SMA's 2nd Annual Physicians-in-Training Leadership Conference Abstract Presentations

The following abstracts were accepted and presented during Southern Medical Association's Physicians-in-Training Leadership Conference, held February 11-13, 2022, Tulane University School of Medicine, New Orleans, Louisiana and virtually.

Abstracts are listed in order of presentation, and are published as submitted.

Session 3 – Top 5 Oral and Top 5 Oral Presentations

Percutaneous Endoscopic Gastrostomy Seeding Metastatic Aerodigestive Cancer: A Fatal Complication of a Common Procedure

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: Percutaneous endoscopic gastrostomy (PEG) feeding is vital to maintain enteral nutrition during the treatment of head and neck cancers. PEG placement is a relatively safe procedure with low risk of complications. A rare but serious complication of PEG placement is the possibility of seeding the cancer during the PEG placement procedure. The most common sites of metastasis are the abdominal wall and stomach. To date, this is a relatively understudied phenomenon as there are only about 70 cases documented in the literature. We present a rare case of PEG tube seeding of an aerodigestive cancer to the abdominal wall.

Case Presentation: A 75-year-old female is being treated for esophageal adenocarcinoma with chemotherapy and radiation and had a PEG tube placed 5 months prior due to dysphagia. She now presents with severe pain, drainage, and erythema at PEG stoma site. A CT of the abdomen was performed and showed a large, rounded, soft tissue density measuring 6 x 5.5 x 4.5 cm extending inferiorly from the tube site within the anterior abdominal wall as well as new liver metastases. The differential diagnosis included infectious phlegmon, tumor implant, and extravasated contents. The patient demonstrated increasing tolerance for oral intake and once fully transitioned, underwent PEG removal and gastrostomy closure with abdominal wall mass resection and liver mass biopsy. Pathology of the abdominal and liver masses revealed poorly differentiated, metastatic adenocarcinoma.

Final/Working Diagnosis: Primary esophageal adenocarcinoma with abdominal wall and liver metastasis.

Management/Outcome/and or Follow-up/Conclusion: With diffuse metastasis, the prognosis is poor and the patient was recommended palliative care or transfer to tertiary site for diffuse surgical resection. The patient

declined and requested to be discharged home once stable. Long-term outcomes from PEG seeded metastasis have shown a one-year survival rate of 35.5% with an overall mortality rate of 87.1%, and an average time to death from detection of PEG disease was 5.9 months. Additional research needs to be conducted to assess risk factors for PEG seeding examining PEG tube placement techniques that minimize risk of this fatal complication.

Learning Objectives:
Describe a case of PEG placement seeding cancer.
Examine the importance of this fatal complication of a common procedure.
Identify the need for additional research in this area to identify risk factors and possibly prevent this complication.

References and Resources:
Huang, A.T., Georgolios, A., Espino, S. et al. Percutaneous endoscopic gastrostomy site metastasis from head and neck squamous cell carcinoma: case series and literature review. J of Otolaryngol - Head & Neck Surg 42, 20 (2013). https://doi.org/10.1186/1916-0216-42-20

Efficacy of Infection Control Measures and Temperature Measurement in Controlling Spread of COVID-19 in School-Aged Children

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: In July 2020, Corinth School District was first in the State of Mississippi to return to an in-person classroom setting. Multiple COVID-19 precautions were developed and put into place to maintain the safety of students and staff. These included mandatory masking, temperature scanning, family-grouped bus seating, desk spacing, sanitizing protocols, lunch periods kept within classrooms, staggered recess, alteration of extracurriculars, cancellation of indoor assemblies and field trips, and quarantine policies. Students registering as febrile would be sent home for COVID-19 testing.

Goals: Evaluate the efficacy of protocols used by Corinth School District in preventing the spread of COVID-19 within children aged 4-18 years attending school between the dates of July 27th, 2020 to September 25th, 2020 and determine if temperature scanning is a reasonable surveillance method for COVID-19 in the school setting.

Methods: De-identified data was obtained from the Corinth School District. Overall incidence of COVID-19, as well as incidence based on grade-level groupings, were calculated in children attending school between the dates of July 27th, 2020 to September 25th, 2020. Data was examined for correlation between documented fevers at school and COVID-19 positivity. Reports provided by the school district were investigated for positive test groupings or exposures signifying a school-related outbreak.

Results: 26 children tested positive for COVID-19; none of these were febrile at school. Incidence of COVID-19 in our population during the study period was 1.03%. Incidence in elementary school children was 0.34%, 0.93% in

middle school, and 2.51% in high school-aged children. Of 28 children with at school fevers; zero tested positive for COVID-19. There were no outbreaks at school requiring closure of a classroom or a return to full virtual format during the study period.

Conclusions: Temperature scanning is not a sensitive screening method for COVID-19 positivity in school-aged children. A combination of the infection control measures taken above likely prevented a major outbreak and in-person classes were able to continue without interruption. Further investigation into infection control measures would shed further light on those most successful in preventing COVID-19 transmission in school-aged children.

Learning Objectives:
1) Recognize that temperature screening alone is not a sufficient method for identifying COVID-19 in school-aged children
2) Describe the importance of public health safety management in schools during a global pandemic
3) Apply new infection control methods to the management of public health outbreaks within schools

Steroid Induced Diabetic Ketoacidosis in End Stage Renal Disease with Suspected Vasculitis Induced Stroke

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: Managing diabetic ketoacidosis (DKA) in the setting of chronic kidney disease (CKD) remains a challenge. While studies have reported complications of DKA in dialysis and end stage renal disease, protocols are limited to patients with relatively persevered renal function. We present a case of managing acute stroke vasculitis with steroid induced DKA in the setting of oliguric AKI on CKD.

Case Presentation: A 71-year-old female with a history of diabetes and CKD presented to our hospital with right lower extremity weakness. Initial head CT and MRI showed chronic infarct changes in the left frontal and parietal lobe. Within 24 hours, the patient developed dysarthria with altered mentation and was transferred to the ICU. MRI angiogram was suggestive of severe vasculitis. Neurology was consulted and recommended high dose (125 mg) methylprednisolone every 6 hours. The patient's renal function was poor on admission with and estimated GFR of 12 min/ml/SA and continued to decline. She eventually developed DKA and required maximal therapy of 17 units of insulin per hour. Further insulin increases were limited due to multiple episodes of non-sustained ventricular tachycardia (VT). Renal panel revealed potassium levels below 4.5 mEq/L. Due to her history of chronic hyperkalemia from CKD, we targeted a short-term potassium goal of 4.5 to 5.5 mEq/L with resolution of VT. We relied on ketoacids to determine DKA gap closure. The insulin drip was discontinued, and she was placed on long-acting insulin despite a persistently elevated gap. Furosemide provided good diuresis and the patient was transferred to medical floor.

Discussion: This case demonstrates the challenge of treating steroid induced DKA in the setting of acute stroke vasculitis and CKD. Initial treatment involves a short course of high dose steroids which can induce DKA in diabetics. Acidosis and insulin therapy cause shifts in potassium predisposing patients to ventricular arrhythmias.

End stage renal disease complicates differentiating pseudo-hyperkalemia from true hyperkalemia. While a target goal of 4.0 to 4.5 mEq/L has been proposed as having improved survival benefits in DKA, a higher goal may be temporarily necessary in the setting of arrhythmias.

Learning Objectives:
Identify difficulties in the management of DKA with concomitant AKI on CKD

References and Resources:
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Adolescent Reproductive Health Education during COVID-19: Evaluation of a Model for Virtual Reproductive Health Intervention in New Orleans

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

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Introduction: Prior to the COVID-19 pandemic, school-based reproductive health interventions served as a key component of adolescent reproductive healthcare (Lindberg, 2020). Many students received limited reproductive health education prior to the COVID-19 pandemic, and even fewer are receiving reproductive health education now due to the constraints of virtual or hybrid learning environments (Lindberg, 2020). Comprehensive reproductive health education through a virtual instruction model could increase access to reproductive education for students in schools employing virtual or hybrid instruction due to COVID-19. The purpose of this study is to evaluate the efficacy of a model for virtual reproductive health educational intervention in New Orleans.

Methods: The New Orleans Adolescent Reproductive Health Program (NOARHP) provided a virtual comprehensive reproductive health education intervention to 133 middle and high school students in New Orleans Charter Schools. Students completed eight virtual reproductive health lessons with a live reproductive health educator on zoom. Using a pre-experimental study design, participants completed pre- and post-test questionnaires composed of 47 multiple choice and true/false style questions. This reproductive health questionnaire is designed to evaluate understanding and proficiency in Healthy Behavior Outcomes (HBOs) as defined by the CDC Health Education Curriculum Analysis Tool (HECAT).

Results/Analysis: A paired t-test comparing pre-test (M = 24.81, SD = 118.64) and post-test (M = 37.55, SD = 59.47) data showed a significant increase in reproductive health knowledge t (132) = -10.0961, $p < 0.00001$ following the receipt of the virtual reproductive health intervention.

Conclusion: Virtual reproductive health education is an effective means of providing students with comprehensive reproductive health education in the setting of virtual or hybrid instruction models due to the COVID-19 pandemic. This model can serve as a suitable alternative to in-person school-based reproductive health interventions.

Learning Objectives:
Examine the effectiveness of a virtual instruction model for reproductive health education in New Orleans due to Covid-19

References and Resources:
CDC's HECAT: https://www.cdc.gov/healthyyouth/hecat/index.htm

Flexible vs Rigid Cystoscopy in Post Intravesical BCG Surveillance

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

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Background: Intravesical BCG instillation is an established form of immunotherapy for intermediate and high risk bladder cancers. Mandatory cystoscopic surveillance is commonly performed under general anaesthesia (GA), to facilitate biopsy or other procedures. However, it is resource-intensive with unclear clinical benefit.

We performed a two-cycle audit, before and after changing post-BCG surveillance policy, from GA cystoscopy to Local Anaesthetic Flexible Cystoscopy (LAFC) on Trans Urethral Laser Ablation (TULA) lists, where patients may undergo a tumour biopsy or laser ablation.

Methods and Patients: In first cycle we audited 53 patients undergoing 114 post-BCG rigid cystoscopies from January 2018 to December 2019 . In second cycle there were 56 patients undergoing 99 post-BCG LAFC on TULA lists in 2020.

Results: In the first audit cycle cohort, mean patient age was 72.29±8.98, 48 were men; malignant histology was identified only on five occasions (three grade progressions). 14 patients required overnight admission.

In the second audit cycle cohort, mean patient age was 70.44±9.17, 47 were men. Four had a grade progression while another had a stage progression. Out of 99 LAFC, 47 confirmed normal bladder appearance. A biopsy was taken during other 52 cystoscopies: 17 (33%) confirmed malignancy. 15 patients showed findings which were labelled as recurrence but only two required a further GA procedure to deal with recurrence. One patient was admitted for post-procedure bleeding, which settled with irrigation.

Conclusion: Local anaesthetic TULA procedure is a safe and effective alternative for a general anaesthetic rigid cystoscopy to survey bladders of patients after BCG therapy.

Learning Objectives:
choose the best modality for cystoscopic surveillance of post intravesical BCG therapy bladders

Shots Against Violence: Hoops For Hope By Community Rounds

Category: Mental Health; Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Background: The CDC prompts scholarship to examine the dynamics of adverse childhood events and their traumatic impact on the resilience of Black youth. Studies have identified the predominance of avoidant coping stress management in Black adolescents, and its link to various maladaptive behavioral outcomes, including violence. In addition, review of crime statistics in New Orleans illustrates initial spike in murder activity occurring in the 15-19 year old bracket of Black males. Thus, the aim of this study is to assess behavioral health outcomes after adaptive stress response training in this population.

Hypothesis: Tension experienced in basketball competition provides informal cognitive education in which Black adolescent males condition personal character that facilitates an adaptive behavioral response to non-sport community stress burden. Competitive basketball may be a medium to mitigate overall prevalence of pervasive violence exposure in Black adolescent males in New Orleans.

Methods: Participants will be numerically identified and will complete the VIA Youth Survey (ages 13-17) and the General Self-Efficacy Scale followed by the recreational basketball intervention and the Albert Bandura Self Efficacy Model Coaching co-intervention. 4-6 weeks later, participants will complete the survey and scale again, and frequency distribution will be used to determine good character profile differences (there are 24 identified strengths that should cultivate 6 virtues, referred to as "good character"). Measures of association will be made in the good character profile and the "coping ability of daily living" scores in samples before and after interventions. Measures of central tendency from the General Self-Efficacy Scale will also be used to determine differences in coping ability before and after interventions.

Inclusion Criteria:

- 13-17 y/o Black males
- Living in 5th or 7th district of New Orleans
- Samples obtained at random from schools, recreational sporting teams, churches, after-school programs

Exclusion Criteria: participants with any of the following at start or prior to completion of study:

- academic or disciplinary school-imposed sanctions
- Parent or school-reported behavioral health diagnosis
- unresolved legal case(s)
- incomplete participation

Outcomes to Measure:

1. Good character - analyze positive character profile as a primary outcome
2. Coping ability of daily living as a secondary outcome

Learning Objectives:

•Discuss scientific surveillance of behavioral health outcomes in relation to adaptive stress response training of target population

•Estimate the capacity of informal learning mediums (i.e. basketball) to aid in the character development of Black adolescent males

•Measure the effect of character development on stress coping response in black adolescent males.

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Succinate Induces Glycocalyx Shedding In Lung Vasculature and Alveoli: A Rat Model

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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BACKGROUND/KNOWLEDGE GAP: The endothelial glycocalyx (EGx) is a thin lining along the luminal surface of vasculature composed of glycoproteins and proteoglycans. In healthy blood vessels, the EGx serves several physiologic roles, including repulsion of platelets and regulation of vascular permeability. The EGx is sloughed during hemorrhagic shock and resuscitation (HSR), potentially causing coagulopathy. To date, the mechanism behind EGx shedding following HSR is unclear. Additionally, patients undergoing HSR have hypoxia-induced succinate elevation. Increased succinate levels have proven accurate in predicting morbidity and mortality following trauma. Our objective was to determine if elevated succinate levels cause EGx shedding in pulmonary tissue.

METHODS/DESIGN: In healthy rats, we injected 1,000 mg/kg of succinate into the external jugular vein. Control animals were given lactated Ringer's. After 60 minutes, lung tissue was harvested and the rats euthanized. Lung tissue was subsequently flash frozen, sectioned via cryostat, and fixed to glass slides using methanol. Staining of the EGx was accomplished with Fluorescein isothiocyanate-labelled wheat germ agglutinin (FITC-WGA). Fluorescent Phalloidin and 4',6-diamidino-2-phenylindole (DAPI) were used to identify vasculature. EGx intensity and thickness for both lung vasculature and alveoli were measured using ImageJ software.

RESULTS/FINDINGS: In lung vasculature, EGx was 142.3 ± 6.4 (arbitrary fluorescence units, AU) in the succinate group and 172.9 ± 7.1 AU in the control group (p value =0.002). In alveoli, EGx was 54.9 ± 0.89 AU in the succinate group and 62.4 ± 1.9 AU in the control group (p=0.0002).

CONCLUSIONS/IMPLICATIONS: EGx was significantly reduced after succinate injection in both lung vasculature and alveoli. This indicates that succinate accumulation may serve as the mechanism causing EGx shedding after HSR. Further research utilizing a HSR model is needed to determine if succinate reduction prevents EGx shedding after trauma.

Learning Objectives:
1. Describe the role of the glycocalyx in healthy vasculature.
2. Discuss the prognostic benefit of measuring succinate levels in trauma patients.
3. Examine the relationship between glycocalyx shedding and succinate levels.

A Rare Case of EBV Positive T Cell Lymphoproliferative Disorder with Hemophagocytic Lymphohistiocytosis Receiving Nivolumab

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: Epstein-Barr Virus (EBV) can range from asymptomatic to infectious mononucleosis to multi-organ failure (3). Some individuals are unable to control EBV infection due to infiltration of tissue by EBV positive T, NK, and B cells, termed chronic active EBV (CAEBV). Diagnosis includes increased EBV level with no known underlying immunodeficiency (4). CAEBV is quite rare in the U.S. (1). Hemophagocytic lymphohistiocytosis (HLH) can occur as a devastating complication in patients with CAEBV and involves dysregulation of NK cells, CD8+ cytotoxic T cells and macrophages (5). EBV-associated HLH is rare, with an approximate annual incidence of 0.4 cases per million persons (2).

Case Presentation: A 20-year-old male with no medical problems presented with two days of diffuse abdominal pain, vomiting, and fevers. Vitals were BP of 93/49, HR 105, RR 20, and 100% O2sat on RA. Labs were significant for platelet count of 37, AST 331, ALT 166, ALK 319, BUN 60, Cr 2.9, and lactate of 6.2. HIV, HSV, CMV, COVID-19 were negative. A chest x-ray was unrevealing. A RUQ ultrasound showed pericholecystic fluid and mild extrahepatic biliary ductal dilatation. An initial diagnosis of septic shock with unknown etiology was made. He received 30 cc/kg of IV crystalloid and broad-spectrum empiric antibiotics. He later developed DIC requiring resuscitation with numerous blood products.

Final/Working Diagnosis: EBV DNA by PCR returned positive with 9.98 million copies/mL, suggesting a diagnosis of CAEBV. Ferritin was 21,2155.7 ng/ml. Bone marrow biopsy confirmed EBV positive T cell lymphoproliferative disorder with HLH. Atypical proliferation was positive for CD3, CD5, CD8, CD20 and granzyme B and negative for CD4, perforin, TCRD and CD56. EBER ISH showed focal positive cells. Flow cytometry identified 64% abnormal mature NK- cell population.

Management, Outcome and Follow Up: He was treated with etoposide, rituximab, and dexamethasone and emapalumab-Izsg. He remained stable and was discharged with close outpatient follow-up. CHOP protocol was initiated along with nivolumab with improvement of EBV viral load to 2.76 million copies/ml. He is currently awaiting HSCT.

Learning Objectives:
Discuss the importance of recognizing HLH related disease processes
Diagnose and treating chronic active EBV

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The Impact of Racial Discrimination and Disparities on the Medical Treatment of African American Women

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

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Background: It is widely known that racial discrimination and disparities have existed in the United States across many realms and have had major implications on the structure of society, the economy, welfare and healthcare overall. As future healthcare providers, it is imperative that we understand the basis of discrimination within healthcare, to not only preserve equality within the system, but to provide evidence-based solutions to halt further injustice. In many US medical school curriculums and clinical training, medical students continually learn about the various diseases that differ in incidence, epidemiology, diagnosis and treatment across different races. Although we gain knowledge on genetics and other factors that could cause disparities, there is a need for further research from the public health standpoint to analyze if and how racial discrimination can have an impact. Our research group found that African American populations are extensively found to have disparities when compared to other racial groups, yet little is known about the potential role of racial discrimination on their medical treatment.

Methods: A scoping review was performed using the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines. Our search strategy utilized a computerized search of Embase and PsychINFO databases to identify articles published between 2010 and 2020 with the key search terms of “racial discrimination OR racial prejudice OR racial inequality” AND “therapy OR treatment” AND “women OR females OR girls”. Articles were included if they conducted quantitative research, focused on African Americans, Low SES, Morbidity, Mortality or prenatal care. Articles were excluded if qualitative, published before 2010, were not in English and only examined “perceived discrimination”. All members of the research team conducted the primary screen of abstracts for eligibility using the predefined inclusion and exclusion criteria. Four members of the research team then further screened to determine final inclusion or exclusion of each article, with disagreements resolved by the last author.

Results: Across 7 final articles, we found that rather than racial discrimination stemming from the healthcare system and its providers, other major themes emerged that may account for disparities in the medical treatment of African American women. The first and most highly implicated in causing differences in medical treatment was access to healthcare. Four studies analyzing breast cancer from the perspectives of BRCA1 genetic testing, Gene expression profile (GEP) testing, hormone-receptor subtype, and receival of surgical treatment, all found that the lack of testing and delays in treatment were partly attributable to lack of adequate insurance that covered preventative care and testing. African American women had significantly increased delays in receiving genetic testing and treatment for breast cancer compared to White women and feasibility seemed to have the greatest impact. In an area-level HCA model, despite having a high density of physicians, patients were still less likely to receive surgical treatment for breast cancer due to unemployment, poverty level, structural and cultural reasons. Another consistent finding with this theme was access to rehabilitation facilities, physical therapy, and other post-operative treatment for a total knee arthroplasty. The disparity of treatment for Black women was not

significantly more than White patients, however, Black women had longer hospital stays, more intensive physical therapy and were treated with total knee arthroplasty later than White women on average. Overall, underutilization, unaffordability and delays in treatment tie into a larger theme of Socioeconomic Status (SES) contributing to disparities in the medical treatment of African American women in the Unites States. SES seemed to have a sizable role in the disparities found when Black women were compared to White women for breast cancer and ovarian cancer treatment. In another study that quantitatively analyzed racial segregation and disparities in breast cancer treatment, there was evidence that morbidity and mortality was ultimately affected as a result of SES. Black women who presented at an advanced stage were less likely to receive appropriate surgical and adjuvant treatment and were found to have lower overall and stage specific survival relative to White individuals. The final theme that emerged from the data found across all the articles, was that there was an evident lack of follow up care and communication with physicians that was contributing to treatment outcomes. For instance, BRCA genetic testing on its own does not have much value if patients do not follow up with their physicians for more frequent screening. Black women had the lowest rates of conversations with their physicians about genetic testing compared to non- Hispanic White and English-speaking Hispanics. Further, African American women are more likely diagnosed with ER/PR (Estrogen Receptor/ Progesterone Receptor) negative breast cancer, have more pathologic genetic factors, and worse prognoses, yet those receiving options for mastectomy were more hesitant to follow up.

Conclusions & Implications: Access to medical care, socioeconomic status and lack of patient follow up had a significant impact on the disparities found in the medical treatment of African American women. Rather than racial discrimination from the perspective of physicians, these factors seemed to affect the statistics of the studies finding any disparity between African American and White women. With this scoping review being limited to 2 databases, a need for a larger scoping review over many databases may be warranted and reveal more findings on the role of discrimination in treatment. Lastly, more public health research is needed within various races and among genders to identify how we can create solutions to inequalities within healthcare.

Learning Objectives:
1. Identify if racial discrimination and/or disparities have an impact on the medical treatment of African American women.
2. Discuss barriers to proper medical treatment of African American women
3. Demonstrate the lack of research and need for research in this field of study
4. Identify barriers to medical treatment in the population of African American Women.

How Much Can your Electrocardiogram Tell You of Obstructive Sleep Apnea?

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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Background: Obstructive Sleep Apnea (OSA) continues to be a prevalent, life-limiting, disorder around the world. Early diagnosis of the condition has shown favorable outcomes; however, standard diagnostic procedures are lengthy and expensive, with a primary reliance on polysomnography tests. Electrocardiograms have been

speculated to provide additional surveillance for OSA through the identification of the rSr' pattern in leads V1-V2; however, research on this topic remains limited.

Methods: The following study retrospectively analyzed a patient database from a single outpatient clinic in New York City. OSA was confirmed through the Apnea-Hypopnea Index derived from polysomnography and electrocardiograms were abstracted through electronic medical records. Multivariate logistic regression was performed to determine associated factors of OSA.

Results: 670 consecutive patients of Hispanic/Latino heritage (131 with OSA and 539 without OSA), with a mean age of 62.06 ± 10.11 years were included in the study. The frequency of rSr' pattern in leads V1-V2 in sleep apneic patients was significantly higher than in non-sleep apneic patients (29.77% vs 20.41%; p<0.05). OSA patients also exhibited higher incidence of hypertension (89.3% vs 5.0%; P<0.01), longer QRS duration (92.59ms vs 90.48ms; p<0.05), and increased rate of S waves in leads V5-V6 (75.57% vs 64.38%; p<0.05) compared to non-sleep apneic patients. In the final multivariate logistic regression, hypertension, overweight/obesity (BMI ≥25 kg/m2) and presence of rSr' in leads V1-V2 were predictors for OSA.

Conclusion: These findings suggest that the presence of an rSr' electrocardiographic pattern in leads V1-V2 patterns may be a predictive tool for the diagnosis of OSA.

Learning Objectives:
Examine the association between different electrocardiogram patterns with obstructive sleep apnea.
Differentiate the ECG patterns that present in OSA versus non OSA patients

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Session 4A – Medicine & Medical Specialties

Stage IIIb Seminoma Presenting as Hydronephrosis in a 73-year-old Man

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: A seminoma is a germ cell tumor that typically affects men aged 15-35 years. Fewer than 4% of germ cell tumors present over the age of 65 years. Additionally, only 5% of seminomas will present at Stage III. We present a 73-year-old man who presented with a retroperitoneal seminoma in the context of hydronephrosis and a normal testicular examination.

Case Presentation: A 73-year-old man presented to the ED due to worsening left flank pain for three weeks. He described the pain as excruciating and sharp. There was no relief despite over-the-counter pain medications. He denied previous episodes, aggravating factors, and pain radiation. Past medical history included panniculitis treated with chronic hydroxychloroquine, BPH, type 2 diabetes mellitus, and atrial fibrillation. The physical exam was negative for CVA tenderness, spinal tenderness, or testicular abnormality. A CT abdomen/pelvis revealed mild left hydronephrosis secondary to mass effect from a 17.8 x 13.3 x 11.7 cm paraaortic mass (Figure 1). Further review of a CT abdomen/pelvis 16 years prior showed this mass measuring 2 x 2 cm.

The differential included neoplastic disease and infection. A CT-guided biopsy was obtained revealing a poorly differentiated carcinoma. Immunostains for GI, prostate, lung, and kidney were negative. Tumor markers were obtained showing AFP 2 (ref range 0-9), beta hCG 1 (ref range 0-3), and LDH 497 (ref range 100-190).
Due to unknown site of primary, testicular origin was considered given the paraaortic location. Immunostains for testicular origin showed positive OCT3/4, CD 117, D2-40, and SALL4 with negative glypican 3, CD30, consistent with a pure seminoma.

Final Diagnosis: The final diagnosis is stage IIIb (TxN3M0S2) seminoma versus extragonadal retroperitoneal seminoma.

Outcome: The patient is currently undergoing four cycles of cisplatin and etoposide chemotherapy with curative intent. Pending the clinical course, surgical removal of large residual disease and left orchiectomy may be considered.

Learning Objectives:
Discuss the differential diagnosis of obstructive hydronephrosis in an elderly male.

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Unicentric Castleman Disease Associated with Covid-19 Pneumonia

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: Unicentric Castleman Disease (UCD) is a rare lymphoproliferative disorder with a poorly understood mechanism. However, Interleukin-6 (IL-6) has been shown to be upregulated in many cases. Covid-19 has demonstrated significant and sometimes fatal inflammation largely due to IL-6. It is possible that elevated IL-6 levels could create a lymphoproliferative environment amenable to UCD development. We report the first documented case of UCD in a patient with Covid-19 pneumonia and propose a possible IL-6 mediated mechanism.

Case Presentation: A 38-year-old female presented to the endocrinologist due to a reported adrenal incidentaloma. This was found on a CT chest 3 months prior while she had Covid-19 pneumonia. The physical exam was normal.

The differential included endocrine tumor, rheumatologic process, and hematologic malignancy. A repeat CT showed a solid left retroperitoneal mass measuring 5.2 x 3.0 x 2.8 cm situated between the left kidney and adrenal gland with adjacent prominent periaortic lymph nodes.

A CT-guided biopsy revealed atypical lymphoid proliferation with prominent reactive germinal centers and expanded marginal zone and germinal center central venules suspicious for Castleman lymphadenopathy. There was a mixture of polyclonal B-cells and T-cells with intact overall immune architecture. Immunoglobulin heavy chain rearrangements showed polyclonal amplification products.

Exploratory laparotomy was performed with removal of a malignant appearing 5 cm left retroperitoneal mass. Pathology was consistent with atypical lymphoid proliferation concerning for Castleman's disease. Second opinion was obtained and revealed increased IgG positive plasma cells suggesting early lymph node involvement by hyaline-vascular Castleman disease.

Final Diagnosis: After core needle and subsequent excisional biopsies, the diagnosis of Unicentric Castleman Disease was confirmed.

Outcome and Follow-Up: After excision of the pathologic lymph node, the patient remains asymptomatic and has returned to her normal life.

Learning Objectives:
Discuss a potential mechanism for the development of Unicentric Castleman Disease in the context of a Covid-19 infection.

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Improving Geriatric Medicine Training Outcomes in Family Medicine Residents

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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Population distribution of the United States is undergoing a change. This is partially due to the "baby boomer" population reaching the age of 65 and older, making 1 in 5 U.S. residents of geriatric age group. 2 With 7,000 geriatricians in practice, there is an underwhelming number of geriatric fellowship-trained physicians compared to the number needed to support the population shift. 4-5 To bridge this gap, it is important to incorporate geriatric education into the curriculum of primary care trainees, e.g., family medicine residency programs. To assess and improve geriatric training among family medicine residents, a multi-phase quality improvement project was developed at an urban, academic family medicine residency program. A Qualtrics pre-survey (using a Likert scale multiple choice options) assessed current family medicine residents' experiences, perceptions of their overall geriatric curriculum, and knowledge with geriatric patient care. Future phases include implementing rotation curriculum changes with a didactics series focused on geriatric topics based on reported level of confidence among residents. Post-curriculum change, we will gauge resident confidence with geriatric medicine. In-training exam scores will be followed to track improvement on residents' knowledge. Initial findings reveal majority of residents feel areas of improvement include polypharmacy management, time spent with preceptor, and experience in homes and long term care facilities.

As part of a longitudinal quality improvement project to improve geriatric education in an academic family medicine residency program, we aimed to survey residents' perceptions of their current geriatric training curriculum as well as track their geriatric in-training test scores. As we evaluate the perceptions of Family Medicine residents we seek to ultimately improve Geriatric Medicine training outcomes for Family Medicine residents throughout the country. We expect that other institutions may benefit from this project by implementing similar changes to better prepare their residents to care for the geriatric population. Programs can begin to introspectively look into their own Geriatric Medicine curriculum to see what areas can be improved, and what knowledge gaps need to be filled. Other institutions may benefit from implementing opportunities for more training experiences outside of traditional inpatient and outpatient settings, such as long-term care facilities and home care. In addition, other institutions may consider adding dedicated lectures or training curriculum to increase not only geriatric medicine knowledge but residents' direct contact-experience with older adults.

Learning Objectives:
Understand the benefit of an improved geriatric curriculum for residents' training.
See areas of possible improvement in their own program's geriatric education.
See what areas residents can improve experience within geriatric medicine.

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Hypersensitivity Pneumonitis due to MAC Exposure from Hot-Tubing

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: Over the years, hot tubs have gained a notorious infectious reputation from hot tub folliculitis due to pseudomonas infection to legionella pneumonia. A less discussed, but still prominent risk from hot tub usage is hypersensitivity pneumonitis due to mycobacterium avium complex exposure. This reputation, however, has not completely deterred those form using of hot tubs as described in the case below.

Case Presentation: 41 year-old female with PMH of ulcerative colitis presented complaining of dyspnea, fever, and malaise. One week prior, she went on a fishing trip followed by progressive malaise and fever, home recorded Tmax of 104.7 F. The day prior to presentation, she began to experience dyspnea worsened by exertion and lying flat with non productive cough, unchanged form baseline. She stated to have been in an dirty, enclosed hot tub for a few hours during her trip with others becoming ill as well. She does own cats, dogs, and horses. Denied recent exposure to tobacco, quit one year ago. Denied vaping as well. Ulcerative colitis was reportedly well controlled with only non-bloody diarrhea for a few days prior. On Imuran and Infliximab.

Physical Exam:
Vitals: HR 109, RR 27, BP 114/72, O2 sat 88%, and Temp 101.8F.
General Appearance: well-developed, not acute distress
HENT: Wearing HFNC
Pulmonary: Clear to auscultation bilaterally, no wheezes or crackles
Cardiac: Heart regular rate and rhythm
Abdomen: Non-distended
Extremities: no clubbing, cyanosis, or edema
Neuro: Alert, no focal deficits

Differential: Infection, inflammation in the setting of UC, lupus pneumonitis, pulmonary edema, hypersensitivity pneumonitis, COVID pneumonia, or pulmonary embolism.

BMP: Na 136, K 3.3, Cl 102, Bicarb 22, Anion Gap 12, GFR >60, BUN 8, Cr 0.91, Glucose 94, Calcium 7.6
CBC: WBC 3.3, Hg 10.3, MCV 104.2, Platelets 167
ABG: pH 7.39, pCO2 27.8, pO2 70, Bicarb 16.6
ProBNP: 762 pg/mL
Lactic Acid: 1.9 mg/dL
Procalcitonin: 2.40 ng/mL
ANA prior to admission: 1:320
Legionella urine antigen: Positive
Hot tub water sampling: Positive for Mycobacterium Avium Complex

Chest Xray: Bilateral interstitial lung opacities which could be due to pulmonary edema or atypical/viral infection.

CT PE: No evidence of acute PE. Diffuse bilateral interstitial thickening and groundless and consolidate opacities with trace bilateral pleural effusions, favored infectious or inflammatory in nature. Severe pulmonary edema could have a similar appearance. Multiple prominent mediastinal hilarious lymph nodes, likely reactive.

Final/Working Diagnosis: Hypersensitivity pneumonitis due to Mycobacterium avium complex exposure from hot tub water

Management/ Outcome/and or Follow-up: Placed on HFNC for oxygen supplementation. Initiated on Solu-medrol 60 mg BID with ceftriaxone and azithromycin for CAP coverage. Pulmonology consulted inpatient. Azathioprine held in the setting of concern for infection. Transitioned to oral prednisone 40 mg PO daily followed by 10 mg wean every 7 days followed by 5 milligrams for one additional week. Antibiotics switched to levoquin for 7 days in the setting of positive legionella antigen. At time of discharge, titrated down to and discharge on 3L NC with symptoms greatly improved.

