surgery, the patient’s incisions were healing well without signs of infection.

In the ensuing months, both breasts were complicated by wound dehiscence at the triple point. The right breast was managed with a single debridement with application of silver nitrate and bacitracin. The left breast was managed in the same fashion initially but ultimately required hospital admission for further debridement of the wound bed due to necrotic tissue and purulent drainage.

Nearly ten months after the initial reconstruction, the patient returned with severe changes to the right breast mastectomy flap as a result of radiation treatment. At this visit, there was concern for mastectomy flap failure and tissue expander threat in light of apparent severe radiation dermatitis, erythema, superficial skin breakdown, and associated cellulitis. The patient was immediately referred for hyperbaric oxygen therapy at an external facility with a 10-day course of doxycycline. The patient returned two months later with resolved radiation dermatitis and the decision was made to proceed with bilateral second-stage breast reconstruction with replacement of tissue expanders to permanent implants.

Working Diagnosis

The most likely diagnosis in this patient is radiation-induced dermatitis of the right breast with apparent skin necrosis and possible underlying necrotic involvement of the tissue expander.

Management/Outcome

The right breast was successfully salvaged with hyperbaric oxygen therapy, allowing for subsequent second-stage reconstruction with replacement of tissue expanders with bilateral silicone implants.

Learning Objectives

1. Adjuvant radiation therapy in the setting of post-mastectomy breast reconstruction can pose significant challenges to successful reconstruction, including ischemic changes to the overlying skin flap, potentially threatening the underlying tissue expander or implant.

2. Hyperbaric oxygen should be considered as a salvage therapy in patients who have undergone radiation therapy during breast reconstruction and are presenting with features of tissue injury.

TRIMETHOPRIM/SULFAMETHOXAZOLE INDUCED CUTANEOUS LEUKOCYTOLASTIC VASCUITIS

Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

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Coauthors: Rami Sakaan, MD, Internal Medicine Resident PGY², Magnolia Regional Health Center, Corinth, MS

Background: Leukocytoclastic vasculitis is a type of vasculitis that involves small blood vessels in which the inflammatory deposition is composed of neutrophils predominantly. Multiple medications are reported as a cause of cutaneous leukocytoclastic vasculitis. In this case, we discuss a 68-year-old Caucasian female with an interesting presentation of leukocytoclastic vasculitis.

Case: The patient is a 68 year old Caucasian female with a past medical history of CAD and HFrEF who presents to the hospital for multiple falls. The patient was recently discharged for amputation with superimposed cellulitis. Bactrim was started at the end of her previous hospitalization, 1 week prior to the current hospitalization. 3-4 days after initiation of antibiotics, dark red spots were noticed on her legs. Labs were ordered which consisted of ESR, CRP, cryoglobulins, acute hepatitis panel, HIV, ANCA panel, ANA panel, C3, C4, and immunoglobulins. ESR was noted to be greater than 140 and CRP was noted to be 2.3. A skin punch biopsy was performed and revealed perivascular infiltrate predominantly in the superficial blood vessels composed of lymphocytes and neutrophils coinciding with cutaneous leukocytoclastic vasculitis.

Decision-making: The decision to provide therapeutic steroids versus holding the causative agent being Trimethoprim/Sulfamethoxazole is very keen in this case. Providing steroids to the patient who recently underwent an amputation and had a superimposed cellulitis could exacerbate the infection and potentiate worsening symptoms for the patient. Overall, it was concluded that holding the antibiotic was the best treatment.

Conclusion: The typical histopathologic feature of cutaneous vasculitis is the presence of vasculitis of small vessels, postcapillary venules are the most commonly involved. This vasculitis is characterized by a leukocytoclasis. Lesions most commonly occur in the lower extremities. A mild leukocytosis with or without eosinophilia is characteristic, as is an elevated ESR. Cutaneous vasculitis is diagnosed by demonstration of vasculitis on a biopsy. In patients with cutaneous vasculitis it is important to search for the etiology of the vasculitis.

Learning Objectives
To inform readers about different medications that can indice vasculitis

**Susac Syndrome**

Category: Medicine & Medical Specialties, Poster Presentation

Disclosure: The authors did not report any financial relationships or conflicts of interest

[Supplemental Video]

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Coauthors: Phani P Morisetti MD, Associate Professor, Department of Nephrology and Internal Medicine, LSU Health Shreveport, Louisiana

Introduction

With an unknown prevalence, Susac syndrome is a rare autoimmune endotheliopathy that causes micro-ischemic damage to vessels in the brain, ears, and eyes. It is mainly seen in young adults, with a median age of onset of 32 years. Here, we report a case of Susac syndrome diagnosed in an elderly female.

Case Presentation

History: Our patient is a 62-year-old female, with significant history of type 2 diabetes mellitus, essential hypertension, stable ascending aortic aneurysm, and pituitary adenoma status-post resection, presented to the emergency department with acute onset of worsening weakness of bilateral lower extremities, ataxia with recurrent falls, and bilateral hearing loss for one week prior to presentation. During the hospital course, she
became confused and disoriented to time and place. She eventually developed transient blurring of vision. There was no reported history of recent travel, fever, rash, headache, urinary or bowel incontinence, seizures, loss of consciousness, chest pain, or shortness of breath.

Physical Exam: On the physical exam, the patient had a flat affect and was alert and oriented to name. Weber’s test is localized to the midline and Rinne’s test showed bilateral air conduction greater than bone conduction, suggestive of bilateral sensorineural hearing loss. All cranial nerves were intact. Motor strength, power, tone, reflexes, sensations, and coordination were intact.

Differential Diagnosis: Guillain-Barre syndrome, brain mass, brain abscess, encephalitis, inflammatory myopathy, peripheral neuropathy, idiopathic intracranial hypertension

Tests and results: Patient’s blood counts, serum chemistries, liver and renal function tests were within normal values. Blood alcohol level, urine drug screen, heavy metal screen, and urine fractionated porphyrin were negative. Acute hepatitis panel, RPR, HIV, COVID-19, and diphtheria antibody, and anti-nuclear antibody screen were negative. MRI brain showed minimal chronic microvascular ischemic changes. MRI cervical, thoracic, and lumbar spines were all unremarkable. CSF showed RBC 14,100 cu/mm, WBC 0 cu/mm, glucose 54 mg/dl, and protein 74 mg/dl. CSF culture, herpes PCR, VDRL, and paraneoplastic panel were negative. Electromyography and nerve conduction study revealed no electrophysiological evidence of inflammatory or degenerative myopathy. Electroencephalogram was normal. Serum protein electrophoresis was unremarkable. Rheumatoid factor, anti-citrullinated peptide antibody, Lyme antibody, acetylcholine receptor ganglionic neuronal antibody, CRMP-5 IgG antibody, neuronal V-G K+ channel antibody, NMO antibody, N-type and PQ-type calcium channel antibodies, AGNA type 1,2,3 antibodies, PCA 1,2,Tr antibodies, amphiphsin antibody, striated muscle antibody, and ganglioside antibody were all negative.

