

Medical Student Poster #1

Category: Clinical Vignette

School: All Saints University School of Medicine

Clerkship Director: Remilekun O. Soile, MD

Presenter: Sarah Merten

Additional Authors: Remilekun O. Soile, MD

Hereditary Hemochromatosis: A Common, but Often Silent Troublemaker

Hereditary Hemochromatosis (HH) is a common autosomal recessive disorder of iron regulation leading to enhanced iron absorption and progressive iron deposition in parenchymal organs, especially in the liver. Genetic tests pioneered in the 1990s provide effective, inexpensive means of screening for and confirming HH diagnosis in asymptomatic carriers of the HFE gene mutations. Despite being the most common genetic disorder among Caucasians in the U.S., HH often goes undetected by healthcare providers.

A 65-year-old Caucasian male presents for annual PE complaining of upper thoracic back pain for the last month. Subsequent MRI showed wedging shape vertebrae and kyphosis (Scheuermann's disease). The patient was prescribed physical therapy and meloxicam. Additionally, routine screening labs were drawn, showing elevated LFTs (ALT= 548 U/L; AST= 232 U/L). CBC, CMP, HbA1c, and thyroid function tests were within normal limits. Subsequent screening panels for: alpha-1 antitrypsin deficiency, alpha fetoprotein, and acute hepatitis were negative. Iron studies showed elevated ferritin (2233 ng/mL), TIBC (290 mcg/dL), and transferrin saturation (44%). Patient denied SOB, chest pain, fatigue, and change in bowel habits, and showed no signs of jaundice. Patient denied use of alcohol and prescription medications, but admitted taking daily OTC vitamins. Genetic testing was heterozygous positive for both the Cys282Tyr and His63Asp mutations, a genotype associated with an increased risk for the development of HH. Patient instructed to discontinue all OTC supplements. Repeat LFTs at 2 weeks (ALT= 138 U/L; AST= 56 U/L) and 1 month (ALT= 42 U/L; AST= 31 U/L) were performed, and the patient was referred for therapeutic phlebotomy.

Medical Student Poster #2

Category: Clinical Vignette

School: American University of Integrative Sciences School of Medicine

Clerkship Director: Renu Agnihotri, MD

Presenter: Ayman Salem

Additional Authors: Dana Kabbani, Sanjay Revankar

A Rare Case of Rhabdomyolysis Induced Acute Kidney Injury in a HIV-Infected Patient on Two Antiretrovirals

Rhabdomyolysis-induced acute kidney injury in a HIV-infected patient on two different antiretroviral regimens has been reported only once in the literature. In general, rhabdomyolysis has rarely been described in patients on antiretroviral therapy. Moderate elevations in CPK have been noted in patients taking tenofovir. We present the case of a 62-year-old man diagnosed with HIV who developed severe rhabdomyolysis induced acute kidney injury in the setting of taking biktary and vemlidy, both which contain tenofovir. Patient had recently been switched from vemlidy to bikatry, however, he continued to take both medications, and subsequently presented to the hospital with muscle pains, weakness, and confusion. Patient was started on aggressive fluid hydration, and AKI and rhabdomyolysis resolved. On discharge, patient was counseled to discontinue both medications. On one week follow-up, patient was advised to resume Biktary, and he tolerated medication well with no adverse effects. This case highlights the importance of medication reconciliation in the treatment of HIV-positive patients because of their complexity, associated comorbidities, and the potential of drug-drug interactions.

Medical Student Poster #3

Category: Clinical Vignette

School: American University of the Caribbean, School of Medicine

Clerkship Director: Michael Rosen, MD

Presenter: Jack Avedikian

Additional Authors: Alec Raniwsky MS4, Elise Landa MD, Kristopher Arndt MD, Ala Shuker MD

I Scream, You Scream, We All Scream for Ice Cream...Induced Angioedema

Introduction: Angioedema is a common airway emergency occurring in 15-25% of individuals. The pathophysiology, origin and management of several types of angioedema continue to be poorly understood. An uncommon causes of angioedema is cold urticaria. The following is a case of cold urticaria without wheals.

Case: 38-year-old Caucasian female with PMH of anaphylaxis and intubation secondary to bee sting who presented with dyspnea and chest pain worsening over 10 minutes since ingesting ice cream. Exam noted significant uvular and posterior pharyngeal edema leading to administration of epinephrine, Benadryl, Pepcid, stress dose steroids and emergent intubation. She was successfully extubated after 24 hours. Five hours after extubation she was given dinner and sorbet for dessert. Five minutes after ingestion of the sorbet she experienced chest pain and dyspnea and was subsequently intubated a second time. Lab workup showed normal ANA, negative dsDNA, low C4 but normal functioning C1 esterase. With history of anaphylaxis and the commonality between the episodes being ingestion of cold foods, it was concluded that it was a case of cold urticaria angioedema. With resolution of the symptoms she was discharged with instructions to avoid excessively cold food items and with referral to an allergist for extensive allergy workup.

Discussion: Idiopathic angioedema is usually accompanied by urticaria, but it can occur without hives. The mainstay treatment with or without hives is avoidance of triggers. The importance of a good history is reinforced with this case because without finding the trigger the patient would be at high risk for mortality.

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Medical Student Poster #4

Category: Clinical Vignette

School: American University of the Caribbean, School of Medicine

Clerkship Director: Michael Rosen, MD

Presenter: Alec Raniwsky

Additional Authors: Jack Avedikian MS4, Elise Landa MD, Kristopher Arndt MD, Ala Shuker MD

A Quacky Case: Pet Duck Associated Salmonellosis

Introduction: Salmonella species are a common cause of gastroenteritis. Though usually presenting as a food-borne illness, close contact with birds and improper hygiene can increase the risk for infection. With the surge in domesticating birds, more cases of gastroenteritis caused by pets are being seen.

Case: A 48-year-old caucasian female presented with nausea, abdominal cramping, vomiting, and diarrhea. She denied sick contacts, antibiotic use, travel, or consumption of raw or undercooked food. Vitals were stable on admission, however she reported fevers of 102.9F. CT abdomen/pelvis w/ contrast showed colonic wall thickening present in portions of the ascending colon and cecum, pronounced in the splenic flexure, descending colon and rectosigmoid. Stool cultures were positive for Salmonella Typhimurium. During the patient interview it was found that she had a duckling living in a container in her kitchen. The previous day she had cleaned the container and neglected to thoroughly clean her hands before preparing and eating a meal. The contact with the duckling being the likely cause of colitis. She was diagnosed with infective gastroenteritis and colitis, and treated with IV Fluids, Ciprofloxacin and Metronidazole for total 10 day antibiotic course.

Conclusion: Salmonella Typhimurium is usually spread by the fecal-oral route. An estimated 94% is transmitted via food and water. However, direct animal contact, especially with birds and reptiles, is an important transmissive route. Salmonellosis should be a suspicion with close contact to duck habitats and patients should be educated on the emphasis of hand hygiene when dealing with such environments.

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Medical Student Poster #5

Category: Clinical Vignette

School: American University of the Caribbean, School of Medicine

Clerkship Director: Iriana Hammel, MD

Presenter: Martin Richard

Additional Authors: Omar Saeed, Dr. Iriana Hammel

Keeping Up the PACE

Elderly nursing-home eligible patients suffering from multiple co-morbidities and social challenges would like nothing better than to remain in their homes and communities for long as possible. Their families are often supportive, but there comes a time when activities of daily living challenges, complex medication regimens and multiple appointments with specialists become too much for the family to keep up with and nursing home placement becomes inevitable.

PACE (Program of All-inclusive Care for the Elderly) organizations provide care to more than 40,000 people, with an average age of 77, through 233 centers in the United States. PACE organizations employ physicians, nurses, physical and occupational therapists, dietitians, home care coordinators, nursing aides, drivers, social workers, as well as contract with a network of specialists.

Our patient was an 80-year-old man with multiple co-morbidities, including end-stage renal disease and end-stage liver disease, who enrolled in the PACE program, where he remained for over 2 years, before transitioning to Hospice. Since he was able to avoid nursing home placement, all the while receiving excellent medical care, his quality of life was greatly improved and the cost to society reduced significantly, to roughly half the potential cost incurred in the event of institutionalization.

We would like to raise awareness among primary care physicians about PACE being an important resource for their patients, as a nursing home diversion program, by promoting independence, socialization through the adult daycare centers that are part of PACE and excellent medical care.

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Medical Student Poster #6

Category:

School: Central Michigan University School of Medicine

Clerkship Director:

Presenter:

Additional Authors:

Abstract Removed

Medical Student Poster #7

Category: Clinical Vignette

School: Central Michigan University School of Medicine

Clerkship Director: Nicholas Haddad, MD, FACP

Presenter: Cody Ciaramitaro

Additional Authors: Shyam Moudgil, MD

Numb Chin Syndrome in Sickle Cell Crisis

Numb Chin Syndrome (NCS), also known as mental nerve neuropathy, is characterized by chin and lower lip numbness in the distribution of the mental nerve. Although a seemingly benign condition, NCS oftentimes accompanies serious illnesses like malignancy or systemic conditions. The association between NCS and acute sickle cell crisis has been underexplored in the literature thus far, and the goal of this clinical case report is to build upon the growing information regarding this association. We present a 42-year-old African American female with past medical history significant for sickle cell disease who presented to the emergency department with severe diffuse pain. Based on the previous sickle cell diagnosis and recurrent ED visits with similar presentations, a diagnosis of acute sickle cell crisis was made. Immediate intervention did not improve the patient's condition as development of acute chest syndrome occurred, leading to admission to the MICU. The patient spent two days in the MICU and was treated with exchange transfusion. At the time of admission, the patient also complained of lower lip and chin numbness with predominance on the left side of the face. Two CT scans were performed, one of the head/brain and one of the maxillofacial region, with neither demonstrating evidence of acute bleed or mass. Upon resolution of the acute chest syndrome and discharge from the hospital, the lower lip numbness resolved as well. The observations made in this case help to strengthen the association of sickle cell disease and NCS, preventing excessive work-up in possible future cases.

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Medical Student Poster #8

Category:

School: Central Michigan University School of Medicine

Clerkship Director:

Presenter:

Additional Authors:

Abstract Removed

Medical Student Poster #9

Category: Clinical Vignette

School: Central Michigan University School of Medicine

Clerkship Director: Nicholas Haddad, MD, FACP

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Correction of Severe Hyponatremia in a Patient with Diabetes Insipidus

Case Presentation: 48 year-old female with a history of pan-hypopituitarism and central diabetes insipidus presented to the emergency department with altered mental status following a seizure. Upon arrival she was hemodynamically stable but lethargic. Initial laboratory data revealed a serum sodium concentration of 194 mEq/L. In the medical ICU, she received free water flushed via nasogastric tube and DDAVP with a goal of a serum sodium reduction of 8-10 mEq/L/day. Over the following four days, the patient's serum sodium concentration decreased and her mental status returned to baseline. Due to her underlying conditions, the endocrinology and nephrology services were consulted and assisted in both inpatient management and in optimizing the patient's home medications to prevent recurrence. She was discharged home on hospital day 10 without any neurologic sequelae.

Discussion: The correction of chronic hyponatremia, defined as a serum sodium concentration of more than 145 mmol/L developing over two or more days, requires great care in order to avoid significant neurologic complications. In the setting of increased serum osmolality, there is an osmotic shift from the intracellular space to the hypertonic plasma. To restore the osmotic balance between the intra- and extracellular environments, solutes accumulate in neurons over the period of several days. If chronic hyponatremia is corrected too rapidly, the presence of these compounds can lead to the development of cerebral edema. This case highlights the challenges associated with treating patients with chronic hyponatremia, and the benefit of a multidisciplinary team approach.