Outpatient follow up with pulmonology two months after discharge. Repeat CXR noted few interstitial infiltrates, but vastly improved form prior. No longer requiring oxygen supplementation. Planned follow up CXR two weeks following visit, patient has yet to obtain.

Learning Objectives:
Recognized imaging consistent with hypersensitivity pneumonitis.
Treat hypersensitivity pneumonitis.

References and Resources:
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Squamous Cell Carcinoma: 2021 Updated Review of Treatment

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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Background/Knowledge Gap: Squamous cell carcinoma (SCC) is the second most common cutaneous malignancy after basal cell carcinoma and has an increasing prevalence worldwide. SCC requires early diagnosis to prevent metastasis. Cumulative sun exposure has been shown to increase the odds of SCC over time. Furthermore, immunosuppression from organ transplantation has been shown to add to tumorigenesis and constant inflammation.

Methods/Design: Updated guidelines in the definition of clinical features, diagnostic modalities, grading, staging, surgical, and nonsurgical treatment methods are necessary. Diagnostic methods from biopsy, dermoscopy, and reflectance confocal microscopy (RCM) have improved to include high-frequency ultrasonography, optical coherence tomography (OCT), and computed tomography. Non-surgical treatment methods include topical therapy, cryosurgery, photodynamic therapy, and radiation. Surgical treatment methods include surgical excision with margins and Mohs surgery.

Results/Findings: The National Comprehensive Cancer Network (NCCN) differentiates low and high-risk SCC using tumor information including location, size, borders, primary vs. recurrent, immunosuppression, site of prior radiation therapy or chronic inflammatory process, rapid growth, and neurologic symptoms. The AJCC staging for head and neck cutaneous SCC includes T0-T4 staging.

Conclusions/Implications: Clinical trials encourage further research to address the knowledge base of genetic variations and lymph node metastasis. The increased use of immune checkpoint inhibitors and anti-epidermal growth factor receptors for advanced and high-risk SCC decrease metastatic risk.

Learning Objectives:
1. Review diagnosis of squamous cell carcinoma, including previous and new methods of grading and staging
2. Define current and future guidelines for the treatment of squamous cell carcinoma, including devices and immune checkpoint inhibitors, and prevention of recurrence
3. List the current clinical trials in progress, including proposed targets and indications, and discuss ongoing research on specific factors, such as genetic and genomic variants, that may be targeted

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Session 4B - Surgery & Surgical Specialties; Public Health & Environmental Medicine; Medicine & Medical Specialties

Ectopic intestinal varices following pancreatic transplant: A case series

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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Background/Knowledge Gap: Ectopic variceal bleeding is a potentially underrecognized source of gastrointestinal (GI) hemorrhage. While vascular complication following pancreatic transplant is relatively common, the development of symptomatic ectopic venous varices has rarely been reported.

Methods/Design: We describe a case series of two patients with a remote history of pancreas transplant presenting with occult GI bleed. Both patients presented decades after transplant with intermittent melena and anemia requiring multiple transfusions.

Results/Findings: In both cases, a lengthy diagnostic course was unrevealing until incidental discovery of non-cirrhotic ectopic varices around the transplanted bowel on MR or CT enterography. These varices were successfully treated with coil embolization via a transhepatic approach with preserved graft outcomes.
Conclusions/Implications: Our findings add to the scant literature on this topic and should aid in the recognition, diagnosis, and management of this unusual presentation.

Learning Objectives:
1) Describe common vascular complications following pancreatic transplant
2) Discuss the etiology and clinical manifestations of ectopic intestinal varices
3) Identify key steps in the diagnosis and management of ectopic intestinal varices

The Prognostic Benefit of Targeted Germline Sequencing in Men on Active Surveillance for Prostate Cancer

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: Prostate cancer (PCa) is the most commonly diagnosed male malignancy in the United States. Genetic inheritance portends significant risk of developing aggressive PCa, yet limited understanding exists of whether germline alterations play a significant role in localized disease for men on active surveillance (AS). This study aimed to determine whether germline screening in patients on AS for low-risk PCa provides prognostic information regarding risk of pathologic upgrading or disease progression.

METHODS/DESIGN: From a prospectively maintained Institutional Review Board approved cohort of men with localized low- or intermediate-risk PCa electing AS for their primary treatment modality, we queried patients with targeted germline screening to detect DNA alterations. Patients were subsequently followed with biannual prostate-specific antigen, annual digital rectal exam plus magnetic resonance imaging (MRI), and as-indicated biopsies.

RESULTS/FINDINGS: We identified 40 men with targeted germline screening using a commercial targeted platform. Of the 40 men, 15 (37.5%) had DNA alterations. Of those with DNA alterations, 6 had a known pathologic DNA mutation (e.g., WRN, MUTYH, HOXB13, CHEK2). At a median follow up of 5.5 years, of those without DNA alterations, 8 (32.0%) had been upgraded with the remaining still on AS. Of those with non-pathologic DNA alterations, 5 (55.6%) had been upgraded. Of those with known pathologic DNA mutations, 4 (66.7%) had been upgraded. Approximately half of the 40 men had underwent radical local curative therapy, and this rate was similar in both germline mutation and non-mutation cohorts.

CONCLUSIONS/IMPLICATIONS: This study analyzed 40 patients who underwent germline sequencing while on AS for low-risk PCa. A high rate of DNA alterations and thus mutational burden was detected in this cohort. The majority of those with DNA alterations, especially those with known pathologic mutations, were upgraded. Though larger sample sizes are needed to detect the true prevalence of germline aberrations in this population, these findings suggest germline sequencing may be of prognostic benefit to men on AS for low-risk PCa.

Learning Objectives:
1. Discuss the known DNA alterations that increase one's risk of malignancy.
2. Examine the relationship between DNA alterations and the risk of malignant progression of prostate cancer.

Age-related differences in quality of life following mandibulectomy with fibular free flap

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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Background. Mandibulectomy with fibular free flap (FFF) is a procedure involving removal of all or part of the mandible followed by reconstruction using revascularized donor bone from the fibula. It is frequently performed as part of management of a tumor involving or abuting the mandible. This can lead to significant problems with vital functions including feeding, speaking, and social interaction. Modern reconstructive efforts using microvascular reconstruction have the ability to mitigate many of these side effects. Fibula free flap reconstruction is often employed as a primary effort to restore mandible defects. There is a paucity of studies examining the outcomes of this type of reconstruction on the Quality of Life (QoL) of patients postoperatively. The University of Washington QoL (UW-QoL) survey asks patients to report on their functioning in 12 domains and rank them in order of importance.

Goals. The purpose of this review was to identify the differences in QoL metrics following mandibulectomy with fibular free flap between age groups.

Methods/Design. Six studies were identified which reported all domains of the University of Washington Quality of Life (UW-QoL) survey for self-reported QoL outcomes following mandibulectomy with FFF. Three papers focusing on older patient populations 1,2,3 were compared to three papers focusing on younger patient populations. 4,5,6 Student t-tests were performed with a cutoff for significance (alpha) set to 0.05 and a null of 0 difference between age groups.

Results/Findings. The cohort included 226 patients, 103 of whom were “younger” (mean = 35) and 123 “older” (mean = 50). One paper reported median instead of mean and was excluded from this value. Statistically significant results were as follows: The “younger” group reported worse recreation (65.54 vs 71.51, $p = 0.0013$), chewing (31.47 vs 48.27, $p = 0.0001$), saliva (62.38 vs 56.63, $p = 0.0091$), mood (64.38 vs 76.33, $p < 0.0001$), and anxiety (48 vs 67.72, $p <0.0001$); The “older” group reported worse appearance (65.35 vs 75.42, $p < 0.0001$), and taste (69.5 vs 74.55, $p = 0.0155$). Item importance was ranked similarly across ages.

Conclusions. This study demonstrates a difference between QoL measures based on age following mandibulectomy with FFF. These differences should be taken into consideration when selecting the appropriate reconstructive modality. Investigation into other factors affecting QoL differences is warranted.

Learning Objectives:
- Understand the indications for a mandibulectomy with FFF.
- Describe the potential implications of mandibulectomy with FFF on QoL metrics.
- Identify the major differences in QoL outcomes between age groups.

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HIV Stigma Among Male Homeless Patients in Student-run Clinics

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

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INTRODUCTION: Human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) are major health issues within Louisiana. In 2018, Louisiana ranked 4th in the nation for both HIV and AIDS case rates. Additionally, Louisiana has a significant homeless population. Compared to non-homeless people, individuals experiencing homelessness are at increased risk of developing HIV. The National Alliance to End Homelessness estimated that 3.4% of homeless individuals have HIV compared to only 0.4% of the general population.

Serious barriers exist for HIV treatment among homeless patients, including lack of follow-up, mental health obstacles, use of illicit drugs, and negative feelings towards healthcare providers. Another significant barrier is the stigmatization of HIV. Health-related stigmatization is when individuals experience adverse social or personal judgement due to their health issues. Within homeless population, data suggests perceived stigma causes individuals to withhold HIV status from social workers and sexual partners.

Research has begun to quantify the levels of stigma HIV patients face, especially in non-US countries. However, further research is needed regarding the amount of stigma US homeless populations have towards HIV. Greater understanding will enable healthcare providers to better address HIV stigma as well as measure improvement after intervention in homeless patients.

OBJECTIVE: Our goal is to quantify the amount of HIV stigma harbored by homeless patients. To accomplish this purpose, we will use an adaption of the Van Rie HIV/AIDS-related Stigma Scale. This questionnaire provides statements (e.g., "People who have HIV lose friends when they share with them they have HIV") that patients answer via a Likert response scale (e.g., "strongly disagree," "disagree," "agree," and "strongly agree"). Male HIV-negative homeless patients will be administered this survey in student-run clinics in New Orleans. Mean scores will be computed to assess the burden of HIV stigma in this population.

Learning Objectives:
1. Cite current data regarding HIV trends in US and Louisiana homeless populations
2. Describe the obstacles homeless patients face in regards to HIV treatment
3. Discuss the need for greater quantification of HIV stigma among homeless patients

Confounding Factors that can be Attributed to the Rise and Fall of COVID-19 Incidences within Florida Counties

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

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Background: The coronavirus pandemic has emerged as a significant threat to public health, economic stability, and healthcare infrastructure. In this study, we sought to determine the influence of gender, poverty level, unemployment rate, and disability prevalence on positive COVID-19 tests per capita. The COVID-19 pandemic has not created health inequalities but rather exposed the preexisting biological and social factors that influence individual outcomes. This secondary analysis aims to provide a more in-depth view of how these confounding variables contribute to COVID-19 incidence in Florida counties, with the hope that future studies can examine this relationship throughout the United States.

Hypothesis: Prevalence of male gender, those with disability, population under 100% of poverty, and civilian labor force unemployed would increase the rate of positive COVID-19 tests per capita in 67 counties in Florida.

Methods: This secondary analysis was conducted through a linear regression line with the best fit for the confounding factors, using the Florida Department of Health's data from 2015-2019. Each model was evaluated using both adjusted R-squared and Akaike Information Criterion, along with a number of significant predictors. We displayed the models with the best Akaike Information Criterion among those with the optimal number of significant predictors. The normalized set used was "Total Positive Tests (Per Capita)". The four explanatory variables that resulted in the best model were sex, poverty level, unemployment, and disability.

Results: An increase in the Male population of one percent resulted in an expected increase of 3.35 positive COVID tests (per 1,000 people). An increase of one percent in the population of People under 100% of Poverty resulted in an expected increase of 1.01 positive COVID tests (per 1,000 people). An increase of one percent in the population of People with a Disability resulted in an expected decrease of 1.56 positive COVID tests (per 1,000

people). The adjusted R-squared was 0.4099, indicating that 40.99% of the variance in Positive COVID Tests (per Capita) is explained by the model used. Unemployment rates were not statistically significant.

Discussion: We attributed the lower incidence of positive COVID-19 tests amongst Disabled People to an increased focus on isolation due to a higher incidence of pre-existing conditions in this cohort. Additionally, an increase in positivity rate of those under 100% poverty may be due to a lack of secure housing and an inability to work from home. Unemployment rate did not have a significant effect on positive rates, which differed from our initial hypothesis. We believe this finding may be attributed to an increase in federal funding to support the rapidly growing unemployment workforce, which allowed for individuals to remain at home and social distance. Biological sex has been a known modifier of disease, which is exemplified in this study through an increase in positive COVID-19 rates in the male population. Although this study is a microcosm that explores the confounding variables on positivity rate per capita in Florida counties, these variables may be influential in future studies that apply to a broader scope across the United States.

Learning Objectives:
Determine the influence of gender, poverty level, unemployment rate, and disability prevalence on positive COVID-19 tests per capita in Florida counties.

The pathological connection between sadness and a broken heart: A new mother presenting with takotsubo cardiomyopathy

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: Takotsubo cardiomyopathy (TTC) characteristically affects postmenopausal females and has a reported prevalence of ~0.02% in all US hospitalizations. A state of catecholamine excess from emotional stressors in the presence of a known psychiatric illness is hypothesized as proposed underlying pathophysiology. Rarely, pregnant women exposed to emotional stressors in the peripartum period can develop TTC, and we present one such circumstance in this report.

Case Presentation: A 36-year-old woman presented with a sudden onset chest pain 6 days postpartum after an uncomplicated cesarean section. En route to the ER, she became unresponsive and was reported to have convulsive activity followed by a cardiac arrest with pulseless ventricular tachycardia. ACLS protocol was initiated, the patient got intubated with the return of spontaneous circulation in 15 minutes. Her medical history included hypothyroidism, paroxysmal atrial fibrillation(AF) status post-ablation and recently diagnosed depression on citalopram.

She was afebrile with a pulse of 146, BP 130/56, saturating 100% on mechanical ventilation. She was anemic with hemoglobin of 8.8, non-anion gap metabolic acidosis with pH 6.92, troponin 0.139, which trended up to 13.5 in 5

hours. ECG showed AF with RVR. CT with angiogram ruled out pulmonary embolism. Heparin drip was initiated for suspected acute coronary syndrome along with amiodarone drip for AF.

Diagnosis: She underwent cardiac catheterization, which showed normal coronary arteries with ejection fraction(EF) of 25%, severe hypokinesia of the mid to distal left ventricle and apical ballooning consistent with TTC. Transthoracic echocardiogram (TTE) demonstrated similar findings.

Treatment: In the ICU, she was continued on heparin and started on low dose sacubitril/valsartan, metoprolol and aspirin. She improved clinically and was extubated within 24 hours. The patient had retrograde amnesia upon awakening, with her last recollection being childbirth and reported feeling increasingly depressed peripartum. She recovered from the acute illness in 1 week and was discharged home with a LifeVest and appropriate medical management. Follow up TTE in 2 months revealed an EF of 50% and no regional wall motion abnormalities.

Learning Objectives:
When suspected, TTC requires emergent evaluation and management as it is reversible in the majority of cases with minimal complications. Patients are known to succumb to sudden cardiac death due to cardiac arrhythmias after developing TTC. Fortunately, this patient was identified and treated with almost complete resolution of her cardiomyopathy, emphasizing early recognition and appropriate management.

A Promising Combination: Bariatric Surgery prior to Kidney Transplantation for Obese ESRD Patients

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: Obese patients with ESRD have limited access and higher complication rate during kidney transplantation (KT). We report outcomes when screening obese patients with ESRD to undergo bariatric surgery prior to KT.

Methods: We performed a two-year prospective analysis of obese KT candidates (BMI >35 and GFR <20) who received bariatric surgery and subsequent KT. We evaluated their pre- and post-bariatric demographics and post-KT variables with monthly follow-up visits.

Results: A total of 81 patients were enrolled, of which 74% had pre-existing hypertension and 51% had diabetes (Table 1). Eighteen patients have undergone bariatric surgery to date and four patients have received subsequent KT. Patients had an average timeline from initial transplant screening to bariatric consultation of 28 days, to bariatric surgery of 127 days, to waitlist placement of 323 days, and to KT of 230 days (Figure 1). In all enrolled patients, average BMI decreased by 16 between the initial bariatric consultation and KT; notably, none regained weight at 6 month follow up (Table 2). Interestingly, 25% of patients developed hypotension (systolic blood pressure <100) after vertical sleeve gastrectomy and 55% of them required pro-hypertensive medications.

Conclusions: Bariatric surgery offers a promising option for KT candidates who may be predisposed to worse outcomes due to obesity. Pre-KT bariatric surgery offers reduction of pre-KT comorbidities, allows for successful transplant, and offers improved compliance. The issue of hypotension post-bariatric surgery is relatively novel in ESRD patients.

Learning Objectives:
Pre-KT bariatric surgery offers reduction of pre-KT comorbidities, allows for successful transplant, and offers improved compliance.

Session 6A - Medicine & Medical Specialties

A Case of Extreme Insulin Resistance in the Setting of COVID-19

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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Intro: Obesity and insulin resistance have been shown to be lethal comorbid conditions in COVID-19 patients. One major association being studied is insulin resistance and ACE-2 expression. ACE-2 expression is decreased during a COVID-19 infection which leads to an increase in angiotensin-II which precipitates insulin resistance (IR). IR is the main factor that pre-empts the activation of an inflammatory response and further cytokine storms. These effects combine to cause dysregulation in the alveolar epithelium leading to acute respiratory distress symptoms. Extreme IR has been documented in severely ill COVID-19 patients, however the mechanism is not yet well defined.

Case Presentation: We present a 40-year-old woman with severe COVID-19 pneumonia, sepsis, and acute kidney failure requiring intubation and dialysis. On day five of admission, this patient had increasing hyperglycemia resistant to a high-dose sliding scale insulin. She was escalated to an insulin drip but the hyperglycemia persisted. The drip was titrated up to as high as 99 units of insulin/hour for over 24 hours, still with minimal changes in glucose levels. The rate was adjusted for three days until her glucose eventually stabilized and she could be weaned off the drip.

Final/Working Diagnosis: While attempting to identify the cause of this severe IR, multiple considerations were made. The patient tested negative for insulin antibodies and her central line was intact and patent. There is scant literature demonstrating the ability of levophed to inactivate insulin if given through the same line. The patient was receiving levophed through the same line as the insulin (in a different lumen), however this doesn't explain the eventual stabilization of her glucose levels. Therefore, the final consideration was that the COVID-19 cytokine storm caused an extreme level of insulin resistance never before documented.

Management/Outcome/Follow-up: There was still much difficulty in stabilizing the patient's blood glucose levels, but not nearly as much during that three-day period and she was able to stay off the insulin drip moving forward. Unfortunately, the severe complications of her illness took too much of a toll on her body and she succumbed to the illness after over a month in the ICU.

Learning Objectives:
Identify correlations between the pathogenesis of COVID-19 and insulin resistance that might lead to implementation of new treatment plans.

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Use of Genetics and Diet in Inflammatory Bowel Disease for Treatment with Checkpoint Inhibitor Blockade and resulting Gastrointestinal Toxicity

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: Colitis associated with checkpoint blockade therapy has pathophysiology similarities to Inflammatory Bowel Disease (IBD), such as Crohn's Disease and Ulcerative Colitis. The inflammatory colitis toxicity from checkpoint blockade is also similar to clinical symptoms experienced in patients with IBD.

Methods/Design: We will briefly review the pathophysiology, dietary, and genetic factors associated with IBD. Dietary modifications with the SCD, FODMAP, BRAT, lactose elimination, low-residue and more target specific portions of the upper, middle, and lower affected gastrointestinal tract. We further relate how these principles can be applied to patients experiencing inflammatory bowel toxicity secondary to checkpoint blockade.

Results/Findings: Checkpoint molecules are cell surface receptors on immune cells that mediate suppression and augmentation of the immune response. Mechanistically, checkpoint molecules and other immunomodulatory molecules, such as TNF-alpha upregulated in IBD, are the same molecules up-regulated in inflammatory and cancerous processes, such as colon and small intestinal cancer. Blocking these checkpoints can not only inhibit the cascade of inflammation, but also result in toxic side effects from that same cascade. Current guidelines towards treatment go beyond corticosteroids, such as prednisone, to achieve remission. Specific genetic markers give rise to downstream immune checkpoints also associated with the pathophysiology of Crohn's and ulcerative colitis.

Conclusions/Implications: The balance of the toxicity in the application of these inhibitors relies heavily on the symptoms of IBD patients and established diagnostic criteria. Some of these toxicities include, but are not limited to, mucositis, hypothyroidism, hypophysis, rash, hepatotoxicity, pancreatitis, pneumonitis, colitis and more. Criteria can help achieve a mediated point of toxicity and treatment for IBD patients.

Learning Objectives:
1. Identify how genetics can impact checkpoint inhibitors behind the inflammation and blockade of colitis
2. Apply the pathophysiology of lifestyle and diet changes made in Crohn's disease and ulcerative colitis to treatment of inflammatory bowel toxicity
3. Compare the checkpoint inhibitor toxicity levels, symptoms, and factors in both Crohn's disease and ulcerative colitis

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Bergonie, Bordeaux, France; CHU Caremeau, Nimes, France; Centro Medico Austral, Buenos Aires, Argentina; Centre Jean Perrin, Clermont-Ferrand, France; St John of God Hospital, Subiaco, WA, Australia; University Hospital of Siena, Istituto Toscano Tumori, Siena, Italy; Hospital de Caridade de Ijui, Ijui, Brazil; Nottingham University Hospital, Nottingham, UK; Huntsman Cancer Institute, University of Utah, Salt Lake City, UT, USA; Netherlands Cancer Institute and Antoni van Leeuwenhoek Hospital, Amsterdam, Netherlands; Institute of Oncology Ion Chiricuta and University of Medicine and Pharmacy Iuliu Hatieganu, Cluj-Napoca, Romania; Hospital Britanico de Buenos Aires, Buenos Aires, Argentina; Herlev Hospital, Herlev, Denmark; Odense University Hospital, Odense, Denmark; University of Texas MD Anderson Cancer Center, Houston. Urol Oncol. 2016;34(5):249-250.
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Osmotic Central Pontine Demyelination Syndrome In An Eunatremic Elderly Man

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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A 76-year-old Asian male with a history of hypertension, type II diabetes mellitus (T2DM), and transient ischemia attack (TIA) presents with cough, fatigue, and headache for four days. A chest radiograph revealed a right middle lobar opacity with concern for community-acquired pneumonia (CAP). IV antibiotics were started for CAP coverage and the patient was admitted for monitoring. Complete blood count (CBC) and comprehensive metabolic panel (CMP) were within normal limits, showing a sodium of 136mmol/L and a creatinine of 0.74 mg/dL. On hospital day five, creatinine was found to be 1.12 mg/dL and 1L of normal saline was given as bolus to address prerenal acute kidney injury (AKI). Over the next two days, an additional 2L of normal saline was administered, which resulted in a return of creatinine to baseline. Upon finishing antibiotics on hospital day seven, the patient's CAP resolved and was discharged to home. Two weeks later, the patient returned with his wife, who reported that he was more somnolent than usual and was slower to react. On presentation, the patient was alert and oriented but visibly fatigued. He denied dysarthria, dysphagia, or paresis. CBC and CMP were unremarkable and consistent with baseline, showing a sodium of 138mmol/L. MRI of the brain showed hyperdensities and features consistent with mild central pontine myelinolysis. Relowering of serum sodium was not attempted due to prolonged duration since symptom onset. The patient was subsequently discharged with instructions to follow-up with neurology.

Osmotic Demyelination Syndrome (ODS) classically occurs due to rapid over-correction of serum sodium by more than 8 mEq/L over a 24-hour period in the setting of brain adaptation to hyponatremia. Brain hypoxia and diabetes mellitus has also been posited as risk factors for ODS, although the mechanisms are still under investigation. In this case, despite being eunatremic, a patient with a history of T2DM and TIA received IV fluid boluses during his hospital course and developed ODS. A complex interplay of these risk factors may have ultimately resulted in this unorthodox case of eunatremic ODS. Clinicians should carefully consider the possibility of ODS when repleting volume or electrolytes in high-risk patients.

Learning Objectives:
Recognize that osmotic demyelination syndrome can occur in eunatremic patients with certain risk factors

Underlying Zinc Deficiency presenting as Recurrent Cellulitis in a Middle-Aged Caucasian Male

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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Introduction: We present a case where recurrent cellulitis occurred secondary to an underlying zinc deficiency. Cellulitis is a deep skin infection characterized by erythema, pain, warmth, and swelling. There are over 650,000 admissions due to cellulitis per year in the United States making it one of the most common diagnoses in the hospital setting. Zinc deficiency is a known complication of chronic alcoholism with 90% of alcoholics having an inadequate dietary intake. Zinc plays a role in gene expression, enzyme function, immune function, and skin integrity among many other functions. Zinc deficiency presents as acrodermatitis, scaly skin, and desquamation throughout the body.

Case: A 57 y/o Caucasian male with a past medical history of COPD and past social history of alcoholism, smoking, and homelessness presented to hospital with a chief complaint of upper limb swelling and bilateral leg swelling. Patient presented several times in the past for similar complaints dating back to 2 years ago. On admission, his vitals were HR: 120, BP:132/88, RR:19, and Temp- 98.4 F.

Physical exam revealed extensive desquamation of hands and legs, erythema on abdomen with some scaling, swelling, and breakage of skin with maggots present in lower extremities.
There was no history of childhood conditions and he was up to date on all immunizations.
Blood cultures were positive for MSSA and his echo revealed no vegetations. A skin Biopsy showed psoriasiform dermatitis with acanthosis, parakeratosis and absent granular layer.

Differentials: Cellulitis- Started on vancomycin and cefepime. Psoriasis- Started on prednisone. Other differentials included pityriasis rubra, pellagra, and atopic dermatitis. The patient was readmitted several times for similar chief complaints.

Diagnosis and Treatment: On the most recent readmission, the patient was treated empirically for cellulitis and psoriasis again. This time, Zinc levels were checked due to his history of alcoholism and were 28.2 (normal is 66 to 110). He was started on a Zinc supplement and the steroid cream was discontinued due to its counterproductive effects (increased thinning of skin). Antibiotics were continued until the course was finished, and the patient was discharged on a zinc supplement. His skin became intact, and the desquamation improved.

Learning Objectives:
1. Understand the differential diagnoses and workups for skin abnormalities
2. Recognize the importance of comprehensive physical examination and history taking in managing skin abnormalities

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Session 6B - Quality Health Care, Patient Safety & Best Practices; Global Healthcare; Medicine & Medical Specialties

The History and Faults of the Body Mass Index and Where to Look Next

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

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Most people know the common anthropometric index, body mass index (BMI). They are familiar with its usage in healthcare and research settings, but do they know of its origin? Adolphe Quetelet (1796-1874), a Belgian statistician, mathematician, and astronomer inspired by his passion for statistical analysis first created the Quetelet index (weight divided by height squared) while attempting to establish quantifiable characteristics of the 'normal man'. Physiologist Ancel Keys (1904-2004) officially coined the term "body mass index" and provided evidence to support its widespread current usage in 1972 through his study in which he analyzed 12 samples of 7,426 'healthy' men. BMI now exists on almost all Electronic Medical Records, is used as a factor to assess various disease risks, and is used everyday in the healthcare setting.

We must question whether or not using an anthropometric index originally established and rebranded by non-medical professionals offers the best, most accurate medical assessment of our patients. It is time to introduce a new anthropometric index of weight that is not only a more accurate predictor of disease risk, a more accurate determination of body fat percentage and adiposity, and a better representation of a patient's health - but one that is inclusive to both women and minorities as well. These groups were not included at all, or only comprised a small percentage, of the 7,426 men in the 1972 Ancel Keys study. Different indices that may be superior replacements to BMI due to their ability to accurately assess abdominal fat - which is associated with insulin resistance, metabolic disease, and cardiovascular disease - include, but are not limited to, waist-to-hip ratio, waist-to-height ratio, waist circumference, and a body shape index. It is important that we replace the usage of BMI in the healthcare setting and EMR with a different anthropometric index that considers height, sex, and race differences; accounts for abdominal adiposity which is highly associated with cardiometabolic risk; and accurately predicts the relationship between obesity, mortality, and diseases such as CVD, hypertension, insulin resistance, and type 2 diabetes.

Learning Objectives:
Discuss the history, origin and usage of body mass index.
Describe the faults in BMI and in the 1972 Ancel Keys study that sparked the widespread current usage of BMI in the United States, particularly relating to gender and race/ethnicity.
Identify and discuss potential replacements of our current widespread anthropometric index, body mass index, such as waist-to-hip ratio, waist-to-height ratio, waist circumference, and a body shape index.

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Hypoglycemia and Glucagon Utilization in Children with Type 1 Diabetes

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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Background: Hypoglycemia is one of the most severe and life threatening complications of insulin therapy for patients with diabetes. The risk of severe hypoglycemia is higher in children with type 1 diabetes (T1DM) when compared to the general diabetes patients. Glucagon is usually distributed as “Emergency Kits” and often stored in patients’ homes and schools to be used in case of severe hypoglycemic episodes.

Methods:
1. To evaluate the experience of the patients with diabetes and their caregivers of utilizing the glucagon emergency kit by filling out or completing a one page survey
2. To use this survey as a reminder for patients to ask about the glucagon emergency kit availability, refills, and explore any educational needs regarding its utilization.

Results: In this pilot study, thirty-four patients and their families have participated. Of the thirty-four patients, thirty families (88%) had at least one kit of Glucagon rescue medication. Only four patients (12%) have used it in the past. Upon verification, nine families (26%) realized that the medication had an expired shelf life and a renewal of the prescription was submitted. Eight families (24%) expressed a need to review the demonstration of its use.

Conclusions: Hypoglycemia risk reduction depends on patient education and self-empowerment. If the patient‘s hypoglycemic episode is not severe, utilizing simple glucose intake orally is often done without any need to use the emergency kit. Thus, the emergency kit may expire in shelf life, get lost, or not be properly utilized when needed due to lack of experience of the patient or care-givers in using it.

Learning Objectives:
1) Identify the forms of glucagon available for utilization as a rescue therapy in the setting of severe hypoglycemic episodes.
2) Discuss the discrepancy between patients’ and their families' awareness of glucagon versus their knowledge on how to administer the medication.

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Health Issues Among the Youth of Nepal: A Literature Review

Category: Global Healthcare; Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Background: Nepal is one of the world’s least-developed countries due to years of isolation and only recent independence. This has caused Nepalese children to suffer from a lack of resources, leading to suboptimal levels of health.

Objective: To investigate health issues and inequities faced by school-aged children greater than 5 years old in Nepal.

Materials and Methods: Search was conducted in the databases of PubMed and Global Health. Search concepts included “Nepal,” “health,” and “youth.” Search concepts were modified for each database to employ database-specific search terms. Only articles published during or after 2016 were included. Our search resulted in 294 articles. We then analyzed each of the titles and excluded titles that did not fit our criteria, leaving us with 69 articles. Each abstract was then read to determine if the article focused on our targeted concepts for our research, which narrowed our references to 35 articles. The full articles were then read and organized into the topics of Water/Sanitation, Nutrition, Dental Hygiene, Mental Health, and Medical Knowledge.

Results: Nepalese children are being affected by inadequate resources with poor health outcomes. Inefficient water and sanitation practices have led to parasitic infections and anemia. Children are malnourished which is related to growth stunting or abnormal BMI and increased incidence of dental caries. There is a lack of mental health support and medical education, as well.

Conclusion: The children of Nepal are experiencing health inequities with water and sanitation, nutrition, dental hygiene, mental health, and sufficient medical knowledge. The investigation of these health issues allows for the development and later implementation of interventions to lead to better health outcomes. Some possible interventions may include medical education, healthy diet plans in schools, treated water sources, dental exams, and open discussions regarding mental health. Other areas of health that should be explored include average activity levels, sleep hygiene, and spirituality.

Keywords: Nepal, Kathmandu, sanitation, hygiene, cleanliness, problem, challenge, health, school, youth, child, student, adolescent

Learning Objectives:
1) Identify health issues faced by school-aged children over 5 years old face in Nepal.
2) Discuss interventions that may be implemented to enhance children's health and future.

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“Healthy Heart” An initiative to change the face of Cardiovascular Disease in Nepal

Category: Global Healthcare; Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Non-communicable, progressive diseases are often underdiagnosed but have potentially disastrous consequences on quality of life and workforce productivity. Hypertension, in particular, has taken precedence in research studies in Nepal in an effort to understand its prevalence, impact, and control. Risk factors and barriers of hypertension in Nepal have been identified via studies conducted between 2017-2021. A common set of conclusions reached by most studies were that hypertension tends to be pervasive; awareness of its harmful effects is low; and managing it seems to be subpar. It is difficult to address the issue of declining cardiovascular health in aging individuals when approximately 50% have undiagnosed hypertension. In addition, there has been little progress towards improving the status of hypertensive care. Hypertension is one of the main risk factors associated with cardiovascular disease, and standardized approaches to assessment and treatment are crucial to preventing future complications.

We would like to create educational material and a screening protocol for primary care centers to ultimately influence policy in favor of cardiovascular disease prevention and treatment. The goal of our initiative is to raise awareness, promote healthier lifestyles, and create replicable protocols for doctor's offices to standardize their cardiovascular care. With sustainable procedures, we can more accurately screen and diagnose cardiovascular precursors to prevent irreversible complications. We will survey the current Community Health Centers to establish a baseline of current practices to develop guidelines that will fill the gaps in current care. The general population of Nepal will also be surveyed for their understanding of hypertension, potential risk factors, and common sequelae.

Our desired outcomes are to increase health literacy on risk factors, progression, and consequences of untreated cardiovascular disease, as well as the importance of exercise and healthy diets. We also aim to establish guidelines and a protocol to be implemented in doctors' offices. Education and standardized procedures will reduce the public health and economic burden of cardiovascular disease in Nepal.

Learning Objectives:
1. A Cardiovascular health crisis and burden exists in Nepal.
2. Implementing a standardized protocol for hypertension diagnosis in doctors' offices will eventually influence policy and combat the high population of undiagnosed hypertensive individuals
3. Health literacy is pertinent to a country-wide change in how hypertension and related cardiovascular risk factors are perceived, diagnosed and treated.