Diagnosis
As the majority of the tests was unrevealing, the patient was initially treated as a variant of Guillain-Barre syndrome with 5 doses of intravenous immunoglobulin, but had no improvement. She also underwent a course of plasma exchange therapy without any improvement. Later, due to sudden onset of transient vision loss, neuro-ophthalmology was consulted. Patient was noted to have focal retinal whitening at the proximal trunk of the inferotemporal vascular arcade with several faint peripapillary cotton wool spots suggestive of retinal vasculitis. Due to the patient’s triad of retinal changes, bilateral sensorineural hearing loss, and confusion, the patient was ultimately diagnosed with Susac syndrome.

Management
Patient received an infusion of cyclophosphamide 800mg along with mesna, which improved her symptoms gradually over a week. She is scheduled for outpatient infusion in two weeks with a repeat in 6 months. Patient discharged to a nursing home for rehabilitation and assistance.

Learning Objectives
- Identify and raise awareness of rare diseases which we may encounter in our clinical practice
- Discuss the various neurological testing performed prior to coming to a diagnosis
- Describe the physical features, presentation, and management of Susac syndrome
- Raise the importance of ophthalmological evaluation and its key role in identifying Susac syndrome

Hyperthyroidism and Sexual Dysfunction; Premature Ejaculation and Persistent Genital Arousal Disorder
Category: Surgery & Surgical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background: Hormonal imbalances have been associated with various sexual dysfunction disorders. In particular, hyperthyroidism has been found to correlate to premature ejaculation (PE) and persistent genital arousal disorder (PGAD).

Aim: To review the literature regarding hyperthyroidism effects on sexual dysfunction, with a focus on hyperthyroidism and PE and PGAD.

Methods: A comprehensive review of PubMed articles and clinical studies was performed using keywords “hyperthyroidism” and/or “premature ejaculation” and/or “persistent gonadal arousal disorder” and/or “sexual dysfunction” and/or “dopamine genital hypersensitivity.”

Main Outcome: The symptoms, classification, pathophysiology, diagnostic considerations, and physiological mechanism of hyperthyroidism on PE and PGAD were reviewed. This review describes the evaluation, clinical presentation, and mechanism of treatment for patients presenting with PE and PGAD with hyperthyroidism.

Results: A connection between thyroid-produced hormones (TH) and dopamine levels could be linked to PE and PGAD, as increased dopamine levels can lead to a hypersensitive genital area. Studies have demonstrated a plausible hormonal connection between TH as 7-hydroxy-2-(di-N-propylamino) tetralin (7-OH-DPAT), showing the effect of brain oxytocin receptors mediating ejaculation. Multiple case studies have reported that dopamine antagonists decrease hypersensitivity in the genital region.

Conclusion: The effect of thyroid dysfunction on sexual dysfunction needs to be further investigated, especially with a emphasis on the physiological mechanisms involved with thyroid hormones and dopamine.

Learning Objectives
Learners should be prepared to gain an understanding of how disorders such as premature ejaculation and persistent genital arousal disorder maybe connected to hyperthyroidism. These disorders are distressing for people, preventing them from seeking normal relationships and/or sexual encounters. Additionally, this presentation will emphasize the importance of thyroid function and how it should be included in the sexual dysfunction evaluation, as symptoms of premature ejaculation and persistent genital arousal disorder can be a result of the thyroid hormone effect on dopamine. Finally, it will cover the possible treatment of premature ejaculation with dopamine antagonist.
### Table 1. Using the Premature Ejaculation (PE) Diagnostic Tool the hormone level of 102 sexually active men were evaluated. Significant findings showed men with PEDT score ≥11 (PE group) has increased levels of thyroidstimulating hormone (TSH), follicle-stimulating hormone (FSH), and luteinizing hormone (LH).

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<th>FSH (mIU/mL)</th>
<th>LH (mIU/mL)</th>
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Improving Discussions and Documentation of E-cigarette Use During Well-Child Visits in an Adolescent Medicine Clinic

Category: Women’s & Children’s Health, Poster Presentation

Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background: Electronic cigarette (e-cigarette) use has become increasingly popular among adolescents and young adults. Ongoing evidence suggests that e-cigarettes, commonly containing nicotine, are associated with adverse health outcomes when used during adolescence and young adulthood, such as lung injury, long-term effects on the developing brain, and increased rates of other substance use. Health professionals have an important role in screening for e-cigarette use, educating patients about risks, and encouraging cessation, yet many do not consistently discuss and document conversations about these topics with patients. Perspectives of adolescents and their providers on e-cigarette use were obtained and informed the implementation of two interventions to improve rates of patient-provider discussions and subsequent clinical documentation of e-cigarette use.

Methods: An initial survey was completed by attending and resident physicians to understand knowledge and care gaps with regard to e-cigarette use. Patient surveys were conducted at the end of well-child visits to capture whether e-cigarette use was discussed during the visit, frequency of e-cigarette use, preferred terminology for referring to e-cigarettes, and which substances were commonly delivered. Two interventions were implemented to improve patient-provider discussions and clinical documentation of e-cigarette use during well-child visits. Baseline and post-intervention patient-provider discussion rates (per patient surveys) and corresponding clinical documentation rates (per EHR chart review) were compared.
Results: Three key themes emerged from the initial provider survey: (1) providers desired educational materials (i.e. handouts, websites) to share with patients, (2) providers wanted to know the terminology used by adolescents to refer to e-cigarettes, and (3) optimal discussion and documentation of e-cigarette use occurs during the HEEADSS review and corresponding visit note documentation.

Two interventions were developed to improve discussions and documentation of e-cigarette use: (1) an informational poster added to patient rooms, and (2) an expanded documentation note template that included a comprehensive multi-select substance list for the HEEADSS review.

Success of both discussion and documentation of e-cigarette use during well-child visits increased by 20.58% after both interventions were implemented. The rate of discussions increased by 9.32% after the addition of informational posters to patient rooms. The rate of documentation increased by 43.04% after the addition of an expanded documentation note template. Most frequently reported terms by patients for referring to e-cigarettes included “vape”, “JUUL”, and “ecig”. The term “dab pen” was also used in conjunction with use of marijuana or THC oil additives.

Conclusion: An educational poster in patient rooms was most helpful for increasing discussions of e-cigarette use during well-child visits, and providing an expanded note template improved the thoroughness of discussion of substance use and related visit documentation. Lack of standardization across clinic providers resulted in inconsistencies in rates of discussion and documentation of e-cigarette use during well-child visits that was improved after the two interventions.