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Medical Student Poster #10

Category:

School: Central Michigan University School of Medicine

Clerkship Director:

Presenter:

Additional Authors:

Abstract Removed

Medical Student Poster #11

Category: Quality Improvement

School: Central Michigan University School of Medicine

Clerkship Director: Nicholas Haddad, MD, FACP

Presenter: John Sorge

Additional Authors: John Sorge, Zachary Levine, Susan Szpunar, Leonard B. Johnson

Wide Variation in the Use of External Cooling Blankets Among Intensive Care Unit Nurses for Fever

Introduction

There are limited data and no guidelines on the use of cooling blankets (ECBs) in the treatment of fever that is not related to malignant hyperthermia (MH). Thus, there may be a wide variation in nursing practice related to their use.

Methods

We performed a cross-sectional survey of adult ICU nurses at our hospital, using SurveyMonkey™, to evaluate nursing practices related to the use of ECBs in febrile patients other than MH. Data collected from the survey included years of experience as an ICU nurse, type of ICU, when ECBs are used and temperature of initiation and discontinuation.

Results

We invited 150 nurses to participate in the survey, 61 responded (40.7%). The mean number of years worked in an ICU was 8.6 ± 9.4 years (range: 1-34), 23% worked in a cardiovascular ICU (CVICU), 36% worked in a medical ICU (MICU), and 41% in a surgical ICU (SICU). A total of 95.1% of nurses reported using ECBs for fever, with 82% of nurses using ECBs only when other methods failed. MICU nurses (31.8%) were more likely to report using ECBs prior to failed attempt of other anti-pyrexia methods than SICU (16%) and CVICU (0.0%) nurses. There was no association between initiation and termination of ECB use by ICU type, years of nursing experience or a given range of temperature values.

Conclusion

There was a wide variation of practice among ICU nurses. Medical ICU nurses tended to use ECBs before failure of other methods compared to other ICU nurses.

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Medical Student Poster #12

Category: Research

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Elizabeth Bruce

Additional Authors: Helga Toriello

Decision Aid Use in Weighing Long-Term Treatment Options for Type 1 Diabetes

Patient decision aids (PtDAs) are print- or web-based tools that guide patients in identifying a decision to be made, understanding treatment options, and weighing the benefits and costs of these treatment options while considering personal goals and values. PtDAs reduce patients' decisional conflict and promote realistic expectations for the outcome of a specific treatment compared to standard patient counseling practices. Two recent reviews have summarized the use and effectiveness of PtDAs in the care of patients with type 2 diabetes. An interest in use of PtDAs has been observed among youth with type 1 diabetes, their caregivers, and providers, but no review currently exists of PtDA use in the care of patients with type 1 diabetes. The goal of this scoping review is to provide an overview of PtDA use in shared decision making (SDM) regarding long-term treatment options for patients with type 1 diabetes. Cochrane Library, Embase, and PubMed were searched for publications detailing the study of PtDA use in SDM. Three studies have examined PtDA use in type 1 diabetes SDM. Studies of PtDA use in type 1 diabetes SDM have found that PtDA use decreases decisional conflict, increases patient knowledge, and is viewed as feasible and acceptable by caregivers. The study of PtDA use in SDM regarding long-term treatment options in type 1 diabetes is an emerging field of research. Potential next steps include exploring the design, efficacy, and feasibility of PtDAs that engage patients with type 1 diabetes and their caregivers in SDM.

ACP Michigan Chapter Scientific Meeting 2019

Medical Student Poster #13

Category: Research

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Alyssa Cook

Additional Authors: Zachary Beavers, Jessica Montgomery, Usha Pasupuleti, Safiya Syed, Sophia Tessema, Robert Welch, MD

Pure Marijuana versus Pure Michigan: Pregnancy Outcomes in Exclusive Marijuana Users

Introduction: Michigan is the 10th state to legalize recreational marijuana, and Genesee County utilization is among the highest (13.63%), placing Hurley Medical Center (HMC) at the epicenter. Prior studies are confounded by mixed substance use. The purpose of this study was to identify women who only used marijuana ("Pure Marijuana") and compare their pregnancy outcomes to those using no substances ("Pure Michigan").

Methods: Pregnancy and newborn data from deliveries at HMC from 2012-2018 were collected through its Epic m EMR. Inclusion criteria included two subsets of pregnancies: those with only marijuana use at any time during gestation and those with no substance use throughout. Patients using other substances with marijuana were excluded. Perinatal outcomes included prenatal, intrapartum and postpartum variables and newborn birth outcomes. Simple and multivariate statistics ($\alpha=0.05$) were utilized to analyze the data.

Results: The database consisted of 19,646 deliveries including 13,401 substance-free women and 2,718 pure marijuana users. Average birth weight was 3601g for substance-free versus 2895g for marijuana users ($p<0.015$). Apgar scores at 1 and 5 minutes for substance-free averaged 8.16 and 8.78 compared to 7.99 and 8.64 for marijuana users ($p<0.001$). NICU admission occurred in 21.8% of substance-free pregnancies compared to 28.1% of marijuana users ($p<0.001$). Newborn length-of-stay for substance-free pregnancies averaged 4.52 days and marijuana users averaged 5.8 days ($p<0.001$).

Conclusion: Maternal marijuana use appears to compromise newborn health outcomes.

Medical Student Poster #14

Category: Research

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Malek Ghandour

Additional Authors: Sukhesh Sudan, Bengt Arnetz

The Role of Pro-Inflammatory Cytokines in War-Associated Anxiety, Depression, and Post-Traumatic Stress Disorders

Introduction: Refugees are at increased risk of trauma-related disorders, including anxiety, depression and post-traumatic stress disorder (PTSD). Few studies have investigated the association between inflammatory biomarkers and pre- and post-migratory trauma. We hypothesized a positive relationship between mental health disorders, war-trauma exposure, somatic symptoms and inflammatory biomarkers, and additionally a negative association between vitality and the above variables.

Methods: The study was conducted in 64 newly arrived refugees in Michigan. One month after entering the U.S., refugees were interviewed using a semi-structured interview in Arabic assessing anxiety, depression, PTSD, vitality, and pre/post-migration trauma. The Patient Health Questionnaire-15 (PHQ-15) assessed somatic symptoms. Participants' inflammatory biomarkers, Interleukin (IL) 1-beta, IL-6, C-Reactive protein and Tumor-Necrosis-Factor-alpha were measured from the blood samples drawn after the survey completion. Bivariate correlations assessed the relationships between inflammatory biomarkers, trauma, mental health disorders and PHQ.

Results: IL-1beta was positively associated with post-migration trauma ($r = 0.28$; $p < 0.05$). Pre-migration trauma was positively associated with mental health disorders and PHQ-15. PHQ-15 was positively associated with all mental health disorders. Vitality was negatively associated with all mental health disorders and PHQ-15.

Conclusion: The study findings suggest that vitality, mental health disorders, and somatic symptoms are impacted by war-trauma exposure. In addition, IL-1beta may play a role in the mental health symptoms experienced by refugees after post-migration trauma. Future studies should investigate the biological mechanisms of mental health symptoms in refugees.

Acknowledgement: This study was partially supported by grant number R01MH085793 from the National Institute of Mental Health.

Medical Student Poster #15

Category: Clinical Vignette

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Christina Heyboer

Additional Authors: Shahid Mohammed

A Patient with Diffuse Alveolar Hemorrhage & The Diagnostic Dilemma

Background: The differential diagnosis of diffuse alveolar hemorrhage usually includes autoimmune diseases and occasionally malignancy. Here we present a patient with shortness of breath and pulmonary infiltrates who is found to have diffuse alveolar hemorrhage. The definitive diagnosis was obscure until the last days of his life.

Case Presentation: This is a 73-year old man presented with progressive shortness of breath and fatigue. Chest x-ray shows pulmonary infiltrates and a bronchoscopy revealed alveolar hemorrhage. The CT scan of the chest had no concern for malignancy and no lesions for biopsy. He underwent extensive workup with negative immunologic, rheumatologic, infectious and hematologic testing. Differential diagnosis included CHF, Pneumonia, Pulmonary Vasculitis, Goodpasture's Syndrome and Malignancy. He had slight improvement with steroids and PLEX treatment. He developed hemothorax and had persistent bloody output from bilateral chest tubes. Cytology from lung by EBUS did not reveal malignancy or vasculitis. Patient was deemed high risk for open lung biopsy. It wasn't until weeks into hospitalization HRCT showed multifocal bilateral opacities and new bilateral pulmonary nodules, which were biopsied by transthoracic needle biopsy, revealing angiosarcoma.

Conclusions: Individuals with angiosarcoma are often misdiagnosed or experience a prolonged course of inconclusive diagnostic tests. Angiosarcoma should be on the differential for patients presenting with alveolar hemorrhage, especially if they have hemothorax. Very few case reports are published and diagnosis is sometimes made after autopsy. Our patient passed away days after the diagnosis is made.

ACP Michigan Chapter Scientific Meeting 2019

Medical Student Poster #16

Category: Quality Improvement

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Anfal Marafie

Additional Authors: Zakia Alavi

Perceived Barriers to Psychotherapy in Depressed Patients

Introduction: The American Psychological Association recommends treating patients with mild to moderate depression with pharmacological therapy or psychotherapy and patients with severe depression with both pharmacological therapy and psychotherapy. While many patients prefer attending counseling over using antidepressant medications for the treatment of depression, many still do not attend.

Objective: The purpose of this study is: (1) to determine the perceived barriers that patients might have to participating in psychotherapy in order to suggest methods of increasing participation; and (2) to assess the association between the barriers and demographic factors.

Methods: Participants from MSU's Internal Medicine clinic were recruited after completing a chart review to identify patients with depression. These patients were interviewed and the Perceived Barriers to Psychological Treatment (PBPT) survey was used.

Results: No significant differences were seen in the overall PBPT scores among the different demographic factors. However, some intragroup differences were seen within the subcategories of the PBPT. On average the top three perceived barriers to psychotherapy in this cohort were: (1) cost, (2) lack of motivation, and (3) availability of services.

Discussion: Referral of all patients diagnosed with depression to a social worker is crucial to increasing participation in psychotherapy. Social workers can refer the patient to programs to make participation affordable. They can make known to patients the local services to reduce the barrier of availability. Lastly, for the lack of motivation as a barrier, they can recommend modern approaches such as teletherapy.

ACP Michigan Chapter Scientific Meeting 2019

Medical Student Poster #17

Category: Research

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Genevieve Pourzan

Additional Authors: Alberto Tamayo and Dr. Muhammad Nabeel

Are Medical Students Biased Towards Chronic Pain Patients?

Background: Little research has been done into exploring medical students' perspectives of chronic pain patients despite increasing media attention on chronic pain and the opioid epidemic.

Methods: To investigate, all medical students at Michigan State University College of Human Medicine were emailed an invitation to voluntarily participate in an online survey. Students were randomized between two identical patient vignettes, one was the control and the other was identical with the exception of a history of chronic back pain and opioid dependence. Students were then asked a series of questions regarding their perceptions, biases, and attitudes towards the patient in their vignette.

Results: Eleven questions were asked using a 0-10 scale. Results between the control and pain patient were quantified using an unpaired t-test. Students rated the chronic pain patient worse than the control in 8 of the 11 questions. There was no significant difference between the control and pain patient in the remaining 3 questions.