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Iron deficiency Anemia and Schatzki's ring - An uncommon association!

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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Introduction: The triad of iron deficiency, dysphagia and esophageal web, also known as plummer vinson syndrome, though rare, has been reported. An esophageal web is a thin eccentric membrane covered with squamous epithelium that protrudes into the esophageal lumen causing focal narrowing. Schatzki's ring are circular membrane of mucosa and submucosa, located at Squamo-columnar junction of the esophagus. The association between iron deficiency anemia (IDA) and esophageal rings or webs is not clearly understood. We present here a patient with dysphagia, iron deficiency anemia and Schatzki's ring.

Case Report: An 80-year-old Caucasian female presented to our facility with multiple episodes of vomiting. Her past medical history included diabetes mellitus, hypertension and hypothyroidism. On presentation, she was hemodynamically stable, appeared fatigued but her examination was otherwise unremarkable.

Initial investigations showed hemoglobin 7.1 gm/dL, white blood cell 8.1x 103/µL, platelet count 387x103/µL. She had acute kidney injury with blood urea nitrogen 124, creatinine 4.4 mg/DL. Rehydration therapy was commenced in view of dehydration. Anemia evaluation revealed, iron 81, TIBC 175 and Ferritin 215. Reticulocyte count was 3.1% (Ref 0.5- 2%). Peripheral blood smear revealed anemia with thrombocytosis suggestive of iron deficiency. B12 and folate levels were within normal levels.

Working diagnosis: With her advanced age, anemia of this severity was concerning for malignancy. Further questioning revealed that patient has had significant weight loss over past 3-4 months and dysphagia with sensation of food sticking and transiting slowly, occasionally had to push down with water, along with frequent food regurgitation. Gastroenterology consult was sought and patient underwent esophagogastroduodenoscopy, which revealed severe esophagitis, a Schatzki ring and a duodenal ulcer without stigmata of bleeding.

Management and follow up: The Schatzki ring was dilated to 18mm. Colonoscopy was normal. Post procedure, patient had significant relief of symptoms. She was discharged on pantoprazole and advised follow up in the gastroenterology clinic. On follow up her hemoglobin has improved to 11.7 gm/dL and she remains symptom free.

Learning Objectives:
1. GERD has been thought to be cause of Schatzki's ring, it has been postulated that creation of the ring is body's response to frequent acid exposure and natural way of preventing the development of Barrett's esophagus. Studies have shown that Barrett's esophagus is less common when a Schatzki's ring is present.

2. Eosinophilic esophagitis and Hiatal hernia are two most common conditions associated with Schatzki's ring.

3. Diagnosis is done by Barium swallow. Asymptomatic patients need no treatment. Management of symptomatic patients include dilatation of the ring which could be done with Bougies or Pneumonic balloon dilator, excision with biopsy forceps, and often in combination with acid suppression therapy. Bougies can be used with a guidewire (Savory dilators), without a guidewire (Maloney dilators). Surgery is almost never required.

Myxedema Coma: An Atypical Presentation

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

Presenting Author: Alexey Finkelshteyn, MD, FM Resident PGY3, Family Medicine, Houston Healthcare Center, Bonaire, GA

I) Case Presentation
a. 52 yo CM w/PMH: HTN, CKD3, hypothyroidism, polysubstance abuse (EtOH, meth, MJ)
i. lethargic…family called EMS, Hallucinating during transport
ii. Home Meds-Trazodone, Pravastatin, Montelukast, Levothyroxine, HCTZ, Buspar, Albuterol, Lactulose
iii. Past Surgical History:
1. Left Thyroidectomy 2013–papillary carcinoma, follicular variant with nodular hyperplasia, Hurthle cells
2. Right Thyroidectomy 1980
b. Physical exam
i. 91.5 F (rectal), HR 56, BP 92/55, RR 18, O2 sat 90% on BIPAP
ii. Gen-disheveled, middle aged, non-responsive
iii. HEENT-NC, atraumatic, anicteric
iv. Neck-supple, w/o LA,JVD,Goitre
v. Cardio-bradycardic, RRR, no m/r/g
vi. Pulm-CTAB
vii. Abdomen-BS present
viii. Extremities-swollen and erythematous bilaterally to knees, no clubbing, cyanosis
c. DDx
i. Shock-septic vs drug-induced vs hypovolemia
1. UTI/Pneumonia
ii. Substance Abuse/Overdose
iii. Acute on Chronic HFrEF
iv. Hypoxic, hypercapnic respiratory failure d/t COPD exacerbation
v. Hypothyroid Crisis d/t medication non-compliance
d. Tests/Results
i. WBC-3.1, Hgb 9.9, Hct 30.1, MCV 101.5
ii. ABG-7.29/PCO2 68/PaO2 121/BiCarb 35, lactic acid 1.0
iii. Chemistry-Na 138, K 4.4, Cl 102, CO2 32, AG 4, BUN 25, Cr 1.64, GFR 44, glucose 87, Osm 277.7, Ca 7.9, Mg 2.6, AST 1037, ALT 586, protein 5.9, BNP 137, procalcitonin 1.17 TSH >49.5
iv. Urine-hazy w/LE, protein, urobilinogen, WBC, epithelial cells, phosphate crystals, hyaline casts, urine mucus
v. UDS (+) amphetamine, marijuana
vi. Abdominal U/S–hepatic steatosis, 2 hyperechoic foci R lobe liver, ascites
vii. CXR–bronchopneumonia, LLL atelectasis, venous congestion, pulmonary edema
viii. NC Head CT-negative
ix. Echocardiogram–EF 40-45%, MR, TR
II) Final/Working Diagnosis
a. Myxedema Coma d/t non-compliance
III) Management
a. Intensive care : Airway Support with Pulm/Critical Care
i. management of airway from aspiration: altered sensorium highest priority
ii. Endotracheal intubation/tracheostomy with mechanical ventilation with regular monitoring of ABG
b. fluid management: correct hypotension – Pressors vs Fluids
c. Consultation Endocrinology
d. Thyroid hormone replacement IV
e. Hyponatremia: may need hypertonic saline with diuretic
f. SIADH: may need vasopressin receptor antagonist
g. Adrenal insufficiency - supplementation with IV corticosteroids
h. Speech and language pathology
IV) Outcome/Follow-Up
a. Consider D/C w/home health/Skilled nursing/PT

b. Close outpatient f/u with routine TSH to optimize

Learning Objectives:
Appreciate the complexity of the Myxedema Coma presentation, the differential diagnosis, the importance of thorough patient history research, and the management of all the endocrinological maladies that need attention in that case.

Difficult Disease, Difficult Patient: Using a Biodegradable Temporizing Matrix Synthetic Dermal Repair Post Full Thickness Debridement

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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Introduction: Acellular dermal substitutes, along with skin grafting, have allowed treatment of full skin thickness loss due to surgical debridement for difficult wound beds like necrotizing fasciitis and suppurativa hidradenitis. Patient non-compliance, complex wound care, infection, product fragility and financial implications have thus far prevented their widespread adaptation. Biodegradable Temporizing Matrix (BTM™) has been demonstrated to function as a dermal scaffold that has robust handling characteristics and requires minimal wound care. This study reports two non-compliant patients with large complex full thickness wounds that were successfully managed despite poor wound care and long delays in definitive coverage with one patient epithelizing without skin grafting.

Case Presentation: Case-1: A 40-year-old female with necrotizing fasciitis from heroine injection involving her right buttock and thigh was in septic shock and recovering after debriding 1400 sq cm. The debrided area was then covered with BTM™, stapled in place. This patient ultimately left against medical advice and returned to the ER two months later endorsing homelessness and noncompliance with wound management.

Case-2: A 50-year-old African-American male with a 20 pack-year tobacco smoking history, methamphetamine use, phencyclidine use, and marijuana use presented with sepsis secondary to severe perianal Hidradenitis Suppurativa (HS) with cellulitis. The patient underwent full thickness excision with placement of 400 cm2 of dermal substitute with wound vacuum therapy and a diverting loop ileostomy. The patient left against medical advice on day two after surgery. He was given directions for local wound care with polysporin and xeroform gauze.

Management: The 40-year-old female, the BTM™ had fully incorporated by the time she returned with the silastic layer still stapled on although separated. Split thickness skin graft was performed without incident.
The patient with HS ultimately followed up six months after discharge. The dermal substitute that was placed showed no fluctuance, purulence, or contractures. The silastic layer had fallen off with the wound fully epithelialized via marginal migration.

Conclusion: The robust characteristic, resistance to infection, and ease of wound care of BTM™ provided a solution to difficult patients with difficult problems. In one case, staged split thickness skin graft was not needed with complete epithiealization without contracture.

Learning Objectives:
1. This case series describes two difficult patients and the relative ease of use and management of a synthic dermis to treat a complex skin wound.
2. Complex skin wound treatments can be simplified even for the most difficult patients.

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Session 7A - Emergency & Disaster Medicine; Surgery & Surgical Specialties; Quality Health Care, Patient Safety & Best Practices

A Comatose Patient: A Systematic Approach To Diagnosis And Management In An Emergency Room Setting

Category: Emergency & Disaster Medicine; Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Introduction: In a comatose patient, uncovering underlying etiology is challenging due to the lack of history. We present a systematic approach to creating a differential and identifying a diagnosis in an unconscious patient.

HPI: A 35-year-old male presented via EMS after being found unconscious in his car. Patient was last seen 6 hours prior. Vitals were significant for hyperthermia 108.9 F, tachycardia 161 BPM, and hypotension 75/26 mmHg. Past medical history significant for type 1 diabetes, noncompliant with insulin.

Physical Exam: Patient was not alert or oriented and appeared unkempt with GCS of 3. He had no response to painful stimuli and exhibited decorticate posturing. He was tachycardic on arrival.

Differential Diagnosis: In approaching an unconscious patient, the mnemonic AEIOU TIPS may be utilized: A-alcohol, E-epilepsy/exposure, I-insulin, O-overdose, U-uremia, T-types of shock, I-infection, P-poisoning, S-stroke.

Hospital Course: Based upon the differential, each etiology was worked up. Patient's blood alcohol was <10. For prophylaxis, levetiracetam was started and an EEG completed showing no seizure activity. Patient's blood glucose was 108 and an urinalysis showed no ketones or glucose. Patient received Narcan with no improvement. Urine toxicology returned negative. An ABG was done to check for respiratory depression showing respiratory acidosis and patient was intubated for airway protection. With BUN 17, uremia was unlikely. Patient was started on norepinephrine and NS for shock. Negative EKG, CXR, and echo eliminated cardiogenic and obstructive causes. Hypovolemia secondary to dehydration was likely due to recovery with resuscitation. Vancomycin and piperacillin-tazobactam were started as patient met sepsis criteria. Negative imaging excluded stroke. Excluding other differentials and meeting diagnostic criteria (temperature >105 and CNS dysfunction), a diagnosis of heat stroke was made. Ice was placed in the groin and axilla and his temperature decreased to 100.9. As a complication, patient developed DIC and was treated with cryoprecipitate, platelets, and vitamin K. Patient also developed acute renal and liver failure secondary to hypo-perfusion and rhabdomyolysis which was treated with NS with D5W and HCO3, N-acetylcysteine, and sodium citrate.

Outcome: After a prolonged course, recovery of liver and renal function was seen. Mentation improved and patient was extubated.

Learning Objectives:
1. Identify the underlying etiology in an unconscious patient in an emergency room setting.
2. Discuss complications and management of a heat stroke.

References and Resources:
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1860726/pdf/987.pdf

Addressing Disruptions In Care: A Study Of Chronic Disease Exacerbations In An Underserved Community Following Hurricane Ida

Category: Emergency & Disaster Medicine; Oral Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Medically underserved communities have a higher prevalence of chronic diseases compared to the general population and are more vulnerable during disruptions of care following natural disasters. The compounding of lifelong socioeconomic pressures, chronic health burden, and acute mental and physical stress can all factor into poorer health outcomes, which calls for systemic attention, intervention, and prevention.

This is a retrospective review of patients from an underserved community in New Orleans seen at a primary care clinic over a one-month period following hurricane Ida's landfall in August 2021. Patient demographics, medical history, vitals, and lab values were collected. Patient reports of disruptions in care were recorded.

In the month following hurricane Ida, a total of 237 patients were scheduled for visits, of which only 148(62.4%) presented to clinic (56.8% male, mean age=50.9 years, 51.4% African American [AA]). The prevalence of hypertension(HTN), diabetes(DM), and chronic kidney disease(CKD) were 56.8%, 18.4%, and 14% respectively. Newly collected vitals and labs were used to compared against patients' pre-storm baselines. Notably, mean systolic BP increased by 7.4mmHg in those with HTN, hemoglobin A1c increased by 0.32% in those with DM, and creatinine increased by 0.14 mg/dL in those with CKD (all $p<0.001$). Based on clinical notes, 18.4% of all patients reported gaps in medication access; 34.2% reported experiencing delays/cancellations of care; 52.6% reported significant displacement-induced stresses. To provide adequate context, two representative cases are described below:

A 36-year-old AA man with DM presented with an A1c of 13%, up from 6.5% three-months pre-storm. He reports running out of insulin and metformin, unable to refill due to citywide pharmacy closures, stress eating, poor sleep, and extreme fatigue.

A 72-year-old AA man with obstructive sleep apnea had a well-controlled BP of 128/74 on CPAP at baseline. During evacuation, his CPAP was damaged. At presentation one-month post-storm, he reported restless sleep with BP of 160s/70s repeated on both arms. He was still awaiting CPAP replacement.

Underserved communities are at higher risk for complications of chronic health diseases due to healthcare disruptions following natural disasters. Systemic awareness, education, and anticipatory action are needed to improve health disparities in vulnerable populations.

Learning Objectives:
Understand how natural disasters impact healthcare delivery to underserved communities.

Nutritional Management for Obese ESRD Patients Planning to Undergo Bariatric Surgery Prior to Kidney Transplantation

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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Background: Patients with obesity and ESRD may undergo bariatric surgery to decrease complication rates during kidney transplantation (KT). Nutritional management for these patients may be complex; however, literature lacks specific guidelines to address these issues. A literature search was conducted to create a dietetic practice

supporting recent evidence for patients undergoing bariatric surgery prior to kidney transplantation. Here, we present our recommendations.

Methods: Utilizing the Preferred Reporting Items for Systematic Review and Meta-Analyses guidelines, the authors reviewed all English language articles written between 2000-2021 in PubMed, Ovid, Embase, and Web of Science, reporting original outcomes on bariatric diet for ESRD patients planning to undergo bariatric surgery prior to kidney transplantation. We recorded qualitative and quantitative outcomes of reported dietetic practices. We included case studies, cohort studies, and modeling studies but excluded literature reviews/letters/commentaries. A total of 10 studies were included.

Results: A total of 135 patients were included, consisting of 2 retrospective studies, 4 case studies, 3 descriptive studies, and 1 modeling study. Multiple studies suggested patients follow a three-part bariatric diet before bariatric surgery, consisting of 55-65% carbohydrates, 20-30% fat, and 10-15% protein. Patients should also try to limit their sodium and potassium intake. Two weeks prior to bariatric surgery, patients should exclusively drink high-protein fluids that are less than 200 calories and contain less than 250mg and 450 mg of sodium and potassium, respectively, per serving. To prevent hyperoxaluria post-bariatric surgery, patients should decrease oxalate and vitamin C intake before surgery. Magnesium and Calcium can decrease gastrointestinal oxalate absorption, but there are no current guidelines on calcium dosing to prevent hyperoxaluria.

Conclusion: We present the current nutritional guidelines for ESRD patients with obesity planning to undergo bariatric surgery prior to kidney transplantation. We present our suggestions for best dietetic practices and acknowledge the challenge of following a bariatric diet while maintaining renal precautions in these patients. Since literature presently lacks guidelines, further cohort studies may elucidate the proper management of these patients.

Learning Objectives:
Discuss avenues of improvement in the dietetic guidelines of patients with obesity and ESRD undergoing bariatric surgery prior to kidney transplantation.
Analyze essential dietary components specific to ESRD patients preparing to undergo bariatric surgery prior to bariatric surgery.

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A Systematic Review Evaluating the Risks and Benefits of Different Methods for Pain Management Following ACL Reconstruction

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: Anterior Cruciate Ligament injuries are commonplace in non-contact sports and often necessitate surgical intervention. There are numerous options for controlling pain after an ACL reconstruction which influences the time spent in recovery and how soon a patient can return to play. In recent years, sport surgeons have been reevaluating the use of opiates in managing pain and have been opting to multimodal pain management strategies. The objective of this systematic review is to evaluate the effects of multimodal pain management strategies compared to pain management strategies involving opiates in patients who have undergone ACL reconstruction. The secondary objective will investigate if the multimodal pain management therapy, compared to opioid therapy on pain scores in patients who have undergone ACLR differs according to certain subgroups including sex/gender, etc. Additionally, we will investigate the effects of multimodal pain management strategies versus opioid therapy in patients who have undergone ACLR on secondary outcomes including return to play, and improvement of self-reported measures.

Methods/Design: Study participants must include patients who have undergone ACL reconstruction and were prescribed medication to manage pain. The population includes both males and females, between the age of 15-40 years old. This demographic represents individuals most engaged in sports that are prone to ACL injury and therefore need reconstructive surgery.

Results/Findings: To determine the validity of eligible articles and to reduce variability in study results, the reviewers agreed on specified study aims and inclusion criteria before conducting the analysis. Different quality assessment tools will be used to determine the susceptibility of types of bias. Quality assessment tools will be used to determine the validity of the study and the potential for bias. These different tools will be used after screening the articles to help with quality data extraction and to rate the overall risk of bias.

Conclusions/Implications: Data will be taken from each study/ article based on the type of interventional/ pain management strategy used and compared to assess the risk and benefits of each method. The results will be reported with both quantitative and qualitative assessment to provide recommendations to sports surgeons on the most effective pain management strategy.

Learning Objectives:
Interpret the recommendations for pain management following ACL reconstruction.
Familiarize themselves with multimodal pain management strategies and their pros and cons.

References and Resources:
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5. Pain management for Ambulatory Arthroscopic Anterior Cruciate Ligament reconstruction: Evidence based recommendations from the society for ambulatory anesthesia.
6. Can We Eliminate Opioids After Anterior Cruciate Ligament Reconstruction? A Prospective, Randomized Controlled Trial

Alcoholic Neuropathy: An Unusual Polyneuropathy Seen in a Rural ED

Category: Emergency & Disaster Medicine; Poster Presentation
Disclosure: The authors did not report any financial relationships or conflicts of interest
Supplemental Video

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Introduction: Neuropathy is a common finding in the ED and differentiating between critical and non-critical causes is an important skill for ED physicians to have. Patients with alcohol abuse disorder can have a myriad of nerve pathologies.

Case presentation: A 51-year-old male with history of CVA and alcohol abuse presented to our ED with three days of bilateral neuropathy distally from his knees and mid-forearms. Physical exam showed lack of sensation light touch and to pinprick in the areas described in his history. He had no motor deficits and CN II-XII were intact. He was not oriented to time or situation and had a broad-based gait. CT head and cervical spine did not show any acute findings. MRI of head, thoracic spine, and lumbar spine did not reveal any pathologies concerning for neuropathic etiologies. Serum studies including cbc, bmp, b12, TSH, and glucose were unremarkable. Lumbar puncture was unremarkable. The patient began attempting to rip out machine coils while in MRI, a serum alcohol was ordered, and resulted at 404.

Final/Working Diagnosis: This patient had an unusual stocking-glove pattern of sensory loss consistent with alcoholic neuropathy. Alcohol appears to be toxic to peripheral nerves in a dose-dependent manner and regardless of nutritional status, age, or other alcohol-related pathologies.

Management: The patient presenting with alcoholic polyneuropathy should be given thiamine because malnutrition can aggravate the disorder, and drinking cessation has shown to improve symptoms. Clinicians should consider alcohol-related causes when presented with distal neuropathies that don't fit the clinical picture of other known sensory-deficit pathologies.

Learning Objectives:
Build a wider differential for polyneuropathies.

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A rare case of adult ileo-ileal intussusception secondary to small bowel squamous cell carcinoma treated by exploratory laparotomy and small bowel resection.

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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Introduction: Ileo-ileal intussusception in an adult is a rare event, and even more uncommon is ileo-ileal intussusception secondary to squamous cell carcinoma (SCC) of small bowel.

Case Presentation: We report a case of a 67-year-old veteran male, with a history of invasive laryngeal SCC status post-total laryngectomy, who presented to the emergency department with complaint of increasing abdominal pain, nausea, and anorexia. Abdominal Computed Tomography (CT) scan with contrast confirmed small bowel obstruction (SBO), revealing intussusception and a thick-walled, edematous small bowel loop. Additionally, whirlpool sign of mesenteric vessels in the right lower quadrant on CT scan implicates possible concomitant volvulus. The patient was taken into operating room due to concern for SBO, which was successfully treated by emergent exploratory laparotomy. At laparotomy, the site of obstruction was located by clear transition from dilated bowel to decompressed bowel with a corresponding mass consistent with non-reducible intussusception. The resected ileal specimen containing the mass was then sent for histopathological examination. Pathological evaluation revealed focally ulcerated mucosa adherent to the mass, and hemorrhagic debris upon opening. The surface of the mass coursed through mucosal wall and focally into mesentery. Histological evaluation revealed SCC, indicated by immunohistochemistry staining positive for p63.

Diagnosis: Given the patient's underlying history of invasive laryngeal SCC, it is possible that the patient's rare ileo-ileal intussusception due to small bowel SCC was a metastatic phenomenon.

Outcome: This article augments current literature on rare cases of adult intussusception, discusses key clinical features and steps taken to diagnose and treat acute events, and reviews literature of metastatic SCC to small bowel. Abdominal CT scan is the most sensitive diagnostic modality, surgery is the most definitive treatment, and histopathological follow-up is pertinent for cases where malignancy is highly suspected. As a result, increased literary availability can better guide practitioners in assessing patient health status and accordingly create appropriate management plans for patients presenting with similarly rare yet emergent events.

Learning Objectives:
Identify key diagnostic features and treat rare cases of intussusception in adult patients. It is often difficult to manage patients presenting with vague and non-specific clinical features, which may delay diagnosis and management. Thus, this article augments current literature and serves as an additional supplement for practitioners to reference for similarly time-sensitive cases. Furthermore, the lecture motivates collaboration in order to create individualized and appropriate plans for patients during emergent events indicating surgical management and maintain effective care, post-operatively.

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Difference in nosocomial infection rates of inpatients since the adoption of a “hospital laundered scrubs” only policy at a rural regional health center

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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Background: There has been little research performed at rural tertiary care centers, such as Magnolia Regional Health Center, which describes if a hospital laundered scrub service has any impact on Hospital Acquired Infections (HAI’s). HAI’s we were most interested in were Central Line-Associated Blood Stream Infections (CLABSI’s), Catheter Associated Urinary Tract Infections (CAUTI’s), Surgery Site Infections (SSI’s), Methicillin-Resistant Staph Aureus (MRSA), and Clostridioides difficile Infections (CDI’s).

Methods: A retrospective analysis of confirmed HAI’s over the course of the 12 months prior and 12 months after implementation of a hospital-laundered scrubs initiative, which coincided with the onset of the COVID-19 pandemic in Corinth, Mississippi. Standards set forth by Magnolia Regional Hospital Center identified HAI’s. Using a non-parametric T-test, the data collected was analyzed for significance and relationships.

Results: Between March 2019 and February 2021 there were 117 identified cases of HAI’s. Of the total 117 cases, 21 (17.9%) were CLABSI, 18 (15.4%) were CAUTI, 7 (6.0%) were SSI, 17 (14.5%) were MRSA, and 54 (46.2%) were CDI. Days individuals had Central Lines in place increased post COVID-19 (Mean Days = 422.8, P-value = 0.0003). However, there was no significant difference in HAI’s after the implementation of a hospital laundered scrub service.

Interpretation: The COVID-19 pandemic led to more individuals being hospitalized for longer stays making them more susceptible to getting an HAI during their hospital course. While the data shows no significance for the acquisition of HAI's after implementation of a hospital laundered scrub service, patients were with Central Lines for a significant longer time frame, suggesting that the hospital was dealing with a sicker patient population. Spread and transmission of HAI's is multifactorial and may not be able to be distinguished with the study of one preventative measure alone. Based on the research, no argument can be made for or against a hospital laundered scrub system in regard to effectively preventing HAI's.

Learning Objectives:
1. Help to define the role hospital attire plays in hospital acquired infections

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Session 7B - Medicine & Medical Specialties

Non-Hodgkin's lymphoma presenting as an ischemic stroke in a elderly male

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: Lymphoma is the most common blood cancer. The two main forms of lymphoma are Hodgkin lymphoma (HL) and non-Hodgkin lymphoma (NHL) Marginal zone lymphomas (MZLs) are a group of indolent (slow- growing) B-cell NHLs, which account for approximately eight percent of all NHL cases. The average age at diagnosis is 60 years. NHL is slightly more common in men. There are 3 types of marginal zone lymphomas: extranodal of mucosa-associated lymphoid tissue,the splenic MZL, and the nodal MZL. Despite being the third most common indolent non-Hodgkin’s lymphoma (iNHL), marginal zone lymphoma (MZL) remains largely understudied, and given its underlying disease heterogeneity, it is challenging to define a single treatment approach for these patients. Many cases have been reported with ischemic stroke associated with different types of NHL but Marginal zone lymphoma has not been reported so far.

Case report: Patient is 64-year-old male with known history of pulmonary embolism in 2019 as well as chronic DVT in left lower extremity, atrial fibrillation, decompensated liver cirrhosis, chronic thrombocytopenia who presented to our emergency room with right-sided weakness and facial droop. During this admission he had an MRI of the brain showed Left MCA ischemic stroke, echocardiogram ruled out cardiac embolus and showed left ventricular ejection fraction of 25 to 30% with moderate to severe right ventricular dysfunction. Patient had persistent leukocytosis and thrombocytopenia of 91 and trending down to 64. Patient had an abdominal ultrasound which showed cirrhosis with splenomegaly and very small amount of ascites with gallbladder wall thickening and multiple gallstones. EGD showed normal esophagus, portal hypertension gastropathy, nonbleeding erosive gastropathy and no stigmata of recent bleeding. Patient denies any B symptoms, does not have any lymph nodes on physical examination. Heme oncology was consulted for his persistent leukocytosis and thrombocytopenia. He had absolute lymphocyte count of 12,000 patient and peripheral smear reviewed by pathology showed some atypical reactive appearing lymphocytes along with smudge cells, anemia, thrombocytopenia, leukocytosis with left shift. Flow cytometry showed CD20 plus B cells co-express lambda light chain and partial CD11c and negative for CD5 and CD10, comprising 88% of lymphocytes and approximately 76% of all analyzed white blood cells. It showed diagnostic considerations which include marginal zone lymphoma and lymphoplasmacytic lymphoma. Patient has been discharged for an outpatient follow-up with heme-oncology for further work-up.

Conclusion: Our case attempts to further highlight the importance of unusual initial presentation of lymphoma in a patient who presented with acute stroke and did not have any B symptoms on presentation and how a detailed workup for mild leukocytosis and thrombocytopenia and not assuming it to be secondary to liver cirrhosis helped establish the diagnosis.

Learning Objectives:
1. Identify the importance of unusual presentation of lymphoma presented with acute stroke.

Irreversible monocular vision loss in times of pandemic

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: Pituitary tumors can present as progressive unilateral vision loss due to compressive optic neuropathy or bilateral vision loss due to compression of the optic chiasm. Giant cell arteritis (GCA) can cause partial or complete vision loss which is irreversible in about 20% patients. This occurs mostly due to anterior arteritic optic neuropathy, which is preventable by early corticosteroids use. While neuroimaging with an MRI is the investigation of choice for diagnosis of pituitary mass, temporal artery biopsy is the gold standard for GCA diagnosis. Alternative diagnosis must be ruled out in patients with clinical suspicion of GCA to prevent irreversible vision loss.

Case Presentation: A 70-year-old Caucasian female presented to the ER with 2 weeks history of polyuria, polydipsia and generalized weakness. She developed altered mental status 2 days prior to presentation. About 3 weeks ago, she had painless and progressive right eye vision loss. On outpatient evaluation, she was initiated on high dose prednisone for clinical suspicion of GCA and temporal artery biopsy was deferred due to risk of exposure to COVID-19. Consequently, she remained on high dose steroid therapy based on clinical suspicion of GCA. On presentation, blood pressure was 177/87 mmHg, heart rate was 106 bpm. On physical examination, she was confused and visual acuity could not be determined. Laboratory investigations showed WBC 14.2x103/µL, lactate 2.4mmol/L, sodium 129mmol/L, creatinine 1.6mg/Dl, glucose 853mg/dL, anion gap 31, pH 7.19, bicarbonate 7mmol/L, beta-hydroxybutyrate 13.1mmol/L and positive urine ketones.

Working Diagnosis: Patient's presentation and laboratory investigations were consistent with diabetic ketoacidosis (DKA), likely precipitated by high dose prednisone. CT brain performed for evaluation of encephalopathy revealed a large suprasellar mass. MRI brain revealed a 4.4cm x 2.4cm soft tissue lesion arising within the pituitary fossa extending superiorly to midbrain with compression of optic chiasm suggesting possibility of pituitary cyst or adenoma. Hormonal evaluation revealed decreased levels of free T4, FSH, LH and prolactin.

Management: DKA resolved with fluid resuscitation, electrolyte replacement and intravenous insulin infusion. She was initiated on thyroxine and hydrocortisone and recommended an outpatient endocrinology follow-up. With

near complete vision loss, neurosurgery team advised consideration of elective surgery to prevent further progression.

Learning Objectives:
1) With risk of severe hyperglycemia, steroids must be used with caution in biopsy negative patients with clinical suspicion of GCA.
2) In patients presenting with headache and vision loss, early brain imaging must be considered to evaluate for pituitary cause of vision and prevent irreversible blindness. MRI is more sensitive than CT in detection of pituitary adenoma.

Large Dermoid Cyst Masquerading as a Thyroglossal Duct Cyst

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: Dermoid cysts are rare, benign congenital tumors that develop due to abnormal fusion of ectodermal and mesodermal cell lines. On histology, these growths are lined by stratified squamous epithelial cells and typically contain adnexal structures including sebaceous glands, sweat glands, and hair follicles, which can help distinguish them from epidermoid cysts. More complex dermoid cysts will also contain cartilage, bone, and fat. Classically, 70% of dermoid cysts are discovered in children 5 years and younger and 1-7% develop in the head and neck area. Most often they are seen in the periorbital, lateral eyebrow location. Other areas of presentation include over the frontal and occipital areas as well as the upper and lower eyelid. They usually present as firm subcutaneous nodules that appear pearly, flesh-colored, and dome-shaped without pulsatility. Dermoid cysts present less commonly in adults and can easily be overlooked when presenting in an uncommon location such as, in our case, over the midline neck.

Dermoid cysts of the head and neck carry with them the dangerous risk of intracranial extension. Expansion or rupture of the contents of these cysts into the subarachnoid space or cerebral ventricles can lead to encephalomeningitis or seizures. Standard surgical management is direct or endoscopic simple excision of the dermoid cyst. However, in the case presented, a Sistrunk procedure was performed as suspicion of thyroglossal duct cyst was greater. This involves removal of the mass as well as the middle third of the hyoid bone and a portion of the thyroglossal tract posterosuperior to the hyoid.

Case Presentation: A generally healthy 22 year old male was being worked up in an outpatient setting for a neck mass that had been present for the last two years which he had been informed was a thyroglossal duct cyst. The patient denied radiation exposure or a family history of thyroid malignancy. He denied chest pain, palpitations, weight changes, heat or cold intolerance, or generalized weakness. On the physical exam, the patient was in no acute distress. A visible and protruding midline neck mass was seen without deviation of the trachea. The patient's neck was supple with normal range of motion. His TSH and T4 levels were normal, and his thyroid peroxidase antibody was negative. An ultrasound was performed revealing a complex cystic lesion seen in the midline measuring 4.8 x 4.5 x 3.6 cm that showed multiple echogenic internal foci suggestive of fat globules. On a CT Neck with contrast, there was a well-circumscribed lobular mass in the right anterior paramedian/ epicenter

infrahyoid position. Dimensions were approximately 50 x 39 x 32 mm. There were internal septations and nodular hypodense/fat density foci. The walls were slightly thickened. There was no definite ectopic thyroid tissue and there were some indistinct submandibular lymph nodes.

Final Diagnosis: Large Dermoid Cyst midline neck

Management: The patient then underwent a fine needle aspiration biopsy of the mass that was negative for malignancy and showed neutrophils, histiocytes, and squamous cells, suggestive of a thyroglossal duct cyst. The procedure went without complications. A Sistrunk procedure was performed for cyst removal and a gross specimen was submitted to pathology. The final diagnosis made from histology was a 5 cm dermoid cyst.

Learning Objectives:
Describe imaging findings of a thyroglossal duct cyst
Describe imaging findings of a dermoid cyst
Discuss differences on CT and Ultrasound between a dermoid cyst and thyroglossal duct cyst

A Rare Case of Tricuspid Valve Endocarditis caused by Serratia Marcescens

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: This is a case of a 38 year-old female, with past medical history significant for intravenous drug use, who presented with bilateral septic emboli due to tricuspid valve endocarditis with moderate to severe tricuspid regurgitation in the setting of Serratia marcescens bacteremia. This case highlights a pathogen which is rare as the etiology of endocarditis. It also highlights a successful use of the AngioVAC system, a percutaneous aspiration device, as a means of debulking valvular vegetations.

Case Presentation: 38 year-old female, with a past medical history significant for intravenous drug use, presented due to shortness of breath and chest pain only 2 days prior to admission in addition to fever and chills. Two days prior to admission was also the last time the patient endorsed using intravenous drugs. Vitals were significant for tachycardia and tachypnea; necessitated use of supplemental oxygen through nasal cannula. On physical exam, scattered crackles present on inspiration and decreased breath sounds present bilaterally.