Learning Objectives
- surveil for change in patient behaviors/culture and update their clinical workflows and tools to reflect these changes in their practice
- identify a gap in patient care and provide patient-informed tools that facilitate conversation through prompting of both the patient and provider

![Intervention Results Graph](image)
Uncontrolled Sarcoidosis Presenting as Sarcoid Tenosynovitis

Category: Medicine & Medical Specialties, Poster Presentation

Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Coauthors: Michael Pietrangelo, DO, PGY-2, Department of Internal Medicine, New Hanover Regional Medical Center, Wilmington, NC, Lauren Ellis, MS3, University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC

Introduction: Sarcoidosis, an idiopathic inflammatory disease, has a prevalence of 1-40 cases per 100,000 with a higher number of cases reported in Nordic countries and African Americans. The most common constitutional manifestations include fever, night sweats, weight loss, and fatigue. The most common organs involved are lungs (>90%), liver (50-80%), spleen (40-80%), skin (25%), nervous system (10%), and heart (5%) however only 22 cases of sarcoid tenosynovitis have been reported.

Case: A 57-year-old African American female with type 2 diabetes mellitus, obesity, obstructive sleep apnea, hypertension, atrial fibrillation, complete heart block post pacemaker placement, and pulmonary sarcoidosis with chronic steroid use but no immunomodulators presented with worsening shortness of breath and bilateral phalangeal swelling with intermittent pain for 4 years, but now unable to wear rings. Physical exam showed soft tissue hypertrophy of bilateral hands with decreased flexion at proximal interphalangeal joints and no macroglossia. Concern initially was for acromegaly as laboratory results showed a C-reactive protein elevated at 2.76 mg/dL, mildly elevated insulin-like growth factor (IGF-1) at 177 ng/dL, negative rheumatoid factor, and a negative anti-cyclic citrullinated peptide antibody. Bilateral hand x-rays showed degenerative changes. Patient was referred to rheumatology who pursued workup for acromegaly, checking repeat IGF-1 and growth hormone.
(GH), which were normal, and referred to endocrinology. Endocrinology, after reviewing old pictures without facial changes, normal IGF-1, GH and anterior pituitary function, believing the cause to be sarcoid tenosynovitis. Gold standard magnetic resonance imaging was unable to be obtained due to an incompatible pacemaker and positron emission tomography (PET) scan showed multiple areas of hypermetabolism.

Diagnosis: Uncontrolled sarcoidosis with sarcoid tenosynovitis.

Management: This case represents a rare complication of sarcoidosis. Diagnosis is supported by clinical history, rule-out of more common etiologies, and PET imaging exhibiting active disease, though hands were not directly visualized. Patient now plans to pursue more directed therapies for her sarcoidosis given poor control on current corticosteroid regimen and worsening disease manifestations. Further directed hand imaging could be useful but would not change management at this time.

Learning Objectives
1. Know common and uncommon manifestations of sarcoidosis.
2. Understand appropriate work-up, including rheumatologic and endocrinological approach, to hand joint pain and inflammation.

When Probiotics Attack: Hemorrhagic Shock Complicated by Lactobacillus rhamnosus Septic Shock
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Coauthors: Jeremy Hess, DO, Internal Medicine Resident, NHRMC Wilmington, NC, Lauren Ellis, BS, Medical Student MS3, UNC Chapel Hill, NC

Introduction
A common result of alcohol use disorder is gastrointestinal bleeds (GIB) which can manifest as life threatening variceal bleeding. Variceal bleeding is an emergency, requiring admission to the intensive care unit (ICU), endoscopy, and often blood transfusions. Despite aggressive care, variceal bleeding still carries a high mortality rate.

Case Report
A 39-year-old male with a history of alcohol use disorder presented with hemorrhagic shock due to GIB and was started on pantoprazole and octreotide infusion and given IV ceftriaxone. Exam showed a massively distended abdomen with jaundice. Due to hemodynamic instability with massive hematemesis, patient went into cardiac arrest and was emergently intubated and gastroenterology consulted for endoscopy while a massive transfusion protocol was initiated and patient transferred to the ICU. Initial endoscopy showed grade 3 esophageal varices with poor visualization of the stomach and five bands placed. Despite banding attempt, bleeding persisted and an emergent transjugular intrahepatic portosystemic shunt (TIPS) was performed, but due to the density of the liver, the needle was unable to pass through the cirrhotic liver and a Blakemore tube had to be placed. After cessation of bleeding, a TIPS was successful and patient successfully extubated and transferred to the floor but required emergent intubation again and ICU readmission. Blood cultures were drawn and empiric
treatment initiated with broad spectrum antibiotics. Postmortem, cultures grew Lactobacillus rhamnosus which caused septic shock combined with the hemorrhagic shock.

Final/Working Diagnosis

GIB, complicated by septic shock secondary to Lactobacillus rhamnosus, is an extremely rare complication. This is due to the translocation of normal intestinal flora, but is normally seen in intestinal perforations in immunocompromised patients. In this case, the GIB allowed the translocation of the bacteria into the bloodstream despite this being intestinal flora. Treatment was initiated with broad spectrum antibiotics.

Management/Outcome/Follow-Up

Despite multiple massive transfusion protocols, two Blakemore insertions, three TIPS, and two intubations, patient’s bleeding was unable to be adequately controlled and in the setting of combined hemorrhagic and septic shock, he expired. Postmortem, blood cultures resulted with Lactobacillus rhamnosus which would have been covered with the vancomycin, piperacillin-tazobactam, and metronidazole, but most strains are susceptible to ampicillin or clindamycin.

Learning Objectives

Upon completion of this lecture, learners should be better prepared to recognize rare complications of common disease processes in the ICU and manage them.

Late presentation of Iliac vein compression syndrome in a patient with multiple Hypercoagulable factors

Category: Medicine & Medical Specialties, Poster Presentation

Disclosure: The authors did not report any financial relationships or conflicts of interest

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Case: 68 y/o F patient presented with left medial thigh pain and gradual swelling for approximately three weeks with worsening pain and redness on the day of presentation. She had a sibling who died at the age of 40 from a blood clot. No personal history of VTE. She denied chest pain, shortness of breath, fever, chills. She has cor-pulmonale with emphysema, CHF, HTN, recent hospital admission for CHF exacerbation requiring thoracentesis. She is a current every day smoker, On examination Vitals Temp 98.5. PR 98.5, RR :18, BP :116/93. Pulse oximetry 100 on room air. Left lower extremity examination revealed edema with erythema to the medial thigh, tenderness, normal sensation and cold Toes and diminished pulses. Right lower extremity examination was unremarkable. Initial Laboratory investigations HGB 14.5 HCT 46.7, Platelet count 354, the rest of hematology and metabolic panels were normal.