Discussion: Our survey showed that medical students had more negative perceptions of chronic pain patients in terms of their health, self-care, self-discipline, and compliance. Students believed a chronic pain patient would require higher levels of patience, be more annoying, and students felt less positive towards a chronic pain patient compared to a control. Although these results may not correlate with clinical differences in practice, medical schools should be aware of how medical students' perceptions of chronic pain patients could affect the quality of care provided as future physicians.

Medical Student Poster #18

Category: Clinical Vignette

School: Michigan State University - College of Human Medicine

Clerkship Director: Churlson Han, MD, ACP Member

Presenter: Sultan Qiblawi

Additional Authors: Hassan Zreik, Gary Ferencick MD

False Positive Serum Troponin Levels in a Man with Chest Pain 1.16, 1.29, 1.26,1.27, 0.84

Introduction: Serum Troponin is a highly sensitive and specific biomarker for suspected myocardial damage. While troponins can be highly sensitive, there are notable reasons for false positives (FP) to occur.

Case: A 59-year-old male patient with a PMH of sleep apnea and family history of ASCVD, presented to his PCP complaining of heart racing. One week before presenting to the PCP, the patient noted his heart was racing following a run, which subsided after rest. Five days later, he experienced another episode, which persisted for 24 hours after ceasing exercise. An initial diagnosis of CAD was unlikely given his symptoms, an unremarkable ECG and his physical exam. Patient was started on 81mg aspirin, laboratory studies were ordered and he was scheduled for a stress test. Twelve hours after his office visit, he was admitted to the hospital when his blood tests revealed a positive troponin (1.69, ng/mL). Physical exam, imaging, labs, ECG, and cardiac catheterization were unremarkable with the exception of an elevated serum troponin level of 1.69 which decreased to 0.84 the following day. The patient was recommended to start medical therapy for CAD, and follow up with a cardiologist.

Discussion: This case illustrates a FP of plasma troponin for macrovascular coronary disease. Troponin assays may be overdiagnosing ischemic disease in healthy individuals, because 2% of adults have a higher troponin level than the threshold. The etiology of a FP result may be unknown, but treatment should be focused on reducing morbidity and mortality.

Medical Student Poster #19

Category: Clinical Vignette

School: Michigan State University - College of Osteopathic Medicine

Clerkship Director: Richard Thiede, MD, ACP Member

Presenter: Connor Kerndt

Additional Authors: Hayk Papukhyan, Gurinder Gakhal

C. Jejuni Bacteremia Presentation in Immunocompetent Patient Case Report and Literature Review

Introduction:

Campylobacter jejuni (*C. jejuni*) is a common gram negative enteric rod primarily manifesting in immunodeficient hosts¹. *C. jejuni* usually induces self-limited illness presenting with diarrhea and abdominal pain. Extra-intestinal involvement of *C. jejuni* is uncommon and remarkable, one study shows that in immunocompetent patients the incidence is 0.7%-1.6% or 2.9:1,000,000¹. Few case reports show *C. jejuni* manifesting as bacteremia infection, usually occurring in immunocompromised patients, elderly, and those with ongoing liver disease.^{1,2}

Case:

A 48-year-old Female with a past medical history significant for Roux-en-Y surgery presented with new onset fever, chills, cough, and dyspnea. Further examination revealed a Temp of 100.9, Lactic acid of 2.4, WBCs of 18.2. Patient was given sepsis fluid bolus, started on IV azithromycin and IV ceftriaxone, and two blood cultures were acquired, one yielding positive results for *C. jejuni*. Patient then developed diarrhea and diagnosed with *Clostridium difficile* colitis.

Discussion:

The rare nature of *C. jejuni* bacteremia makes the clinical importance primarily an enigma, especially in a middle-aged immunocompetent host. Both host factors and bacterial factors contribute to the pathogenesis and invasion of *C. jejuni* into the blood. Research has shown that the organism can transcytosis the epithelium and invade with the help of fibronectin-binding-proteins, to invade weakened immune systems in the light of neoplasia, cirrhosis, and immunocompromised status³. This patients intact immune profile and lack of comorbidities begs the question of how this bacteria circumvented the patient's immune system without significant other comorbidities, making this presentation exceptional.

Medical Student Poster #20

Category: Clinical Vignette

School: Michigan State University - College of Osteopathic Medicine

Clerkship Director: Richard Thiede, MD, ACP Member

Presenter: Connor Kerndt

Additional Authors: Hayk Papukhyan MD, Alexander Balinski MS2, Gurinder Gakhal MD, Dawn Severson MD

Hidden Hepatitis: A Case Report of Cryptogenic Autoimmune Hepatitis

Introduction:

Autoimmune hepatitis (AIH) is an inflammatory condition of unknown etiology where immunoglobulins damage hepatocytes. AIH can begin as acute hepatitis and progress to chronic liver disease and cirrhosis. Patient presentation of AIH depends on acuity of disease and can present with jaundice, pruritus, and splenomegaly.

Case Presentation:

A 69-year-old female presented with complaint of two weeks of progressive jaundice, darkening urine, fatigue, and bruising after visiting a national park. Past medical history included psoriasis and hypothyroidism with vaccinations up-to-date. Medication history included methotrexate for her psoriasis.

Physical exam showed an afebrile female with diffuse jaundice, petechiae, bruising, and scleral icterus, but was otherwise unremarkable. Workup ensued with an equivocal CBC and pathologic liver function test showing elevated total bilirubin, direct bilirubin, alkaline phosphatase, and AST of 726. Hepatitis screen was negative for all strains. Additional workup included a CT scan, ultrasound, and MRCP of the abdomen, all without pathologic findings. Liver autoimmune testing unveiled a positive ANA (1:160), but was otherwise negative. Subsequent liver biopsy revealed plasma cell predominant hepatitis with centrilobular necrosis indicative of AIH.

Discussion:

When evaluating a hepatitis differential, anti-smooth muscle, anti-mitochondrial, and anti-LKM antibodies provide key diagnostic indicators of AIH. This patient's diagnosis was difficult given the relatively benign autoimmune profile and non-contributory imaging studies. Hepatitis serology excluded viral etiology, HFe studies made hemochromatosis unlikely, and unremarkable MRCP excluded PBC and PSC. This case elucidates that while antibody and serologic testing are standard practice for diagnostic evaluation, liver biopsy reigns supreme for AIH diagnosis.

Medical Student Poster #21

Category: Clinical Vignette

School: Michigan State University - College of Osteopathic Medicine

Clerkship Director: Richard Thiede, MD, ACP Member

Presenter: Vasu Mahalingam

Additional Authors: Rami Bzeih DO, Harithsa Asuri MD, John Hopper MD

Intrathecal Pain Pump Misadventure: Fluctuant Mass Formation and Management After Removal

Implantable devices, including intrathecal infusion devices (ITD), are being increasingly used in patients requiring chronic pain management. With expanded use, rates and manner of complications are also rising, warranting attention to detecting malfunctions and management after removal.

A 56-year-old woman with an ITD placed 2.5 years ago due to chronic back pain from a motor vehicle accident presented with two weeks of generalized weakness and an enlarging lower thoracic mass. Her condition was complicated by a self-reported diagnosis of multiple sclerosis which was thought to be an exacerbation. Imaging revealed no signs of multiple sclerosis but indicated the mass as a subcutaneous fluid collection and also showed arachnoiditis with possible discitis or osteomyelitis in the vicinity of the intrathecal catheter, prompting its urgent removal. Intraoperatively, there was CSF leakage from the entry point of the ITD catheter which likely contributed to the mass. The patient previously received hydromorphone, bupivacaine, and clonidine through the ITD, in addition to receiving oral morphine along with high doses of gabapentin and pregabalin. She was therefore carefully managed with a hydromorphone PCA, weaned slowly using fentanyl patches, toward the goal of a long-acting oral opioid.

This case illustrates a complication of an ITD found to be draining in an inappropriate space, precipitating infection, and requiring removal. There is little guidance on appropriate regimens after removal of ITDs for pain control and prevention of withdrawal. Given the potential complications, determining the appropriateness of ITDs is paramount.

Medical Student Poster #22

Category: Clinical Vignette

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Jonathan Davis

Additional Authors: Brett Holmes, DO

Mixed Up Mixed Cryoglobulinemia: Vasculitis in the Setting of Peripheral Arterial Disease

Intro:

Mixed cryoglobulinemic vasculitis is a systemic vasculitis associated with Hepatitis C virus infection (HCV) commonly presenting as purpura of the legs with underlying leukocytoclastic vasculitis [1,2].

Case Description:

A 51 year old man with a past medical history of untreated hepatitis C and peripheral arterial disease (PAD) presented to the hospital with a worsening left lower extremity rash. Physical examination demonstrated left lower extremity ulcerative lesions with areas of necrosis including gangrenous digits of the left foot. No palpable popliteal or pedal pulses were present on the left lower extremity. Arterial duplex demonstrated bilateral obstructive disease. Initial presentation was attributed to severe PAD.

Laboratory studies included a decreased C4 and elevated rheumatoid factor. Skin biopsy demonstrated leukocytoclastic vasculitis. Serum cryoglobulin was later found elevated. The patient was diagnosed with hepatitis C associated mixed cryoglobulinemia in the setting of bilateral lower extremity PAD. Intravenous methylprednisolone followed by oral corticosteroids lead to drastic improvement of his symptoms including improved ulcerations and healing of gangrenous toes.

Discussion:

The atypical unilateral presentation of lesions, history of severe PAD, and delayed cryoglobulin results made diagnosis and treatment challenging. Our diagnosis was guided by the low C4, high rheumatoid factor, and history of chronic HCV [3]. After starting glucocorticoids, treatment of the patient's PAD with revascularization or amputation was deferred as symptoms were attributed to his vasculitis. Our case demonstrates the importance of acknowledging the differential for gangrenous digits beyond PAD, and the benefit to treating an underlying vasculitis before progressing to invasive interventions for PAD.

Medical Student Poster #23

Category: Clinical Vignette

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Erfan Faridmoayer

Additional Authors: Daniel K. Fahim

Rare Case of Large Extramedullary Ewing Sarcoma

This is a 20 year old male with no remarkable past medical history who was referred to the hospital with progressive back pain, gait instability, and increasingly frequent falls over nine months. He began to experience bilateral paresthesia in distal lower extremities for two weeks before his visit. Conservative management with physical therapy and oral medications had been ineffective. Patient's physical exam was remarkable for bilateral lower extremity weakness in the feet, and 3+ reflexes in the ankles. He was admitted for surgical evaluation of the masses. Preoperative lumbosacral MRI indicated a 9.9 cm long, intensely enhancing lesion filling the entire spinal canal, extending from the upper L3 vertebra to the L5-S1 region. A 2.0 cm long second enhancing intradural lesion was seen starting above S2-S3, extending inferiorly to the S3 level. No osseous involvement or neural foraminal extension was noted. Excisional biopsy of both masses were characteristic of Ewing sarcoma. Fluorescence in situ hybridization of the masses using the EWSR1 gene probe confirmed the diagnosis of Ewing sarcoma. Following surgical recovery, patient was discharged and scheduled for adjuvant chemotherapy. He has had no recurrence to date.

Ewing sarcoma is the second most common bone tumor in children and adolescents. It's an aggressive cancer that has a high survival rate in patients with localized disease. Extramedullary intradural Ewing sarcoma is an extremely rare finding, but has a good prognosis if diagnosed and treated in a timely fashion.

Medical Student Poster #24

Category: Clinical Vignette

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Matthew Lipphardt

Additional Authors: Richard Easton, MD

Progressive Myelopathy in a Tourette Patient with Remote Type II Odontoid Fracture

Background:

Odontoid fractures make up 10-15% of cervical spine fractures. Type II fractures make up 50% of those and are rare in younger patients.