Labs were significant for white blood cell count of 30.9 x10^3/mL, lactic acid of 5 mmoL/L, C-reactive protein of 20 mg/dL, procalcitonin 62.11 ng/mL. Serial troponins and EKG unremarkable. However, pro-brain natriuretic peptide of 3927.

CXR showed patchy bilateral airspace opacities, infiltrates in both lungs as well as a cavitary lesion in the left upper lobe. This was followed up by CTA chest, which showed multifocal pneumonia and findings consistent with diffuse septic pulmonary emboli bilaterally.

Due to concern for septic emboli, a trans-thoracic echo (TTE) was ordered. TTE showed definite large irregular echogenic mobile vegetation on the right atrial aspect of the tricuspid valve with moderate to severe tricuspid regurgitation.

Patient was started on an empiric antibiotic course of intravenous vancomycin and piperacillin/tazobactam. Later, blood cultures from the date of admission resulted; they were positive for serratia marcescens.

Final Working Diagnosis: Moderate-to-severe tricuspid regurgitation, secondary to serratia marcescens tricuspid valve endocarditis

Management/Outcome/Follow-up: Cardiothoracic surgery was consulted and multiple options were considered, including debridement of the infected area, excision with valve preservation or repair if needed, and tricuspid valve excision with prosthetic valve placement. However, cardiothoracic surgery deemed patient to be a poor candidate for the aforementioned procedures due to an elevated Society of Thoracic Surgeons' risk score in addition to history of multiple episodes of relapse in intravenous drug use.

Therefore, trans-esophageal echocardiogram was done as well as an Angiovac procedure, which entails aspiration thrombectomy using percutaneous right heart bypass. Large amounts of vegetation were removed off tricuspid valve and the subsequent culture of this material also revealed serratia marcescens.

Patient was ordered six weeks of IV piperacillin/tazobactam from date of negative blood cultures due to above findings. Patient was subsequently discharged after clinic improvement and ordered to follow-up at an outpatient cardiology clinic in 2 weeks.

Learning Objectives:
1. Identify clinic findings of infective endocarditis
2. Discuss both common and uncommon bacterial pathogens involved in infective endocarditis
3. Discuss treatment options for infective endocarditis

Pre and Post-Treatment MRI Brain Imaging Findings in Non-Alcoholic Wernicke's Encephalopathy

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: Wernicke's encephalopathy is a condition most often defined clinically by a common triad of symptoms including confusion/altered mental status, ataxia, and ophthalmoplegia. However, only about 16-20% of patients present with all three of the triad. The remainder present with two or fewer symptoms, with confusion being the most prevalent of the three. In non-alcoholic Wernicke's encephalopathy, this aforementioned percentage is even smaller, making the diagnosis of this pathology rather challenging. The differential diagnoses include sedative withdrawal, sepsis, stroke, hypoxia, normal pressure hydrocephalus, hepatic encephalopathy,

and head injury. Other less common considerations include cerebral venous thrombosis, acute encephalitis due to CMV, herpes or West Nile virus, creutzfeldt-jakob disease, and CNS lymphoma.

Wernicke's encephalopathy is caused by a deficiency of Vitamin B1 or thiamine. Thiamine is a water-soluble vitamin which is a coenzyme that is crucial in the metabolism and breakdown of glucose as well as maintaining osmotic gradients across cell membranes. The lack of thiamine then causes cell death through necrosis and apoptosis. With time and enough cell death, lesions develop in the brain which impair normal neural signaling resulting in the aforementioned symptoms.

Case Presentation: Patient is a 72 year old male with a past medical history of Type 2 diabetes, hypertension, and who was undergoing radiation treatment for a stage T2, N0 squamous cell carcinoma of the soft palate diagnosed six months prior. He was admitted to the hospital after referral by his radiation oncologist for altered mental status, hypokalemia at 2.6, hyperglycemia, and a low-normal T3 level. He had been diagnosed with and had received radiation treatments without any chemotherapy. He also reported dysphagia to solids and medications and decreased PO intake. The patient reported frequent postprandial emesis and only tolerated nutritional shakes. His wife expressed concern about his declining mental status and gradually worsening instability, confusion, and weakness.

The patient was admitted to the hospital and workup ensued. On further history, there was no significant alcohol use. Vitals were normal except for mild hypertension and on physical exam the patient had altered mentation, was disoriented, was confabulating, but did not display nystagmus or ophthalmoplegia. TSH and T4 were normal, but T3 was mildly decreased, raising suspicion for euthyroid sick syndrome. Hyperaldosteronism was ruled out and hypokalemia was corrected with potassium supplementation. The patient failed a swallow study and gastroenterology was consulted. EGD showed long-segment Barrett's esophagus and a PEG tube was placed for long-term nutrition. The patient was found to have sepsis secondary to urinary retention and was subsequently treated with empiric antibiotics.

Final/Working Diagnosis: Non-alcoholic Wernicke's encephalopathy

Management: As the patient continued to be altered and confabulating, a thiamine level was ordered and found to be less than 20 nmol/L. MRI brain showed: DWI restriction and T2FLAIR hyperintensities in the posteromedial thalami, periaqueductal gray matter, and the mammillary bodies (Figures 1 and 2). These findings classically suggest Wernicke's encephalopathy. Given these findings, thiamine supplementation was started at 500 mg IV every eight hours. On follow up Brain MRI, there was resolution of the abnormal findings. Patient's mental status significantly improved post thiamine supplementation. Palliative care was consulted and he was eventually stable for discharge to a skilled nursing facility.

Learning Objectives:
Describe Non-alcoholic Wernicke's Encephalopathy
Identify classic and non-classic imaging findings in Non-alcoholic Wernicke's Encephalopathy

A Case of Systemic Paradoxical Embolization through Patent Foramen Ovale causing Acute Right Renal Infarction

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: Patent foramen ovale is present in only 25% of the population. A paradoxical embolism through a PFO is infrequent but is becoming increasingly recognized. Systemic paradoxical embolization or embolization to organs except for the brain, only accounts for 5-10% of paradoxical embolization. Furthermore, out of this already limited subset, involvement of the kidneys is rarely described.

We present a unique case of a post-surgical patient on oral contraceptives who presented with dyspnea and was initially diagnosed with pulmonary embolism (PE). Incidentally during an interventional procedure, namely mechanical aspiration thrombectomy of her pulmonary embolism, she was noted to have a PFO. Due to systemic embolization across the PFO to her right kidney vasculature, a decision was made to close the PFO. This was successfully done.

Case Presentation: 20-year-old female, with a past medical history significant for breast reduction surgery 1-month prior to admission, PCOS, and chronic oral contraceptive use, presented with sudden shortness of breath and bilateral pleuritic chest pain. Significant vitals included heart rate 141 and respiratory rate 33 beats per minute. Patient also required 6 liters of supplemental oxygen via nasal cannula. However, blood pressure was stable. On physical exam, patient is clear to auscultation bilaterally; also patient with tachycardia but regular rhythm.

Computed tomography (CT) with angiography of the chest was ordered which revealed extensive pulmonary emboli involving bilateral main, lobar, segmental, and subsegmental arteries. Initial troponin was 2.57 and subsequently downtrended. Transthoracic echo revealed right ventricle dilation as well as moderate reduction in the ejection fraction of the right ventricle. CT imaging also showed findings suggestive of right-sided heart strain. Therefore on day 2 of admission, right common femoral vein access was obtained and the patient underwent a right heart catheterization followed by aspiration thrombectomy of bilateral main pulmonary arteries. Notably, during this right heart catheterization, the catheter was going into the left atrium although only the right-side of the heart was meant to be engaged. This led to concern for patent foramen ovale (PFO). Transesophageal echo confirmed PFO with a significant right-to-left shunt during provocative maneuvers to increase right atrial pressure. On day 4 of admission the patient developed right-sided abdominal pain. Computed tomography of the abdomen and pelvis with intravenous contrast was ordered. This revealed a perfusion defect in the posterior upper pole of the right kidney consistent with renal infarction.

Final/Working Diagnosis: Acute right renal infarct involving the posterior upper pole, secondary to paradoxical embolization through patent foramen ovale

Management/Outcome/Follow-up: Prior to finding the right renal infarction, the tentative plan was to monitor the patient's PFO in the outpatient setting with yearly echocardiograms. However, after the aforementioned finding, discussion was had with the patient and her family regarding risks and benefits of various treatment options; patient and her family elected PFO closure. Procedure was conducted successfully without any complications. She was ordered therapeutic lovenox of 1 mg/kg BID IV as well as plavix 75 mg QD PO for at least 6 months for the patient's PFO closure device. Patient was discharged and ordered to follow-up outpatient with cardiology and hematology.

Learning Objectives:
1. Identify indications for PFO closure
2. Discuss management of systemic embolization
3. Describe risk of DVT/PE formation after procedures

Resilience to Mental Fatigue in Sports Performance

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: Prolonged exposure to activities with a high cognitive load result in a psychobiological state known as mental fatigue (MF). Those affected by MF feel tired, less motivated, and have lessened cognitive ability. It is well-established in literature that MF negatively impacts performance, specifically, psychomotor performance in sports.

Mental Fatigue and Sports Performance
MF impacts physical and cognitive performance. MF affects planning, sensorimotor function, cognitive control, and emotion regulation, thus increasing the risk of error. In sports, MF primarily affects psychomotor performance by affecting decision-making, accuracy, and reaction time. MF reduces the time it takes to react to a visual stimulus, compromises the ability to decide on an appropriate response, and thus decreases stimulus-response accuracy. This results in delayed or unadjusted actions, which lessen psychomotor performance.

Interestingly, professional athletes display superior resiliency to the adverse effects of MF during athletic performance. Elite athletes show stronger inhibitory control during mental exertion tasks than amateur athletes. Additionally, there is no difference in perceived effort or performance after completing a mentally fatiguing task compared to control groups. In contrast, amateur athletes exhibited significant decline in performance and increased perceived exertion. There is an apparent association between the training in elite athletes and their ability to withstand MF.

Application
Athletes and coaches know MF negatively impacts psychomotor performance. However, the literature does not indicate whether or not athletes can be trained to withstand the effects of MF for extended periods. Cognitive training protocols have yet to be established in the literature. Therefore, we will be working with a coach specialized in cognitive training to develop a protocol for athletic use.

Our goal is to create interventions to assist with decision-making, working memory, planning, response inhibition, coordination, rhythm, and reaction times. The drills utilize gross motor movements while performing mental tasks using a tablet or charts with numbers or colors. Each drill aims to have the athlete make as many decisions as possible to increase cognitive load and train them for cognitively demanding competitions. We expect these athletes to improve their cognitive capacity, which will enhance sports performance by decreasing the adverse effects of MF.

Learning Objectives:
1. Define mental fatigue
2. Describe the impact of mental fatigue on sports performance in amateurs versus professional athletes during athletic competitions
3. Illustrate the importance of investigating the ability to train athletes to better endure mental fatigue and define its use as a new training modality

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Left sixth cranial (abducens nerve) and right seventh nerve (facial nerve) palsy in the setting of an extracranial mass and vascular disease

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: The 6th and 7th cranial nerves originate in the same area of brainstem known as the pons. Their integrity can be altered due to a multitude of factors, which is encompassed in this care report

Case Description: I present a case of a 59-year-old female patient who presented to a primary care clinic in August 2021 after she woke up with sudden onset horizontal binocular diplopia. Physical exam revealed significant right eye esotropia and left eye CN 6 palsy which did not cross the midline on lateral gaze. Signs of right cranial nerve 7 palsy were seen with right side facial drop and ptosis. Her medical history is significant for hypertension, dyslipidemia, diabetes mellitus, and hypothyroidism. She has a 60-pack year smoking history. CTA in August 2021 was negative for any large vessel occlusion or hemorrhage, but an MRI revealed an extra-cranial, which measured 1cm and impacting the trigeminal nerve.

Working Diagnosis: In adults, vascular disease constitutes a majority of abducens nerve palsy as shown by a retrospective chart review in 2014 (1). Major risk factors for cranial atherosclerosis include diabetes mellitus, hypertension, metabolic syndrome, smoking, and a sedentary lifestyle (2).
Her tumor was considered highly unlikely to be involved in either cranial nerve neuropathy. The patient's right cranial nerve 7 palsy improved making the compression from a growing mass an unrealistic etiology. In relation to the left abducens nerve palsy, its contralateral location and closer proximity to the trigeminal nerve stressed the need to examine vascular causes.

Concurrent abducens and facial nerve palsies are a very uncommon finding. A 51-patient prospective study on bell's palsy found that the most common concurrent cranial nerve palsies involved the trigeminal, glossopharyngeal, and hypoglossal nerves (3)

A 213-patient review found that 78.5% of patients experience spontaneous recovery of Cranial nerve 6 palsy, with 36.6% by 8 weeks (4).

Management: Given the multi-factorial nature of vascular disease, the treatment approach for this patient focused on smoking cessation and improved glycemic control. Her extra-cranial mass did not necessitate surgical intervention but a repeat MRI in 6 months is scheduled to monitor tumor progression.

Learning Objectives:
1. Describe the common findings of abducens and facial nerve palsy
2. Identify risk factors for cranial neuropathies.
3. Discuss treatment and diagnostic options for vascular conditions

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Oh, Heavens! Evans?

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

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Introduction: Abnormal uterine bleeding (AUB) is a highly prevalent condition with an incredibly wide differential. The "PALM-COEIN" mnemonic (Polyp, Adenomyosis, Leiomyoma, Malignancy, Coagulopathy, Ovulatory disorders, Endometrial disorders, Iatrogenic, and Not otherwise classified) provides a structured approach to narrow down potential causes.1 However, systemic disease can be easily overlooked as a potential etiology for AUB. Evans Syndrome is a rare autoimmune condition characterized by two or more cytopenias occurring simultaneously or sequentially.2 If platelets are affected, patients may experience significant and uncontrolled bleeding.

Case Presentation: A 30-year-old female with a history of systemic lupus erythematosus (SLE) presented to her PCP with fatigue and heavy vaginal bleeding. On physical examination, she was noted to have mild petechiae across her conjunctivae and bilateral lower extremities. A pelvic examination revealed active bleeding from the cervical os. Laboratory studies indicated a platelet count of 1,000/mm3, as well as mild leukopenia (4.2*10^9/L) and anemia (hemoglobin 11.5 g/dL).

Final/Working Diagnosis: Autoimmune hemolytic anemia (AIHA), idiopathic thrombocytopenic purpura (ITP), Evans Syndrome, thrombotic thrombocytopenic purpura (TTP), disseminated intravascular coagulation (DIC), other PALM-COEIN causes of AUB.

Management, Outcome, and Follow-up: The patient was admitted for further evaluation of AUB and severe thrombocytopenia. Over the next day, her platelet count dropped to 0/mm3 despite overnight platelet transfusion and administration of steroids. The Gynecology team was consulted for management of worsening vaginal bleeding, which was successfully controlled with progesterone. Coagulation studies and peripheral blood smear were obtained to rule out TTP and DIC. Coombs testing was positive. With apparent concurrent ITP and AIHA, the patient was diagnosed with Evans Syndrome. Within six days of continued treatment, platelet count increased to 128,000/mm3. She was discharged home to follow up with her PCP for a trial of treatment with rituximab.

Learning Objectives:
Examine potential etiologies of AUB.
Discuss manifestations of Evans Syndrome, and begin to consider various systemic diseases when evaluating a patient with abnormal bleeding of any kind.
Describe the appropriate evaluation and treatment steps for a patient with AUB.

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Session 9A - Surgery & Surgical Specialties; Medicine & Medical Specialties

A Diagnostic dilemma- Bradycardia with Premature Ventricular Contraction

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: Premature ventricular contractions (PVCs) is a common arrhythmia resulting from enhanced ectopic nodal automaticity in foci of sub-pulmonic valvular pacemaker cells, re-entry circuit involving Purkinje fibers, and induced by toxins like digoxin or reperfusion after myocardial infarction. PVCs are usually diagnosed incidentally on EKG. PVCs are more frequent in patients with underlying heart disease, hypertension, hypokalemia, hypomagnesemia, males, and African-American patients. PVCs associated with underlying heart disease or reversible causes need treatment. In absence of underlying structural heart disease or inability to identify the possible trigger, treatment involves beta-blocker therapy. But a diagnostic dilemma was faced when we encountered a case of bradycardia with PVCs.

Case presentation and diagnosis: A 59-year-old African- American female presented with dizziness and lightheadedness for around 1 month. There was no positional or diurnal association of episode. She also had a history of hypertension, hyperlipidemia, and occasional snoring during nighttime. Her primary care physician also noted that she had some bradycardia. Her symptoms were initially attributed to bradycardia possibly secondary to metoprolol tartrate 25 mg twice daily, which was discontinued but further resulted in worsening of her symptoms. She was subsequently admitted for further evaluation and management. She underwent a pharmacological stress test with regadenoson in July 2019 which was normal. Her EKG showed sinus rhythm with PVCs-unifocal with a right bundle branch block/superior axis morphology likely originating from a focus around the Left Ventricle (LV) apex and not ischemic. She also had concomitant underlying baseline bradycardia. Her echocardiogram showed normal LV with preserved ejection, mild pulmonary hypertension with RVSP of 43 mmHg. The patient underwent a stress test which showed fair exercise capacity for age and accelerated chronotropic response to exercise. There was no evidence of stress-induced ischemia.

Management: It was both a diagnostic and therapeutic dilemma to manage bradycardia and symptomatic PVCs. It was decided to initiate therapy with metoprolol succinate (MS) 25 mg daily with monitoring of her ventricular rate at home and flecainide 50 mg twice daily. The patient was discharged with outpatient follow-up and was doing fairly well after discharge but later on again developed symptoms of dizziness and lightheadedness. She continued to have skipped beats though improved since discharge. The MS was reduced to 12.5 mg daily. It was decided to consider telemetry for evaluation and possible EP and ablation if PVCs burden continues to remain high.

Learning Objectives:

- This case highlights the need for considering an exhaustive list of a differential workup for subtle symptoms like dizziness and lightheadedness in the older population which can be missed. Especially in the case with concomitant bradycardia other possible differentials should not be overlooked and a careful decision has to be made regarding beta-blocker therapy influencing the outcome of both conditions- Bradycardia and PVCs.
- A study done by Billet, Sophie et al evaluated the association of mechanical bradycardia and PVCs. It was hypothesized some PVCs do not generate enough ejection volume or pressure to allow the opening of the aortic valve and detectable aortic pressure (mechanical systole), leading to concealed mechanical bradycardia.
- A similar case has been reported by Gupta, Puneet et al bradycardia induced PVCs and the patient was managed on metoprolol and mexiletine who remained symptomatic and further managed with ablation and elective permanent pacemaker placement. It was suggested EP study could be helpful with overdrive suppression.

A challenging case of Metastatic Mucosal Melanoma

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: Mucosal melanoma is a rare and extremely aggressive malignancy, distinct from other melanomas. Melanocytes, though abundant in the skin, can also be found in the mucous membrane. By virtue of the cells being from different sites, their epidemiologic, genetic and physiologic behaviours are different, and has an implication in the prognosis and management. Here we present a patient with metastatic mucosal melanoma, intending to highlight the aggressive nature of the disease.

Case Report: A 63-year-old gentleman with recently diagnosed mucosal melanoma presented to our facility. He initially had a nasal polyp, which on resection confirmed mucosal melanoma. He underwent surgical resection of the mass, maxillary sinus exploration and right hemi-palate excision. There were no targetable mutations on next generation sequencing. He was MSI stable and TMB 3 mutations per megabase. There were several alterations in pro-proliferative genes including MYC, NRAS, PIK3CA, VEGF.

Unfortunately, he had recurrence within few weeks, in the form of cheek nodule. Oncologic evaluation showed multiple pulmonary nodule consistent with metastasis. Combination of ipilimumab and nivolumab was started in an aggressive effort to control his quickly progressing metastatic mucosal melanoma.

One week following initiation of immunotherapy, he presented to our facility with complaints of dyspnea. On presentation, he was hemodynamically stable, but hypoxic with saturation in 80s, requiring nasal canula oxygen. Investigations showed leukocytosis at 20.4x 103/µL. Chest X ray showed multifocal scattered patchy interstitial alveolar opacities. COVID-19 was negative.

Working diagnosis: Differentials for patient's dyspnea included Pneumonia, Pneumonitis or Pulmonary metastasis.

Management: Patient was started on broad spectrum intravenous antibiotics with Vancomycin and Piperacillin Tazobactum. He was also initiated on high-dose steroids 1 mg/kg of prednisone for management of pneumonitis. CRP, which is a surrogate marker for IL-6, was elevated at 26.9 (ref range: 0-0.99). Following recommendations from infectious disease team, azithromycin was added for atypical coverage and micafungin added due to immunocompromised state of patient. With only modest improvement, patient was discharged on his insistence, on oral antibiotics, much against the medical team's recommendations. He was advised close follow up with the oncology team soon after. He was hypoxic and oxygen dependent on discharge.

Learning Objectives:
1. IL-6 is produced by malignant melanoma. CRP is a surrogate marker for IL-6, hence CRP is used to discriminate from non-progressive metastatic melanoma disease.
2. Ipilimumab is a monoclonal antibody which works by activating the immune system by targeting CTLA-4, a protein receptor that downregulates the immune system.
3. Nivolumab is a targeted therapy against human programmed death receptor-1 (PD-1).

A Fast Pass for Motor Vehicle Accident Patients: Expediting Time to Surgery Reduces Their Mortality

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: Studies have shown that direct admission to operating room (OR) can reduce mortality in trauma patients. We hypothesize that expediting direct admin to OR resuscitation time for specific mechanisms of injuries (MOIs), especially for motor vehicle accident (MVA) patients, will improve overall mortality.

Methods: We performed a retrospective analysis of our trauma registry at a Level 1 Trauma center from 2016 to 2020 and examined time-segment data (maximum 24 hours) from ED arrival to death. All patients were included regardless of MOIs (penetrating and blunt). Multivariate logistic regression was performed and the results were presented as odds ratio with 95% confidence intervals, and p values (statistical significance was set at $p<0.05$).

Results: A total of 738 patients met study criteria (mean age=35.7±15.6 years with 84% males). Patients admitted for MVA had the highest overall mortality rate (37.5%, $p<0.001$) and the longest ED-to-OR time (52±20 minutes, $p<0.001$) compared to those admitted for other MOIs (including both penetrating and blunt). The MVA cohort also experienced the shortest OR start-to-death time (109±24 minutes, $p=0.04$) compared to other MOI cohorts. MVA multivariate analysis showed that patients with a longer direct admin to OR resuscitation had a higher risk of mortality (OR=1.03, 95%CI: 1.01-1.07, $p=0.01$) (Figure 1). Other significant variables found to be associated with mortality/survival included obesity (OR=3.24, 95%CI: 1.13-9.34, $p=0.029$) and hypotensive on arrival (OR=3.37, 95%CI: 1.50-7.59) (Figure 1).

Conclusions: Consideration of direct admin to OR resuscitation should be given to trauma patients. In addition, trauma centers should develop protocols for expeditious triage from the trauma bay to the OR.

Learning Objectives:
Trauma centers should develop protocols for expeditious triage from the trauma bay to the OR.

Techniques for Preserving Endothelial Glycocalyx when Using Electron Microscopy

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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Background: During hypoxia-inducing events such as hemorrhagic shock, damage to the endothelial glycocalyx occurs. Injury to this luminal carbohydrate-protein matrix has been linked to downstream dysfunction in coagulation mechanisms. Prevention of this coagulopathy via glycocalyx preservation is especially of interest in the field of trauma. The study of glycocalyx shedding requires various methods of quantification. Damage can be inferred by increases in glycocalyx constituents in plasma such as syndecan-1, hyaluronic acid, or heparan sulfate. Immunofluorescent staining is frequently used to quantify changes in signal before and after glycocalyx injury. Intravital microscopy can assess damage in-vivo, but this practice is expensive and has anatomical limitations. Interestingly, electron microscopy (EM) has been shown to both successfully quantify glycocalyx damage and highlight endothelial microstructure. However, there is concern that fixation/staining techniques used in many EM experiments may damage the glycocalyx. In this study, methodology will be discussed for successful in-vivo glycocalyx EM imaging of rat pulmonary arteries. We hypothesized that staining the glycocalyx in-vivo prior to fixation would better preserve glycocalyx for EM imaging when compared to staining after organ harvesting and submersion fixation.

Methods: Rats underwent a “sham” hemorrhagic shock and resuscitation protocol by cannulating the femoral artery and jugular vein without inducing blood loss or fluid resuscitation. Following exposure to these conditions, experimental rats intravenously received a dose of EM dye. Organs were harvested, fixed via submersion using glutaraldehyde, then treated with osmium tetroxide. Control rats were exposed to similar conditions of sham shock but whole tissue was stained via submersion following organ harvest and fixation. All tissues were embedded in Spurr resin for EM sectioning and imaging. Glycocalyx preservation was measured using ImageJ by analyzing the total surface area of a cross-sectional EM image.

Results: When compared to control, glycocalyx microstructure was found to be significantly preserved using in-vivo staining prior to fixation.

Conclusion: We conclude that intravenous staining prior to organ harvest and submersion fixation is superior for preservation of glycocalyx microstructure when compared to staining after fixation. Future experimentation aims to confirm that EM imaging using these methods is appropriately sensitive to measure differences in sham versus hemorrhaged rats.

Learning Objectives:
Discuss what the glycocalyx is and how its injury relates to the field of trauma.
Identify various methods of glycocalyx analysis and their aims and limitations.
Describe how in-vivo staining can lead to superior electron microscopy imaging of the glycocalyx.

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Morphology of the Groove of the Inferior Petrosal Sinus: Application to Better Understanding Variations and Surgery of the Skull Base

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: Although adequate venous drainage from the cranium is imperative for maintaining normal intracranial pressure, the bony anatomy surrounding the inferior petrosal sinus and the potential for a compressive canal or tunnel has, to our knowledge, not been previously investigated.

Materials and Methods: Fifty adult human skulls (100 sides) were observed and documented for the presence or absence of an inferior petrosal groove or canal. Measurements of these structures were made and a classification developed to help better understand their anatomy and discuss it in future reports. Statistical analyses will be performed to discern any differences between sides.

Results: We identified an IPSG in the majority of specimens. The IPSG began anteriorly where the apex of the petrous part of the temporal bone articulated with the sphenoid part of the clivus, traveled posteriorly, in a slight

medial to lateral course, primarily just medial to the petro-occipital fissure, and ended at the anteromedial aspect of the jugular foramen. When the IPSGs were grouped into five types. In type I specimens, no IPSG was identified (10%), in type II specimens, a partial IPSG was identified (6.5%), in type III specimens, a complete IPSG (80%) was identified, in type IV specimens, a partial IPS tunnel was identified (2.5%), and in type V specimens, a complete tunnel (1%) was identified. Partial and complete tunnels occurred medial to a protuberant part of the petrous part of the temporal bone and lateral to the jugular tubercle of the occipital bone. This protuberant part of the bone was approximately one centimeter wide and extended medially toward the jugular tubercle of the occipital bone and thereby allowed the more lateral part of the IPSG to travel inferior to it when a type IV and converted the IPSG into a tunnel when a type V. Complete IPSGs were more common on right sides. The mean depth of the IPSG was 1.9 mm and the mean width of the grooves was 3.4. The mean length of the IPSG was 25 mm. Larger grooves were moderately correlated (r= 0.65) to a more prominent jugular tubercle and were more commonly (70%) located on right sides. Larger jugular tubercles were strongly correlated (p=0.70) to the presence of a partial or complete tunnel.

Conclusions: An improved knowledge of the bony pathways that the intracranial dural venous sinuses take as they exit the cranium is clinically useful. Radiological interpretation of such bony landmarks might improve patient diagnoses and surgically, such anatomy could decrease patient morbidity during approaches to the posterior cranial fossa.

Learning Objectives:
1. Competence - Audience will be able to completely describe the inferior petrosal sinus groove is any given skull, noting course, variations, and neighboring/boundary structures.
2. Audience will be able to use this knowledge to design approaches to posterior cranial fossa in pathology diagnoses and interventions.

Cocaine associated Cardiomyopathy

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: Cocaine drug abuse is a growing problem throughout the United States of America. The cardiac implications of angina have been well studied but the chronic cardiomyopathic effect and heart failure need to be explored further. β-adrenergic hyperactivation has been considered the underlying pathophysiology leading to cardiotoxicity and beta-blocker therapy has been considered controversial in such patients with active cocaine use. But various trials have now suggested beta-blocker therapy might be associated with clinical improvement in patients with heart failure with active cocaine use.

Case report: A 57-year-old African American male with an extensive history of cocaine abuse with multiple previous hospital admissions was admitted with complaints of not feeling better and feeling short of breath for the past 3 to 4 days. His condition worsened over the past couple of days. His labs showed a proBNP level of 5010

pg/ml and troponin I 0.044 ng/ml. The patient had tested positive for cocaine on multiple occasions during the previous hospitalization as well. EKG showed multiple sinus rhythm with lateral T wave inversions. The patient had a 2D in 2013 which showed normal left ventricular (LV) systolic dysfunction with an estimated ejection fraction (EF) of 65% and mild left atrial enlargement. Another echo from 2021 showed mild to moderate MR and trace TR and generalized LV hypokinesis with an EF of 30%. Lexiscan showed no EKG changes and normal pharmacological stress myocardial perfusion. CTA chest with contrast showed an enlarged heart with features suggestive of right heart failure with bilateral pleural effusion and diffuse intralobular septal thickening and faint bilateral ground-glass opacities suggestive of pulmonary edema.

Management: The patient was initially being treated with amlodipine for hypertension but given his echo finding it was switched to carvedilol and spironolactone. The patient's serial transthoracic echogram showed a declining left ventricular ejection fraction with the background of cocaine abuse. This is consistent with the development of heart failure possibly secondary to cardiomyopathy secondary to cocaine abuse.

Learning Objectives:

- Cocaine-induced angina is a well-understood problem but cocaine-induced cardiomyopathy and heart failure and treatment options are poorly understood. Clinical outcomes in heart failure in patients with concurrent cocaine use were studied by Jonah et al, who reported such patients to have higher hospital readmission or death compared with HF patients without cocaine use.
- In a systematic review and meta-analysis by Daniel et al, it has been suggested that chronic cocaine use led to various anatomical changes leading to diastolic dysfunction, increased heart weight, decreased LVED, and increased ventricular thickness independent of ischemic heart disease. It was concluded beta-blocker use needs further research to avoid unnecessary delay in starting a potentially effective treatment of cocaine-associated HF.
- Decisions regarding initiation of therapy are based on the patient’s initial presentation and the clinical benefit seen during follow-up.

Session 9B - Medicine & Medical Specialties

A Rare Case of Polymicrobial Infection with Pseudomonas stutzeri Urinary Tract Infection in a Patient on Sarilumab

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: Pseudomonas stutzeri is an uncommonly isolated organism; it is typically isolated from blood, respiratory tract, and urine. Patients with P. stutzeri typically have severe underlying diseases and require aggressive treatment with fluoroquinolones, antipseudomonal penicillins, aminoglycosides, or 3rd/4th generation cephalosporins. Sarilumab is an interleukin-6 inhibitor used to treat Rheumatoid Arthritis in patients who fail

Methotrexate. We present a rare case of a patient on sarilumab with septic shock, urinary tract infection, and perinephric abscess with urine culture growing Pseudomonas stutzeri.

Case Description: A 65-year-old female with a history of Rheumatoid Arthritis on Sarilumab, Factor V Leiden deficiency, and Pulmonary Embolism on Apixaban presented with altered mental status, dyspnea, and dysuria. Admission vital signs were remarkable for temperature of 103 F, blood pressure 98/58 mmHg and rate of 91 beats/min. She was started on intravenous Ceftriaxone and fluids. CT Abdomen pelvis was significant for a left perinephric renal abscess. A prior CT Scan (2 months prior) showed a perinephric hematoma, secondary to a ground-level fall on anticoagulation. She was instructed to follow up with Urology for repeat imaging, but could not. Interventional radiology was consulted for the placement of a drain. Blood and urine cultures initially grew Escherichia coli. However surprisingly, the patient's urine culture at a later date grew Pseudomonas stutzeri in addition to the prior identified E.coli.

Final Diagnosis: In view of the complex, polymicrobial culture, the patient was transitioned to six weeks of IV cefepime and discharged in stable condition after discontinuation of the drain. Sarilumab treatment likely predisposed the patient to have this complex infection.

Outcome: Patients on sarilumab have increased susceptibility to atypical organisms including Pseudomonas stutzeri. It is important for clinicians to treat these infections aggressively with appropriate antibiotics and duration of treatment.

Learning Objectives:
- To identify Pseudomonas stutzeri as an atypical organism capable of causing severe disease especially in immunocompromised patients
- To identify Sarilumab as a potential risk factor for atypical organisms like P. stutzeri

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You Are What You Eat – A Case of Benign Skin Jaundice

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: Death rates from liver disease increased an average of 50% from 2000 to 2015. It is no doubt that the liver is an indispensable organ of the human body. Therefore, abnormalities in liver tests must be taken seriously in order not to miss a potentially fatal process.

Case Presentation: A 61 year old Korean female with PMHx of hypothyroidism c/o skin jaundice, loose stools, and LLQ abdominal pain for 4 days, fatigue for 1 month. Physical exam revealed an alert, well-appearing woman with yellow hands, palm, face, chest, and abdomen, non-icteric sclera, and mild epigastric/periumbilical tenderness. Labwork showed normal TSH, CMP, coags, UA, CBC, HIV and Hep B. Patient’s diet consisted of many fruits and vegetables such as yellow squash, beets, and persimmon.