Duplex ultrasound evaluation showed extensive DVT of the leg. Following vascular surgery consultation CTA arterial and venous phases was obtained, which showed a clot up to and including the left common iliac vein with appearance of May Thurner syndrome

She was started on IV heparin and underwent placement of lytic catheter for lysis and thrombectomy and subsequent staged angioplasty and stenting to treat the extensive DVT with underlying May-Thurner syndrome
Discussion: May-Thurner syndrome is an anatomically variant condition in which the left common iliac vein is compressed between right common iliac artery and the spine and the incidence is highest among females between ages 20 - 30 (1.) which can result in left lower extremity DVT. Hemodynamically significant left common iliac vein compression is a frequent anatomic variant in asymptomatic individuals (3.) However there have been reported cases of incidental diagnosis of May-Thurner syndrome with underlying hypercoagulable state such as pregnancy and OCP use following development of left sided DVT (2.) For patients like this lady who present late with extensive DVT and underlying May-Thurner syndrome it would be advisable for them to be followed up for underlying hypercoagulability rather than just May-Thurner being the only reason for unprovoked DVT considering her medical history of CHF, cor-pulmonale, and smoking history as well which are well established hypercoagulable states

Learning Objectives
Learning Objective 1: May-Thurner syndrome is largely underdiagnosed as it is an anatomic variant . Hence all patients with extensive DVT on doppler scan should have CT angiography to rule out anatomical abnormalities like May- Thurner syndrome.

Learning Objective 2: The late presentation of extensive DVT in this patient with May-Thurner syndrome makes the predisposing factors more likely to be her multiple co-morbidities which made her hypercoagulable.

Pseudo-pseudo Meigs Syndrome- a unique presentation of a rare side effect of Leflunomide
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

Presenting Author: Malvika Lall, BS, Medical Student MS3, Department of Medicine, Division of Rheumatology, University of South Alabama College of Medicine, Mobile, AL

Coauthors: Christopher Adams, M.D., Chief of Rheumatology at East Alabama Rheumatology Clinic, Opelika, AL

Introduction:
Pseudo pseudo Meigs syndrome (PPMS), also known as Tjalma syndrome, is a rare condition, that is seen in patients with systemic lupus erythematosus (SLE), with abnormal renal function. It usually presents with pleural effusion, ascites and an elevated CA 125 without evidence of an ovarian tumor. It has also been reported with the use of the disease modifying drug, leflunomide. Although it is a condition seen mostly associated with SLE, it can be seen with mixed connective tissue disorder (MCTD). We present a case of a 67-year-old female with PPMS after administration of leflunomide therapy for her undifferentiated connective tissue disorder. Interestingly, this patient did not have ascites and had a normal renal function. The patient’s pleural effusion resolved and CA 125 normalized after stopping leflunomide. There has been a reported case of PPMS with normal renal function, and a reported case of PPMS without the ascites component in a patient with SLE and lupus nephritis. Here we discuss the role of Leflunomide as a probable cause of this variant of PPMS in our patient.

Case Presentation:
A 67-year-old female with PMHx of undifferentiated connective tissue disorder, hypertension, hyperlipidemia, and coronary artery disease presented with shortness of breath and was found to have bilateral pleural effusion and pericardial effusion without tamponade. Examination of the patient revealed no fever (temp of 97.8 F), vitals were stable (BP 135/65mmHg; HR 73/min; RR 16/min) with an oxygen saturation of 96% on room air. Patient’s
medications included olmesartan, amlodipine, bisoprolol, atorvastatin, oxycodone, leflunomide, hydroxychloroquine, omeprazole, duloxetine and cefemilline. Initial labs showed a normal WBC, normal albumin, iron deficiency anemia (total iron 19 and % saturation 6), an elevated CRP 15.4 (normal <0.9), and elevated ferritin of 501 (normal 11-307). Echocardiogram showed a normal ejection fraction with moderate aortic regurgitation and pericardial effusion without tamponade. Chest x-ray showed bilateral pleural effusions that was confirmed by a CT of the chest which also showed moderate pericardial effusion. Pertinent rheumatologic labs revealed normal complement levels, negative dsDNA, AMA, SSA, SSB and scleroderma antibodies, and a positive ANA and anti-histone antibodies. A CA 125 was elevated at 136 (normal <35). A CT of the abdomen and pelvis failed to reveal any ovarian or pelvic masses. There was no ascites. The patient had a thoracentesis which showed a transudative tap (pleural fluid protein <3, serum protein 6.1, pleural LDH 84, serum LDH 203). Patient’s shortness of breath improved after the thoracentesis and she was discharged home to follow up on all results. However, within the next two weeks, the patient had a recurrence of shortness of breath and pleural effusions. Follow up labs two weeks later showed an increase in CA 125 levels to 217 and a ferritin of 1372. Repeat right sided thoracentesis was performed which was still transudative (pleural fluid protein <3, serum protein 6.1, pleural LDH 125, serum LDH 381). At this time cardiothoracic surgery was consulted and patient underwent right Video-assisted thoracoscopic surgery with Talc pleurodesis and biopsy of the pleura. Cytology of the pleural fluid was negative for any malignant cells. Pleural biopsy revealed evidence of acute and chronic inflammation with no evidence of malignancy. The T-spot TB test was negative and the pleural fluid adenosine deaminase was 8.9 (normal <9.2U/L).

Final Working Diagnosis:
After ruling out other causes of pleural effusion in the presence of an elevated CA 125, her medications were reevaluated and the cause of her recurrent pleural effusion and elevated CA 125 was thought to be PPMS due to Leflunomide.

Outcome:
The patient’s Leflunomide was discontinued and she was started on Azathioprine. Her CA 125 decreased in two weeks from 217 to 149, and her small left pleural effusion was stable. Two months later, off Leflunomide, patient’s CA 125 was normal at 13 with minimal left pleural effusion and no right pleural effusion on chest Xray.

Learning Objectives
Upon completion of this lecture, learners should be better prepared to:
- Understand the diagnosis of PPMS and its variants
- Discuss the mechanism through which Leflunomide causes serositis
- Identify the reasons for an elevated CA 125

Improving Communication of Lab Results to Patients at an Outpatient Pediatric Obesity Clinic
Category: Quality Health Care, Patient Safety & Best Practices, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Coauthors: Suzanne Lazorick, MD, MPH, FAAP, Department of Pediatrics, East Carolina University, Greenville, NC, David N. Collier, MD, PhD, FAAP, Department of Pediatrics, East Carolina University, Greenville, NC, Gloria Randolph, CMA, Department of Pediatrics, East Carolina University, Greenville, NC, Natalie Taft, MSN, LDN, Department of Pediatrics, East Carolina University, Greenville, NC
Background: Patient notification is a standard of patient care; 90% of patients want to be informed of all test results (1,2). Patients not receiving results in a timely fashion could be considered unethical (3). Having a standardized process can ensure providers do not miss critical test results (4). At our pediatric obesity clinic, patient notification of lab results was provider-dependent, variable, and often delayed until follow-up. The purpose of this project was to create and evaluate a standardized process of patient notification of lab results at our clinic. Our specific aim was to increase the percentage of new eligible patients having lab letters sent to them from 0% to 90% by August 31, 2020.