Instances of progressive myelopathy caused by motor tics is limited. To the best of our knowledge, there has not been a case of a Type II odontoid fracture presenting with progressive myelopathy in a patient with Tourette's and there is no clear surgical consensus on how to address these patients.

Presentation:

This patient is a 25-year-old male with a past medical history of Tourette's syndrome whose motor tics are severe extension and rotation movements of the neck. He presents with a reported 6-month history of worsening myelopathy. Symptoms began with numbness and tingling in his right leg with progression to abnormal gait, Lhermitte's phenomenon, numbness and tingling in his hands, and difficulty with fine motor control.

Imaging:

MRI of the cervical spine which showed contrast enhancement at the C2 region and a remote nondisplaced type II fracture of the odontoid process. Flexion and extension x-rays of the neck that showed non-united odontoid body with the C2 vertebral body.

Treatment:

An urgent C1-C2 fusion for atlantoaxial instability with placement of cortical bone autograft was performed. The patient was placed in cervical collar for 3 months post-operatively.

At one-month post-operative visit the patient was reporting improvements in paresthesia of the upper extremities as well as improvements of his gait. Cervical x-rays at this point show no signs of failure of the fusion or hardware.

Medical Student Poster #25

Category: Clinical Vignette

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Quoc-Tuan Ngo

Additional Authors: Kathleen Dass, MD

Preseptal Cellulitis Due to *Neisseria gonorrhoeae*: A Literature Review of a Rare Disease

Pre-septal cellulitis is a rare complication of gonococcal conjunctivitis. Review of the literature revealed only a few case reports worldwide, leading to the scant data on diagnosis and treatment of this rare but serious disease.

A 19-year-old male presented with an erythematous, edematous, and tender right eye with surrounding skin involvement. He had presented earlier to an outside hospital with milder symptoms, and fluid cultures of the eye were obtained. Patient presented four days later with increasingly blurry vision, purulent blood-tinged secretions, and pain with increasing orbital edema until his right eye was swollen shut. A CT scan with IV contrast of the orbits confirmed pre-septal cellulitis. The patient was started on IV vancomycin and IV ceftriaxone. Due to the patient's high-risk sexual behavior, gonococcal conjunctivitis was a concern. The eye cultures and urine PCR were positive for *Neisseria gonorrhoeae*. IV vancomycin was discontinued, and he was treated for a total of seven days with IV ceftriaxone. The patient also received treatment with moxifloxacin and proparacaine eye drops with frequent saline washes. The patient was counseled regarding safe sexual practices and his partners were notified.

This case and the review of current literature aim to characterize this rare condition in terms of symptoms, diagnostic tests/imaging, and treatment. High clinical suspicion occurs when patients present with purulent eye discharge and symptoms not typical with pre-septal cellulitis. Furthermore, depending upon the patient's demographics, special considerations should be given, such as testing and treatment for other STIs and possible child abuse.

ACP Michigan Chapter Scientific Meeting 2019

Medical Student Poster #26

Category: Research

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Quoc-Tuan Ngo

Additional Authors: Kathleen Dass, MD

Assessment of Correct Use of Nasal Sprays Among Residents at Beaumont

Allergic rhinitis (AR) is a common illness in the U.S. with symptoms that can severely affect patients' quality of life. Intranasal corticosteroid (INS) sprays are the most effective treatment for AR. The correct technique is to direct the sprays laterally, away from the nasal septum. There is a lack of data on the knowledge level of patients and healthcare providers on this technique. The study aims to assess this knowledge among resident physicians in the Beaumont Health System and become an education tool to increase patient satisfaction and compliance.

This study used a pre-demonstration questionnaire to assess the knowledge of the correct technique among the enrolled residents. Then, a demonstration of the technique was performed, and the answers to the questions in the pre-demonstration questionnaires were presented. Lastly, a post-demonstration questionnaire was given to assess the residents' impression of the materials.

76 residents from 7 departments were enrolled. 46% were unaware of the technique. 52% found the presentation very helpful, and 48% found it somewhat helpful. There may be differences between departments in their perceptions of the presentation's usefulness. Overall, 81% felt that there would not be barriers to educating their patients on the information presented.

The study served well as an educational tool for the residents since all the residents found the study useful. Moreover, the study can help target the departments that might benefit more from the presented information. The goal is to incorporate this short, yet useful, piece of information into the training curriculum of residency programs.

Medical Student Poster #27

Category: Research

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Aryana Sharrak

Additional Authors: Rachel Yoskowitz, BSN, MPH; Patrick Karabon, MS; Sarah Lerchenfeldt, PharmD

Understanding Opioid Addiction in the Chaldean Community

INTRODUCTION

The Chaldean community is a minority population of Iraqi-Christians concentrated in Iraq and throughout several communities in the United States. Similar to the rest of the United States, this community is affected by substance abuse issues, including opioid addiction. This study was developed to assess the knowledge, attitudes, and beliefs among Chaldean community members in regards to the opioid epidemic, as well as to identify resources needed to combat opioid addiction in the community.

METHODS

An electronic survey was created through Qualtrics® and sent to Chaldean community organizations. All organizations were asked to forward the survey at their discretion. With their permission, the survey was also posted on their Facebook pages. Results were presented as frequencies and percentages.

RESULTS

A total of 170 respondents were included. Of the respondents, 150 (89.29%) indicated an opioid problem in the Chaldean community, of which 77 (45.83%) know someone with an addiction and 99 (59.28%) know someone who has died from an overdose. A total of 115 (72.33%) respondents strongly agreed or agreed that opioid addiction is a mental illness and 63 (39.62%) strongly agreed or agreed that addiction is a moral failing. Ninety-three (61.59%) respondents felt there is insufficient information available for community members suffering from an opioid addiction. Additionally, 147 (96.08%) of respondents believe the educational resources available for addiction should be translated into other languages.

Medical Student Poster #28

Category: Clinical Vignette

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Amy Trang

Additional Authors: Ramy Mando MD, Alexandra Halalau MD

Dercum's Disease

Dercum's Syndrome is a rare condition that involves hundreds of subcutaneous lipomas distributed throughout the body. These masses are occasionally very painful with significant impact on quality of life. Currently, management and pathophysiology of this condition are not well understood and only a few cases are reported in the literature. We describe a patient who presented to the acute care clinic with this condition in an acute exacerbation of her chronic pain.

A 56-year-old female presented to urgent care for prolonged periods of decreased mobility associated with severe burning, throbbing and generalized pain. Physical examination was remarkable for 2-10 cm tender lumps located across her arms and torso. Sixty mg of intramuscular toradol with a five-day course of prednisone were administered with resolution of pain at follow-up 3 days after presentation. Abdominal computed tomography revealed numerous nodules in the subcutaneous fat of the buttocks, ventral abdominal wall and back. She underwent surgical excision of >100 lipomas in an attempt to relieve her pain. Micropathological tissue examination revealed findings consistent with angioliipomas. Our patient was diagnosed with Dercum's disease, which is characterized by painful subcutaneous lipomas, often associated with obesity, metabolic complications, and gastrointestinal issues (fatty liver and irritable bowel syndrome). It is important to recognize available medical modalities for pain management as surgery is not curative or without risk.

ACP Michigan Chapter Scientific Meeting 2019

Medical Student Poster #29

Category: Research

School: Oakland University William Beaumont School of Medicine

Clerkship Director: Cynthia Ledford, MD, FACP

Presenter: Muhammad Waheed

Additional Authors: Ramy Mando, MD, Alexandra Halalau, MD

Outcomes of Patients with Prediabetes

Background: Cardiovascular disease remains the leading cause of mortality among adults with type 2 diabetes (T2DM). Recent studies have shown significant overlap between inflammatory markers present in T2DM and those found in prediabetes highlighting the necessity of identifying and managing prediabetes. We sought to determine the clinical progression and cardiovascular outcomes of patients diagnosed with prediabetes over a five-year period.

Methods: This is a single health system retrospective review of prediabetic patients between January 2010 to January 2014. Based on hemoglobin A1c(HgA1c) values the patients were categorized: 1) progressed into diabetes, 2) remained prediabetic and 3) improved to normal HgA1c ranges at the end of 5 year follow up.

Results: We identified 77,726 patients as prediabetic between 2010-2014; 25,815 patients had subsequent HgA1c values over the next 5 years. Peak HgA1c values were used to classify the progression of disease. Overall, 15.6% (N = 4,038) of patients had normalization of HgA1c levels. 48.7% (N = 12,569) of patients remained prediabetic and 35.7% (N = 9,208) progressed to develop diabetes.

Conclusion: Our study demonstrates that almost 85% of patients with prediabetes either fail to improve or develop T2DM. The rate is above the latest reported progression rate of 70%. With estimates of the prevalence of prediabetes to be as high as 33% in American adults, clinicians must do a better job at diagnosing and managing this condition. Analysis to compare cardiovascular events between patients with normal HgA1c values and patients with prediabetes is underway.

Medical Student Poster #30

Category: Research

School: Ross University School of Medicine

Clerkship Director: Monica Nicola, MD

Presenter: Hesham Elmariah

Additional Authors: Rea Harxhi MS4, Poonam Bai MD, Swathi Mogulla MD, Geetha Krishnamoorthy MD

Cryptococcal Meningoencephalitis in Association with Chronic Lymphocytic Leukemia Treated with Rituximab Based Therapy

Cryptococcal meningoencephalitis (CM) is an opportunistic fungal infection associated with HIV CD4 < 100, hematological malignancies, and immunosuppression. We present a patient with Chronic Lymphocytic Leukemia (CLL), who received Rituximab-based therapy more than 3 months prior to diagnosis of CM.

Our patient presented with intermittent frontal headaches, photophobia, lightheadedness, left-sided deafness and left-sided facial droop with difficulty opening her left eye. Examination: Stable vitals and general exam. Neurological examination: Incomplete third nerve palsy of left eye with ptosis, left 7th nerve and 8th nerve palsies, ataxia and vertigo. MRI of brain was normal. Lumbar puncture: normal opening pressure, low glucose, elevated protein (209 mg/dL) and lymphocytic pleocytosis. Acid fast bacillus stain negative, positive cryptococcal serology (1:256). CSF Stain and culture revealed numerous cryptococci. Patient was started on Liposomal Amphotericin B and Flucytosine. Cranial nerve palsies and vertigo resolved after 5-7 days of therapy. AKI due to Amphotericin was managed with dose reduction, and patient continued to improve and was independently ambulatory. Bone marrow biopsy did not show any aggressive transformation of CLL.

CLL is can be associated with hypogammaglobulinemia in some patients, and rituximab also targets B cells. CM usually occurs in deranged T cell function. Rare cases have been reported of CM in patients receiving rituximab, which suppresses B cell function. With increasing use of biologicals in a wide range of diseases, physicians should be vigilant for the diagnosis of opportunistic infections associated with immunosuppression in both patients who are actively receiving immunosuppression and patients who have completed a chemotherapy or immunosuppressant regimen.

Medical Student Poster #31

Category: Clinical Vignette

School: Ross University School of Medicine

Clerkship Director: Monica Nicola, MD

Presenter: Salam Khoshi

Additional Authors: Ayman Salem, Remi Soile

Cardiac Lipoma: A Rare Cause of Cardiomyopathy

Cardiac lipomas are rare, benign tumors of the heart with an incidence of less than 0.2%. The tumors are usually asymptomatic on presentation, and symptoms are primarily dependent on the location of the tumor within the heart. Only few patients present with a spectrum of clinical signs, including life-threatening arrhythmias and sudden death. The most common location of cardiac lipomas is the subendocardial region, particularly the right atrium and left ventricle. We present a 58-year-old female who presented with worsening shortness of breath; echocardiogram was done and revealed cardiomyopathy with a large atrial mass. Cardiac CT was obtained and confirmed a diagnosis of cardiac lipoma, and patient subsequently underwent heart transplant due to an irreversible cause of cardiomyopathy. Hospital course was complicated by post-transplant rejection and pulmonary embolism. Patient clinically improved, and was discharged without further complications. This case signifies the importance of diagnostic modalities with cardiac lipomas, and despite the rarity, being aware of the differential. Echocardiography is the first line diagnostic method followed by cardiac CT and cardiac MRI for better tumor differentiation. Although cardiac lipomas are rare, the tumors should be included in the differential diagnosis of cardiac masses as well as the potential complications of treatment.