Final Diagnosis: Jaundice usually depicts hyperbilirubinemia, and is one of the physical exam findings of potential liver failure. In the case of this patient, she did not have hyperbilirubinemia, but instead hypercarotenemia. A good history and physical exam can distinguish a pathological process from benign hyperpigmentation of the skin. Hypercarotenemia spares the eyes, so there will be no scleral icterus, whereas serum bilirubin levels greater than 3 mg/dL would typically cause peripheral yellowing of the eye sclera and skin jaundice.
Pigmented fruits like squash, carrots, sweet potatoes, and beets are high in beta-carotene. They can cause yellow discoloration due to excess beta-carotene in the blood, especially in those with lighter skin. In those with darker skin, this may present only as orange discoloration of palms and soles. This finding has also been associated with certain diseases such as diabetes mellitus, hypothyroidism, liver failure, and anorexia nervosa. In this patient, she had no chronic disease, and required no follow up for her condition. Her skin returned to normal in about 2.5 weeks after reducing intake of pigmented fruits.

Conclusion: The annual cost of advanced liver failure averages $39,000/patient depending on the presence of cirrhosis. Liver disease can easily be captured by basic labwork and simple imaging such as liver ultrasound. Hence, it may be worthwhile to screen for secondary causes in all patients with jaundice depending on the clinical judgement.

Learning Objectives:
1) Distinguish between hyperbilirubinemia nad hypercarotenemia.
2) Name three foods that are high in beta-carotene
3) Name three conditions that are related to jaundice

Covid vaccine causing life threatening Right ventricle thrombus from breakthrough covid infection

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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Background: Thrombogenesis related to use of vaccines to prevent COVID-19 infection has become more recognized, evidenced by increased emergence of documented coagulopathy following the COVID-19 vaccine administration.

The intra-cardiac development of thrombi itself remains a rare phenomenon in literature, especially in association with breakthrough covid case.

We present a patient who was found to have sudden right ventricle failure secondary to moderate thrombus in the right ventricle, 3 weeks after receiving the first dose of COVID vaccine.

Case Presentation: A 58-year-old male with hypertension, hyperlipidemia, was transferred from another facility, post cardiac arrest. Patient had been complaining of shortness of breath from past few days, but when it suddenly got worse, EMS was called and his oxygen saturation was found to be 70%. He was already intubated upon admission.

He had received his first dose of Pfizer vaccine 3 weeks prior.

His temperature was 91.4, HR of 101, RR 28, BP of 87/61, pH was 6.98/81.1/51/19, 100% of FiO2 on Ventilator. Pertinent labs included WBC- 34, Bicarbonate - 16, BUN/Cr - 27/2.4, total bilirubin - 2.30, AST -1149. ALT 685, Troponin - 0.605 ng/ml, lactate - 8.8, d-dimer > 35.20 mg/L, Covid PCR was positive.

EKG showed sinus tachycardia with frequent PVCs and PACs. CXR showed multifocal pneumonia.
CTA showed small hypo densities associated with left upper lobe and right lower lobe
pulmonary arteries which may reflect small nonocclusive emboli versus artifact, multifocal bilateral ground glass.

He was managed with Iv fluid resuscitation, full dose anticoagulation, antibiotics, steroids and pressor support.

Additionally, TTE was obtained which showed EF of 60-65% without regional wall motion abnormalities, severely dilated and severely hypokinetic right ventricle with moderate sized mobile echo density within RV cavity consistent with thrombus.

Final Diagnosis and outcome: Patient was diagnosed with RV thrombus from covid vaccine/pneumonia and was given systemic tPA, but patient continued to deteriorate requiring maximal pressor support, worsening hypoxia and acidemia, despite all efforts to manipulate ventilator and placing on neuromuscular blockade and prone positioning.

Family then opted for withdrawing care and unfortunately patient expired shortly after extubation.
Learning Objectives:
1. Identify that Covid vaccine itself in an otherwise healthy adult can still lead to occurrence of breakthrough Covid infection leading to acute life threatening multi-system thrombotic events, despite breakthrough cases being considered mild/asymptomatic.
2. Identify the factors that may contribute to breakthrough cases such as different SARS CoV-2 variants, increased number of vaccinated persons, and waning immunity. Vaccine breakthrough has been associated with all current authorized vaccines. After receiving a single dose of vaccine, immunity will usually develop after two weeks following vaccination. But in the case presented above, patient was already due his second dose of covid vaccine.
3. Diagnose and treat urgent thrombotic events by ordering imaging studies, such as CTA chest, TTE, CT head/abdomen at a timely manner as it could potentially reduce morbidity and mortality, significantly.

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Mechanical Thrombectomy with INARI Flowtriever Device for Massive Pulmonary embolism with GI bleed

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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We present a case of acute massive pulmonary embolism in a 79 year old female patient who underwent mechanical thrombectomy with INARI FlowTriever device as thrombolysis was contraindicated due to a recent lower GI bleeding.

Patient is a 79 year old F who presented with worsening shortness of breath with diaphoresis for the past 24 hrs. She was recently discharged with community acquired pneumonia and lower GI bleeding. Patient didn't received any blood transfusions and didnt have any workup for the GI bleed.

She has a medical history of HTN, Oxygen dependent COPD, GERD,had COVID pneumonia a few months ago. On physical examination she was afebrile, hypoxic saturating in mid 80s, tachycardia with HR 114-130, BP 120-150/60-80 mm hg, RR 20-30. She was placed on NC 6L and eventually 2L saturating 98%. Labs showed BNP 2360, Troponin 0.7980, H/H 12.2/37.8, D-dimer 21.81,COVID negative. CXR showed cardiomegaly, scarring on left lung base, no pulmonary edema. Echocardiogram showed left ventricular ejection fraction 60-65% without regional wall abnormalities. Mildly dilated right ventricle with moderate to severe right ventricular dysfunction with presence of a RV strain and McConnell sign suggestive of PE. Moderate to severe pulmonary HTN, RVSP 46mm Hg. CTA chest showed extensive bilateral acute pulmonary emboli including saddle embolus in the main pulmonary artery and a left sided saddle embolus. Straightening of the interventricular septum is consistent with heart strain. Cardiology was consulted and patient was started on heparin drip and planned for percutaneous pulmonary thromboembolectomy with recent history of GI bleeding.

Patient had successful bilateral per cutaneous pulmonary thromboembolectomy using INARI FlowTriever device with complete aspiration across the right truncus anterior and near complete aspiration across the left lower lobe branches.

Intraoperatively patient noted to have a large pool of bright red blood per rectum and was hypotensive. She was started on vasopressor support and iv heparin was discontinued. She received 2 units of PRBCs and transferred to Cardiac unit. Patient developed right lower extremity DVT and recurrent episodes of GI bleeding for which she had IVC filter placement. GI workup revealed has multiple diverticulosis.

Various therapies for massive or submissive PE include surgical,embolectomy,systemic thrombolysis, and endovascular catheter directed lysis.The FlowTriever system is a mechanical thrombectomy designed specifically to extract thrombus from large vessels such as pulmonary arteries.Thrombolytic bleeding risks are eliminated in mechanical thrombectomy which make the FlowTriever System a promising treatment option for intermediate and higher risk PE.

Our case report highlights the FlowTriever system approach for treatment of PE in a patient where anticoagulation and thrombolysis is contraindicated.

Learning Objectives:
Discuss the importance of the Flow triever system approach for treatment of PE in a patient where anticoagulation and thrombolysis is contraindicated.
Flow triever System is intended for use in the peripheral vasculature and for the treatment of Pulmonary embolism.

BLASTOMYCOSIS: A GREAT MIMICKER

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: Blastomyces dermatitidis is a dimorphic fungus endemic to Ohio and Mississippi valleys in North America. Acute pulmonary infection caused by inhalation of their spores can often mimic tuberculosis and bacterial pneumonia. Pulmonary blastomycosis presents as chronic cough, weight loss, and hemoptysis. Hence most cases of blastomycosis are usually diagnosed once they have become chronic. Here we present an interesting case of blastomycosis in a young immunocompetent adult from non- endemic area.

Case Discussion: Our patient is a 19-year-old gentleman with prior COVID-19 pneumonia who came to ER with complaints of fever (105 °F) and chills, associated with productive cough, hemoptysis, dyspnea, night-sweats and joint pains. He also complained of decreased appetite and weight loss of around 30 pounds in past 3 weeks. The patient was incarcerated recently and had been in contact with his Guatemalan colleagues for the past 3 months.

On presentation, he was in mild distress and chest examination demonstrated bilateral rhonchi. Laboratory findings showed WBC 6500, D-dimer 5.83 and VBG lactate 3.0. Chest x-ray revealed diffuse interstitial markings with nodular pattern throughout lungs consistent with interstitial disease. CTA showed micronodules scattered throughout lungs with enlarged perihilar, pre-tracheal, and subcarinal lymph nodes suggesting disseminated tuberculosis or acute silicosis. How-ever his QuantiFERON TB Gold came back negative but fungal serology was positive for Blastomyces dermatitidis antigen.

He was kept in negative pressure room and initially started on vancomycin and meropenem. After Blastomyces antigen came positive, his antibiotics were discontinued and he was started on fluconazole 800 mg p.o. for the first day and then 400 mg daily for 6-12 months.

Conclusion: Pulmonary blastomycosis is often misdiagnosed as tuberculosis. Negative mycobacterial cultures and absence of response to anti-tubercular treatment should raise the suspicion of blastomycosis. Hence low thresh-hold should be kept in diagnosing blastomycosis even in suspected TB cases.

Learning Objectives:
1)To discuss about blastomycosis and how it can mimic bacterial pneumonia and tuberculosis.
2) To discuss diagnosis and management of pulmonary blastomycosis.

A Rare case of Immune Thrombocytopenic Purpura Secondary to Clopidogrel

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: Immune Thrombocytopenic Purpura (ITP) is an autoimmune condition in which pathogenic antibodies bind platelets, accelerating their clearance from circulation leading to profound thrombocytopenia. In this case report, we present a unique case of an acute and severe drop in platelet count after initiation of clopidogrel.

Case Description: A 69-year-old male with PMH of CAD with recent left circumflex drug-eluting stent placement, presented with two weeks history of bruising on his upper extremities and petechiae on his abdomen and bilateral lower extremities. Laboratory studies were unremarkable except for platelet count of 4K/uL. Peripheral smear showed decreased platelets without platelet clumping. Iron panel, TSH and vitamins B1/B12/C were within normal limits. HIV, HIT antibodies, COVID-19 and ANA were negative. Bone marrow biopsy was unremarkable. One notable finding was that the patient underwent left heart catheterization a month prior and was discharged with aspirin and clopidogrel. During his hospitalization, all antiplatelet and anticoagulation were held and the patient was transfused 4 units of platelets. He was started on Prednisone daily and IVIG for three days. Aspirin was restarted when platelets had improved to 50K/uL. Ticagrelor was substituted for clopidogrel as an alternative antiplatelet therapy upon discharge.

Discussion: In this case, we excluded causes from decreased production of platelets (aplastic anemia, hematologic malignancies) and from other causes of increased destruction of platelets (DIC, HUS, TTP, HIT, sepsis, viral infections) or pseudothrombocytopenia. The only concerning change was the recent addition of clopidogrel to our patient's medication regimen. Two known mechanisms for clopidogrel-induced-thrombocytopenia have been reported in the literature. One is clopidogrel-induced thrombotic thrombocytopenic purpura (TTP) which was ruled out in our patient. TTP is more commonly reported with an incidence of 1:26,000. A second mechanism is Clopidogrel-induced ITP which occurs at a much lower incidence, and which our patient was found to have. Clopidogrel-induced ITP is treated by drug withdrawal, steroids and immunoglobulin. Our patient's thrombocytopenia was successfully treated with this regimen.

Conclusion: This case illustrates the importance of being aware about life threatening complications of clopidogrel. It also highlights the need to measure platelet levels before and after initiating clopidogrel therapy.

Learning Objectives:
To familiarize with the possible severe thrombocytopenia of clopidogrel, commonly known as a safe and effective medication.
To quickly recognize and treat patients experiencing thrombocytopenia due to clopidogrel induced immune thrombocytopenic purpura.
To stress the importance of checking the platelet levels prior to and after starting clopidogrel.

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The Mass that Engulfed Four Organs: IgG4 Related Disease Presenting as a Large Abdominal Tumor in a Young Hispanic Female

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: IgG4-related disease (IgG-4-RD) is a chronic fibro-inflammatory condition that is characterized by tumor-like swelling of the involved organs and the presence of polyclonal IgG4- positive plasma cell-enriched infiltrates within various organs. Deposition of these infiltrates along with fibrosis can result in organ dysfunction or obstructive or compressive complications from mass effect. Because of its varied clinical presentation, IgG-4-RD can mimic malignancy and autoimmune conditions thus a thorough history, physical examination, and diagnostic studies, including histopathology of the biopsied lesion, should be pursued to aid in the diagnosis.

Case Presentation: A 29-year-old woman presented with complaints of intermittent abdominal pain of 8 years duration. The pain was described as waxing and waning, located in the left upper and lower quadrants. The patient was evaluated on several occasions in the ED (Emergency Department) department as well as outpatient setting. Workup included normal liver function tests, mild microcytic anemia, normal metabolic panel, normal colonoscopy, and EGD. Abdominal CT and US which were significant for a left adrenal “cyst” measuring 3.7 cm. Over the span of 8 years, the patient had other manifestations including urticarial rash, persistent left parotid gland swelling, and weight loss due to recurrent abdominal pain. She denied any constitutional symptoms, sicca symptoms, eye manifestations, shortness of breath, or joint pain. Because of persistent abdominal pain of unclear etiology, the patient had a repeat CT scan which showed a necrotic adrenal mass measuring 5 x 6 cm. The patient subsequently underwent laparotomy with findings of an extensive mass obliterating the left kidney, spleen, and tail of the pancreas resulting in partial pancreatectomy, left nephrectomy, and adrenalectomy along with splenectomy.

Diagnosis: Pathology results showed spindle cell lesion with storiform architecture and prominent lymphoplasmacytic infiltrate with reactive follicles. The infiltrate was T-cell, and the lymphoid follicles were predominantly B cells. There were abundant IgG and IgG 4 positive plasma cells with up to 70% IgG4 expressing plasma cells and with the IgG4/IgG ratio of 60% which confirmed the diagnosis of IgG-4-RD. Extensive work-up for other auto-immune diseases was negative.

Outcome: After surgery, the patient became pregnant and remained pain-free but continued to have intermittent pruritic rash and arthralgias. Immunoglobulin levels remained normal without the use of systemic steroids.

Learning Objectives:
1. Discuss diagnostic Criteria for diagnosis of IgG-4-RD
2. Treat IgG-4-RD

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A Rare Case of Diabetic Myonecrosis

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: Diabetic myonecrosis is a rare complication of diabetes among the more commonly recognized microvascular complications of nephropathy, neuropathy, and retinopathy. Often found to mimic symptoms of other common acute leg pain conditions such as deep vein thrombosis, soft tissue abscess, hematoma, or inflammatory myositis, physicians’ awareness of diabetic myonecrosis will allow for early recognition and treatment essential to decrease short- and long-term morbidity.

Case presentation: A 31 year-old male with Type 1 diabetes mellitus (most recent hemoglobin A1C of 7.1), diabetic nephropathy, end-stage renal disease on hemodialysis, diabetic retinopathy on right, and hypertension who presented with complaints of left thigh swelling and pain with ambulation. He was diagnosed with superficial thrombophlebitis and discharged home with tramadol for pain. Patient returned 1 week later with progressively worsening left thigh pain and swelling. Patient had mild erythema to the left inner thigh which was tender to palpation. Venous Doppler was negative for DVT. Arterial Doppler was without discrete stenosis, but with abnormal flow from the mid superficial femoral artery through the dorsalis pedis artery. Left femur MRI demonstrated increased signal on T2 weighted images within the anteromedial group of thigh muscles extending along the vastus medialis to the level of the knee joint, consistent with the diagnosis of diabetic myonecrosis. Patient was treated with symptomatic management for pain and adjustments in insulin dosing for tighter BG control.

Final Diagnosis: Diabetic myonecrosis

Outcome/Management: Diabetic myonecrosis is a rare complication often affecting patients with longstanding uncontrolled diabetes. Diagnosis often requires a high level of suspicion and can be made using clinical exam and magnetic resonance imaging. Tissue biopsy can be used to make a definitive diagnosis of diabetic myonecrosis, although it is not often completed as it can prolong recovery with increased risks of poor wound healing, infections, and hematoma. Treatment involves optimal glycemic control along with symptomatic management for pain and low-dose aspirin.

Learning Objectives:
1. Identify when diabetic myonecrosis should be suspected.
2. Describe the diagnosis criteria for diabetic myonecrosis.
3. Treat patients diagnosed with diabetic myonecrosis.

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Breaking Barriers: A Case of Leptomeningeal Disease

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: Melissa Matheus, MD, Internal Medicine, PGY 2, Yaswanraj Yuvaraj, DO, Internal Medicine PGY2

Introduction: Leptomeningeal Disease (LD), defined as metastatic disease to the arachnoid and pia mater, is a rare complication of solid tumors and only occurs in five percent of metastatic disease. Ten percent of LD is secondary to breast cancer (BC). Here, we present a 57 year old female with LD secondary to BC.

Case: A 57-year-old Latin female with past medical history of thyroid cancer, uterine fibroids and stage IIIC (T4d, N1, M0, G2) triple negative invasive ductal carcinoma of the left breast, BRACA 1/2 negative, presented with intractable back pain, lower extremity (LE) numbness and saddle anesthesia. She was status post Adriamycin, Cytoxan, Taxol, Xeloda, bilateral mastectomy, and radiation. Physical exam demonstrated decreased bilateral LE sensation, decreased bilateral LE weakness and decreased bilateral ankle deep tendon reflex. Thoracic magnetic resonance imaging with and without contrast illustrated numerous nodular enhancing lesions throughout the intrathecal aspect of the canal extending into the thoracic and lumbar region concerning leptomeningeal metastatic process. Lumbar puncture demonstrated increased white blood cell count and decreased glucose count. She was treated with intravenous immunoglobulin and dexamethasone. Cerebrospinal fluid (CSF) cytology demonstrated numerous discohesive tumor cells with severe nuclear atypia and increased nuclear/cytoplasmic ratio. An Ommaya reservoir was performed and 12 mg intrathecal methotrexate administered. Patient was discharged home with significant improvement of symptoms.

Discussion: LD has a median survival of 2 months. CNS tumor involvement is attributable to low penetration of the blood brain barrier of systemic medications (i.e. trastuzumab). The addition of intrathecal therapy (commonly with methotrexate, cytarabine and thiotepa) is considered palliative and recommended for patients with tumor

cells found in CSF and/or linear diffuse enhancing LM given its poor penetration into larger tumoral lesions. Radiation including stereotactic radiosurgery or whole brain radiotherapy has shown no benefit except for localized large LM lesions or CSF obstruction. To date, different combinations of current therapies and new systemic drugs, such as targeted therapies with monoclonal antibodies, small tyrosine kinase molecules, or modified chemotherapeutic agents are under investigation and hold promising results for systemic and intrathecal treatment of LD.

Learning Objectives:
Identify leptomeningeal disease as a manifestation of metastatic breast cancer and have high level of suspicion when the patient develops acute lower back pain, saddle anesthesia and lower extremity weakness.
Demonstrate that CSF pathology samples and MRI thoracic spine with contrast are diagnostic tools to establish the diagnosis of leptomeningeal disease and if done expeditiously allow prompt palliative intrathecal treatment.

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The Effects of Osteopathic Manipulative Therapy and Topical Diclofenac Sodium on Osteoarthritis

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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Millions of Americans suffer from osteoarthritis; the chronic degeneration of joint surfaces. This degradation leads to pain, stiffness, tenderness, swelling, and soft tissue inflammation that significantly disrupts daily life. Definitive treatments for such a prevalent condition remain scarce. Currently recommended treatments include oral non-steroidal anti-inflammatory (NSAID) drugs which effectively reduce pain by selectively inhibiting COX2,

an inducible enzyme active in the inflammatory process. However, the myriad of gastrointestinal side effects are a common drawback that frequently discourage chronic use. A recently accepted alternative is the use of topical NSAIDs like diclofenac sodium whose local action provides minimal systemic side effects. Osteopathic manipulative treatments (OMT) are another alternative without systemic side effects that have been in use for over 100 years. Common modalities employed with osteoarthritis include balanced ligamentous tension, facilitated positional release, and lymphatic drainage techniques but high quality clinical studies are lacking.

While osteopathic physicians frequently utilize OMT for osteoarthritis pain, allopathic physicians regularly prescribe topical NSAIDs like diclofenac sodium. The literature lacks robust evidence for osteoarthritis pain improvement upon usage of diclofenac sodium gel or OMT individually, and there are no studies available testing combined efficacy. This scoping review aims to further analyze the current literature available regarding these topics individually for osteoarthritis. Studies assessing the effects of topical NSAIDs or use of OMT on osteoarthritis of the elbow, wrist, hand, knee, or ankle joints which are the FDA approved joints where diclofenac has been shown efficacious have been included. The results of this scoping review will be used to guide our future prospective study focused on assessing the potential for combined effects of OMT and diclofenac sodium gel to improve patient outcomes. This study will employ control, OMT and diclofenac groups individually, and a combined OMT and diclofenac group. The trial will measure pain reduction and longevity of the different treatments. With these results, this initiative hopes to positively impact the large population suffering from osteoarthritis.

Learning Objectives:
1. Compare and contrast current methods of treatment for osteoarthritis.
2. Identify the current gap in literature regarding Osteopathic Manipulative Therapy (OMT) and the topical NSAID diclofenac sodium use in conjunction.

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Session 10A - Bioethics & Medical Education; Medicine & Medical Specialties

Persistent chest pain post PFO closure with an Amplatzer occluder

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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Introduction: Patent foramen ovale (PFO) closure is recommended in cases of recurrent cryptogenic stroke presumed to be secondary to paradoxical embolism. Though randomized controlled trials comparing surgical and percutaneous closure are lacking, percutaneous PFO closure is known to have a higher success rate and lower incidence of complications. Amplatzer device is associated with short term complications such as peri-procedure arrhythmia, residual shunt, device related thrombosis and cardiac perforation within 4 to 6 weeks of implantation. While chest pain within 6 weeks of procedure is well known, studies demonstrating late onset chest pain are limited. Persistent chest pain is associated with device erosion and occult interatrial hemopericardium which requires surgical explantation.

Case report: A 48-years-old Caucasian male presented with recurrent left sided positional chest pain for three months. His past medical history was significant for cryptogenic cerebrovascular accident, hypertension, end stage renal disease on hemodialysis, factor V deficiency with history of deep vein thrombosis and pulmonary embolism. Six months prior, he underwent an Amplatzer closure device placement for PFO, at an outside facility after an unremarkable exercise stress test. Medications included apixaban, aspirin, nifedipine and labetalol. Presenting ECG and troponin-I were unremarkable, similar to two prior presentations to the emergency room when he was reassured and discharged with outpatient cardiology follow-up when no additional work up was performed. Lung perfusion scan was normal. Echocardiogram showed a well-seated Amplatzer device in the interatrial septum with preserved biventricular size and function. Both the atria were normal in size without any evidence of pericardial effusion or valvular heart disease.

Final diagnosis: Patient's chest discomfort was deemed to be of non-ischemic nature and secondary to the Amplatzer PFO closure device.

Outcome: With spontaneous resolution of chest pain, he was discharged and planned for periodic outpatient Amplatzer device surveillance. With the incidence of Amplatzer device erosion into the pericardial space or aorta being 0.3%, persistent chest pain occurring in patients with an Amplatzer device must be evaluated with a transthoracic echocardiogram to rule out device erosion which can occur several months after the procedure.

Learning Objectives:
1. The Risk of Paradoxical Embolism (RoPE) score helps in determining the possibility of cryptogenic stroke secondary to paradoxical embolism through the PFO and the recurrence rate.
2. Late onset chest pain in patients with an Amplatzer occluder device must be evaluated with echocardiography, to rule out device erosion into the pericardial space or aorta which is rare and occurs in 0.3% cases.

Advancement of a Vertically Integrated Trainee Program: Further Expansion and Educational Value

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

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University of South Carolina-Columbia School of Medicine, Columbia, SC; Alexandra Foster, BS, 2nd Year Medical Student, University of South Carolina-Columbia School of Medicine, Columbia, SC; Donald DiPette, MD, Internal Medicine, University of South Carolina and University of South Carolina-Columbia School of Medicine, Columbia, SC

The Vertically Integrated Trainee Program (VITP) was planned, developed, and implemented with the goal of bringing together trainees at the undergraduate (university level), graduate (medical school level), and post-graduate (resident/fellow level) to inspire, educate, and direct future physicians and healthcare providers. The VITP was started by a partnership between the Columbia Medical Society, University of South Carolina (USC), and the University of South Carolina School of Medicine-Columbia in the Fall of 2017 and has continued to grow to the present. Since inception, the VITP has developed a more focused partnership with the USC undergraduate Pre-Health Honor Society Alpha Epsilon Delta (AED) and has held social events, mock interview sessions, AMCAS application workshops, and clinical skills workshops. Previously, as Pettis et al^1 and Alexander et al^2 reported, the organization has conducted and published the results of multiple surveys of undergraduate students to determine the extent of their understanding of the medical school admission process. Furthermore, additional surveys were conducted to determine whether attending VITP events was beneficial and added value to their preparedness and personal development. The results demonstrated that students benefited from these events and gained a better understanding about the process of becoming a physician^1,2. Since implementation, as expected, VITP leadership has changed and an unexpected global pandemic has happened. Both have challenged new leadership teams to wonder how to proceed given the fact that the previous events were always in-person and hands-on. Fortunately, throughout the pandemic, the VITP has been able to virtually host multiple mock interview sessions, an AMCAS application workshop, a question-and-answer student panel, and a trivia competition. In addition, and importantly, the organization has been able to create mentor families to further establish the connection between current medical students and undergraduate students interested in pursuing medicine. Now that a solid base has been developed, benefit has been shown, and resilience demonstrated, the VITP is ready to expand its reach throughout the region in the name of medical education. The VITP would be a synergistic partner and/or component to the Southern Medical Association Physicians in Training Program. Formative discussions of such are currently underway.

Learning Objectives:
Describe the ways in which VITP is furthering medical education
Discuss the progress of VITP since inception

References and Resources:
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Legionnaire’s disease mimicking COVID in an immunocompromised patient.

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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Introduction: With the current pandemic, the index of suspicion for COVID is high in any patient presenting with respiratory symptoms; physicians tend to have an increased inclination to repeatedly investigate for COVID while encountering negative results. We present a patient with Legionnaires disease, intending to emphasize the marked clinical, laboratory, and radiological similarities to COVID pneumonia.

Case report: A 56-year-old lady presented to the emergency room (ER), with vomiting and diarrhea for 10 days, productive cough, and shortness of breath for 5 days. She had presented with similar symptoms a few days back and was managed with antibiotics. Non-resolving symptoms, lethargy, and confusion prompted revisit. Past history was notable for lupus, for which she was on hydroxychloroquine and prednisolone daily and had 40 pack-year smoking history.

On presentation, she had slight intermittent confusion, febrile 102.9', tachycardia with heart rate 130 beats/min, tachypnea with respiratory rate of 36 breath/min, normotensive with blood pressure of131/84, and hypoxic with saturation 90% on room air. Auscultation revealed fine inspiratory crepitus in the left lower zone.

Investigations were notable for WBC 7.4, BUN/creatinine 29/0.9, lactic acid 3.2, mild transaminitis, and bilirubin 1.6. Chest x-ray showed extensive left perihilar and basilar airspace opacity. Computed tomography (CT) angiography of the chest confirmed extensive airspace opacity and excluded pulmonary embolus. IV vancomycin and piperacillin-tazobactam were initiated. Initial COVID test was negative.

Clinical deterioration while on antibiotics justified retesting for COVID, which was negative again. Inflammatory markers continued to uptrend and clinical suspicion for COVID remained high despite 2 negative results. The patient's oxygen requirement increased within 48 hours warranting admission to the ICU for impending respiratory failure.

Legionella urinary antigen was reported positive on day 5; antibiotics changed to levofloxacin resulting in subsequent clinical improvement. Patient required BIPAP support briefly and made a remarkable recovery.

Conclusion: Legionnaires disease is extremely underdiagnosed and underreported. With the pandemic, the reporting declined by 50% in 2020. While having a high suspicion of COVID is necessitated, it is imperative to consider other etiology such as Legionella, given the significant overlap in clinical presentation.

Learning Objectives:
1. Legionnaires disease has many similarities to COVID in the early phase of infection- clinical, laboratory, and radiological.
2. While having a high suspicion of COVID is necessitated, it is imperative to consider other etiology such as Legionella, given the significant overlap in clinical presentation.

Critical Consciousness in Medicine: Developing Health Equity Components within Medical School Curricula

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

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There has been increased focus on the structural forces that perpetuate systems of oppression in the United States. Within American medical education, standards for approaching these subjects have been fleeting. Questions of racism, sexism and the determinants of health inequity remain contentious due to their absence within traditional medical school curricula, as well as educators' discomfort and unfamiliarity with such subjects. Yet, inequitable health care systems remain a principal driver of divergent health outcomes that cost the US economy billions of dollars per year. Thus, educational forums for future physicians to critically assess healthcare institutions and their relationship to inequities are essential to move the needle.

At the Louisiana State University Health Sciences Center (LSUHSC) School of Medicine in New Orleans, a novel workshop series was created and implemented by second year medical students in 2016. This student-led series initially included five workshops utilizing a combination of small-group and large-group discussions on the topics of microaggressions, privilege, social determinants of health, and implicit bias. Since that time, the workshop series now known as Critical Consciousness in Medicine (CCM) includes eight workshops, covering additional topics from white privilege to LGBTQ+ health, as well as integrating case-based learning components, reflective writing, and guest speakers. Starting in the 2021-2022 academic year, the CCM workshops have been formally adopted as core curriculum for medical students at LSUHSC. What began as a small impetus for change became an integral component of medical education and training at LSUHSC. The development of this series has offered enormous insight into content-delivery approaches, as well as opportunities for critical reflection on institutional responsibility for teaching such essential subject matter.

In our presentation, we discuss how a workshop created by dedicated medical students transitioned into a full course for first and second year students at LSUHSC. We will outline the development of the CCM workshop series, its correspondence to new educational guidelines, lessons learned, student growth, and initial results of a qualitative evaluation.

Learning Objectives:
1. Understand the contributing elements necessary for the development of a health equity workshop series within traditional medical education
2. Identify challenges, opportunities and limitations for health equity education
3. Appreciate the role that critical reflection plays in improving such curricula

Session 10B - Women's & Children's Health; Medicine & Medical Specialties

Inpatient Pediatrics Presentation: Case of Acute Constipation

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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Coauthors: Jane Benson, Hospitalist, Pediatrics, AdventHealth Ocala

Introduction: This case presentation follows a pediatric patient who was initially worked up for constipation, then appendicitis, eventually ruled as an appendiceal neoplasm.

Case Presentation: 11 year old male presents to the ED with waxing and waning abdominal pain for past month that was exacerbated in the past 24 hours. Patient has associated nausea, vomiting, fever, and decreased appetite. Physical exam showed palpable stool in ascending and descending colon, general mild tenderness to palpation, no rebound tenderness, no guarding. Differential diagnosis included abdominal pain and constipation, patient was recommended Miralax with primary care follow up in 1 week. Patient discharged, presents again within 9 hours to the ED with persistent abdominal pain despite taking enema and Miralax, associated diarrhea, and nausea. Physical exam showed soft, nondistended mild generalized tenderness in RLQ, no guarding, no rebound tenderness, no CVA tenderness. CT scan may represent engorged, fluid filled appendix. Differential diagnosis included acute appendicitis, and patient was admitted to pediatric floor with immediate surgical intervention needed for appendectomy. The operation began as a laparoscopic procedure, but due to tough scar tissue surrounding the appendix, surgery was converted to open. Preliminary report states concern for a carcinoma with low probability of lymphoma.

Final/Working Diagnosis: Low-grade mucinous appendiceal neoplasm.

Management/Outcome: Resection of neoplasm, pathological evaluation, median follow up of 6 years.

Learning Objectives:
Identify findings related to appendiceal neoplasm versus appendicitis or constipation, which are more common findings in the pediatric population.

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Osteopathic Approach to Assessment and Treatment of an Adolescent with Polyarthralgia in the Post-COVID Setting

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: As the COVID-19 pandemic completes year two, many questions remain regarding long term systemic effects of the virus. A major topic of discussion of the pandemic concerns chronic musculoskeletal pain conditions in the post-COVID setting. It has been observed that common chronic pain symptoms in the months following infection with SARS-CoV-2 include arthralgia, myalgia, and headaches [1]. Osteopathic Manipulative Medicine (OMM) continues to provide patients an excellent non-pharmacologic option for musculoskeletal pain conditions, particularly those experiencing polyarthralgia in the post-COVID setting

Case Presentation: A 15-year-old male with history of COVID-19 infection presented to the OMM clinic for bilateral knee, bilateral hip pain, fatigue, and occasional headaches. The symptoms experienced by the patient began shortly following infection with COVID-19 in February 2021. The patient stated that over time the pain began to dissipate but came back following the COVID-19 vaccine two-shot series in August and September 2021. The patient described his pain as dull and achy, localized to the knee joints bilaterally as well as the hip joints bilaterally. No radiation of pain was noted. The pain has been the most significant following prolonged sitting, particularly at school.

Physical exam findings: positive Apley's compression test on the right, Apley's distraction test on the right, McMurray's test bilaterally, FABERE test localized to the lateral hip, and IT band tenderness to palpation. Negative anterior drawer test bilaterally and posterior drawer test bilaterally. No deformity of the knees and full range of motion was noted of the knees bilaterally.

Laboratory results: positive ANA and negative RF.