Methods: This project was conducted at the ECU Pediatric Healthy Weight Clinic with the two clinic providers, A and B. After initial chart review, process map analysis of provider workflow, and collection of staff feedback, we decided to pilot a letter process. The intervention population consisted of new clinic patients who had lab work done with two or more lab results; “clinic performed” labs were not included. Our outcome measure was the percentage of patients with lab results “communicated”, defined as the letter being created by the provider and documented in the patient chart. We collected our outcome measure monthly from October 2019 to August 2020. A feedback survey was also conducted via phone for patients from February 2020 who were sent letters. All data was captured via manual chart review, de-identified, and stored in a spreadsheet. Data was analyzed using Microsoft Excel and a run chart was created using R.

Results: During the 11-month project, charts of 155 new patients were reviewed (average, 13 per month; range, 0-25). 127 patients were eligible to receive letters, and letters were completed for 110 of them (87%). The average letter completion rate was 92% for Provider A (based on 10 months of data) and 73% for Provider B (based on 6 months of data). The survey had a 40% response rate (6 out of 15). 50% of respondents reported having received a letter, with an average satisfaction rate of 4 out of 5. 83% of respondents endorsed wanting to receive all lab results and 100% said they prefer a letter format.

Discussion/Lessons Learned: Our aim to achieve an average communication rate of 90% was reached by one of two providers. However, Provider A had more intervention months than Provider B. Our project is important because there is no set standard for appropriate communication of labs in the ECU outpatient setting. Our project results, combined with positive patient feedback, suggest mail notification could be useful for the ECU outpatient population. Although EHR patient portals are preferred (5), it has been well-documented that minority patients and patients with limited health literacy, education, and/or income are less likely to use portals (6). This was the case for our patient population, as we found inconsistent MyChart enrollment in our initial chart review. Future PDSAs to help achieve sustainability include improving provider workflow and documentation of letters being sent out.

Conclusion: We aim to improve patient care at our pediatric obesity clinic by increasing the percentage of patients notified about lab results from 0% to 90%. After an initial chart review showing sparse notification rates as well as inconsistent online portal use, we piloted a letter to be mailed to patients. The average letter completion rate was 92% for Provider A and 73% for Provider B.

Learning Objectives
Design a standardized process of patient notification of lab results at a clinic.
Identify pertinent areas of the process for improvement.
Compare and contrast various methods of patient notification.

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Massive Pseudo-Pneumoperitoneum after drainage of Pancreatic Pseudocyst

Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Pancreatic pseudocyst is a complication of acute or chronic pancreatitis. Most resolve spontaneously but symptomatic pseudocysts need to be drained. The preferred therapeutic management is endoscopic ultrasound (EUS) guided drainage with stent placement. Herein, we describe a patient that presented with symptomatic pseudocyst after idiopathic necrotizing pancreatitis. EUS-guided drainage and stent placement was performed. Afterwards, pneumoperitoneum was noted on imaging. Patient was stable but given the size of the pneumoperitoneum on imaging, an emergent diagnostic laparoscopy was performed. However, surgical evaluation showed no perforation or pancreatic fluid contamination. Patient was discharged 2 days later in stable condition. At 3-month follow up, patient was doing well and awaiting plastic stents removal.

Learning Objectives
1. Be able to know and identify a pancreatic pseudocyst
2. How to manage pancreatic pseudocysts
3. Complications that can arise with the draining pseudocyst
Broken Heart Syndrome Caused by A Broken Gastrointestinal Tract

Presenting Author: Michael Pietrangelo, DO, Internal Medicine Resident PGY2, Department of Medicine, NHRMC, Wilmington, NC

Coauthors: Jeremy Hess, Internal Medicine Resident PGY2, NHRMC Wilmington, NC, Lauren Ellis, Medical Student MS3, UNC Chapel Hill, NC

Introduction

Takotsubo cardiomyopathy (TC) is a nonischemic cardiomyopathy that develops when there is a massive catecholamine release after a stressful event. In this case, the patient developed TC after a salmonella bloodstream infection (BSI) caused septic and cardiogenic shock requiring an intra-aortic balloon pump (IABP). Salmonella enterica is rarely reported to cause endovascular BSI. Ultimately after antibiotics, vasopressor support, and IV fluids, the patient was discharged.

Case Report

A 70-year-old female with diabetes, hypertension, and prior stroke presented with fever of 106° F and sepsis secondary to salmonella enterica BSI with right sided colitis on CT scan, but enteric pathogen stool panel was negative. Initial laboratory results significant for WBC 5.0 K/μL, 49% bandemia, and lactic acid of 2.1 mmol/L. IV fluid resuscitation and vancomycin, meropenem, and metronidazole were initiated for broad coverage. Echocardiogram showed severe anterior, anteroapical, anterolateral, apical and inferoapical hypokinesis with ejection fraction (EF) of 20% concerning for TC. Patient decompensated requiring 15 L on non-rebreather, chest pain, and requiring vasopressor support with cold, clammy extremities. Laboratory results at this time showed troponin I of 4.38 ng/mL, lactic acid of 4.2 mmol/L, and 82% bandemia. Cardiology and infectious disease were consulted and an emergent left heart catheterization required 3 drug eluting stents to the left anterior descending artery and an IABP placed. Patient remained in the ICU on a dobutamine infusion and cefepime.

Final/Working Diagnosis

This case highlights two branchpoints in diagnosis: ischemic versus Takotsubo cardiomyopathy and gastrointestinal versus endovascular source of BSI. After blood culture grew salmonella species, CT scan showed right sided colitis, and echocardiogram showed concern for TC, the working diagnosis was TC induced by salmonella enteritis. After ischemic evaluation revealed occlusion of LAD and enteric pathogen stool panel was negative, the concern was that it was TC triggered by a non-ST segment elevation myocardial infarction (NSTEMI) due to significant vascular disease.

Management/Outcome/Follow-Up

Ultimately, the patient was discharged from the hospital to a skilled nursing facility with IV antibiotic therapy, wearable cardioverter defibrillator, and had a repeat echocardiogram showing EF of 55% with septal hypokinesis. Despite IV cefepime, patient developed T2-3 diskitis requiring addition of IV daptomycin.

Learning Objectives

Upon completion of this lecture, learners should be better prepared to identify septic shock as a cause of cardiogenic shock secondary to Takotsubo cardiomyopathy.
Intranasal Deferoxamine: the future of neurological disease therapy?

Category: Medicine & Medical Specialties, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background: Disease-modifying therapy for neurological disease remains one of the greatest gaps in modern medicine. As our population continues to age and the burden of neurological disease grows, the need for novel therapeutics is paramount.