ACP Michigan Chapter Scientific Meeting 2019

Medical Student Poster #32

Category:

School: Saba University School of Medicine

Clerkship Director:

Presenter:

Additional Authors:

Abstract Removed

Medical Student Poster #33

Category: Clinical Vignette

School: St. George's University School of Medicine

Clerkship Director: Raymond Hilu, MD, FACP

Presenter: Beata Dye

Additional Authors: Dr. Jinan Al-naqeeb MD, Dr. Josephine Dhar MD FACP

Adult Onset HSP: A Frequently Unrecognized Disease

Henoch-Schönlein purpura (HSP) or IgA vasculitis is the most common vasculitis in children but less frequent and often unrecognized in adults, who have worse outcomes related to severe renal involvement. It is generally a self-limited disease with seasonal variation in children, but not in adults. We present a case of HSP in a young adult who presented with only diffuse pruritic rash.

Case: A previously healthy 23-year-old African American female was admitted for acute onset of diffuse pruritic rash and hypertension. Exam showed non-blanching purpuric (mostly flat with a few raised) lesions on the abdomen, upper and lower extremities. Laboratories showed normal CBC and coagulation studies, and elevated creatinine (2.03 mg/dl) with hematuria and proteinuria. Autoimmune work up revealed a low C4. The patient was treated with pulse dose steroids for suspected autoimmune disease with improvement in kidney function. Biopsy of a flat purpuric lesion showed IgA staining of superficial dermal blood vessels consistent with IgA vasculitis.

Discussion: Our case demonstrates an unusual presentation of HSP in an adult with atypical skin lesions and renal involvement but sparing the joints and gastrointestinal tract. HSP in adults can mimic other autoimmune diseases and tissue biopsy with staining for immune deposits is essential to the diagnosis. Severe renal involvement is a poor prognostic factor and can lead to end stage renal disease so early recognition is important in deciding appropriate immunosuppressive treatment to improve outcomes and preserve renal function.

Medical Student Poster #34

Category: Clinical Vignette

School: St. George's University School of Medicine

Clerkship Director: Raymond Hilu, MD, FACP

Presenter: Sajitha Varadarasa

Additional Authors: Jessica Misich MD, Paul Fozo MD

Molding the Diagnosis: A Case of Allergic Bronchopulmonary Aspergillosis

Allergic Bronchopulmonary Aspergillosis (ABPA) is a rare immunologic pulmonary inflammatory disease that has a predisposition to affect those with asthma or pulmonary disease. ABPA can mimic flare-ups of common pulmonary disorders, which can lead to a missed diagnosis.

A 53-year-old female presented to the emergency room with odynophagia and dysphagia. Initial work-up included imaging studies to rule out gastrointestinal and respiratory causes. Initial imaging was suggestive of esophagitis; however, chest X-ray was also significant for peri-bronchial thickening and the chest CT showed nonspecific mediastinal adenopathy with sub-segmental opacities in left lung. Further investigation of the patient's history revealed that she has frequent eczema flare-ups and asthma exacerbations. She also endorsed living in housing with extensive mold. Given this history, there was a suspicion for aspergillosis. Subsequent work up showed a total serum IgE of 7658 IU, presence of eosinophilia, and Aspergillus Galactomannan Antigen present in the serum.

By correlating the history and findings with diagnostic criteria, a diagnosis of ABPA was made. Treatment includes prednisone dosed at 0.5mg/kg/day for 1-2 weeks, followed by a two-month taper. Further outpatient follow up will be necessary to monitor total serum IgE, PFTs and chest CT changes.

The hospitalist should be conscientious of less common causes of respiratory distress due to the non-specific nature of symptoms. History is crucial for diagnosis and special attention should be paid to patients who have frequent asthma exacerbations, atopy, and allergen exposure. These patients should be evaluated for ABPA to prevent progression to irreversible lung fibrosis.

Medical Student Poster #35

Category: Research

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Brendan Dillon

Additional Authors: Rodica Pop-Busui MD PhD, Lynn Ang MD

Insulin Resistance in Type 1 Diabetes: Is There a Relationship with Diabetic Complications?

Background: Although insulin resistance is now an accepted and increasingly observed feature of type 1 diabetes (T1D), its role in the pathogenesis of chronic complications and the impact on a tailored treatment remain unclear.

Objective: We examined the differences in peripheral glucose utilization in individuals with T1D, and healthy controls (HC).

Methods: Mean glucose disposal rate (GDR) was measured during euglycemic clamp (100 ± 20 mg/dL) followed by hyperglycemic clamp (300 ± 20 mg/dL) in 27 T1D subjects (mean age 39 ± 3 years, diabetes duration 22 ± 3 years) and 9 age-matched HC. T1D subjects were subdivided into three groups based on the presence of complications: none, mild, and advanced.

Results: GDR was lower in subjects with T1D than in HC during both the euglycemic and hyperglycemic clamps. No significant difference was observed between the T1D groups, although there was a trend towards lower GDR in T1D with advanced complications versus those with mild and no complications. In subjects with T1D, lower GDR significantly correlated with higher daily insulin requirement and higher body mass index during the euglycemic clamp. There was no correlation between HbA1c and GDR.

Conclusion: Individuals with T1D are less sensitive to insulin than HC, regardless of the presence of complications, although a trend was observed in those with advanced complications. In patients with T1D, higher daily insulin requirement and higher BMI predict greater insulin resistance. These data support the design of larger and longitudinal studies to characterize the link between insulin resistance and complications risk in T1D.

Medical Student Poster #36

Category: Clinical Vignette

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Laura Hayward

Additional Authors: Laura Leuenberger, MD, Stephani Zakutansky, MD, Sarah Hartley, MD

IgA Nephropathy: Only One Piece of the Puzzle

Case Presentation: A 71-year-old woman with a past medical history of hypertension and diabetes mellitus underwent outpatient evaluation for microscopic hematuria. Cystoscopy and renal ultrasound were negative. Renal biopsy revealed IgA nephropathy, and she was initiated on prednisone. Ten days later, she developed dyspnea secondary to a right-sided pleural effusion, drained by thoracentesis with symptom relief. Four days later, her dyspnea recurred, and she was admitted. On admission, her blood pressure was elevated to 163/70, and physical exam revealed decreased breath sounds and dullness to percussion to the right mid and lower lung. Chest X-ray showed another large right-sided pleural effusion. Thoracentesis removed 1.2 L of transudative fluid. Exam also revealed caput medusae, reportedly present for approximately two years. RUQ ultrasound revealed cirrhosis with portal hypertension and no ascites. She was diagnosed with cirrhosis complicated by a right hydrothorax, with IgA nephropathy likely secondary to cirrhosis. Nephrology was consulted and prednisone discontinued, with initiation of diuretics for medical management of her hydrothorax.

Discussion: IgA nephropathy is often a primary kidney disease, but it can also be secondary to systemic diseases such as cirrhosis, celiac disease, and HIV. In this case, the lack of other presenting symptoms led to the conclusion that the patient had primary renal disease. Treatment with steroids likely increased fluid retention, worsening her pleural effusion. Exam findings, specifically caput medusae, prompted evaluation for cirrhosis.

Conclusion: In patients with IgA nephropathy, it is important to consider supplemental information, including the physical exam, to appropriately determine primary versus secondary disease.

Medical Student Poster #37

Category: Clinical Vignette

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Charles Katzman

Additional Authors: Dr. Robert Paretti

Case of Sweet's Syndrome with Suspected Pulmonary Involvement

Sweet's syndrome is a primarily dermatologic condition consisting of fever, neutrophilia and painful erythematous papules and/or plaques with a neutrophilic infiltrate. Pulmonary involvement of Sweet's syndrome has been reported, however this is exceedingly rare and challenging to diagnose.

This case describes a 36-year-old woman with a history of Turner's syndrome who was diagnosed with Sweet's syndrome in 2016. To date, her Sweet's has been controlled with a combination of steroids and additional immunosuppressive medications. This patient was admitted to the hospital in early 2019 for a Sweet's flare as well as shortness of breath and a cough. Further evaluation revealed a history of pulmonary symptoms which tended to flare with her cutaneous symptoms and improve with treatment of her Sweet's syndrome. CT imaging and comparison to previous radiography revealed an ongoing interstitial lung disease of unclear etiology. Extensive workup ruled out a systemic autoimmune connective tissue disease or an infectious process. Given her clinical picture and negative workup, pulmonary Sweet's was suspected. The patient is unable to tolerate a lung biopsy to make a definitive diagnosis. Cutaneous flares continue to be managed by dermatology, however appropriate management of her ILD is unclear.

This case illustrates that while rare, pulmonary Sweet's syndrome should be considered in patients with confirmed disease who present with unclear respiratory symptoms or lung infiltrates on imaging. It also highlights the need for clearer recommendations on the management of non-cutaneous manifestations of Sweet's, including which medical specialists should be involved in long-term follow-up.

Medical Student Poster #38

Category: Clinical Vignette

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Sylvia Li

Additional Authors: Katie Chakrabarti MD, Zoe Raglow MD, Shea Finch MD, Khalid Abdul Majeed MD, Owen Albin MD

Diagnostic Evaluation of Disseminated Histoplasmosis Imitating Sarcoidosis

A 63-year old man presented to the Emergency Department following a 7-month history of fatigue, 80-lb weight loss, night sweats, cough, headache, and confusion. Extensive workup revealed hypercalcemia, elevated 1,25 dihydroxy-vitamin D, cholestatic liver injury, mediastinal lymphadenopathy, splenomegaly, adrenal hyperplasia, and MRI findings consistent with encephalitis. A broad infectious workup was sent, but sarcoidosis and lymphoma remained at the top of the differential given the constellation of findings. A transbronchial biopsy revealed non-necrotizing granulomas with negative fungal staining, initially thought to confirm the diagnosis of sarcoidosis. However, serologic infectious workup later returned positive for Histoplasmosis. Further history revealed significant exposure to bird droppings. He was treated with amphotericin B, then transitioned to itraconazole with near total resolution of his symptoms.

While sarcoidosis is a multiorgan disease productive of non-necrotizing granulomas, it remains a diagnosis of exclusion. It is vital to rule out infection and malignancy, even in immunocompetent hosts, particularly in those with prominent constitutional symptoms. Histoplasmosis is the most common endemic fungal infection in the United States, with the cornerstone of diagnosis including urine and serum antigen testing. While Histoplasmosis can present as isolated pulmonary infection, it can also reactivate in the reticuloendothelial system resulting in disseminated disease. The prognosis for Histoplasmosis when treated is favorable; however, incorrectly treating for supposed sarcoidosis with immunosuppression can be fatal. Therefore, clinicians must maintain a high degree of suspicion with detailed historical and laboratory workup for fungal disease in patients with significant constitutional decline, reticuloendothelial involvement, and non-necrotizing granulomas on tissue biopsy.