Osteopathic structural exam: L unilateral extended sacrum, R anterior pelvis, R>L shoulder protraction, R>L IT band and TFL hypertonicity, B/L hamstring hypertonicity, B/L popliteal restriction, R>L hemidiaphragm inhaled, OA ESRRL, left side-bending rotation (cranial), R torsion (cranial), T8-12 NSLRR, L3-L5 NSLRR

Working Diagnosis: Polyarthralgia in the post-COVID setting

Management: OMM techniques including lymphatic treatment, counterstrain, muscle energy, articulatory techniques, balanced ligamentous tension (BLT), and osteopathy in the cranial field were used to assist with pain management and to help reduce inflammation around the effected joints. Patient and mother were also counseled on an anti-inflammatory diet.

Learning Objectives:
Diagnose and treat somatic dysfunction related to musculoskeletal pain complaints in adolescents in the post-COVID setting with OMM.

References and Resources:
[1] Zayet S, Zahra H, Royer PY, et al. Post-COVID-19 Syndrome: Nine Months after SARS-CoV-2 Infection in a Cohort of 354 Patients: Data from the First Wave of COVID-19 in Nord Franche-Comté Hospital, France. Microorganisms. 2021;9(8):1719. Published 2021 Aug 12.

Effects of Antenatal Medication-Assisted Treatments on Neonatal Length of Stay

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:
Neonatal abstinence syndrome (NAS) is a growing medical concern that results in a longer length of stay (LOS) for affected infants. Previous studies have examined LOS based on maternal medication-assisted treatments (MAT), however, these data come from multiple centers with disparate standards of care. We aimed to estimate the relationship of antenatal exposure to MAT and LOS among hospitalized infants with NAS.

Methods:
We conducted a retrospective study of 104 mother-infant dyads affected by NAS at a tertiary care center where all patients received care under a single provider with a standardized NAS protocol. Sociodemographic and clinical data were obtained from medical records. Newborns <35 weeks and those with alternative diagnoses prolonging

LOS were excluded. Neonatal outcomes including LOS were examined between those with and without MAT exposure. Data were analyzed using the Mann-Whitney U test, and a p-value of <0.05 was considered significant.

Results:
Infants born to mothers without use of MAT during pregnancy had shorter median LOS (5 days, interquartile range [IQR] 4-7) compared to those exposed to MAT (6 days, IQR 5-9, p=0.0028). Of 66 infants with MAT exposure, 44 were exposed to methadone, 22 were exposed to buprenorphine, and 2 were exposed to other. Infants exposed to methadone had a longer LOS (6.5 days, IQR 5-11) than those exposed to buprenorphine (5 days, IQR 5-7, p=0.0022).

Conclusion:
While MAT is associated with longer infant LOS, our results favor the use of buprenorphine for maternal MAT from a healthcare utilization perspective.

Learning Objectives:
Recognize that different maternal antenatal medication-assisted treatments can contribute to varying neonatal length of stay in hospitals.

GLP-1 Analogue induced AKI

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: GLP-1 analogues are antidiabetic medications which act by several mechanisms including glucose induced insulin secretion, slowed gastric emptying and decreasing postprandial glucagon levels. Some like semaglutide have also been used for weight loss due to slowed gastric emptying and side effects of nausea and vomiting.

How-ever caution needs to be taken while initiating or increasing doses as few cases of new onset or worsening renal failure have been reported. Risk factors include volume depletion due to GI losses by vomiting or diarrhea, intake of drugs affecting the renin-angiotensin system and pre-existing renal impairment.

Case Presentation: We present an interesting case of semaglutide induced acute kidney injury in a 57year old female with normal baseline renal functions. The patient came to us with complaints of nausea, vomiting, generalized weakness and decreased urinary output for couple of days. She has hypertension and takes bumatenide, lisinopril and hydrochlorothiazide.
About a month ago, she was started on semaglutide 0.25 mg s.c. weekly for weight loss and eventually the dose was increased to 0.5 mg weekly. Her BMI at presentation was 29 and BP was 106/70 mmHg. Physical examination

revealed some tenderness in left flank region. Her BUN was 70, creatinine 8.5 and eGFR 5.14 (baseline BUN and creatinine: 20 and 1.1 respectively). Renal ultrasound was normal.

Diagnosis: Patient developed AKI due to increase in dosing of semaglutide with background of nausea and vomiting and use of ACE inhibitors and diuretics.

Management: Patient was advised against using semaglutide and antihypertensives were discontinued in view of low BP. She was started on iv fluids. Over next 2 days her clinical condition improved and BUN and creatinine decreased to 24 and 1.9. Her urinary output normalized. She was restarted on bumatenide on discharge. Two weeks follow up revealed stable BUN and creatine at 23 and 1.5.

Learning Objectives:
1. GLP-1 receptor agonists can cause weight loss and are used in people with BMI more than 30 or if people have BMI more than 27 with 1 or more weight associated co-morbidities like hypertension, diabetes mellitus etc.
2. Initiating or increasing dose of GLP-1 analogue can cause AKI. The risk factors include volume depletion due to other causes like GI losses by nausea/vomiting, concomitant use of diuretics or medications affecting the RAAS and pre-existing renal disorder.

NOVEL APPROACHES FOR NEUROINFLAMMATION AND BARRIER PERMEABILITY IN BRAIN METASTASIZING MELANOMA

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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Background: Melanoma is a tumor produced by the malignant transformation of melanocytes. Although this usually occurs on the skin, it can arise in other locations where neural crest cells migrate such as the GI tract and brain. Melanoma is commonly found in patients younger than 55 years and accounts for the third-highest number of lives lost across all cancers. Brain metastasis occurs in almost 50% of melanoma patients and is linked to astrogliosis, a process reactive to neuronal damage which increases neuroinflammation and increases permeability of the Blood Brain Barrier (BBB). Current BRAF/MEK inhibition therapies which target pathways involved in uncontrolled cell proliferation and resistance to apoptosis show limited success in improving survival. Thus, a critical need exists to develop more effective therapies aimed at improving this neuroinflammation and decreasing BBB permeability. ATN-161 is a vascular α5β1 integrin inhibitor that has been clinically validated in treating glioblastoma via anti-angiogenetic mechanisms that deprive tumors of oxygen delivery and restore tight junction control at the blood brain barrier (BBB).

Goals: In this review, we summarize the mechanisms of melanoma metastasis to the brain and hypothesize how ATN-161 may be used as treatment.

Methods: Pubmed, Web of Science, and Embase databases were searched using relevant key terms and articles were included if mechanisms of metastasis or prevention of melanoma transmigration across the BBB were discussed.

Results: We found that melanoma increases production of metalloproteinases to alter the extracellular matrix (ECM) thereby increasing levels of neuroinflammation and BBB permeability. ATN-161 may work to reduce metalloproteinase production and strengthen BBB tight junctions through claudin-5 interactions, thus preventing the deleterious effects of metastasis. Additionally, animal studies have shown that ATN-161 increases doxorubicin delivery to melanoma cells to increase survival time, further supporting its potential therapeutic use.

Conclusion: Our review summarizes the evidence for ATN-161 as a potential therapeutic for metastasizing melanoma by reducing neuroinflammation and BBB permeability and acting as an improved delivery agent for existing BRAF inhibitors.

Learning Objectives:
1) Describe mechanisms of melanoma metastasis to the brain.
2) Identify ways that ATN-161 may be able to target melanoma mechanisms of metastasis to the brain as a potential novel therapeutic.

Resistant Neuro-sarcoidosis: An Uncommon form of Sarcoidosis

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: Neuro-sarcoidosis (NS) is a rare manifestation of sarcoidosis with only 5-10 % prevalence among the patients. Both central and peripheral nervous systems can be affected including involvement of meninges, parenchyma, spinal cord etc. NS is diagnosed by clinical manifestations along with neurodiagnostic testing which include leptomeningeal enhancement in contrast enhanced MRI. Lumbar puncture shows pleocytosis, elevated protein and low glucose levels. Glucocorticoids are the first line therapy. Immunomodulators like mycophenolate and infliximab can be used if patient worsens despite aggressive steroid therapy.

Case Presentation: We are presenting the rare case of resistant NS in a 68year old Caucasian lady involving cervical spine and cerebellum. The patient came with complaints of increasing generalized weakness and not being able to bear weight on her legs for 2 weeks. Physical examination showed weakness in both lower extremities, right (3/5) being weaker than the left (4/5). MRI scan of the brain and spine showed persistent leptomeningeal enhancement similar to older MRI with nodular enhancement in the posterior aspect of the cerebellum.

Diagnosis: The symptoms first started over a year ago. MRI brain done that time showed leptomeningeal enhancement in brainstem and enhancing nodules at C1 cord. CT chest showed enlarged mediastinal lymph nodes

which were biopsied and they showed granulomatous inflammation with necrosis. Lumbar puncture was notable for lymphocytic pleocytosis (28), low glucose (39) and high protein (108). The patient was diagnosed with NS and started on high dose methylprednisolone followed by tapering dose of prednisone and methotrexate 4 times a week. Despite these, the patient presented with worsening features of NS and hence was diagnosed as a resistant case.

Management: Infliximab was added to the above medications. She receives Infliximab infusions 6-8 weekly and has received 4 infusions till now. She is clinically asymptomatic now and performs Activities of Daily Living independently.

Learning Objectives:
1. To discuss about Neuro-sarcoidosis which is a relatively uncommon manifestation of sarcoidosis. It is diagnosed by combination of clinical features along with neurodiagnostic testing. It is typically associated with leptomeningeal enhancement with an abnormal CSF study showing lymphocytic pleocytosis, increased protein and decreased glucose levels. CSF opening pressure is also raised in some patients.
2. This case shows that NS can be found in Caucasian population and some rare cases may be resistant to steroids in which case immunomodulators may need to be initiated.

Session 12A - Women's & Children's Health; Medicine & Medical Specialties

Ultrasound Findings of Pre-Dissection Axillary Lymph Nodes in Breast Cancer Patients

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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Cynthia W. Hanemann, MD, Vice Chairman, Department of Radiology, Tulane University School of Medicine, New Orleans, LA.

Background/Knowledge Gap: Axillary lymph node status is an important predictor of prognosis in breast cancer patients. While sentinel lymph node biopsy (SLNB) can predict axillary lymph node metastasis, it can result in many different complications1. Ultrasound is a quick and low-cost imaging modality that is commonly used to image the breasts. Literature has shown that ultrasound findings such as tumor shape and high color Doppler flow imaging grades were significantly related to axillary lymph node metastasis in breast cancer patients1. Our study aims to analyze the association between pre-dissection ultrasound reports of axillary lymph nodes and post-axillary lymph node excision pathology reports. We will also analyze what changes on ultrasound are associated with metastatic breast cancer and how our population might differ from the current literature.

Methods/Design: We will retrospectively analyze patients who are registered in the Tulane Breast Cancer Registry. Patients who are female, above the age of 18, not pregnant, underwent ultrasound of their axillary

lymph node before dissection of their axillary lymph node and received pathologic analysis of their axillary lymph nodes will be included as subjects. We will obtain the following data: patient's age, gender, ethnicity, axillary lymph node ultrasound findings, post-dissection axillary lymph node pathologic findings, breast cancer staging at time of diagnosis. With our data, we will perform a chi-squared statistical analysis to determine if a statistically significant relationship exists between ultrasound findings and pathology reports.

Results/Findings: We will compare the axillary lymph node ultrasound findings to the axillary lymph node post-dissection pathology report. We predict that certain ultrasound characteristics such as cortical thickening, loss of reniform shape, and effacement of the fatty hilum will be associated with TMN staging and isolated cancer cells within the dissected axillary lymph nodes. We will also compare our findings to the current literature to understand if our patient population may differ.

Conclusions/Implications: We will describe how certain ultrasound characteristics of the pre-dissected axillary lymph nodes are associated with final pathology reports of post-axillary dissection. Understanding axillary lymph node biopsy characteristics pertaining to final pathologic analysis may provide clinicians with predictive factors regarding breast cancer metastasis and prognosis.

Learning Objectives:
1. Discuss how certain ultrasound characteristics are associated with TMN staging in breast cancer patients.

References and Resources:
Guo Q, Dong Z, Zhang L, Ning C, Li Z, Wang D, Liu C, Zhao M, Tian J. Ultrasound Features of Breast Cancer for Predicting Axillary Lymph Node Metastasis. J Ultrasound Med. 2018 Jun;37(6):1354-1353. doi: 10.1002/jum.14469. Epub 2017 Nov 9. PMID: 29119589.

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Enterotoxigenic Escherichia coli enterotoxins modulate IL-1 signaling and alter mucosal immunity

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/Knowledge Gap: Enterotoxigenic Escherichia coli (ETEC) are a major cause of diarrheal disease in children younger than 5. Current treatment for ETEC infection is oral rehydration therapy, and there are no licensed vaccines. Insight into preventative or therapeutic mechanisms is imperative, as repeated infections cause physical and mental stunting of children in ETEC-endemic areas. ETEC produce at least one enterotoxin: the heat-labile enterotoxin (LT) and/or the heat-stable enterotoxin (ST), which initiate intracellular signaling cascades via cyclic nucleotides second messengers to cause secretory diarrhea. A lingering question is the evolutionary

advantage attained by ETEC strains that produce both ST and LT when either is sufficient to induce diarrhea. We hypothesize that fast-acting ST primes the host for infection by inducing epithelial IL-33, an IL-1 family cytokine, and slower-acting LT sustains IL-33 production but polarizes IL-33 receptor signaling.

Methods: We use in vitro, ex vivo, and in vivo studies to examine responses to ST and LT in epithelial and immune cells at the gene and protein level.

Results: We show that LT induces IL-33 production in T84 cells. LT also induces IL-1Ra, a decoy receptor that prevents IL-1 signaling and suppresses epithelial IL-8 secretion following exposure to IL-1beta. We also show that ST intoxication hastens LT-mediated epithelial transcriptional changes. In wildtype animals, we find that ST- or LT-mediated luminal fluid accumulation coincides with increased IL-33 and IL-1Ra in small intestinal mucosal lysates and IL-33 receptor (IL-33R)-deficient animals are less susceptible to ST-mediated secretion. Once induced, we theorize that IL-33/IL-1Ra signaling modulates the diarrheal response and delays establishment of protective immunity via coordination between epithelial and immune cells. We show that LT suppresses IL-33-induced TNFalpha in BMDCs and BMMs in a cAMP-dependent manner. Additionally, chronic LT intoxication expands hematopoietic CD45+ cells that express IL-33R in small intestinal lamina propria, suggesting that juxtaposition to IL-33-producing epithelial cells is required for expansion of IL-33R+ tissue resident cells.

Conclusions: Our data suggest ST and LT modulate the epithelial contribution to mucosal immunity via IL-33 and IL-1Ra, which now represents a novel target for therapeutics to protect young children from ETEC-mediated secretory diarrhea until immunity develops.

Learning Objectives:
1. Identify new roles of IL-1 cytokine signaling following exposure to ETEC enterotoxins
2. Understand the interaction between epithelial and innate immune cells following exposure to ETEC enterotoxins

References and Resources:
1. Qadri F, Akhtar M, Bhuiyan TR, Chowdhury MI, Ahmed T, Rafique TA, Khan A, Rahman SIA, Khanam F, Lundgren A, Wiklund G, Kaim J, Lofstrand M, Carlin N, Bourgeois AL, Maier N, Fix A, Wierzba T, Walker RI, Svennerholm AM. 2020. Safety and immunogenicity of the oral, inactivated, enterotoxigenic Escherichia coli vaccine ETVAX in Bangladeshi children and infants: a double-blind, randomised, placebo-controlled phase 1/2 trial. Lancet Infect Dis 20:208-219.
2. Harro C, Louis Bourgeois A, Sack D, Walker R, DeNearing B, Brubaker J, Maier N, Fix A, Dally L, Chakraborty S, Clements JD, Saunders I, Darsley MJ. 2019. Live attenuated enterotoxigenic Escherichia coli (ETEC) vaccine with dmLT adjuvant protects human volunteers against virulent experimental ETEC challenge. Vaccine 37:1978-1986.

Breakthrough Case of COVID-19 in a Fully Vaccinated Patient

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: Coronavirus Disease 2019 (COVID-19) is caused by a novel coronavirus named severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has led to over 5 million deaths worldwide including almost 800,000 deaths in the United States alone. Despite the development of multiple vaccines, it still remains a grave threat to many communities around the world as well as the United States. There are very few cases reported on COVID-19 infection a person that is completely vaccinated. Unfortunately, we present a breakthrough case of COVID in a patient fully vaccinated with Pfizer and discuss the outcome the patient faced after testing positive for COVID-19.

Case Report: 84 year-old-female with past medical history of hypertension, chronic obstructive pulmonary disease, Diabetes mellitus type 2 and recurrent mechanical falls presents to the Emergency Room from an assisted living facility after experiencing an unwitnessed fall. She was hypertensive and afebrile on admission. Her only complaint at the time of admission was watery diarrhea over the past week. CT scan of head and face showed no acute hemorrhage. CT scan of cervical, thoracic and lumbar spine revealed some chronic degenerative changes. Two days after admission, patient developed acute hypoxic respiratory failure requiring increasing amounts of oxygen. COVID PCR returned back positive. Her CRP was 83 mg/L and D-Dimer was 839 ng/ml. CT-Angiogram of Chest showed no evidence of pulmonary embolism but was positive for extensive ground glass opacities throughout bilateral upper and lower lobes of the lung.

Final Diagnosis: Acute Respiratory Distress Syndrome from SARS-CoV-2

Management: Patient was treated aggressively with Remdesivir, high dose intravenous methyprednisone and tocilizumab. Furthermore, empiric antibiotics with Vancomycin and Cefepime was also initiated. Despite these aggressive measures, her oxygen requirements continued to increase exponentially. A family meeting was held with the patient, her physicians, the palliative care practitioner, nurses and family members to ultimately decide on the direction of management. Finally, patient was converted to hospice care at behest of family and patient desires.

Learning Objectives:
1. To recognize and diagnose ARDS associated with COVID
2. To describe the management of COVID-19
3. To demonstrate the complexities that go into determining hospice care for any given patient

Cefepime Neurotoxicity a commonly delayed diagnosis

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: Cefepime is a fourth-generation cephalosporin with broad-spectrum coverage. Cefepime-induced neurotoxicity is rare, case reports are predominantly in patients with renal insufficiency, for which dosage adjustment is recommended (1-2). However, recent studies have suggested that patients with normal renal function may also develop neurotoxicity, as in our case (3-4). Cefepime-induced neurotoxicity has broad

symptomology, including diminished level of consciousness, disorientation, hallucinations, encephalopathy, myoclonus, seizures, and coma. Neurotoxicity is mainly attributed to its ability to cross the blood–brain barrier and manifest concentration-dependent ϒ-aminobutyric acid (GABA) antagonism (5). Cefepime competitively binds to GABA class A receptors, inhibiting endogenous GABA neurotransmission, which leads to central excitation (5). Here, we present a case of cefepime-induced neurotoxicity in a patient with normal kidney function. We hope this raises awareness of this association and should be maintained in the differential diagnosis of encephalopathy even in patients with preserved renal function.

Case presentation: 80-year-old Caucasian male with medical history of coronary artery disease, atrial fibrillation, dyslipidemia, hypertension, vitamin B12 deficiency, hypothyroidism admitted to inpatient rehab for significant ambulatory dysfunction due to recent diskitis of T11 to L1. Patient had CT guided core biopsy of the disc and cultures grew pseudomonas aeruginosa. Patient was changed from meropenem and vancomycin to cefepime. On day two of cefepime, he became acutely confused with visual and auditory hallucinations, he was alert and oriented to self only without focal neurologic deficit nor other changes to his physical exam. Vital signs were unrevealing. EKG and metabolic workup were also unrevealing including real function, electrolytes, Vitamin B12, folate, TSH and Urinalysis and blood culture. Imaging included computed tomography (CT) and magnetic resonance imaging (MRI) of the brain. Electroencephalography (EEG) showed generalized slowing with no epileptiform discharges. After this workup, cefepime induced neurotoxicity was suspected.

Final Diagnosis and Management: After ruling out common etiologies of encephalopathy, cefepime was discontinued on day six of antibiotic for suspected cefepime induced neurotoxicity.

Outcome: Four days after discontinuation of cefepime, patient's consciousness improved. He was alert and oriented to place, date and self. Patient recovered without particular sequelae.

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(1) Isitan C., Ferree A., and Hohler A.D. (2017). Cefepime induced neurotoxicity: A case series and review of the literature. eNeurologicalSci. V8, 40-43.

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Clinical Conundrum: A Rare Case of Osteomyelitis Posing as Metastatic Disease

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: Symptoms of chronic osteomyelitis are difficult to recognize, with non-specific pain being the most common finding.[1] Fluorodeoxyglucose positron emission tomography (FDG-PET) imaging has been found to have the highest diagnostic accuracy for confirming or excluding chronic osteomyelitis in a patient.[2] FDG-PET imaging is also the most commonly-used imaging modality for detection of cancer metastasis, representing more than 90% of current oncologic PET scans.[3] FDG uptake is increased in both tumor cells and sites of infection/inflammation due to increased metabolism of glucose. FDG-PET alone cannot reliably differentiate between the two.

Case Presentation: A 64-year-old male with a longstanding history of tobacco use presented to the emergency department with a one month history of a large lateral neck mass and associated discomfort. He was found to have a 1.0 x 0.9 x 0.8 cm lesion involving the piriform sinus on CT imaging. A panendoscopy and biopsy were subsequently performed, demonstrating moderately differentiated, p16-negative squamous cell carcinoma (SCC) of the left tongue base. A PET/CT revealed three FDG-PET-avid bone lesions of indeterminate etiology. One lesion, at the level of L1, was concerning for a small volume of epidural expansion; the patient was therefore scheduled for palliative radiotherapy of T12-L2 to 30 Gray in 10 fractions. Biopsy of another lesion, within the pelvis, was scheduled for the same day as initiation of radiotherapy.

Final/Working Diagnosis: Bony metastasis vs. chronic osteomyelitis.

Management, Outcome, and Follow-up: Biopsy of the pelvis unexpectedly revealed chronic osteomyelitis without organisms present. No source of infection was found despite exhaustive workup. After a first cycle of cisplatin and 5-FU chemotherapy, the patient's neck mass had almost entirely resolved. The patient completed a full course of chemoradiotherapy. Surveillance PET showed resolution of uptake in the neck and oropharynx several months later.

This patient received radiation to his osteomyelitic lesion. We posit the question: What effect does ratiotherapy have on chronic osteomyelitis? And, how can we mitigate risk to our patients?

Learning Objectives:
1. Understand that chronic osteomyelitis is becoming more prevalent with increased rates of predisposing factors, including diabetes mellitus and peripheral vascular disease.
2. Examine the use and limitations of FDG-PET imaging, and consider several potential diagnoses in patients with enhancing bone lesions seen on FDG-PET.
3. Describe testing methods used to identify sources of bone lesions.

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An Unfortunate Trio: Esophageal Kaposi Sarcoma, Immune Thrombocytopenia, And Uremia-Induced Platelet Dysfunction

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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HIV can cause a wide range of systemic sequelae and complicate patients' hospital course in unexpected ways. Here, we present a case of newly diagnosed HIV leading to various infectious and autoimmune conditions that all contributed to dangerous gastrointestinal hemorrhage.

A 46-year-old male with no known medical history presents with worsening chronic cough of one-year duration. He also reports shortness-of-breath and increasing fatigue. On presentation, he is noted to have numerous umbilicated facial lesions that are actively bleeding. Subsequent HIV testing was positive and CD4 count was 0.1. Chest CT revealed a right perihilar consolidation with concern for pneumonia, various opportunistic infections, and malignancy. He was initially started on azithromycin and ceftriaxone. Amphotericin was added to the regimen after cryptococcal antigen was found in the serum and cerebral spinal fluid. Subsequent bronchial biopsy and facial skin lesion biopsy also revealed cryptococcus. The patient reported improvement of cough in following days but persistent fatigue. While on amphotericin, the patient developed acute kidney injury with creatinine up to 9.7 and muddy brown casts seen on urinalysis. All medications were dosed renally and peri-amphotericin hydration was given. On hospital day ten, the patient was found to have melena and hemoglobin levels had dropped to 6.3 from a baseline of 10.2. Platelets also dropped to 95 from a baseline of 297, consistent with HIV-induced immune thrombocytopenia. After one unit of pRBC transfusion, a colonoscopy revealed no features of malignancy, but esophagogastroduodenoscopy showed highly vascularized esophageal mucosa consistent with Kaposi Sarcoma.

The patient's anemia required two more transfusions during the hospital course but eventually stabilized. He was discharged after finishing amphotericin induction and instructed to follow up for acute retroviral therapy and chemotherapy.

While Kaposi Sarcoma of the skin and oral mucosa is common in HIV patients, gastrointestinal manifestations are rarer and more insidious. Bleeding from this friable esophageal mucosa was further complicated by HIV-induced immune thrombocytopenia. Finally, cryptococcal infections require extended treatment with amphotericin, which can often cause renal damage, uremia, and subsequent platelet dysfunction. The interplay of the various sequelae of HIV can often perplex the management of comorbid medical conditions.

Learning Objectives:
Recognize the potential complications arising from gastrointestinal Kaposi Sarcoma and other HIV-associated conditions.

Plasmapheresis in Conjunction with Extracorporeal Membrane Oxygenation in a Patient with COVID-19 Pneumonia

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: Patients with COVID-19 experience a myriad of complications, including severe acute respiratory disease and neurological conditions that may benefit from various extracorporeal techniques. We present the first reported case of a patient with COVID-19 safely treated with venovenous extracorporeal membrane oxygenation (ECMO) and plasmapheresis simultaneously.

Case Presentation: A 29-year-old unvaccinated male patient with no significant medical history aside from Class I obesity presented to an outside hospital with acute hypoxic respiratory failure secondary to COVID-19 pneumonia. Initial treatment included steroids, remdesivir and tocilizumab. His condition worsened requiring intubation and transfer to a tertiary center for venovenous ECMO. During transportation, oxygen saturation was as low as 60%. Physical exam noted for excessive abdominal fat and bilateral lower extremity trace edema. The patient was cannulated with flow and sweep peaked as high as 5 L/min and 7 L/min respectively. Sedation was minimized and ECMO weaned to minimal settings as low as 2 L/min and 2 L/min, but neurological status did not improve. Physical exam revealed pupils 6 mm bilaterally and reactive to light. Oculocephalic reflex, corneal, gag, and cough reflex were positive without response to painful stimuli. CT head without contrast demonstrated patchy and confluent areas of decreased density in the periventricular and subcortical white matter.

Working Diagnosis: The abnormal neurological exam was suspected to be leukoencephalopathy secondary to COVID-19 versus anoxic brain injury. Magnetic resonance imaging (MRI) and lumbar puncture was not pursued due to the ECMO circuit requirement and safety. Neurology recommended empiric plasmapharesis every other day for 5 treatments with 5-day course of methylprednisolone 1g IV.
Outcome: The patient tolerated simultaneous ECMO and plasmapharesis without complication. He was successfully decannulated but failed to improve neurologically. Lumbar puncture and NMDA antibody were unrevealing, but MRI brain revealed anoxic encephalopathy. The patient was transitioned to comfort measures and passed peacefully. While the patient had a poor outcome, this case report demonstrates that patients with COVID-19 can safely tolerate plasmapheresis while being managed on ECMO. Use of ECMO should not preclude pursuing other extracorporeal techniques. In severe cases of COVID-19, further investigation should be pursued to determine efficacy and tolerability.

Learning Objectives:
Recognizing differential diagnoses for abnormal neurological status in the setting of COVID-19 pneumonia.
Evaluating simultaneous use of extracorporeal treatment modalities for patients with COVID-19 pneumonia.

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Gynecomastia with Dasatinib Use in Chronic Myeloid Leukemia

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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Gynecomastia is defined as enlargement of the glandular tissue in male breasts. Gynecomastia is an uncommon manifestation during treatment with a tyrosine kinase inhibitor, such as dasatinib or imatinib, with only a few reports of this occurrence. We describe a case highlighting this event and propose a potential treatment.
A 38-year old African American Male with a PMH of asthma was seen in the ER with symptoms of abdominal pain and diarrhea for three days as well as early satiety and weight loss. His complete blood count was significant for a white blood count of 422,000/mm3 with neutrophil predominance but also with the presence of metamyelocytes, myelocytes, basophils, and few blasts. CT scan of the abdomen/pelvis revealed splenic enlargement of 18 cm in greatest dimension. Bone marrow cytogenetics showed a reciprocal translocation of the long arm of chromosome 9 and the long arm of chromosome 22 and PCR was positive for BCR/ABL gene fusions indicative of Chronic Myeloid Leukemia. He was initially started on hydroxyurea which was subsequently replaced by dasatinib as an outpatient. Two months after starting dasatinib, patient developed tender gynecomastia. Dasatinib was discontinued and patient was subsequently started on imatinib and on follow-up gynecomastia completely resolved.

Dasatinib is a potent inhibitor of Src kinase and reports have shown these proteins to be important in transducing the signal for testosterones action on sertoli cells. Receptor tyrosine kinases, c-Kit and PDGFR-α are expressed in the testis and believed to be part of the biosynthetic process of testosterone. Imatinib inhibits c-Kit and PDGFR-α, also decreasing testosterone production. In contrast to Imatinib, second generation TKIs, such as dasatinib, have multiple targets and are known to cause a more potent inhibitory action on c-Kit and PDGFR-α. A comparison of hormone concentrations of these patients showed that the patients who developed gynecomastia had a reduction in free testosterone concentrations. As Imatinib has been used for a longer time in management of CML, more cases of gynecomastia have been reported. Despite this, our case demonstrates that imatinib can be used in management of CML patients who develop this complication with other TKIs.

Learning Objectives:
1. Identify potential adverse side effects of dasatinib use
2. Learn about different tyrosine kinase inhibitors and treatment for CML
3. Identify gynecomastia and recognize the etiology behind it

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Session 12B - Bioethics & Medical Education; Medicine and Medical Specialties

Resident Duty Hour Shift Length and It's Association on Resident and Patient-Based Outcomes: A Systematic Review and Meta-Analysis of Randomized Control Trials

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

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Background: Resident duty hours are constantly being evaluated by the Accreditation Council for Graduate Medical Education. Multiple randomized controlled trials (RCTs) have assessed the impact of resident duty hour shift lengths on patient and resident-based outcomes. However, the results from these RCTs are a mixed bag. Therefore, we conducted a systematic review and meta-analysis of RCTs to synthesize the evidence associated with resident duty hour shift length restrictions and its impact on patient and resident-based outcomes.

Methods: A systematic search of Cochrane Library, EMBASE, and PubMed from inception until July 31, 2020, was performed. All RCTs assessing different resident shift lengths and its impact on patient and resident outcomes were eligible for inclusion. Data was extracted on participants, interventions, comparison, and outcomes. Patient

outcomes included hospital length of stay, serious medical errors, and preventable adverse events. Resident outcomes included emotional exhaustion, depersonalization, personal accomplishment, resident dissatisfaction with overall well-being, sleep duration, sleepiness, and vigilance. Data was pooled under a random effects model and summarized as odds ratio (OR)/standardized mean difference (SMD) along with 95% confidence intervals (CI).

Results: Of the 873 references, nine RCTs met the inclusion criteria. There was a significant association between shorter shift length and less emotional exhaustion (SMD = -0.11, 95% CI =-0.21, -0.00) and less dissatisfaction with overall well-being (OR = 0.61, 95% CI 0.38, 0.99). There were no significant associations between shift length and hospital length of stay (SMD= 0.01, 95% CI -0.02, 0.05) and serious medical errors per 1,000 patient hours (OR= 0.76, 95% CI 0.29,2.0).

Conclusion: Shorter resident duty hour shifts was associated with improved resident outcomes but not in patient outcomes.

Learning Objectives:
Discuss the available literature on resident duty hour restrictions
Understand the pooled results on the impact of resident duty hours on patient and resident-based outcomes

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Design and Implementation of a Leadership Assessment Instrument to Evaluate Medical Student Leadership in Team-Based Simulations

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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Background: Physician leadership in the clinical setting is a crucial skill that improves team dynamics and patient outcomes. Yet, medical graduates often assume the leadership role without formal training or iterative feedback.

Many medical schools have implemented simulation-based learning, where multiple students engage in a simulated patient encounter, to enhance the clinical competence of students. The simulation setting as a learning modality provides a constructive time and framework during which students' clinical leadership may be assessed.The goal of this project was to design a valid and reliable tool to assess medical students' leadership skills in team-based simulation, with the purpose of providing students iterative feedback on their performance for longitudinal improvement.

Methods/Design: We systematically searched PubMed, Education Resources Information Center, Academic Search Complete, and Education Full Text databases for peer-reviewed English-language articles published 1980–2014 describing leadership in medicine and in medical curricula. By identifying the common qualities seen throughout the current literature and synthesizing them into discrete, measurable simulation skills, we developed a set of observable actions, grouped under three skill domains: clinical reasoning, patient communication, and team communication. A single-page rubric with 14 individual items was created, and after expert review to establish construct validity, the tool was piloted in a team-based simulation with 46 second-year medical students.

Results: Pilot data was analyzed in SPSS, and the internal consistency of the instrument was estimated with a Cronbach's alpha ($\alpha = 0.685$). To further improve the reliability for the instrument, one item was refined, and one item was removed. The scale was also refined from a 3-point to a 5-point Likert scale to improve sensitivity. After additional review by faculty, the instrument was approved by the Curriculum Oversight Committee's Assessment subcommittee to be used in the upcoming term.

Conclusions/Implications: Implementation of the leadership assessment instrument in the medical curriculum will provide students with objective feedback on their leadership in the simulation setting. Longitudinal tracking will promote continued development of these skills as we hope to transition medical students to lead clinical teams effectively after graduation.

Learning Objectives:
1). Describe the construct of physician leadership.
2). Discuss the validation of the medical leadership behaviors that can be observed in team-based medical student simulations.
3). Consider how medical student leadership development can be measured and developed through longitudinal assessment.