Methods: Herein, we review and argue the promise of intranasal (IN) delivery of deferoxamine (DFO), a high-affinity iron chelator, for treatment of neurodegenerative and neurovascular disease.

Results: An overwhelming body of preclinical and early clinical data has demonstrated that IN DFO and other iron chelators have strong disease-modifying impact in Alzheimer disease (AD), Parkinson disease (PD), ischemic stroke, and intracranial hemorrhage (ICH). Acting by the disease-nonspecific mechanism of iron chelation, we discuss how DFO counters each of these complex disease processes via multifactorial mechanisms. Furthermore, we consider emerging evidence that leads us to suggest mechanisms by which IN DFO may be beneficial in cognitive decline with aging, multiple sclerosis, other neurodegenerative diseases, traumatic brain injury, and vascular dementia.

Conclusions: Weighing its known safety profile, superior delivery method, enormous preclinical efficacy from decades of work across multiple research groups, robust mechanisms, and potential applicability for almost all of neurological disease, we conclude that the case for further development of IN DFO is considerable.

Learning Objectives
1) Describe the challenges to effective neurological disease therapy
2) Discuss the extensive preclinical and clinical research supporting further development of intranasal deferoxamine and other iron chelators across neurological disease
3) Identify the mechanisms by which iron chelation counters neurodegenerative and neurovascular pathophysiology

The Basis for Brain Aging

Category: Medicine & Medical Specialties, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video
Knowledge Gap: Human brain aging is a true spectrum across the population, ranging from minimal changes on the microscopic level to full-blown neurodegenerative disease with accumulation of pathology, neuronal loss, dysfunctional large-scale brain networks, and progressive functional decline. Although much is known about the individual mechanisms involved in brain aging, a convincing framework that ties these highly related processes together is lacking.

Methods: Herein, using mathematical modeling, I sought to find a common basis for decline with brain aging by capturing the essential macro-level processes that shape how a brain changes over the lifetime. I develop ABC (Aging Brain Capital), a linear simultaneous-equation model that unites aspects of neuroscience, economics, and thermodynamics to explain the evolution of human brain capital, the infrastructure and processes that underlie brain function, over the lifespan.

Results: The results of this model explain that aging-associated decline in brain function is inevitable, driven by the finite nature of the brain’s pathology-clearance capacity. I suggest that age-related neurodegenerative diseases are in common driven by this general process of aging, explaining the spectrum of pathology accumulation and neurodegeneration across the population. I demonstrate that the complex pathogenesis of Alzheimer disease (AD) can be likewise explained in this framework by integrating amyloid-tau interaction, the emerging concept that amyloid pathology accelerates tau pathology. This conception of Alzheimer pathogenesis not only explains and unifies the basis for familial AD, primary-age-related tauopathy (PART), and late-onset AD (LOAD), but also reconciles amyloid-centered, tau-centered, and synergistic models of AD. Finally, I describe the possible implications of these results for future therapeutic development across neurodegenerative disease.

Conclusions: Synthesizing the breadth of brain aging research, I create a mathematical model from which a convincing, overarching framework for neurodegenerative disease pathophysiology emerges.

Learning Objectives
1) Explain the spectrum of brain aging across the population
2) Discuss the spectrum of pathological and functional change across a number of neurodegenerative diseases with an emphasis on their commonalities and overlap
3) Describe the complex pathophysiology of Alzheimer disease including how the Alzheimer spectrum can be explained by amyloid-tau interaction theory, reconciling existing theories

**Overlapping Surgery from the Patient's Perspective: A Qualitative Study**
Category: Bioethics & Medical Education, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Coauthors: Brian C. Drolet, MD, Associate Professor of Plastic Surgery, and Chief, Hand and Upper Extremity Surgery, Vanderbilt University Medical Center, Nashville, TN
Overlapping operations are defined by the American College of Surgeons as when a single surgeon oversees more than one operating room but is present for all “critical” portions of the case and is immediately available if complications arise. They are common practice in a variety of surgical specialties across hospitals throughout the country. The practice offers financial gains to the institution by packing the schedule with more patients and increases the opportunity for trainees to learn. However, the 2015 Boston Globe article, “Clash in the Name of Care”, sparked public backlash towards the practice of running multiple operating rooms at the same time. The article exposed the lack of patient awareness and consent for being in an overlapping case and played into the public’s fear of complications (one patient woke up from surgery paralyzed).

Since then, numerous groups have published studies and opinion pieces, both attacking and defending the practice. Most surveys published thus far explore the general public’s perception of overlapping surgeries and show their varying levels of support for the practice. Opinions aside, informed consent for overlapping surgeries is required as in accordance with the four basic principles of healthcare ethics: autonomy, justice, beneficence, and non-maleficence.

At the present time, the American College of Surgeons believe overlapping surgeries to be appropriate if certain precautions are met, and the patient gives their informed consent. Since methods in obtaining informed consent vary amongst providers, it is unclear how educated each patient becomes on overlapping operations before signing the consent form. Additionally, there only exists data on the general public’s perceptions.

Further study on patients’ perspectives of overlapping surgery needs to be done with a special focus on patients who received informed consent regarding it. Through semi-structure interviews, we seek to obtain a perspective from a population that has had little input on the discussion of overlapping operations thus far, despite their direct involvement in the hot-button topic. Ultimately, we hope a better understanding of their experience through their informed consent process and post-surgical recovery will serve to improve surgeon-patient education methods and hospital policies regarding overlapping surgeries.

Learning Objectives
1. Discuss the ethical challenges of overlapping surgeries from the institution, provider, and patients’ perspectives.
2. Examine the informed consent process with a focus on where patient education is lacking

ADAPTING AN ONGOING YOUTH LIFESKILLS CURRICULUM FOR REMOTE DELIVERY DURING THE COVID-19 PANDEMIC

Category: Public Health & Environmental Medicine, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: Ryan J. Truitte, MS, Medical Student, Department of Pediatrics, Eastern Virginia Medical School, Norfolk, VIRGINIA

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INTRODUCTION
In the wake of the Coronavirus Disease 2019 (COVID-19) pandemic there have been unprecedented interruptions to daily life. Young adults have been particularly affected by the cancelation of school and extracurricular activities as well as opportunities for educational and prevention programs, such as those aimed at substance use...
prevention, increasing health literacy, enhancing communication skills, and relationship building/maintenance. Efficacy of the evidence-based Botvin LifeSkills program in an in-person, classroom setting is well described for high-school-age students. Implementation of these programs over virtual space, as required by the COVID-19 pandemic, is not yet fully established. The Youth Engagement Program (YEP), part of the Division of Community Health and Research at Eastern Virginia Medical School, set out to utilize existing relationships with high school aged students to adapt a summer LifeSkills program for an online forum in compliance with physical distancing requirements.