Medical Student Poster #39

Category: Clinical Vignette

School: University of Michigan Medical School

Clerkship Director: Cyril Grum, MD, FACP

Presenter: Anita Vasudevan

Additional Authors: Syed K. Nasser, MBBS

Beyond Bones, Stones, Moans, & Groans: Uncommon Etiologies of Hypercalcemia

Introduction:

Hypercalcemia of malignancy is most associated with breast, renal, and lung cancer, as well as multiple myeloma. However, when the initial evaluation is negative it is important to expand the differential diagnosis.

Case Description:

A 77-year-old patient with a history significant for 60 pack-years of tobacco use presented to his PCP with a concern of 30-pound weight loss in three months, which he attributed to significantly decreased appetite and nausea. Laboratory work-up detected an elevated calcium level, and the patient was subsequently admitted for treatment and diagnostic work-up of symptomatic hypercalcemia. Initial labs showed appropriately suppressed PTH and negative PTH-rp. Chest CT showed no evidence of pulmonary mass. SPEP was negative; however UPEP indicated the presence of a lysozyme band, which per pathology has been associated with monocytic and myelomonocytic leukemia. CBC differential showed an increased proportion of myelocytes and metamyelocytes. Whole body PET scan showed no evidence of active neoplasm; although diffuse marrow uptake was noted. This finding led to a bone marrow biopsy, which diagnosed acute myelomonocytic leukemia.

Discussion:

This case illustrates the importance of a systematic approach to hypercalcemia. While symptomatic hypercalcemia is acutely treatable, its cause must be diagnosed to offer lasting treatment. Initial work-up includes assessing for parathyroid hormone derangements, common solid tumors, and multiple myeloma. Once these are ruled out, the possibility of other hematologic malignancies, such as AML, remains. Although hypercalcemia is a rare complication of this leukemia, prompt diagnosis allows for therapy that has the potential to treat both the cancer and its secondary hypercalcemia.

Medical Student Poster #40

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Hani Alhourani

Additional Authors: Mustafa Ajam (Senior Resident)

Presentation of Herpes Zoster with Cluster Headache

Varicella-Zoster Virus (VZV) can manifest in two phases. Primary infection results in Varicella, and reactivation of latent VZV results in Herpes Zoster which presents primarily with pruritic and painful vesicular rash that follows a dermatomal distribution.

A 66-year-old male presented to the Emergency Department for 1-week history of persistent predominantly right sided retro-orbital headache, 8/10 on the severity scale, and refractory to over-the-counter pain medications. History of similar episodes in the past year, but they were milder, brief, and relieved by rest. Patient denied chest pain, shortness of breath, rhinorrhea, lacrimation, nausea, or vomiting. Patient's vitals were within the normal limit. On physical examination, there was photophobia in the right eye. CBC, BMP, head CT without contrast, and brain MRI were all normal. Initial diagnosis of cluster headache was made. 100% high-flow oxygen treatment and corticosteroids were given with no improvement. On re-evaluation during the second day of admission, there were clusters of vesicular lesions noted at the upper right side of the face. Patient reported he noticed them 5 days ago prior to admission but weren't accompanied by pain or pruritis. This finding was missed on the initial physical examination. Patient was diagnosed with Herpes Zoster and started on Valacyclovir for 10 days. Ophthalmology was consulted and reported no ocular involvement. Patient reported improvement and was discharged.

This case demonstrates that Herpes Zoster doesn't always present with pruritic or painful rash, and it can mimic cluster headaches. It also emphasizes the importance of performing a thorough medical evaluation.

Medical Student Poster #41

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Firas Askar

Additional Authors: Maryam Alimirah, MD; Omar Sadiq, MD; Yousuf Siddiqui, MD

Multitarget Stool DNA Test at an Urban and Suburban Health System

Introduction: Colon Cancer remains a significant cause of morbidity and mortality around the world. Early detection of the disease is associated with vastly better outcomes. FIT-DNA, a recently introduced fecal screening modality combining quantitative DNA testing with a hemoglobin immunoassay, has been shown to be highly sensitive and specific in the detection of cancerous lesions. Local experience with the test has not demonstrated significant positive colonoscopies following positive FIT-DNA testing. Due to anecdotal experience, we sought to evaluate the real-world utility of the test.

Methods: 427 patients who underwent FIT-DNA testing were evaluated retrospectively. Data collected primarily included colonoscopy, biopsy results and demographics. Advanced precancerous lesions were defined as any adenomatous polyps measuring >10 mm, villous or highly dysplastic lesions.

Results: 106 (24.8%) patients had advanced precancerous lesions and 7 (1.6%) patients had malignancy, combined 113 (26.5%) patients. 73.5% were found to have nonadvanced adenomas or normal endoscopies. PPV for the detection of cancerous and combined precancerous/cancerous lesions was found to be 0.016 and 0.265 respectively.

Discussion: Accepted PPV of FIT-DNA in literature for detection of advanced precancerous/cancerous lesions combined was comparable to our value at 0.236. PPV for the detection of cancerous lesions was significantly higher in literature at 0.037 ($P < 0.05$). The percentage of males was lower (40%) compared to prior studies (46.3%) possibly contributing to the lower PPV observed. Data regarding ethnic disparities in disease prevalence may also be relevant but not collected. PPV for the FIT-DNA screen remains lower than literature and warrants further investigation.

Medical Student Poster #42

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Serina Beydoun

Additional Authors: Dr. Yogi Persaud, Dr. Michael Callaghan, Dr. Sureyya Savasan

The Spectrum of Autoimmune Pancytopenia with Roles Played by T, B, and Plasma Cells: Where Does the Target Lie?

The two most common causes of idiopathic autoimmune pancytopenia are acquired severe aplastic anemia (SAA) and Evans syndrome (ES). While autoreactive T cells play a major role in acquired SAA, autoantibodies are the key players in ES. There is significant heterogeneity in cases of SAA and ES in both clinical course and their response to treatment. We review one case of acquired SAA and two cases of ES with their differing clinical and laboratory characteristics in report, which sheds light on the pathophysiology of autoimmune pancytopenia. The patient with acquired SAA had pancytopenia and bone marrow aplasia along with a clonal population of paroxysmal nocturnal hemoglobinuria (PNH). Immunosuppressive drugs particularly targeting T cells were used in addition to a thrombopoietin (TPO) mimetic compound, eltrombopag successfully in this case with complete recovery in 4 months of therapy. Both patients with ES have positive direct anti-globulin test (DAT), and anti-neutrophil antibodies; second case also had pure red cell aplasia (PRCA). After failing several lines of immunosuppressive therapies, the first patient achieved complete recovery using a TPO mimetic agent, romiplostim with tapering oral prednisolone. The second case had elevated IgM levels with significant bleeding finally responded to a proteasome inhibitor, bortezomib targeting plasma cells after failing rituximab that led to B cell aplasia. We postulate that while autoreactive antibodies target lineage specific cell markers in isolated autoimmune cytopenias, the target of autoantibody in ES is likely to be shared by surface molecules expressed on all mature and sometimes even maturing hematopoietic cells.

ACP Michigan Chapter Scientific Meeting 2019

Medical Student Poster #43

Category:

School: Wayne State University School of Medicine

Clerkship Director:

Presenter:

Additional Authors:

Abstract Removed

Medical Student Poster #44

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Dominique Bultsma

Additional Authors: Ryan Bean MD

Cutaneous Vasculitis Secondary to Cocaine Cut with Levamisole

Levamisole, an anti-helminthic drug used in dogs, is sometimes used to cut cocaine as it is colorless, odorless and can pass the bleach test for cocaine purity. Sometimes, it can lead to a medium vessel vasculitis mimicking cellulitis and other vasculidities.

A 55-year-old paraplegic male with a neurogenic bladder and polysubstance abuse presented to the emergency department with a 3-day history of blisters and dysuria. He was hemodynamically stable with a Tmax of 101.7°F. His physical exam revealed bilateral lower extremity stage 2 ulcers with surrounding erythema and livedo reticularis across his chest and upper extremities. Labwork was significant for leukocytosis to 18 K/mcL. The urine drug analysis was positive for cocaine and cannabis. Bilateral femoral CT scans ruled out necrotizing fasciitis and osseous abnormalities. While receiving antibiotics for acute cystitis, additional vasculitis workups were performed. ESR was mildly elevated and his lupus anticoagulant was positive. However, his full antiphospholipid panel was negative as was the ANA and ANCA. Additional infectious serologies were negative and skin biopsies were not performed due to concerns for poor wound healing. The patient was discharged in stable condition with resolving skin lesions.

This case illustrates the potential for vasculitis to occur in patients who have used cocaine cut with levamisole. Due to the immunomodulatory properties of levamisole and its common use as a cutting agent in cocaine, it is important that levamisole induced-vasculitis be recognized as a rare, but possible adverse reaction that can occur in cocaine users.

Medical Student Poster #45

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Chelsea Carver

Additional Authors: Preethi Sriranga, Amjad Kanj, Renato Roxas

When Ab-DO-Cens Becomes Ab-DOESN'T: A Case of Acquired Sixth Nerve Palsy

The sixth cranial nerve innervates the lateral rectus muscle responsible for ipsilateral eye abduction. Sixth nerve palsy is the most common ocular motor nerve palsy in adults and presents with diplopia when looking towards the affected side. We present a case of isolated sixth nerve palsy due to idiopathic intracranial hypertension (IIH).

A 57-year-old man presented with five days of double vision when looking to the left side. He also endorsed a left retro-orbital headache. On exam, he appeared comfortable, but had complete impairment of abduction on left horizontal conjugate gaze. No papilledema was appreciated. The rest of his motor, sensory and cranial nerve examination was unremarkable. CT-scan, MR-venogram and MR-angiogram of the brain were also unremarkable. A lumbar puncture (LP) was performed with an opening pressure of 29mmHg and a closing pressure of 10mmHg. Cerebrospinal fluid analysis was within normal limits. Immediately after the LP, the headache resolved but the exam remained unchanged.

Sixth nerve palsy is commonly caused by trauma, neoplasm, or microvascular processes. Although 30% of patients with IIH present with abducens palsy, IIH remains an uncommon cause. Thorough history and physical examination are required to guide diagnostic evaluation and eventual treatment. A sudden onset may indicate a microvascular disease whereas a slow progression usually indicates a compressive etiology. Papilledema with an associated headache relieved by an LP is also suggestive of IIH. Cases of acquired sixth nerve palsy in patients with headaches and elevated opening pressure but no papilledema are rare but have been described.

Medical Student Poster #46

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Mark Cooks

Additional Authors: Elizabeth Bankstahl M.D. and Abdulla Nasser M.D.

Diabetic Striatopathy

Diabetic striatopathy is a rare condition in which diabetic patients with uncontrolled hyperglycemia display a hyperkinetic movement disorder and hyperintense signalling in the contralateral corpus striatum on MRI. Here we present a case of this condition.

Case Report:

A 61 year old female with a history of hypertension presented to the emergency department with right-sided facial droop and paresthesias, weakness, and choreiform movements following witnessed seizure-like activity. The patient underwent a CT head and CTA. Both were unremarkable. She received Keppra for seizure prophylaxis. Labs showed her blood glucose was 653, hemoglobin A1C was 13.8, urinalysis was negative for ketones, and she was diagnosed with nonketotic hyperglycemia in the setting of newly-diagnosed type 2 diabetes. The patient underwent non-contrast MRI and hyperintensities were noted in the head of the right caudate nucleus, putamen, and bilaterally in the basal ganglia. A possible mass was also noted. This, with the physical exam findings, led to the diagnosis of diabetic striatopathy with hemiballism. After euglycemia was achieved with insulin, an MRI with contrast showed resolution of the hyperintensities and ruled out the possibility of a mass.