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An Electronic Medical Record Pocket Guide for Incoming Internal Medicine Interns: Perceptions and Impact on Patient Information Gathering

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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Background: The transition of the medical student to intern is associated with a significant increase in workloads and responsibilities. This includes the use of the electronic medical record (EMR), which can also lead to challenges in information gathering and patient care. However, no formal residency interventions exist in the use of EMR for information gathering. This results in most EMR training occurring in the clinical setting.

Goals: The primary goal of this study is to improve information gathering on patient care for internal medicine interns. The secondary goal is to enhance the confidence of interns in information gathering.

Methods: We performed a cross-sectional descriptive study in July 2021. The inclusion criteria were all internal medicine interns at Citrus Memorial Hospital. A pre-confidence survey was distributed to participants during orientation week followed by the introduction of the EMR guide. A pre and post objective-based assessment was done during each participant's first day of inpatient internal medicine. At the end of each participant's inpatient internal medicine rotation, a post-confidence and feedback survey was distributed. Descriptive statistics were summarized as mean ± standard deviation. Wilcoxon signed-rank test was used to assess the differences in pre- and post-continuous data at the 0.05 level of significance.

Results: 20 participants participated in this study. 17 (85%) of participants completed the post-confidence and feedback assessment. 16 (94.1%) of respondents would recommend the EMR guide to future internal medicine interns. Use of EMR guide led to a statistically significant increase in patient information gathering (Pre 73.2% □ 18.4% vs 94.7% □ 7.4%, $p < 0.001$).
Conclusion: The use of an EMR guide was well-received among internal medicine interns and led to comprehensive patient information gathering. Residency programs may benefit from the development of an EMR guide to improve the transition of from medical school to residency.

Learning Objectives:
Implement a new strategy to ease transition from medical school to residency in regards to EMR systems

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Educating Our Future Academic Physicians: A Look at the Current Education of Medical Student Research

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

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Background: Training medical students in clinical research early in their medical education has proven to be beneficial. However, to our knowledge, limited studies analyze this from the viewpoint of medical students. Here, we provide outcomes and suggestions to improve research education for medical students.

Methods: An anonymous 17-question survey with 5-point Likert-scale was sent to medical students at a single medical institution to gauge responses to their perceived quality of clinical research training they have received in their medical education. It was sent to respondents prior to start of a research course and to those in the middle of taking the course. Demographics, exposure to research education, and perceptions of the current clinical research education provided to them were collected in the survey.

Results: There was a survey respondent rate of 100% (n=31) from our medical institution (average age = 25.1±1.9 years, 47.4% male). More than half of the respondents have never conducted any clinical research and only 7.7% of respondents responded that they are currently actively conducting clinical research during their medical education. After starting the course, 75% of respondents said they have been able to start working on research projects at our institution within 4 weeks. All respondents (100%) agreed or strongly agreed that it was important for medical students to be educated on clinical research. The majority of respondents (84%) agreed or strongly agreed that they have not been receiving adequate training in conducting clinical research. 95% of respondents agreed or strongly agreed that medical students should undergo more training than what is currently provided on clinical research and should be more readily available to medical students. Table 2 shows additional themes eliciting greater quantity of positive outcomes as compared to previous studies indicating a current need for more clinical research training.

Conclusion: Although medical students are strongly interested in conducting clinical research, there is a lack of education on clinical research provided. This is a pilot study at a single medical institution and we hope to enroll other institutions in our multi-center study to provide a collaborative environment for US medical institutions to advance research education.

Learning Objectives:
Although medical students are strongly interested in conducting clinical research, there is a lack of education on clinical research provided.

Unveiling Hidden Patterns: Analysis of Recommendation Letters in General Surgery Residency Match

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

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Background: Recommendation letters (LORs) are a quintessential part of the general surgery residency application. Here, we investigate various demographic and academic factors through the lens of LORs to uncover significant patterns and prejudices present.

Methods: Demographic information of the student and letter writer were collected from application files. Applicants' position on final rank list and their medical schools' general surgery program ranking on Doximity were noted. LORs were analyzed using linguistics analysis software to determine word count, objective writing quality, readability score, and unique/rare word use. Statistical analysis was performed with ANOVA, T-tests, and Pearson correlation tests where appropriate ($p<0.05$).

Results: We performed a retrospective analysis of 2892 LORs from 1205 applicants applying to a general surgery residency program in the US during the 2020-2021 cycle. Notably, 78.3% of letter writers were male and 94.4% were a Doctor of Medicine (MD). LOR writing quality ($p>0.30$), word count ($p>.100$), and readability score ($p>0.06$) did not correlate with applicant rank or applicant sex. USMLE Step Scores also did not correlate with LOR writing quality ($p=0.063$) or final applicant rank ($p=0.491$). While a school's Doximity rank did not correlate with LOR writing quality ($p=0.887$), it did negatively correlate with word count ($r=-0.116$, $p<0.001$). Female letter writers produced LORs with better writing quality than male letter writers (83.61 vs. 82.58, $p=0.017$). Doctor of Osteopathy letter writers produced LORs of higher writing quality (84.04 vs. 82.47 vs. 78.26, $p<0.001$) than MD and PhD letter writers. Caucasian applicant LORs had the greatest readability (45.7) while Hispanic applicants' had the worst (43.5), with an overall average of 45.1 ($p=0.002$). However, Hispanic applicant LORs had the highest

unique word usage (51.94%), compared to Asian applicant LORs, which had the lowest (43.5%), with an overall average of 50.1%.

Conclusions: There are significant patterns of imbalance and prejudice within the LOR writing process. Residency programs should reflect on methods to achieve more objective student assessments during the application process. Applicants should realize that neither LOR nor USMLE scores decisively determine their final placement on the rank list, and that other components of their application portfolio are considered.

Learning Objectives:
Understand that there are significant patterns of imbalance and prejudice within the LOR writing process.
Residency programs should reflect on methods to achieve more objective student assessments during the application process.
Applicants should realize that neither LOR nor USMLE scores decisively determine their final placement on the rank list, and that other components of their application portfolio are considered.

Concomitant Primary and Secondary Adrenal Insufficiency due to Immune Checkpoint Inhibitor Therapy

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: Use of Immune checkpoint inhibitors (ICPIs) in management of malignancies is associated with immune related adverse events (iRAE), which occur due to inhibition of immune checkpoints responsible for reinforcement of barriers against autoimmune responses. While the incidence of iRAE related endocrinopathies such as hypophysitis and thyroiditis is less than 20%, occurrence of concomitant secondary and primary adrenal insufficiency related to iRAE is rare. Hypophysitis induced by ICPIs manifests in the form of secondary adrenal Insufficiency, which is irreversible.

Case presentation: A 68 year old Caucasian female presented to the endocrinology clinic for evaluation of orthostatic hypotension. Her history was significant for metastatic melanoma treated with Ipilimumab for 1 year. Subsequently, she developed orthostatic hypotension resulting in recurrent falls. Evaluation during hospitalization revealed hypo-osmolar normovolemic hyponatremia. MRI of head showed hypophysitis. She was initiated on prednisone 80 mg and subsequently transitioned to hydrocortisone for treatment of secondary adrenal insufficiency. She, however, continued to have persistent symptoms of salt craving, increased fatigue and lightheadedness warranting an endocrinology referral. On physical examination, blood pressure was 152/80 mmHg and heart rate was 62 bpm. No orthostatic hypotension seen upon examination. Laboratory data revealed sodium of 135 mEq/L, chloride of 98 mEq/L, potassium 4.7 mEq/L, bicarbonate 24 mEq/L, glucose 104 mg/dL, BUN 9 mg/dL and creatinine of 0.8 mg/dL. Normal level of TSH 1.73 mU/L, low ACTH 1.8 pg/mL, low AM Cortisol 5.9 µg/dL and positive 21-hydroxylase antibody on multiple occasions.

Working Diagnosis: Hyponatremia due to adrenal insufficiency. The underlying etiology seemed to be adrenal insufficiency secondary to hypophysitis caused by Ipilimumab. However, laboratory investigations were further indicative of concomitant autoimmune primary adrenal Insufficiency with positive 21-hydroxylase antibody.

Management/ Outcome/ Follow-up: Patient was originally treated with high dose prednisone for hypophysitis. This was gradually decreased to replacement dose for adrenal insufficiency. She is currently stable with prednisone 5 mg daily.

Learning Objectives:
- Familiarizing ourselves with the spectrum of endocrinopathies associated with the use of Immune checkpoint inhibitor therapy.
- Recognizing signs and symptoms of adrenal insufficiency.

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The Effects of E-cigarette Use on Cardiovascular Health: A Systematic Review & Meta-analysis

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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Background: The health-related adverse outcomes associated with cigarette consumption has led the public to seek healthier alternatives. In recent years, electronic cigarettes (EC) have become popular substitutes. Heart disease is the leading cause of mortality in the United States and tobacco smokers are 3.5 times more likely to experience fatal cardiovascular outcomes. Thus, it is crucial to investigate the cardiovascular risks associated with electronic cigarette use.

Goals: This systematic review was designed to identify the effects of EC use on the cardiovascular system in adults.

Methods: We gathered 364 articles using relevant keywords on scientific databases. Initial screening removed 282 articles based on title and abstract. The remaining studies were evaluated by full-text. We included 17 studies with low-moderate risk of bias in our study. We analyzed the effects of EC on cardiovascular parameters including systolic blood pressure (SBP), diastolic blood pressure (DBP), heart rate (HR), heart rate variability (HRV), flow-

mediated dilation (FMD), pulse wave velocity (PWV), augmentation index (AI), markers of oxidative stress (OS), endothelial function (EF), and platelet function (PF).

Results: Our analysis included 839 participants (510 males, mean age 22.9 - 46.8 years, and mean BMI 22.9-27.8 kg/m2). When comparing acute nicotine-containing EC (ECN) use with controls, it was observed that SBP, DBP, and HR increased but no changes in OS or FMD. Acute ECN use compared with EC without nicotine (EC0) demonstrated increases in SBP, DBP, HR, PWV, and AI, and no significant differences in FMD. Comparison of acute ECN use with tobacco cigarettes showed decreases in SBP, DBP, HR, OS, EF and PF and no significant differences in FMD and AI.

Conclusion: We present evidence supporting that ECNs adversely affect arterial stiffness, SBP, DBP and HR. In chronic tobacco cigarette smokers, switching to EC may reduce the risk of cardiovascular disease through decreases in hemodynamic parameters, reduced oxidative stress, and improvement in endothelial and platelet function. In non-smokers, e-cigarette initiation may induce adverse cardiovascular effects through increases in sympathetic activity and arterial stiffness. These effects have the potential of increasing the risk of arrhythmias, sudden death, vascular diseases (particularly atherosclerosis), and heart disease.

Learning Objectives:
Describes the effects of electronic cigarettes on cardiovascular measures.
Demonstrate the differences in cardiovascular effects between electronic cigarettes and combustion cigarettes.
Discusses the effects of nicotine and nicotine delivery systems on cardiovascular measures.

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Session 13A - Public Health & Environmental Medicine; Mental Health; Medicine & Medical Specialties

Ambient Ultraviolet Exposure Decreases Thyroid Cancer Risk in Black Populations: A Multiethnic Study

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

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Background/Knowledge Gap: Thyroid cancer is the most prevalent endocrine tumor with 44,280 cases projected to occur in 2021 alone. Increased ultraviolet (UV) solar exposure and subsequent Vitamin D levels have been inversely associated with incidences of other solid malignancies, including prostate, female breast, and ovarian cancers due to its ability to inhibit angiogenesis and tumor cell progression. However, no research to date has investigated race-based differences in UV exposure as a protective factor against thyroid cancer development.

Methods/Design:Overall estimates of thyroid cancer in the United States were retrieved from the National Program of Cancer Registries, and the Surveillance, Epidemiology, and End Results (SEER) Database from 2001 to 2018. Data was stratified for population structure per geographic state. UV exposure data in Watt-Hours Per Square Meter for state was obtained from the NCI Cancer Atlas. Linear regression analysis was employed to test the role of residential UV exposure as an independent predictor risk factor for thyroid cancer across racial and ethnic groups.

Results/Findings:UV exposure was not significantly correlated with thyroid cancer incidence when analyzed across all races ($r = -0.299$, $p=0.035$). However, UV exposure was negatively correlated with thyroid cancer rates in Black populations specifically ($r = -0.56$, $p< 0.001$). Additionally, Black populations demonstrated the lowest thyroid cancer incidence rate (8.7 per 100,000) while White populations had the highest rate (14.7 per 100,000) in 2014 to 2018. Despite this, Black men had the worst 5-year survival rates when compared to white and combined other ethnic populations (88.2% vs. 94.9% vs. 95.9%).

Conclusions/Implications: UV exposure may be a protective factor against incidence of thyroid cancer in Black populations while having minimal protection in other multi-ethnic groups. This may contribute to black populations having the lowest incident rate of thyroid cancer development. This finding may contribute to community health initiatives that can discuss the importance of appropriate UV exposure as a protective factor against thyroid cancer in Black populations.

Learning Objectives:
Discuss the impact of ultraviolet radiation on thyroid cancer incidence rates with an emphasis on differences across races and ethnicities.
Describe the overall race-based differences in thyroid cancer overall incidence and 5-year survival rates.

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Increasing Mississippi's HPV Vaccination Rate: A Proposal Based on Providers' Insights

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

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Despite high childhood vaccination rates for required vaccinations for kindergarten, including the MMR vaccine, Mississippi has the lowest HPV vaccination rate in the nation (Campbell, 2019). This is so even though the HPV vaccine can prevent multiple cancers, including cervical cancer, of which Mississippi has the nation's highest mortality rate (Mississippi State Department of Health, 2015). This study seeks to understand the factors surrounding Mississippi's low HPV vaccination rate as well as potential policy solutions to increase this rate. To accomplish this, the author conducted interviews with 13 Mississippi physicians in various specialties to gather qualitative data. As a result of these interviews, the author found that the anti-vaccination movement, the association of HPV with sexual activity, education of providers and parents, the lack of an HPV vaccination requirement, and patients forgetting to schedule second dose appointments are key factors contributing to Mississippi's low HPV vaccination rate. Potential policy solutions to increase the HPV vaccination rate in Mississippi include educating providers to make more effective recommendations, mandating the HPV vaccine for school attendance, requiring providers to recommend the HPV vaccine to their patients, and automatically scheduling second dose appointments. Increasing the HPV vaccination rate in Mississippi by implementing some or all of these strategies is critical to improving the health and wellness of all Mississippians.

Learning Objectives:
Describe factors contributing to Mississippi's low HPV vaccination rate.
Examine potential policy solutions to address Mississippi's low HPV vaccination rate.

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THE IMPACT OF GUT MICROBIOTA ON COGNITIVE DEVELOPMENT

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

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Cognitive development is the study of how the brain develops as an individual ages. Specifically, the study of cognitive development focuses on the areas of emotional, structural, and motor development. Current literature examining cognitive development focus on how these factors are influenced by environment and genetics, however emerging evidence implicates gut microbiota as an increasingly influential determinant to proper cognitive function. Here we review the literature and evaluate the latest research on cognitive development and gut microbiota. Relevant studies in our discussion include both animal models on germ free and antibiotic-treated mice to compare the relevance of these models of microbiota elimination to human studies, as well as what is currently known in human infant models. We report that gut microbiota composition may influence depression, anxiety, motor skills, fear behaviors, synaptogenesis, and communication. Additionally, there may be a critical period in which cognitive development and function is most influenced by the gut microbiota and how treatment with antibiotics for common childhood infections may alteration gut microbiota thus affecting cognitive development. Lastly, we examined how the effects of gut bacteria on the cognitive development of the fetus within the prenatal period. Our findings summarize the evidence on the use of antibiotics during development, as well as highlight the importance of cultivating healthy gut microbiota during the pre-natal and infancy periods in order to positively influence cognition.

Learning Objectives:
1. Demonstrate the importance of the "critical period" for the impact of gut microbiota on cognitive development
2. Describe the areas of cognitive development that are impacted by gut microbiota
3. Compare and contrast the effects of gut microbiota on germ-free vs. antibiotic treated mice

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MYRIAD OF PRESENTATIONS AND OUTCOMES OF POST-GUNSHOT INJURY INFECTIONS: A FOCUSED CASE SERIES

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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Recovery from gunshot wounds (GSW) is often complicated by various infectious sequelae involving a broad spectrum of organisms. However, current guidelines on the risk stratification and management of post-GSW infections are lacking. Here, we present a case series highlighting the sheer variety of clinical courses and outcomes of post-GSW infections in hopes of inspiring future studies that will translate into life-saving guidelines.

A total of 25 patients were included for analysis (92% male, 73% African American, mean age=41 years, mean BMI= 25 kg/m2). The most common location of GSW was the abdomen, 82% received emergent surgical repair. The most frequently used prophylactic antibiotic regimen was cefazolin/cefoxitin (64%). 56% had some form of vascular access line, catheter, or hardware installed. The average duration from GSW admission to infection onset was 5.9 days, with skin and deep tissue infections being the most common type (32%). The most common therapeutic antibiotic combination was vancomycin with piperacillin-tazobactam and/or cefepime, seen in 24% of cases. The average duration from infection-onset to discharge was 24.9 days, with 68% being discharged to home. Despite the limited number of patients studied, a large variety of post-GSW infectious modalities were observed, including bacterial or fungal cellulitis, osteomyelitis, bacteremia/fungemia, lung abscess/empyema, peritonitis, urinary tract infection, pseudomembranous colitis, and decubitus/pressure ulcer infections.

A broad range of infectious organisms were detected from blood, tissue, and other bodily fluid cultures. More common organisms included S.Aureus, Pseudomonas, E.Coli, and Bacteroides spp. Multi-drug resistance was seen frequently with Staphylococcus spp. Rarer organisms seen included E.Faecalis, Eikenella, C.Difficile, Candida, Stenotrophomonas, and Mucor spp.

Several chronic sequelae were observed, including nonhealing sacral ulcers, leukoclastic vasculitis, and infection-induced glomerulonephritis. These chronic conditions combined with permanent disabilities caused by GSW (e.g. neurogenic bladder/bowel and paraplegia/quadriplegia) can become a significant hinderance to patients' return to usual quality of life.

Post-GSW infections are common and can involve highly varied presentations in different organ systems. Importantly, such complications can occur at either acute or chronic phases of patients' recovery course. Larger prospective studies are needed to refine risk stratification and help clinicians better prevent permanent infectious sequelae or disabilities in these patients.

Learning Objectives:
Understand manifestations and management of the various infectious sequelae of gunshot wounds.

Spontaneous LAD in a 62 Year-Old Lad: A Case Report

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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Case Presentation: A 62 y.o. male presented to his primary care clinic due to 10/10 stabbing chest pain associated with shortness of breath and diaphoresis. Chest pain was sudden in onset, not relieved with leaning forward. Past medical history was significant for CAD, HTN, COPD with end-stage lung disease and continued tobacco use.

Documented cardiac exam was unremarkable with only noted physical distress. Clinic interventions included sublingual nitro and 324 gm PO aspirin that resulted in relief, but not complete. Of note, the patient was recently discharged from the hospital two days prior. Clinic EKG in comparison demonstrated new ST elevation in leads V2-V6 with possible elevation as well in limb leads with PR depression, this was exemplified on EKG upon arrival demonstrated ST elevation in V3,V4, and V5 indicative of acute MI/ STEMI.

Due to the concern for anterior STEMI with heart score of 7, EMS transported him to the hospital with admission under cardiology service. Prior ASA administered in clinic with initiation of heparin on admission. He underwent emergent radial percutaneous coronary catheterization. Cath report demonstrated reduced and hypokinetic apical LV function with EF of 45%. Additionally, noted normal left main and normal D1 of LAD but large D2 with spontaneous dissection of distal and apical LAD, reaching but not wrapping the apex seen in figure 2 below. Noted TIMI 3 flow, but vessel with diminutive and consistent with dissection.

Final/Working Diagnosis: Spontaneous left anterior coronary artery dissection

Management/ Outcome/and or Follow-up: Due to high prevalence of SCAD in the setting of fibromuscular dysplasia, CTA head, neck, chest, abdomen, and pelvis were performed, all without evidence for presence. He endorsed resolution of chest pain following cardiac catheterization without subsequent episodes since. Discharged with referral to cardiac rehabilitation and continued on all risk stratifying medications initiated during hospitalization including ASA, plavix, statin, and beta blocker. He was followed one month later in the clinic with complete resolution of any chest pain.

Learning Objectives:
Diagnose a spontaneous LAD dissection in the setting of absent risk factors.
Treat LAD dissection.

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High Ferritin And High TIBC: A Case Of Anemia With A Uniquely Paradoxical Iron Study

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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Ferritin and total iron binding capacity (TIBC) are both crucial parts of the iron study used to ascertain causes of anemia. Under most circumstances, ferritin and TIBC correlate inversely with one another, owing to their physiological significance. Here, we present a case of anemia where this rule was broken under a unique set of coexisting conditions.

A 45-year-old female with a past medical history of IV heroin use and MRSA skin lesions presents with three days of sharp chest pain, cough, subjective fevers, and fatigue. A chest CT showed a 4.7x3.6cm lung mass in the right upper lobe with central cavitation. Her WBC was 7.6 and hemoglobin was 8.8. Sputum AFB smear, tuberculosis PCR test, and Fungicell screen were negative. Transthoracic echocardiogram revealed no valvular vegetations. Broad spectrum coverage was started due to concern for lung abscess. An iron study was obtained to investigate anemia and fatigue, which showed paradoxical findings of high ferritin (415), high TIBC (523), low serum iron (22), and low saturation (4%). Meanwhile, her CBC demonstrated low mean corpuscular volume [MCV] (56.7) and high red blood cell distribution width [RDW] (21.1). Subsequent hemoglobin electrophoresis revealed 95.2% HbA1 and 4.8% HbA2, suggesting beta-thalassemia minor. The patient underwent lung biopsy, which confirmed an abscess due to MSSA. She was then initiated on IV cefazolin, which led to her eventual recovery.

Serum ferritin and TIBC levels typically show an inverse correlation. However, this case demonstrates a unique scenario where both ferritin and TIBC are elevated due to the coexistence of iron deficiency anemia, beta-thalassemia minor, and a systemic inflammatory response secondary to lung abscess. Iron deficiency is the most common cause of anemia, characterized by low serum iron and saturation, as well as high TIBC and RDW. Beta-thalassemia is a genetic disorder due to low hemoglobin production, thus leading to low MCV, and increased HbA2 production. Finally, chronic systemic inflammation and infection can lead to anemia of chronic disease, which results in macrophage sequestration of iron and high ferritin levels. Ultimately, this interesting trio of clinical conditions resulted in this uniquely paradoxical iron study.

Learning Objectives:
Discuss how levels of ferritin and TIBC levels typically correlate with one another and how this rule-of-thumb can be broken in atypical scenarios.

REFINING PAIN MANAGEMENT IN CRYPTOCOCCAL IMMUNE RECONSTITUTION INFLAMMATORY SYNDROME

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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A 28-year-old male with a history of HIV/AIDS and cryptococcal meningitis is admitted for management of severe, persistent headache. The headache is bilateral and throbbing, similar to previous episodes secondary to flares of cryptococcal meningitis. He reports Excedrin provides him with one hour of relief. Additionally, he reports neck rigidity and photophobia. He was started on Biktarvy five months ago. At presentation, his CD4 count is 88. Lumbar puncture (LP) showed opening pressure of 32mmHg and cerebral spinal fluid (CSF) showed pleocytosis, elevated protein, with positive cryptococcal antigen. His existing fluconazole consolidation therapy was increased to 800mg daily.

For pain control, serial LPs were performed with persistently high opening pressure. Initial pain medication regimen consisted of IV Dilaudid 1mg q4h, PO Oxycodone 5mg q6h, and Ibuprofen 800mg q6h. Two weeks into hospitalization, the patient was determined to fit criteria for C-IRIS due to persistent pleocytosis and elevated protein in the CSF despite active antifungal treatment. Prednisone was started. The patient reported slight improvement in mental status and headache but complained of not tolerating PO oxycodone well due to nausea. The regimen was subsequently switched to IV Dilaudid 0.5mg q6h, PO Dilaudid 2mg q4h, with unchanged Ibuprofen. Overnight, the patient become agitated, complaining of severe pain and reporting that PO Dilaudid provided no relief and requested more IV medication. After careful and thorough patient education about IV opiate tapering in anticipation of transition to outpatient care, a compromise was reached. The IV Dilaudid dose was kept at 0.5mg but with frequency increased to q4h. Lidocaine patches were also applied to the patient's neck and back. The patient reported improved pain control in following days and tolerated spacing out IV Dilaudid back to q6h. The patient then reported wanting to go back on PO oxycodone instead of PO Dilaudid due to tolerance concerns. The patient responded well to prednisone, with serial LPs showing normalization of opening pressure and cell counts. On hospital day 39, patient demonstrated appropriate mental status and good pain control. He was subsequently discharged with PO Oxycodone 7.5mg- Acetaminophen 325mg q8h among other medications and instructed to follow up in clinic in one week.

C-IRIS refers to a set of inflammatory conditions that result in paradoxical worsening of cryptococcal infection weeks to months after initiation of HIV therapy. It can occur in over 10% of HIV patients and carries significant risk for mortality. In addition to prednisone therapy, patients often require extensive pain management due to exacerbation of meningitis symptoms. While patients may initially require high doses of IV opiates, discharge planning and PO pain medication transition should be planned from hospital day one. This challenging process often involves comprehensive patient education, sincere compromises, and shared decision making.

Learning Objectives:
Understand the delicateness of pain management in patients with C-IRIS.

ACUTE AND CHRONIC INFECTIOUS COMPLICATIONS FOLLOWING GUNSHOT INJURIES: A CASE COMPARISON

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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Gunshot wounds(GSW) can precipitate a variety of acute or chronic infectious complications across different organ systems, and can involve a wide range of organisms. However, current evidence and guidelines on this topic are lacking. Here, we present two young patients with drastically different clinical courses of post-GSW infections to highlight the need for further research in this overlooked intersection of trauma and infectious disease.

A 20-year-old African American(AA) man was admitted after GSWs to bilateral lower extremities resulted in open fractures of the right tibia and left fibula and retainment of bullet fragments. He reported crawling through a ditch shortly after getting shot. CT angiogram of the legs showed suspicion for vascular injury. He subsequently underwent orthopedic surgery for irrigation, debridement, and placement of an intramedullary nail. On hospital day three, purulence was noted at the wound site. Subsequent deep tissue cultures showed polymicrobial infection. Broad coverage antibiotics was initiated, with added levofloxacin to treat Stenotrophomonas. Subsequently, the patient made good recovery progress and was discharged on hospital day sixteen.

A 25-year-old AA man was admitted due to paraplegia secondary to GSWs to the right ankle and the thoracic spine. Imaging showed fractures of two thoracic vertebrae and left hemopneumothorax. The patient subsequently underwent thoracentesis, urinary catherization, and extensive physical rehabilitation. On hospital day twenty, he had no major complaints but was found to have a superficial sacral pressure wound and was discharged. The patient followed with wound care but returned to the ED one-year later. He was found to have a stage IV sacral ulcer with purulent drainage. CT pelvis also showed right ischial osteomyelitis due to coagulase-negative Staphylococcus. The patient was initially started on a regimen of IV vancomycin, cefepime, and metronidazole but developed C.Difficile-positive diarrhea. Oral vancomycin was started, and the patient was discharged to a long-term acute care facility.

Future research is needed to help refine risk stratification in patients with post-GSW infection. The establishment of new evidence-based guidelines in this area can help clinicians better prepare for the wide spectrum of acute or chronic complications that may arise in the post-GSW clinical course.

Learning Objectives:
Describe acute and chronic infectious sequelae of gunshot wounds

Proteoglycan Dysregulation in Chondrodysplasia Disorders: A Narrative Review

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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Background/Knowledge Gap: The extracellular matrix (ECM) is composed of proteoglycans and is the non-cellular, structural material surrounding and supporting cells. Perlecan, a heparan sulfate proteoglycan (HSPG) encoded by the HSPG2 gene, exists in the ECM of endothelium basement membranes and is critical in processes such as angiogenesis and cartilaginous and osseous development. Due to perlecan being a critical mediator of such development, we conducted a review of perlecan's role in chondrodysplasia disorders and potential for therapeutic targeting.

Methods/Design: PubMed Database was searched for relevant articles discussing perlecan and musculoskeletal pathology. Nineteen articles were relevant and included. Results are summarized in the format of a narrative review focusing on perlecan's impact in chondrodysplasia pathology noted in the literature, including: Dyssegmental Dysplasia Silverman-Handmaker type (DDSH) and Schwartz-Jampel Syndrome (SJS).

Results/Findings: DDSH is an embryonic lethal disorder that causes anisospondyly, micromelia, and encephalocele. Cellularly, it is characterized by a homozygous mutation in the HSPG2 gene that causes absent perlecan formation and subsequent unstable endochondral ossification. SJS, a chondrodysplasia disorder with a milder phenotype, was associated with a heterozygous mutation in the HSPG2 gene, causing reduced perlecan levels. This ultimately results in growth plate disorganization and cartilage degeneration, with symptoms of facial dimorphism, pigeon breast and myotonia that is compatible with life. While complete knockout HSPG2 gene animal models are embryonically lethal, inducible perlecan-knockout mice are able to produce phenotypes mimicking chondrodysplasia disorders DDSH and SJS.

Conclusions/Implications: Our findings indicate the perlecan is critical for musculoskeletal development and altered levels result in the pathogenesis of two notable chondrodysplasia disorders. Absent perlecan was associated with the embryonic lethal disorder of DDSH and diminished levels with the milder disorder of SJS. Thus, supplementation of its effect may be beneficial to these pathologies. As Perlecan binds to both the α-5 integrin and TGFβ receptors, targeting of this pathway could yield further therapeutic insight for patients living with SJS.

Learning Objectives:
Identify the rare chondrodysplasia disorder, Schwartz-Jampel Syndrome, and communicate the role of proteoglycan dysregulation in its pathophysiology.
Describe the translation of erroneous proteoglycan development in the fetus with specific pathophysiology and clinical symptoms, such as anisospondyly, facial dimorphism, and myotonia.
Identify α-5 integrin and TGFβ receptor pathways as a potential therapeutic target for those with Schwartz-Jampel-Syndrome.

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Session 13B - Medicine & Medical Specialties

There's more to ICU than COVID-19: Simulation based training for core trainees

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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Background: The COVID-19 pandemic saw many anaesthetic trainees, regardless of their level of training, being redeployed to assist in Intensive Care Units (ICU). This has skewed the first ICU exposure for the Core Trainees (CT1/CT2) who completed their ICU module requirements with limited exposure to the pre-pandemic regular mix of ICU cases.

Methods: To circumvent this issue, the Critical Care and Outreach Team in our hospital ran a day long ICU Simulation Course in our District General Hospital (DGH) utilising the high-fidelity mannequins in our Educational Simulation (SIM) Suite. Tailoring the scenarios to the most common cases seen in our DGH ICU, we targeted the difficulty level for core trainees, who formed teams of two for each scenario followed by a 'Bubble Debrief' session. A COVID-19 based scenario was an obvious choice, incorporating the recent change in management guidelines. A major, upper gastrointestinal haemorrhage scenario, targeted the knowledge of dealing with unstable physiology along with logistics of a "major haemorrhage" priority call and was well received. A head injury scenario, focussing on cerebral protection measures and preparation for transfer to a tertiary centre was followed by a scenario on cardiogenic shock ending with a discussion on appropriate choice of inotropic drugs along with cardiac output monitoring used in our unit.

Results: The anonymous feedback collected via Google forms underlined that the participants were equally appreciative of the clinical and non-clinical aspects of the scenarios such as team and resource management, leadership and communication. The trainees were also keen to repeat a similar course in the future, with the addition of different clinical scenarios alongside further lectures.

Conclusions: The effect of the pandemic on the core trainee ICU experience is something that has affected many hospitals, with trainees needing to be reintroduced to non-COVID-19 clinical scenarios commonly encountered on ICU. We feel that the simulation format used within this course was an effective and immersive way of achieving that goal. We aim to expand this course to other district general hospitals within the region and have been encouraged greatly by the learning outcomes and positive feedback.

Learning Objectives:
Identify common ICU scenarios that may be required to reintroduced to junior trainees who may have very little experience due to COVID and use simulation to demonstrate management and knowledge required for these scenarios.

Anchoring on Ketoacidosis in the presence of the Unforeseen Thyroid Storm

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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Both thyroid storm and DKA are critical sequelae of typically benign underlying conditions when there is medical compliance and appropriate follow-up with healthcare providers. However, these conditions often involve precipitating events that spark the onset of both a thyroid storm and DKA.

We report an obscure/unusual presentation of a thyroid storm in a 31-year-old African-American female with a past medical history of insulin-dependent diabetes who presented with abdominal pain, high fever, tachycardia, and elevated glucose. She had been experiencing nausea, vomiting, abdominal pain, fever, and chills in the 24 hours prior to presentation. Physical exam findings were positive for CVA tenderness on the right flank. In this patient, it is easy to isolate pyelonephritis as the precipitating condition that initiated the primary physiologic stress response. Presumably, her acute illness of pyelonephritis was the first event that ultimately led to her status of DKA. Compensatory mechanisms to DKA from a subsequent cascade of cortisol and catecholamine release, combined with the rapid underlying metabolic shift that occurred in this patient likely served as the inciting factors to send her into a thyroid storm.

The patient's thyroid storm was successfully treated with beta blockers, methimazole, propylthiouracil, hydrocortisone, and potassium iodide.

TSH and T4 levels should not be overlooked in patients presenting with diabetic ketoacidosis. Early suspicion of concomitant thyroid storm in the setting of DKA would lead to expedited treatment and improved survival.

Learning Objectives:
TSH and T4 levels should not be overlooked in patients presenting with diabetic ketoacidosis. Early suspicion of concomitant thyroid storm in the setting of DKA would lead to expedited treatment and improved survival.