METHODS
A team of mentors (3 EVMS faculty members, 2 medical students and 3 undergraduate students from a local college) collaborated to adapt the existing ten week summer program from in-person delivery to an online video conference format. The summer program consisted of ten weekly 1.5 hour long virtual sessions which were held on the Zoom video conferencing platform. The Botvin LifeSkills ® Training high school curriculum was used as a framework. Each session was a mix of mentor lead topic exploration and open-ended conversations. Conversations were intentionally kept open-ended to allow teens to explore the presence and impact of each weekly topic on their own experiences. Outside of weekly meetings, mentors were assigned mentees from the students to individually contact to ensure consistent communication was maintained throughout the summer. Students were recruited from the previous 2 YEP cohorts (N=13, 9 females, 4 males).

RESULTS
The modified, online Botvin LifeSkills training curriculum provided unique experience for both students and peer mentors. Throughout the ten week summer program teen attendance was recorded (average attendance = 9 students per session). As students became more comfortable with the format and norms of the online forum participation and quality of discussion improved. Responsiveness to peer mentor discussions of LifeSkills topics was consistently positive. Discussions focusing on decision making for health, risk-taking, managing stress, and family communication were of particular impact owing to the ongoing COVID-19 pandemic and quarantine. Students shared relevant personal anecdotes related to their experiences in these areas prompting further conversation.

CONCLUSION
An online-based LifeSkills curriculum provides a medium for group discussions to take place in accommodation of physical distancing requirements brought on by the COVID-19 pandemic. Planning and implementing the changes to the youth program was necessary to continue to build relationships with youth in the Norfolk community as well as to provide an outlet for these students during a difficult period. Future assessments for evaluation of programmatic impacts on teen self-efficacy and other outcomes are being prepared as the program transitions into the new school year with physical distancing requirements continuing for the foreseeable future.

Learning Objectives
Identify a process for evaluating and instituting a teen Lifeskills curriculum via remote learning.

A Rare Case of Treating Fatal Acetylsalicylic Acid Poisoning without Activated Charcoal or Hemodialysis
Category: Medicine & Medical Specialties, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Introduction: Salicylate poisoning carries a significant mortality risk. Fatal aspirin intoxication can occur after ingestion of 10 to 30g by adults. Clinical features include tinnitus, vertigo, vomiting, diarrhea, altered mental status, hyperpyrexia, coma, noncardiac pulmonary edema, and death. Most common acid-base disturbances include primary respiratory alkalosis or a mixed primary respiratory alkalosis-primary metabolic acidosis.

Case presentation: A 20-year-old male ingested a lethal dose of approximately 31.200mg of acetylsalicylic acid, and was transported to our hospital approximately 6 hours later. Patient reported that 2 hours after the lethal dose of aspirin ingestion he started experiencing tinnitus, hearing loss, nausea, weakness and later started vomiting uncontrollably. Upon arrival patient was drowsy, confused but arousable. Initial vitals: BP 96/60, HR 96, EKG with NSR, T 98.5 F, RR 18, 89%O2 saturation on RA. Initial ABG on RA showed pH 7.4, pCO2 32.8, PaO2 53, HCO3 22, AG 9, urine pH 6, Calcium 8.0, Potassium 4.5, Platelets 213, Creatinine 0.9, HCO3 23. Initial salicylate level 52.7. Past medical history include major depressive disorder, bipolar disorder, polysubstance abuse.

Management: As per guidelines, after contacting poison control, we started the patient on IV D5Water with added bicarbonate in attempts to alkalinize the serum and urine with goal serum pH above 7.5 and urine pH goal above 7. We were checking urine pH, blood pH, salicylate levels and electrolytes every 2 hours. No activated charcoal administration or hemodialysis had to be performed as patient responded very well to initial treatment.

Outcome: Initial salicylate levels were in the fatal range of 52.7, but gradually decreased to 12.1 in less than hrs. Patient’s mentation returned to baseline within several hours after initial intravenous bicarbonate treatment. Although activated charcoal and hemodialysis are strongly recommended for patients with lethal doses of acetylsalicylic acid, by carefully evaluating vital signs, urinary and serum pH, we were able to successfully treat our patient with alkaline diuresis and supportive care.

Learning Objectives
1. Serum salicylate concentrations above 40 mg/dL (2.9 mmol/L) can be lethal. In patients with clinical signs of salicylate poisoning, serum concentrations should be measured every two hours until two consecutive levels show decreasing values.
2. Salicylates stimulate the respiratory center causing hyperventilation, wash out of CO2 leading to respiratory alkalosis, followed by anion-gap metabolic acidosis, due primarily to the accumulation of organic acids, including lactic acid and ketoacids.
3. The main treatment of salicylate poisoning is via systemic pH “alkalinization” accomplished by administering IV sodium bicarbonate. Alkaline pH decreases diffusion of salicylate anions into the central nervous system and also traps salicylate anions within the renal tubule and preventing them from re-entering systemic circulation. Activated charcoal can prevent ongoing absorption of retained aspirin concretions or enteric coated tablets. Nephrology consult and hemodialysis should be considered for all patients with clinical evidence of severe intoxication, not improving on intravenous bicarb infusion.
Redefining motherhood: A qualitative study on the experiences of caregivers to children of incarcerated mothers

Category: Women's & Children's Health, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background

Women are the fastest growing prison population in America. In 2016, 80% of incarcerated women were single mothers, requiring others to care for their children. This responsibility often falls on the shoulders of women of color, whose experiences as caregivers impacted by maternal incarceration are often overlooked. This study details the experience of caregivers to children whose mothers are incarcerated to offer a framework to how this responsibility impacts caregivers' physical and mental health.

Methods

Qualitative interviews were conducted with custodial and informal caregivers to understand their perceived responsibilities; its impact on their physical and mental health; and their coping strategies.

Results

Sources of caregivers' stress included: losing time to maintain their own health and personal recreation; experiencing relationship strain; allocating limited resources and navigating welfare systems; and helping both child and mother work through extremely difficult emotions. Yet, caregivers persevere by utilizing moral language, help from others, and positive reflection.

Conclusions/Implications:
The caregiver's ultimate task is clarifying the distinction between their role as the “practicing mother” and the incarcerated mother’s role as the “biological mother” to the child, the mother, and themselves. They do this in order to (1) convey to the incarcerated mother that she is not trying to take their place, (2) help the child deal with difficult emotions regarding having two mothers, and (3) determine what sacrifices she must make in order to fulfill their role. Understanding the stressors that come with this task is necessary to bringing forth the
appropriate resources to support this population. Furthermore, this study demonstrates an under-studied impact of maternal incarceration while showcasing the respectable, difficult work these caregivers perform.

Learning Objectives
1) Identify at least 5 significant sources of stress that are common among caregivers to children of incarcerated mothers as a result of their role as the “practicing mother”, as opposed to the incarcerated mother’s role as the “biological mother”.
2) Explain how the most difficult tasks that caregivers face can be framed within their larger task of redefining motherhood for the incarcerated mother, the child, and themselves.
3) Identify 3 mechanisms by which caregivers' responsibilities impact their physical and mental health.