Discussion:

The pathophysiology behind diabetic striatopathy continues to be elusive, but some postulate it is a microangiopathic cerebrovascular disorder. It is primarily a radiologic and clinical diagnosis mostly seen in T2DM patients with non-ketotic hyperglycemia. Literature review revealed incidences of this occurring in patients with hyperglycemia in the range of 340-1081. Treatment consists of restoring euglycemia, and anti-epileptics are not typically used in management.

Medical Student Poster #47

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Daniel Cotter

Additional Authors: Ramo, Aula MD, Entz, Abigail MD, Karmally, Rachel MD

Anti-GBM Antibody Disease Leading to Acute Renal Failure

Anti-glomerular basement membrane (anti-GBM) disease often manifests as acute glomerulonephritis. Pulmonary involvement occurs in 40-60% of patients, ranging from diffuse alveolar hemorrhage to scant hemoptysis.

We present the case of a 64-year-old woman with a history of hypertension who presented for evaluation of fatigue and hematuria without pulmonary complaints. She was hypertensive but saturating well on room air. Initial lab work revealed creatinine of 4 mg/dL, potassium of 6 mmol/L, bicarbonate of 5 mmol/L. Proteinuria and hematuria were seen on urinalysis. She was quickly started on hemodialysis. Further investigation revealed the presence of glomerular basement membrane antibodies without the presence of antineutrophil cytoplasmic antibodies. Renal biopsy confirmed the diagnosis by demonstrating linear immunofluorescence to the basement membrane with 76% crescents. Treatment with high dose steroids, plasmapheresis and cyclophosphamide was initiated. She remained oliguric and was discharged from the hospital with plans for ongoing intermittent hemodialysis and steroids.

The prognosis of anti-GBM disease is highly dependent on the level of renal function at presentation. Patients with oliguria and need for hemodialysis within 72 hours of presentation typically progress to dialysis dependence. Unfortunately, our patient did not experience renal recovery, likely related to her extensive involvement of glomerular crescents seen on biopsy. This case illustrates a rare disease process seen in one per one-million people, as well as the low-likelihood of renal response for patients who present with dialysis-dependent renal failure.

Medical Student Poster #48

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Kenneth Elkin

Additional Authors: Yanna Tong, Changya Peng, Jiamei Shen, Fengwu Li, Longfei Guan, Xiaokun Geng, Yuchuan Ding

Reduced Apoptotic Injury by Phenothiazine in Ischemic Stroke Through NOX-Akt/PKC Pathway

Phenothiazine treatment has been shown to reduce ischemic injury resulting from stroke; however, the underlying neuroprotective mechanism remains unclear. This study sought to confirm the neuroprotective effects of phenothiazine treatment, and to establish the role of the NOX/Akt/PKC pathway in association with cerebral apoptosis. Sprague-Dawley rats were subjected to middle cerebral artery occlusion (MCAO) for 2h, randomly divided into 3 different treatments: (1) saline (sham treatment), (2) 8 mg/kg chlorpromazine and promethazine (C+P) at the onset of reperfusion followed by 2.6 mg/kg 2 h later, or (3) 8 mg/kg C+P at the onset of reperfusion followed by 2.6 mg/kg 2 h later, as well as apocynin (NADPH- nicotinamide adenine dinucleotide phosphate -oxidase (NOX) inhibitor). Brain infarct volumes were then examined, and cell death/NOX activities were determined by assays. Western blotting was used to assess protein kinase C- δ (PKC- δ), Akt, Bax, Bcl-2, Bcl-XL, and uncleaved/cleaved caspase-3 expression. Both C+P and C+P/NOX-inhibitor administration produced neuroprotection as evidenced by a significant reduction in infarct volumes and cell death, while the C+P/NOX-inhibitor did not confer further neuroprotection. In both treatment groups, anti-apoptotic Bcl-2 and Bcl-XL protein expression generally increased, while pro-apoptotic Bax and caspase-3 proteins generally decreased. PKC protein expression was decreased in both treatment groups, with a further reduction by C+P/NOX-inhibitor at 6 h and 24 h. The present study demonstrated a C+P-mediated neuroprotection, and suggests that the NOX-Akt/PKC pathway may contribute to more efficacious therapy for cerebral injury following ischemic stroke.

Medical Student Poster #49

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Julie Fynke

Additional Authors: Mary Janevic, Rebecca Courser

How Sleep, Cognition, and Fatigue are Associated with Chronic Pain in Older Adults in Detroit

Background: About 1/3 of the U.S. population suffers chronic pain; this proportion is even higher among older adults. The STEPS study assessed the association between participants' pain levels and their self-reported sleep, cognitive difficulty, and fatigue, as these are bothersome symptoms of chronic pain that adversely affect quality of life.

Sample: All participants are 60+, community-living and ambulatory, with self-reported chronic musculoskeletal pain, with average pain level over last week ≥ 4 (1=no pain to 10 =worst imaginable pain).

Methods: Pre-survey (n=57) assessed 8 Likert-scale items (1= Not at all to 5=Very Much) about sleep quality and fatigue from the PROMIS-29 and PROMIS cognitive function assessment. Participants were also asked to rate their pain intensity over the last week on a 1-10 scale, which was categorized into mild (1-3), moderate (4-6), or severe (7+).

Results: Mean age of the sample was 70 years old, 88% female, 98% African American. A one-way between subjects ANOVA was conducted to compare the effects of sleep quality, level of cognitive dysfunction and fatigue in the mild, moderate, and severe pain conditions. There was a significant ($p < .05$) effect of pain intensity on the following items: feeling fatigued, feeling run-down on average, feeling they had a problem with their sleep, and more.

Conclusions: In our sample of African American older adults in Detroit, increased pain intensity was accompanied by increased fatigue, lower sleep quality, and worse self-reported cognition. It is important to address this range of symptoms to reduce their impact on functioning and quality of life.

Medical Student Poster #50

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Kelly Hallman

Additional Authors: Malitha Hettiarachchi, M.D., WSU-SOM, Tenet-DMC, Sinai Grace Hospital; Ronny Hadid, M.D.; Mohannad Alhasani, M.D.

The Obscurity of Adrenal Insufficiency with Normal Cortisol Levels

Introduction

Acute adrenal insufficiency (adrenal crisis) is life-threatening and requires prompt diagnosis and treatment. This is a case of adrenal crisis with delayed diagnosis and treatment due to normal serum cortisol level. We discuss the role of cortisol level in acute adrenal insufficiency.

Case description

A 28-year-old male diagnosed with HIV, on treatment presented with altered mental status. On physical exam, blood pressure: 87/64 mmHg, temperature: 30°C, heart rate: 48 bpm. He was confused and encephalopathic; rest of the physical exam was unremarkable. Labs showed, glucose: 69 mg/dL, WBC: 2.6 K/CUMM, EKG showed sinus bradycardia with Osborn waves. He was initially resuscitated with warm saline, ampules of D50, and a Bair Hugger. IV antibiotics were initiated for sepsis as he is immunocompromised. Acute adrenal crisis ruled out with normal cortisol level of 19.1 mcg/dL at 23:00PM. Patient's condition remained critical without improvement and decided to treat as for adrenal crisis with stress dose IV hydrocortisone and he completely recovered. Cosyntropin stimulation test (while holding hydrocortisone) was subnormal with cortisol rising from 9.3 mcg/dL to 17.3 mcg/dL at 60 minutes.

Discussion

Our patient possibly had subclinical hypoadrenalism secondary to HIV itself or CMV infection and developed adrenal crisis from a viral syndrome. When a patient is under extensive stress, extremely high cortisol levels are expected. Therefore, normal cortisol levels can be deceiving and clinical presentation indicates a high index of suspicion of the diagnosis. Further, it is important to promptly measure ACTH levels and perform a Cosyntropin test, without delaying treatment.

Medical Student Poster #51

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Luke Horton

Additional Authors: Nabil Al-Kourainy, Dana Kabbani, Manmeet Singh

Bilateral Lower Extremity Paresis: A Diagnostic Dilemma

The differential diagnosis for subacute, severe, lower extremity (LE) paresis is broad and can include neurologic, anatomic or infectious etiologies. Here, we present a challenging case of a 58-year-old female with a history of stage IV non-small cell adenocarcinoma who presented to the emergency department with bilateral LE paresis and perianal ulceration, three weeks after gamma knife surgery to treat brain lesions. Neurologic exam was remarkable for flaccid paralysis, strength 1/5 in hips and knees with preservation of reflexes and sensation, without signs or symptoms of cord compression. An exquisitely tender 2-3 cm perianal ulcer was also noted. Workup in conjunction with neurology and infectious disease recommendations was significant for pancytopenia with macrocytosis, cobalamin deficiency with intrinsic factor antibodies, albuminocytogenic dissociation in the CSF without malignant cells as well as a positive HSV-2 culture from the perianal ulcer. Imaging was suggestive of leptomeningial spread of disease in the thoracic spine without signs of cord compression. EMG revealed decreased conductance bilaterally in the LE. Prior to discharge, the differential was narrowed to paraneoplastic syndrome or possibly a variant of Guillain-Barré syndrome (GBS). A paraneoplastic panel was also obtained and results were pending prior to discharge. The patient's LE strength improved to 3/5 bilaterally with intravenous dexamethasone, acyclovir and cobalamin replacement and she was subsequently discharged to inpatient rehabilitation. This case provides a thorough overview for clinicians in the differential, workup, and clinical findings of several rare pathologies in the evaluation of bilateral lower extremity paresis.

Medical Student Poster #52

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Adeola Ishola

Additional Authors: Fitsum Kumssa, MD; Timothy Bowman, MD

A Case of *Prevotella* Bacteremia in the Setting of Pylephlebitis

Prevotella buccae is an anaerobic gram-negative bacillus that is part of the normal oral and gut microbiota. Its association with bacteremia has only been reported in 3 case reports to date. Here, we present a patient who developed *P. buccae* bacteremia in the setting of pylephlebitis, which is to our knowledge the first in the literature.

Our patient is a 62-year-old male with a history significant for a renal transplant and recent admission for cholangitis treated with two weeks of ertapenem and a percutaneous tube drain placement who presented with two weeks of dyspnea on exertion and as well as chills, mild diarrhea, and decreased appetite. He was admitted for AKI and SIRS with concern for infection. Although, the patient remained clinically stable, multiple blood cultures grew *Staphylococcus epidermidis* with anaerobic bottles eventually growing *P. buccae* on day three of hospitalization. Non-contrast CT of the abdomen and drain cultures were unrevealing although bacteremia resolved with initiation of IV antibiotics and drain exchange. Further evaluation with lumbar MRI, echocardiography was unremarkable, however doppler ultrasound of the liver ultimately revealed a portal vein thrombus suspected to be the source of bacteremia. Anticoagulation was deferred given clinical improvement and the patient was ultimately discharged home on IV daptomycin and ertapenem for a duration of 6 weeks.

This case demonstrates the importance of considering pylephlebitis as a source of *P. buccae* bacteremia and thoroughly evaluating for possible gastrointestinal sources, even in the setting of an atypical clinical presentation and non-localizing symptoms.

Medical Student Poster #53

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Megha Jagannathan

Additional Authors: Dr. Claudia Jarrin Tejada

The Subtle Yet Devastating Course of Pneumocystis Jirovecii Pneumonia in a Non-HIV Patient

Pneumocystis Jirovecii pneumonia (PJP), historically regarded as an AIDS-defining illness, has been increasingly reported in non-HIV patients due to a myriad of immunosuppressive risk factors. One of the most salient risk factors is corticosteroid use, including both prolonged and short-course regimens. The stance on PJP prophylaxis with trimethoprim-sulfamethoxazole (TMP-SMX) for non-HIV patients on corticosteroids is unclear, with no guidelines classifying patients by dosage, length of treatment, or preexisting conditions.