Calcific Uremic Arteriolopathy After 22 Years on Hemodialysis Leading to a Fatal End

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: Calcific uremic arteriolopathy (CUA), also known as calciphylaxis, is a very rare but life-threatening condition mainly occurring in patients with end-stage renal disease (ESRD) on hemodialysis (HD). Skin lesions among patients with calciphylaxis result from reductions in the arteriolar blood flow. Reduced blood flow is caused by calcification, fibrosis, and thrombus formation primarily involving the dermo-hypodermic arterioles. Ulcerating skin lesions are suggestive of advanced severe disease. Treatment consists of intensive hemodialysis (>20 h per week), sodium thiosulfate, wound care including debridement, and limb amputation.

Case Presentation: We present a 72-year-old female with PMH of HTN, HFpEF, ACD, ESRD on HD for the past 22 years, bilateral lower extremity calciphylaxis on sodium bisulfate treatment post-dialysis for the past several months, who presented with excruciatingly painful malodorous black, leathery eschar-like weeping lesions on bilateral distal lower extremities.

Labs showed WBC 13.6, Hb 8.4, phosphorus 6.0, Creatinine 5.7, BUN 63, K 5.3, lactate 2.2
Bilateral LE X-rays revealed generalized soft tissue swelling with extensive vascular calcification.

Diagnosis: Patient was diagnosed with severe bilateral lower extremity calciphylaxis with bilateral lower extremity cellulitis, bilateral lower extremity deep venous thrombosis seen on US Doppler, mineral bone disorder with hyperphosphatemia and anemia of chronic kidney disease. TTE revealed EF 76%, severe TR, MR and AS.
Management: Unfortunately, patient could not be resumed on HD due to very low BP. Wound debridement and bilateral above the knee amputations were offered but patient chose palliative management. Sadly, patient passed away 6 days after admission.

Conclusion: Calciphylaxis is a fatal complication in ESRD patients on prolonged HD. CUA has high morbidity and an estimated six-month mortality of 50 percent. Features associated with worse prognosis include advanced disease, proximal ischemic and necrotic lesions in the skin and soft tissues, and presence of cardiovascular disease.

Learning Objectives:
1. Calcific uremic arteriolopathy (CUA), also known as calciphylaxis, is a very rare but life-threatening condition mainly occurring in patients with end-stage renal disease (ESRD) on hemodialysis (HD).
2. Skin lesions among patients with calciphylaxis result from reductions in the arteriolar blood flow.
3. Treatment consists of intensive hemodialysis (>20 h per week), sodium thiosulfate, wound care including debridement, and limb amputation.

EVALI, diagnosis of exclusion in the age of COVID

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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EVALI, previously known as VAPI (vaping associated pulmonary illness) is an e-cigarette or vaping use-associated lung injury. This phenomenon was first identified in 2019 and due to a significantly increased number of patients being diagnosed with severe lung illnesses related to e-cigarette and vaping products usage, the terminology has been changed to EVALI. Vitamin E acetate is linked to EVALI. Vitamin E acetate is harmless when ingested as a vitamin supplement or applied to the skin. However, when inhaled, it may interfere with normal lung functioning. Vitamin E acetate is used as an additive in THC-containing e-cigarettes and vaping products. As of February 18, 2020, a total of 2,807 hospitalized EVALI cases or deaths have been reported to CDC from all 50 states, the District of Columbia, and two U.S. territories (Puerto Rico and U.S. Virgin Islands). As of February 18, 2020, 68 deaths have been confirmed in 29 states and the District of Columbia. We report an unusual presentation of diffuse ground glass opacities throughout both lungs in a 56-year-old female with a past medical history of COPD, fibromyalgia, asthma, chronic pain syndrome, and tobacco abuse, who has recently switched to electronic cigarettes. In the initial presentation, the patient complained of an acute decline from baseline shortness of breath and reported associated chest pain, palpitations, weakness, and abdominal pain. Per EMS, the patient's oxygen saturation was 40% on room air and she was immediately placed on BiPAP. Blood gas analysis in the Emergency Department demonstrated pH of 7.348, pO2 of 22, pCO2 of 24, and HCO3 of 23. Due to the main complaint of shortness of breath and hypoxia, chest X ray, chest CTA, Covid test, and D-dimers were ordered. Based on the complaint of chest pain cardiac workup has been performed. Base on the clinical findings and test results, we excluded suspected diagnoses of PE, COPD exacerbation, pneumonia, and cardiac involvement. At that point the patient's diagnose was based on exclusion and we believed that the patient's lung injury has been associated with a vaping use. This case report illustrates that EVALI is still an anomalous disease. It also stresses the importance of patients' education regarding harmful effect of these widely accessible and advertised products.

Learning Objectives:
Stress the importance of patients' education regarding the harmful effects of these widely accessible and advertised products.
Discuss the difficulty of excluding COVID 19 as a differential diagnosis in today's day and age.

Extensive Venous Thromboembolism and Massive Pulmonary Embolism in a Middle-Aged Male with Polymyositis Flare Up

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: Autoimmune myopathies are rare inflammatory conditions that share a common feature of immune-mediated muscle injury. The estimated prevalence of polymyositis is 5 to 22 per 100,000 persons. Infection, malignancy, and cardiovascular accidents are the leading causes of death in patients with polymyositis. There is increased risk of venous thromboembolism (VTE) in these groups of patients.

Case: We present a 52-year-old Caucasian male, with history of polymyositis, who presented with progressively worsening muscle weakness and acute dyspnea. Patient had been treated with IVIG, methotrexate, and steroids. Upon admission patient's saturation was in the 80s. His motor strength was reduced at 1/5 in all four extremities. Labs showed WBC of 16.2, CPK 5471 confirming polymyositis flare up. D-Dimer 6.98; Troponin I 0.2. CT chest showed interstitial lung disease with subsegmental atelectasis. Doppler revealed acute long segment left lower extremity deep venous thrombosis from the common femoral through the posterior tibial vein. CTA confirmed bilateral pulmonary emboli. TTE revealed EF 55% with mildly decreased right ventricular systolic function. Patient was started on SoluMedrol 1g daily and therapeutic dose of heparin. Despite initial improvement in muscle weakness, the patient had sudden cardiac arrest
likely secondary to massive clot burden from pulmonary emboli and passed away.

Discussion: VTE risk is significantly elevated in patients with polymyositis that is oftentimes ignored. The mechanism is not well studied. The incidence of massive pulmonary embolism (PE) leading to death in these patients has not been well documented in literature and is an extremely rare event, but it should be considered as a possible cause of acute exacerbation of respiratory failure. This case provides valuable information regarding the high index of clinical suspicion that should be considered for the timely diagnosis and appropriate intervention to help reduce mortality and improve outcomes in such instances.

Learning Objectives:
1. VTE risk is significantly elevated in patients with polymyositis that is oftentimes, despite considerable evidence, ignored.
2. The incidence of massive pulmonary embolism (PE) leading to death in these patients has not been well documented in literature and is an extremely rare event, but it should be considered as a possible cause of acute exacerbation of respiratory failure.
3. No literature is available regarding the need for, or success rates of TPA or USG guided thrombolysis in this patient population.

A 6-Year Retrospective Study of Intraocular Len Exchange

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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BACKGROUND: Intraocular lens (IOL) exchange has been documented for reasons ranging from uveitis-glaucoma-hyphema (UGH) syndrome to IOL decentration.[1] However, recent studies have shown a shift in indications for an exchange.[2] Additionally, in available literature, there has been poor consensus on indications for and visual outcomes of intraocular lens exchanges.[2]

DESIGN: Patients at Bascom Palmer Eye Institute that underwent IOL exchange recorded from May 1, 2014 to August 31, 2020 were included. Demographic, clinical, and surgical data were collected, as well as information regarding the IOLs employed.

RESULTS: Intraocular lens exchange was identified in 513 eyes of 490 patients. The mean best corrected visual acuity (BCVA) in logarithm of the minimum angle of resolution (logMAR) prior to IOL exchange was 0.695 ± 0.685 (Snellen: 20/99). The most common precipitating reasons for exchange were IOL dislocation (n=285), subluxation (n=52), UGH (n=35), broken haptic (n=22), refraction error (n=20), corneal edema (n=18), floaters or halos (n=17), dysphotopsia (n=17), vitreous prolapse (n=14), haptic erosion (n=13), and trauma (n=12). The most common lenses used for IOL exchange were Alcon MA60AC (n=116), Alcon MTA3/4/5UO (n=113), Akreos AO60 (n=88), ABBOTT Tecnis PCB00 (n=37), Alcon MA50BM (n=37), and ABBOTT Tecnis ZA9003 (n=19). Postoperatively, the average 3 months and final examination BCVA in logMAR were calculated to be 0.513 ± 0.521 (Snellen: 20/65) and 0.521 ± 0.672 (Snellen: 20/66), respectively. The most frequent complications following IOL exchange were cystoid macular edema (n=38), corneal edema (n=34), elevated intraocular pressure (n=27), epiretinal membrane (n=22), vitreous hemorrhage (n=19), hyphema (n=12), and glaucoma (n=12). Fourteen (n=14) out of the 21 reoperations were indicated for secondary IOL exchange due to dislocation, subluxation, VH, UGH, corneal edema, and dysphotopsia. The remaining 7 reoperations were indicated for either hypotony, wound leak, corneal perforation, RD, elevated IOP, secondary glaucoma, or NVG.

CONCLUSION: The settings for which IOL exchange is necessitated depend upon evaluating the clinical history of the patient, assessing the extent of associated ocular pathology, minimizing future complications, and maximizing the visual prognosis.

Learning Objectives:
1. To describe the indications and outcomes following intraocular lens exchange
2. To understand the complications and reasons for repeat exchange following intraocular lens exchange

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Complicated Choledocholithiasis with Acute Cholangitis and Gallstone Pancreatitis with Lipase of 40,000

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: Gallstone disease is a leading gastrointestinal cause for hospitalizations. Complicated gallstone disease encompasses gallstone-related complications which include acute cholangitis, acute cholecystitis, acute pancreatitis, gallstone ileus and Mirizzi syndrome.

Case Presentation: We present a 82 year-old male with history of HTN, NAFLD, GERD, hypothyroidism, status post cholecystectomy who presented with BP 145/69, HR 74, T 99.5F, severe epigastric abdominal pain radiating to the back, 8/10 in intensity, profound jaundice, nausea, and vomiting. He was diagnosed, at another facility, with a 1 cm calculus in the common hepatic duct and 3 and 8 mm calculi in the distal common bile duct in tandem configuration 3 weeks ago and was referred for outpatient GI consultation for which he had bene waiting until this admission. At his previous admission labs showed: total bilirubin 8.7, AST 169, ALT 172, ALP 398, lipase normal. Labs on admission showed: WBC 11K, K 2.9, total bilirubin 15.20, AST 402, ALT 256, ALP 758, lipase > 40,000.

Final Diagnosis: Patient was diagnosed with obstructive jaundice secondary to complicated choledocholithiasis with acute cholangitis and acute biliary pancreatitis, was started on IVF and Zosyn, and he underwent ERCP.

Management: ERCP revealed multiple stones, with at least 3 of them very large, in the distal common bile duct as well as a dilated cystic duct. All 3 stones were successfully extracted. Given the size of the stones, sphincterotomy was performed. Post ERCP lipase down trended to 265; total bilirubin decreased to 6, AST and ALT decreased to 84 and 96 respectively, ALP decreased to 351. Patient was successfully discharged home.

Conclusion: This case report highlights the importance of early diagnosis and timely management of gallstone disease. Acute cholangitis and gallstone pancreatitis are two major complications that require prompt recognition and timely intervention to limit morbidity and prevent mortality or recurrence.

Learning Objectives:
1. Complicated gallstone disease encompasses gallstone-related complications which include acute cholangitis, acute cholecystits, acute pancreatitis, gallstone ileus and Mirizzi syndrome.
2. Acute cholangitis and gallstone pancreatitis are two major complications that require prompt recognition and timely intervention to limit morbidity and prevent mortality or recurrence.
3. ERCP is a single-step method for evaluating and treating obstruction caused by blockages and stones of the common bile duct stones.

An Autoimmune Concoction: The Difficult Diagnosis of a Cavitary Lung Lesion

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: Granulomatosis with polyangiitis (GPA) is a necrotizing vasculitis that affects the small-sized arterial vessels of the ear, nose, throat, airway with common lung, renal, and ophthalmic involvement. Hypereosinophilia is commonly seen in eosinophilic granulomatosis with polyangiitis and a rare finding in GPA. This patient had GPA with eosinophilia complicated by Aspergillosis.

Case Presentation: A 19-year-old female presented with cough and dyspnea for 2-3 days. Medical history included recent lacrimal gland surgery, tympanostomy, and a current 2-week treatment for right middle ear otitis media complicated by otorrhea, hemorrhage and ulceration. The patient had ear pain, diarrhea, fever, and fatigue. Exam was significant for heart rate of 114 bpm, and oxygen saturation of 95% on room air; tachycardia, diminished breath sounds, and injected conjunctivae were also noted. Labs revealed decreased hemoglobin of 9.2 gm/dL, elevated WBC of 14,200/mcl, and elevated platelets of 536,000/mcl. Eosinophil count was 1,400/mcl (10.5%); bandemia (7%) and giant platelets were noted. Rheumatoid factor was 52 iu/mL. Streptococcus pneumoniae urine antigen and human rhinovirus/enterovirus on respiratory viral panel were positive. Urinalysis (UA) showed 25-50 RBC per HPF and 5-10 WBC per HPF. Initial chest x-ray revealed a right parahilar infiltrate. CT showed pneumonia in the right upper lobe with central cavitation and associated multiple patchy areas of interstitial and ground-glass opacities in a peripheral distribution. Ceftriaxone and azithromycin were started. Day 3, the patient developed hemoptysis and epistaxis. Serology revealed antihistone antibodies of 1.0 units, IgE level of 351 KU/L, PR3-ANCA level of 287.5 AI, and a normal MPO-ANCA level <1.0 AI.

Final Working Diagnosis: Granulomatosis with Polyangiitis

Management/Outcome: The patient was started on steroids. Day 4, a repeat UA showed 155 RBC per HPF and 11 WBC per HFP. Day 7, the patient's hemoptysis resulted in intubation and transfer to ICU. Emergent bedside bronchoscopy was performed. Plasmapheresis was initiated with plans to begin rituximab. However, due to the patient's rapid decline, she was transferred to receive extracorporeal membrane oxygenation (ECMO). BAL revealed a positive Aspergillus antigen. Since transfer, the patient rapidly improved and was able to be extubated, removed from ECMO and finished her treatment for GPA.

Learning Objectives:

- Recognize the differential diagnosis of cavitary lung lesions
- Management of Granulomatosis with Polyangiitis

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Anticonvulsant Hypersensitivity Syndrome in a Patient with Phenytoin Toxicity

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: Phenytoin is a commonly used antiepileptic agent with significant adverse reactions ranging from horizontal nystagmus, altered mental status to ataxia and coma. Phenytoin follows zero order kinetics in higher doses, leading to variable half-life and drug toxicity. Very rarely it can cause Anticonvulsant Hypersensitivity Syndrome (AHS) which is a multi-organ drug reaction associated with aromatic anticonvulsants, characterized by fever, rash, lymphadenopathy, eosinophilia and internal organ involvement. It usually presents 1 to 8 weeks after exposure.

Case Presentation: The patient is a 53-year-old Caucasian woman who presented with altered mental status, slurred speech and generalized weakness. Her past medical history included seizure disorder and ischemic stroke. On examination she appeared disoriented and had horizontal nystagmus but no focal sensory or motor deficit. Patient was febrile with temperature of 100.2F and maculopapular reddish rash on upper back, chest and buttocks. CT head was normal and EEG did not show any epileptiform discharges. WBCs remained around 8000 and there was gradual rise in eosinophil count from 0.6% to 1.5%. AST was elevated at 65. Blood and urine cultures were negative. Blood phenytoin level was raised at 58mcg/ml.

Diagnosis: Patient was started on phenytoin 2 months ago, with recent modification of doses leading to inadvertent daily consumption of 900mg Phenytoin instead of 300mg. The characteristic symptoms of fever, rash, eosinophilia and internal organ involvement in form of liver injury with Naranjo adverse drug reaction score of 8 helped make the diagnosis of AHS in the setting of phenytoin toxicity.

Management: Phenytoin was stopped immediately and replaced with Levetiracetam. The patient was managed conservatively and received charcoal via nasogastric tube and methyl-prednisolone for 3 days. Serum phenytoin levels gradually decreased to 20 with improvement of encephalopathy and overall condition. She was discharged 2 weeks after admission.

Learning Objectives:
1. To discuss about AHS which is a very rare multi organ drug reaction with incidence ranging from 1 in 1000 to 1 in 10,000 exposures.
2. To identify antiepileptic drugs which are the common offending agents: phenytoin, phenobarbital and carbamazepine all of which are cyclical antiepileptics.
3. To discuss about the mechanism of AHS which is attributed to three components: deficiency of epoxide hydroxylase enzyme which detoxifies the metabolites of cyclical anticonvulsants; certain HLA antigen subtypes including HLA-A3101 and reactivation of herpes viruses. Given the high rate of HLA-A3101 worldwide, it is imperative to have a low index of suspicion for AHS in the right clinical context.

Pheochromocytoma: A Rare Etiology of Hypertension in the Pediatric Population

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: Pheochromocytoma (PCC) is a neuroendocrine tumor that arises from the adrenal medulla. Most are sporadic but they can also be found in the context of a hereditary syndrome. The symptoms are usually associated with the release of catecholamines such as epinephrine and norepinephrine. Catecholamine release can cause an array of symptoms such as hypertension, tachycardia, headaches, and diaphoresis. Pheochromocytomas are rare tumors in the general population more so in the pediatric population. These tumors are seen in 0.5-2% of pediatric cases.

Case Presentation: A 13-year-old male presented to the emergency department with hypertension. Finding of malignant hypertension prompted a full work up, of which included evaluation for pheochromocytoma. Due to clinical suspicion, plasma metanephrine levels and a magnetic resonance imaging (MRI) of the abdomen were obtained to evaluate for a possible pheochromocytoma. Results of the abdominal MRI revealed a 2.4cm T2-hyperintense right adrenal mass and laboratory results obtained showed metanephrine, plasma: 86.1 (0-88.0 pg/mL) and normetanephrine, plasma: 4169.1 (0-86.1 pg/mL). The above findings were consistent with and confirmed the diagnosis of pheochromocytoma. The patient was referred to pediatric endocrinology and surgery for a right adrenalectomy. In preparation for this surgery, alpha-blockade was established.

Management/Outcome: During anesthetic induction, the patient developed a hypertensive emergency, which prompted cancellation of his procedure at that time. The patient was later readmitted for medical optimization of his blood pressure prior to surgery. Once this was properly completed, he successfully underwent laparoscopic right adrenalectomy for his right adrenal pheochromocytoma. Final pathology report showed evidence of a succinate dehydrogenase B (SDHB) mutation, which is associated with a possible malignant potential. In addition, the Ki-67 labeling index, which describes the number of cells dividing, was found to be elevated at 6.4% if >6 is considered intermediate.

Learning Objectives:
1. Describe the work up and management of an uncommon finding of pheochromocytoma in a pediatric patient.
2. Discuss the operative management of a pediatric patient after resection of a pheochromocytoma.

Session 14B - Medicine & Medical Specialties

Multiple sclerosis relapse following Moderna SARS-CoV-2 PF vaccination: Case report and review of literature

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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Multiple sclerosis is a demyelinating disorder of the central nervous system characterized by lesions disseminated in time and space. The diagnostic criteria for laboratory-supported definite multiple sclerosis involves two episodes of symptoms, evidence of at least one white matter lesion on MRI and abnormal oligoclonal bands in cerebrospinal fluid. Patients usually present in their early twenties and on average have up to one flare up per year. While vaccines play an important role in the prevention of many diseases, they have often been purported as a potential trigger of multiple sclerosis and multiple sclerosis relapses. The medical literature provides reliable information concerning the risk of developing multiple sclerosis and multiple sclerosis relapses following administration of most vaccines, but not much is known about the novel Moderna SARS-CoV-2 PF vaccine.

We report the case of 24-year-old male who presented with right sided facial weakness, dizziness, and dysarthria two days after receiving his first dose of Moderna COVID-19 vaccine. Imaging studies noted both acute and chronic central nervous system lesions. He met the diagnostic criteria for laboratory-supported definite multiple sclerosis. His acute flare was treated with intravenous corticosteroids and the patient was subsequently started on Ocrelizumab.

This case is important as it reports the novel Moderna SARS-CoV-2 PF vaccine as a potential trigger of multiple sclerosis relapse; it reviews the literature for similar occurrences with the other COVID-19 vaccines and provides reliable guidance for COVID-19 vaccination for patients with multiple sclerosis.

Learning Objectives:
Discuss the safety and efficacy of COVID-19 vaccines for multiple sclerosis patients.
Perform a literature review on COVID-19 vaccination in multiple sclerosis patients.
Understanding the diagnostic criteria and treatment of multiple sclerosis.

Therapeutic Utilization of Cell Penetrating Peptides to Transport Mesenchymal Stem Cells to Target Tumors: A Systematic Review

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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Background/Purpose: Delivering therapeutic agents to tumors has proven itself as a challenge due to the lack of nontoxic and consistently reproducible transfection agents available. However, cell-penetrating-peptides (CPPs) have shown vast potential as delivery systems to transport drug therapies as well as molecules to induce genetic change within Mesenchymal-Stem-Cells (MSCs). This has raised the possibility of introducing anti-tumor agents into MSCs via CPPs and exercising the therapeutic and rehabilitative properties of MSCs, their potential to act as “nurse cells” to tumors, and their combined ability to function as immunomodulatory delivery systems.

Goals: To identify, evaluate, and summarize findings of assorted studies that have examined the utilization of CPPs and MSCs to function as a delivery system to tumor home and confer therapeutic properties at the site.

Methods/Design: A systematic review of literature (2005-2021) was conducted where eligibility criteria included authors published in peer-reviewed journals and in-vitro studies. A computerized search of databases (SciFinder, MEDLINE with Full Text) used keyword terms “nano-peptide (cell-penetrating-peptide)” AND “cell uptake using stem cell (hmsc)” AND “tumor.” Exclusion criteria included articles published prior to 2005, not written in English, and only containing abstracts.

Results/Findings: The data collected shows that CPPs have had considerable success in penetrating cells via various cellular uptake mechanisms. Furthermore, studies have shown that MSCs have inherent tumor homing capabilities as well as anti-tumor properties. Studies have shown that CPPs can effectively enhance the cellular uptake of specific genes and proteins into MSCs and induce anti-tumor changes within MSCs.

Conclusion/Implications: CPPs are promising class of delivery vectors due to their high transduction efficiency and capacity to transfect a variety of agents into cells. Their ability to direct certain molecules into MSCs to induce specific anti-tumor cell differentiation holds strong clinical capabilities. There is promising medicinal potential to be explored in utilizing CPP-MSC mediated delivery of antineoplastic agents that combine the cellular uptake enhancement properties of CPPs and the tumor homing and anti-tumor properties of MSCs.

Learning Objectives:
1) Understand the ability of cell-penetrating-peptides to be ideal cargo carriers.
2) Explore the capabilities of MSC to home to tumor targets and express immunomodulatory properties.
3) Investigate the potential of CPPs and MSCs to be efficacious anticancer delivery systems.

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A Rare Case of Congenital Lymphatic Malformation in an Infant

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: Lymphatic malformations are rare congenital tumors that consist of abnormal lymphatic channels. Lymphatic malformations include a wide spectrum of disorders that can occur on any part of the body, most often the head and neck. These nonmalignant fluid filled spaces are thought to be due to aberrant development of the lymphatic system. Here we will explore a rare case of congenital lymphatic malformation that demonstrates possible connection with deeper lymphatic structures in an 11 month old female.

Presentation: An 11 month old female presents to the clinic for evaluation of a skin lesion on her left upper arm. According to the parents, they state that the mass waxes and wanes in size, notably becoming smaller in the past few months. The parents state that the lesion is asymptomatic and that the child isn't in any obvious discomfort.
Physical examination reveals a spongy patch on the distal portion of her right upper volar arm midway between the elbow and shoulder that measures approximately 6.5 cm * 3 cm. The skin overlying the lesion has become pink and thinned. There is also a smaller, more proximal pink macule measuring 1 cm * 1 cm. Punch biopsy is subsequently performed on the patch.
Histopathology results show large dilated spaces lined by plump endothelial cells, recognizable as lymphatic vessels, that are seen in the dermis. Expansion of the dermis and some slight papillomatosis is also noted above the numerous ectatic lymphatic vessels.

Diagnosis: A diagnosis of congenital lymphatic malformation is made based on clinical presentation and histopathology results. Of particular interest, the changes noted are distinct from a typical lymphangioma and more likely represents a true malformation that could possibly connect with deeper lymphatic structures. Typical lymphangiomas generally show no evidence of communication with the regular lymphatic channels.

Management: The patient’s family was instructed on the typical clinical course associated with lymphatic malformations including the potential for lymphangioma circumscriptum. Potential treatment options include conservative management with watchful waiting, compression therapy, sclerotherapy, and surgery which would entail an excisional biopsy/debulking. The family agrees to pursue the recommended course of conservative treatment with watchful waiting.

Learning Objectives:
Demonstrate an understanding of the clinical course of lymphatic malformations
Describe the clinical presentation and histopathological findings associated with lympathic malformations

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Unusual presentation of amyloidosis as pelvic pseudo-tumor: A case report

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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Multiple myeloma is caused by abnormal proliferation of plasma cells in the bone marrow. Most patients tend to present with hypercalcemia, renal failure, anemia and bone pain. Multiple myeloma has been associated with AL amyloidosis in rare cases. AL amyloidosis is the most common type of systemic amyloidosis which is often associated with plasma cell disorder. It usually affects the kidney and heart. Patients with AL amyloidosis could however present with vague symptoms which makes it challenging to quickly diagnose the disease.

We therefore report a case of a 59-year-old female without any significant past medical history who presented to the ED with complaints of back pain, abdominal pain, lower extremity weakness, nausea and vomiting. Labs revealed low hemoglobin, elevated protein and high creatinine. In addition, serology markers of myocardial injury were significant for elevated troponin and BNP. CT chest, abdomen and pelvis without contrast showed soft tissue mass involving the sacrum along with multiple lytic lesions involving the thoracic and lumbar spine. Biopsy result for the mass was consistent with amyloidosis without any evidence of malignant cells. Bone marrow biopsy with flow cytometry revealed 90% plasma cells. Peripheral blood smear showed rouleaux formation. SPEB was significant for M-spike.

The patient was diagnosed with multiple myeloma secondary to amyloidosis. She was started on high pulse dexamethasone, cyclophosphamide and bortezomib.

Our case further reinforces the need for early work-up for AL amyloidosis in patients who present with unexplained proteinuria, neuropathy, cardiomyopathy and multiple myeloma-like symptoms.

Key words: Multiple myeloma, amyloidosis, SPEB, M-spike, Rouleaux

Learning Objectives:
Identify the need to rule out systemic amyloidosis in patient presenting with multiple myeloma-like symptoms.

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Watermelon Stomach-Rare Cause of Chronic Anemia

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: Gastric antral vascular ectasia (GAVE), a.k.a. watermelon stomach is a rare but extremely important cause of chronic gastrointestinal bleeding, which if suspected can often be easily diagnosed and endoscopically managed in most cases. GAVE is often associated with liver cirrhosis, autoimmune connective tissue disorders, achlorhydria, bone marrow transplantation and chronic renal failure. The pathophysiological changes leading to GAVE remain controversial. Patient presentation varies from chronic iron-deficiency anemia to heavy acute gastrointestinal bleeding. Diagnosis is made by the characteristic endoscopic appearance of visible linear watermelon-like vascular stripes in the antrum. Several treatment options including pharmacological therapy with estrogen and/or progesterone, surgical antrectomy, laser endoscopic photocoagulation, bipolar electrocautery are available with various degrees of success. We present a case that we successfully diagnosed and treated with argon plasma coagulation.

Case: A 66 year-old Caucasian female with a has history of liver cirrhosis secondary to nonalcoholic fatty liver disease, and frequent hospitalizations for iron deficiency anemia requiring multiple transfusions, presented with nausea and generalized weakness. Noted to have heme-positive stool, hemoglobin 8, hematocrit 24, INR 1.5, WBC 6K, platelets 40K, Na 125, Albumin 2.1, BUN 66, creatinine of 3.5, total bilirubin 11.90 with MELD-Na score 35.

Diagnosis and Treatment: We performed an EGD that showed moderate portal hypertensive gastropathy in the gastric body and actively bleeding gastric antral vascular ectasias which were successfully treated with argon plasma coagulation (APC). Patient was afterwards referred to a higher-level of care facility for liver transplantation evaluation.

Discussion: GAVE, although a rare disorder, causes up to 4% of non-variceal upper GI bleeding. This case shows the crucial importance of having GAVE as a differential diagnosis in patients with chronic anemia

as it is easily treatable. It is also important to differentiate GAVE from portal hypertensive gastropathy as GAVE does not respond to measures reducing portal pressures.

Learning Objectives:
-Gastric Antral Vascular Ectasia (GAVE) is a rare cause of chronic GI bleeding which is diagnosed by EGD
-GAVE is associated with Liver cirrhosis, Autoimmune connective tissue disorder, Achlorydia, Bone marrow transplantation, Chronic renal failure
-It is a rare and treatable condition with APC with good results

Cutaneous Leishmaniasis Simultaneously Presenting in a Husband and Wife

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: Leishmaniasis is a parasitic disease that presents mainly in three forms: cutaneous, visceral, and mucocutaneous. It is classified as a neglected tropical disease by the CDC. Cases in the United States are markedly rare, with a huge majority of cases occur in South and Central America, the Middle East, and Central Asia. Here we present a rare case of cutaneous leishmaniasis simultaneously presenting in similar sites in a husband and wife.

Case Presentation: A 51 year old female presents to a North Texas dermatology clinic for evaluation and management of a skin lesion located on her left hand. Her husband, a 58 year old male, presents with a similar lesion located on his left hand. The lesion has been present for months and has not regressed. The lesion is irregular, not healing, painful, erythematous, and mild in severity.

The patient states that the onset of the lesion was a couple of months ago when her husband and her were working in their detached garage on their farm. The lesions first started out as a small papule which were described as resembling ant bites. With time, the lesions worsened to open wounds. Nearly three months after the initial insult, the wounds have progressed to a deep ulcer.

On physical examination, a 1.1 cm single irregular pearly pigmented papule that is erythematous and hyperkeratotic is located on the left dorsal wrist. Differential diagnosis includes neoplasm of uncertain behavior and keratoacanthoma. Inspection of other parts of the body do not yield any other notable findings. Shave biopsy is subsequently performed on the lesion. Under microscopy, there is a dense, diffuse inflammatory infiltrate of plasma cells and histiocytes visible in the dermis with clear staining cytoplasm within which are small ovoid organisms recognizable as leishmania.

Diagnosis: The cases are reported to the Centers for Disease Control and Prevention and molecular and immunohistochemical testing is performed. Leishmania PCR and DNA Sequencing reveal Leishmania mexicana as the species responsible and a diagnosis of cutaneous leishmaniasis is made.

Management: Treatment is not initiated at this time as most cases of cutaneous leishmaniasis are self resolving and both patients show improvement on follow up.

Learning Objectives:
Describe the classic evolution of a lesion caused by cutaneous leishmanias
Describe the classic histopathological findings seen in cutaneous leishmaniasis

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Guillain-Barré Syndrome Presenting with Acute Motor Axonal Neuropathy Following an HSV-2 Exacerbation: a Case Report

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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Introduction: Guillain-Barré syndrome (GBS), an acute and rare autoimmune disorder, causes ascending paralysis and polyneuropathy. GBS has been a relatively enigmatic condition that has taken clinicians and researchers decades to categorize and define the diagnosis, subtypes, and treatment. The first cases were French soldiers in 1916 and were reported by Guillain, Barré, and Strohl, who were physicians in World War I. In the 1980's the acute axonal subtype (later named acute motor axonal neuropathy (AMAN)) was first reported, and immunoglobulin therapy and plasmapheresis became the accepted treatments. Certain infections have been associated with triggering Guillain-Barré syndrome, but further case-studies and research should continue to elucidate the extent of viruses and pathogens that can precipitate GBS.

Case presentation: This case-study is in relation to a patient Jane Doe who experienced perplexing neuropathic symptoms. She had sudden soreness bilaterally in her lower extremities that ascended to her upper bilateral extremities in the following week. She had no previous bacterial or viral upper respiratory infection but had an exacerbation of HPV-1 that began one month prior to the onset of her polyneuropathic symptoms. She was admitted to Houston Methodist Emergency Care for muscle weakness, but her atypical symptoms delayed her diagnosis until later appointments with her PCP and neurology at UT Physicians. Within this article the timeline of her symptoms, treatment, and recovery will be discussed, along with the key features of her symptoms, physical exam, lab and imaging results, and nerve conduction studies that led clinicians to the proper diagnosis.

Final Diagnosis: Despite the seemingly enigmatic onset of the patient's ascending motor neuropathy, her final diagnosis was AMAN/GBS. AMAN/GBS can affect patients within a wide range of severity and through various potential triggers. Consequently, an extensive differential and studies were necessary

for proper diagnosis. Finally, her case allows us to consider if there is a correlation between HPV-1 exacerbation and the onset of Guillain-Barré syndrome.

Management: The patient received IVIg treatments during her four days at Hermann hospital. Her post-treatment rehabilitation resulted in full recovery and consisted of approximately eight months of weekly PT/OT, which is within the normal range

Learning Objectives:
1. Consider a correlation between HPV-1 and Guillain-Barre syndrome.
2. Identify the presentation of the Acute Motor Axonal Neuropathy (AMAN) subtype of Guillain Barre syndrome.
3. Treat the AMAN subtype of Guillain Barre syndrome.

References and Resources:
Affiliations: UT Physicians Primary Care at Smith Tower, UT Physicians Neurology
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