A Pediatric Community Health Needs Assessment to Optimize Resources and Address Identified Community Needs in Thomaston, GA
Category: Women’s & Children’s Health, Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

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Background/Significance: Health outcomes in the United States can differ based on geographic location. The health service infrastructure, health service utilization, health status and access to care can be impacted by location which can create disparities distributed between cities and rural areas. Georgia is one of the many states that displays this disproportion in health disparities between the thriving metropolitan areas of the state and the rural communities of Georgia. Thomaston is a city located in Upson County, GA which is designated by the Federal Office of Rural Health Policy as rural at 46.91% of the county population. Additionally, 22.3% of the total Upson County population are children under the age of 18 with 31% of those children living in poverty. Social determinants of health such as economic stability, neighborhood and physical environment, education and healthcare systems have an impact on health outcomes. Upstream prevention by addressing social determinants of health early on in a child or adolescent’s life is of vital importance since it shapes an individual’s long-term health trajectory and can shift the culture and health outcomes of an entire community.

Methods: A total of 6 community key informants participated in the study and were asked a set of 15 questions to gain insight on the critical needs and concerns for children and adolescent health and quality of health, community resources and assets, recent changes in the community, the strengths and weaknesses of the community along with difference in quality of health among different groups within the community. The Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute’s 2019 County Health Rankings & Roadmaps program’s online database was used to analyze community health indicators. Additional indicators were included from the Rural Health Information Hub for Georgia and the Annie E. Casey Foundation’s Kids Count data center project.

Results: The needs of the pediatric population were identified and discussed with the most prevalent concerns being poverty, lack of mental health services, substance abuse, lack of health education, high teen birth rates, increase in children in foster care along with a lack of resident knowledge on how to access and utilize community resources. The social determinants of health that contributed to these health disparities were economic
instability, neighborhood location, education, community and social context as well as the health care system in rural Georgia. The identified resources and community assets were the internal and external non-profit community service organizations, Upson County Medical Center, the Georgia Department of Public Health, Zoe Pediatrics, Upson County Community Service Board, Southern Crescent Technical College, the Upson County Chamber of Commerce, the Thomaston Police Department’s Champs program, the Heritage Pregnancy and Family Health Center, Thomaston-Upson County School District.

Conclusions and Implications: Thomaston, a rural community in Georgia has sustained disparities in health outcomes due to social determinants of health including access to medical care, geographic location and economic stability. The Pediatric Community Health Needs Assessment (PCHNA) provided insight on the critical needs and concerns for children and adolescent’s along with community organizations which can address these issues. Investments in early health care that supports brain and child development have documented high near-term returns in the form of increased school readiness, reduced special education, and reduced costs for grade retention and English language learning. They also generate long-term returns through higher graduation rates, greater employment and increased lifetime job earnings. All of these add up to a more productive workforce, a stronger economy and higher business profits. Thomaston has a wealth of support from longstanding members in the community as well as both in-house and external organizations willing to provide assistance. The issue lies in the residents becoming informed on how to access and utilize these given resources. The programs and initiatives identified in the PCHNA can enhance the quality of health and health care for children and families in the community through enhanced partnerships to improve visibility of these programs as well as access and use resulting in lasting sustainable relationships within the community.

Learning Objectives
To determine the major health indicators that impact health outcomes within rural pediatric populations.
To identify social determinants of health.
To identify the social determinants of health that impact health outcomes within rural pediatric populations.
To discuss methods of a community needs assessment.

**Facing the Fumes: Community Advocacy to Address a Youth Vaping Crisis**
Category: Public Health & Environmental Medicine, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Presenting Author: Issa Hanna, MD, Resident PGY-3, Department of Pediatric, University of Florida-College of Medicine, Jacksonville, FL

Coauthors: Rita Nathawad, MD, Assistant Professor, Pediatric, University of Florida, Jacksonville, Florida

Background: E-cigarettes have been the most used tobacco products among youth since 2014. Using an e-cigarette is sometimes called “vaping.” In the past year, our pediatric program has cared for several teenagers with vaping related illnesses. Seeing these previously healthy teens struggling to breathe was the motivation behind this project.

Goals: Reduce children's access to vaping products and increase awareness of vaping harms in Northeast Florida area.

Methods: An initial phase included a comprehensive literature search. This was followed by a review of existing educational resources for vaping. Collaborations were formed with local organizations to create a local task force.
We identified outlets to target to promote awareness of the issues. Review of current legislative bills to identify vaping related policies was also performed. Advocacy goals and objectives were developed.

Results: Increased community awareness was achieved through the publication of letters in local and international newspapers. We participated in the first regional meeting to address the youth vaping epidemic in Northeast Florida, attended by more than 100 community leaders, teenagers, health care providers and other stakeholders. These activities culminated in participation with the Florida Chapter of the American Academy of Pediatrics (FCAAP) at Children’s Week in Tallahassee, Florida, to advocate for SB 810, a bill that was passed and would have restricted the access to vaping products to those 21 years and younger. The bill was vetoed by the Governor on September 8th, 2020 after a widespread media campaign from Tobacco and vaping companies to block the bill.

Conclusions: This work resulted in increased awareness among health care providers and the community about the dangers of vaping among children. It was also part of a statewide effort to pass Florida Bill SB 810. Next steps for this project include: involving schools and colleges to increase awareness about vaping harm, development of a peer-to-peer educational campaign led by community youth and coordinating efforts with the FCAAP to advocate for a state level policy change to solve the youth epidemic crisis. As physicians our voice is powerful and effective in addressing public health issues in our community.

Learning Objectives
1) Demonstrate how to develop an advocacy initiative using a current trainee’s experience.
2) Identify resources which can be used when developing an advocacy initiative.
Climate Change and Geriatric Risk
Category: Public Health & Environmental Medicine, Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest

Supplemental Video

Presenting Author: DAVID LAZRIS, BA, Medical Student, Emory University School of Medicine, Atlanta, GA

As human driven climate change accelerates, certain subpopulations will face an increased risk of adverse health outcomes. Although the human effect on climate change and its subsequent effects on health is increasingly recognized, the level of action does not encapsulate the magnitude of the problem. Nations consistently do not meet their climate policy goals, and many of the largest polluting nations have governments that are skeptical of human’s prevalent impact on the environment. Increases in air pollution, global heat, and the intensity of natural disasters, have led to and will continue to cause an amplification of geriatric health issues in multiple organ systems. This paper will assess health risks regarding climate change in the United States, specifically focusing on a geriatric population.

Learning Objectives
This paper will address the following key points:

• The changing climate and its impact on human health
• The increased risk to older populations with the current course of climate change
• Provide implementable solutions to communities and physicians to address both climate change and the subsequent older adults increased health risk