Here, we describe a case of a 55-year-old male who desaturated to an SpO₂ of 70% while receiving a PET scan. The PET scan revealed significant pneumomediastinum and ground-glass opacities, and the patient required mechanical ventilation. Upon investigation of his history, it was discovered he was suspected to have dermatomyositis. Thus, he had received prednisone 15 mg daily with no prophylaxis for 1 month, then increased to prednisone 80 mg daily with added TMP-SMX prophylaxis. 3 days following this dosage change, the patient developed pneumomediastinum within the PET scanner and bronchoalveolar lavage revealed Pneumocystis organisms. Despite aggressive TMP-SMX treatment, the patient expired due to respiratory failure a mere week after the prednisone increase.

This patient's decompensation within days following corticosteroid increase with prescribed prophylaxis is an unusual presentation of PJP and emphasizes the fulminant progression of the disease. Non-HIV PJP manifests with a discreet yet destructive course, and no guidelines exist for appropriate prophylaxis. Clinicians should maintain high clinical suspicion concerning the development of PJP in corticosteroid patients as well as consider prophylaxis before a steroid dose increase is prescribed.

Medical Student Poster #54

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Brittany Kashat

Additional Authors: Malitha Hettiarachchi, M.D.

Diverticulitis Masquerading as Colorectal Cancer

Introduction: Presentation of a bowel obstruction due to an apple core lesion with recent venous thromboembolism and significant weight loss in a 74-year-old makes a clinical diagnosis of colorectal malignancy until proven otherwise. This is a case report of diverticulitis presented as a typical colorectal malignancy. We discuss the importance of tissue diagnosis before proceeding to aggressive surgical management.

Case Description: A 74-year-old male with hypertension, previous DVT, and cerebrovascular accident presented with syncope, diagnosed as a large saddle pulmonary embolus. He underwent EKOS procedure. While recovering, he developed nausea, abdominal pain, and loose stool. On physical exam, the abdomen was distended, firm, tympanic, but non-tender without rebound or guarding. Rectal exam was unremarkable. CT scan of the abdomen revealed a sigmoid colonic mass causing bowel obstruction; a Gastrografin enema revealed an apple core lesion in the sigmoid colon. A colonoscopy demonstrated an ulcerated lesion in the sigmoid colon causing obstruction. The biopsy was negative for malignancy but showed chronic inflammatory cells. He developed SIRS, attributed to colonic transformation of bacteria secondary to obstruction. A repeat colonoscopy 2 weeks later revealed absence of the mass and severe diverticulosis with evidence of recent diverticulitis. Repeat biopsy confirmed no malignancy.

Discussion: The presence of an apple core sign is typically associated with colorectal carcinoma. It may also, however, be seen in diverticulitis, colitis, colonic amyloidosis, and endometriosis. This case illustrates the importance of using the proper clinical tools to differentiate between the two and confirmation by biopsy to avoid aggressive surgical interventions.

Medical Student Poster #55

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Vikas Kodali

Additional Authors: Vikas N. Kodali MS3, Wayne State University, School of Medicine, Bishoy Abraham, MD, Photios F. Vassilyadi, MD, Jason Donaghue,

A Trip to the ICU is a Pain in the Foot!

Introduction: Complex regional pain syndrome (CRPS) is a rare but distressing cause of pain in the extremities that typically presents following trauma with the level of pain being disproportionate to the usual course of the level of trauma.

Case: 38-year-old female with a past medical history of DM type II, rheumatoid arthritis, anxiety, and aortic coarctation status post stent at age 4 presented with asymmetric bilateral foot pain with greater pain and erythematous swelling in her right foot. She described the 10/10 severity pain as throbbing and burning with radiation up the leg. She reported decreased temperature sensation and range of motion in her right foot along with allodynia with marked hyperalgesia. She had been admitted to the ICU 3 months prior due to pneumonia and sepsis. Her lower extremity pain symptoms had started after discharge from the hospital and had been progressing since. Her rheumatologist sent her to the hospital for suspected vasculitis. However, no improvement was seen after administration of high-dose steroids.

Discussion: Typical CRPS presentation is post fracture or soft tissue trauma. We present a case in which the patient's symptoms meet all four sign categories (sensory, vasomotor, sudomotor, and motor trophic) of the Budapest Criteria used in diagnosis of CRPS with a lack of any obvious typically inciting trauma. We propose that the history of recent ICU hospitalization for sepsis can be considered the inciting trauma in this unique case of CRPS, expanding the definition of "inciting trauma" in the consideration of future diagnoses of CRPS.

Medical Student Poster #56

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Georgiana Marusca

Additional Authors: Dr. Sophia Binz, Dr. Giuseppe Perrotta

A Sound Sleep with Serotonin Syndrome

Background

Serotonin syndrome (SS) is a rare, but potentially life-threatening condition from serotonergic medications. Despite its classic presentation with the triad of mental-status changes, autonomic hyperactivity and neuromuscular abnormalities, its presentation is varied and subtle with a broad spectrum of characteristics. We present a case of SS occurring after an increase in Paroxetine with the addition of Trazodone for insomnia.

Case

We present a case of serotonin syndrome in a 30 year-old woman with depression and anxiety with recent increase in her Paroxetine dose of 30mg to 40mg with concurrent addition of Trazodone due to insomnia. She presented tachycardic (134) and hypertensive (164/78) with diaphoresis and dilated, but reactive pupils, involuntary perioral twitching, a fine tremor of her fingers, hyperreflexia, more pronounced in the lower extremities, and clonus of the ankles. She had an elevated CPK (1,003 IU/L), but normal TSH and negative infectious work-up. Her urine pregnancy test was negative. She was treated with fluids and benzodiazepines with resolution of her symptoms. Her Paroxetine was switched to Escitalopram.

Discussion

Serotonin syndrome is a potentially fatal condition that requires early recognition, cessation of the offending medications, and supportive care with benzodiazepines. Paroxetine is the most potent serotonin inhibitor in the currently available SSRIs. There are case reports of its use alone causing SS. We present a case highlighting the importance of drug interactions between medications with serotonergic mechanisms as a therapeutic dose of Paroxetine combined with Trazodone lead to SS.

Medical Student Poster #57

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Louis Massoud

Additional Authors: Joseph Mannozi, Donal O'Leary.

Impaired Ventricular Dynamics and Decreased Filling During Muscle Metaboreflex Activation in Heart Failure Canine Model

Ventricular dynamics have been evaluated through many in-vitro and in vivo models in healthy and pathological states. The ratio of the speeds of cardiac muscle contraction/relaxation are maintained in-vitro with sarcomere manipulations such as altered stimulation frequency, length, and beta-adrenergic receptor activation. However, it is not known if whole ventricular contraction/relaxation ratios are similarly maintained. Underperfusion of active skeletal muscle causes accumulation of metabolites which activate afferent neurons that elicit sympatho-activation – termed the muscle metaboreflex. Muscle metaboreflex activation (MMA) increases arterial pressure primarily via increasing ventricular performance which raises cardiac output. We observed left ventricular rates of contraction and relaxation (dP/dt_{max} and dP/dt_{min}) in healthy and heart failure (HF) canine models during exercise (3.2 km/hr) and MMA (induced via transient decreases in hindlimb blood flow). During MMA, ventricular inotropicity and dromotropicity increased substantially and the $dP/dt_{max/min}$ ratio decreased significantly from -1.23 ± 0.05 mmHg/s during exercise to -1.10 ± 0.05 mmHg/s during exercise plus MMA due to more pronounced increases in ventricular relaxation than contraction. After induction of HF, both contraction and relaxation are impaired by about 45%, the ability to raise ventricular function during MMA is reduced and the ratio of contraction to relaxation remained unchanged (-1.10 ± 0.06 mmHg/s vs. -1.07 ± 0.03 mmHg/s). We conclude that normally the changes in ventricular function during MMA favors rapid ventricular filling and contraction. However, in HF ventricular dynamics are impaired lowering ventricular filling time which likely contributes to the impaired ability to raise cardiac output.

Medical Student Poster #58

Category: Clinical Vignette

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Viktoria Mladenovik

Additional Authors: Chaun Gandolfo, DO; Ryan Gindi, MD

The Truth Is in the Fluid

Ascites occurs secondary to accumulation of fluid within the peritoneal cavity. The most common etiologies include cirrhosis, malignancy (including peritoneal carcinomatosis), nephrotic syndrome, heart failure, infection, and protein malnutrition.

We present the case of a 52-year-old man with complaint of dyspnea on exertion. His history was significant for ESRD, recently started on hemodialysis. The patient initially presented to an outside hospital where physical exam revealed ascites. His presentation was attributed to poor renal clearance in the setting of possible cirrhosis thus his dialysis regimen was increased from three to four days weekly. Unfortunately, his symptoms persisted prompting him to seek a second opinion at our institution.

Ultrasound of the liver was performed raising concern for cirrhosis with evidence of portal hypertension. The patient underwent paracentesis which revealed serum-ascites albumin gradient (SAAG) of 1.5 further suggestive of portal hypertension. Ascites protein was 3.1. Liver biopsy with transhepatic pressures was pursued and demonstrated hepatic congestion and normal portal gradient. Echocardiogram was performed to evaluate for cardiac ascites and revealed constrictive physiology with septal bounce accompanied by a small pericardial effusion. Cardiac catheterization further supported constrictive physiology. After diagnosis of constrictive pericarditis was confirmed, the patient underwent pericardiectomy. At 1-month post-op follow-up, he remained asymptomatic and showed no evidence of ascites.

This case illustrates the importance of recognizing constrictive pericarditis as a cause of ascites. Utility of ascites protein is a valuable tool in distinguishing between portal hypertension and right heart failure as the etiology of high-SAAG ascites.

Medical Student Poster #59

Category: Research

School: Wayne State University School of Medicine

Clerkship Director: Diane Levine, MD, FACP

Presenter: Matthew Tukul

Additional Authors: Connor Tukul

Time to Scene for Opioid Overdoses – Are Unmanned Aerial Drones Faster Than Traditional First Responders in Urban Environments?

Introduction

Opioid overdoses claim tens-of-thousands of lives every year. Many of these deaths can be prevented if overdose-reversal medications such as naloxone are administered to patients in a timely manner. Rapid delivery of naloxone to the scene of an overdose, perhaps before first responders arrive, could improve outcomes. Unmanned aerial drones can be remotely deployed and may help overcome barriers to timely arrival on scene for opioid overdoses. This study analyzes whether a drone carrying naloxone is capable of arriving to the scene of an opioid overdose faster than a traditional ambulance.

Methods

A DJI Inspire 2 drone was outfitted with a payload delivery system relevant for medication transport. Fifty flight trials were conducted across seven distances, and the time-to-arrival for the drone was then compared with historical response time data from 200 opioid overdose cases that occurred within Detroit, Michigan at similar distances from dispatch to scene.

Results

We determined with 95% certainty that drone arrival times were discernibly quicker than ambulance arrival times at distances of 1.0, 2.5, and 3.5 km. We also found that with each additional kilometer, drone times improve by an additional 16 seconds \pm 14 seconds.

Conclusion

Compared to historical ambulance runs for opioid overdoses over specific, fixed distances, unmanned aerial drones appear to reduce the time to arrival on scene. Such data suggest that drones could play a role in reducing the time to delivery of life-saving therapies such as naloxone in urban settings; however, head-to-head prospective trials are needed to confirm this.

ACP Michigan Chapter Scientific Meeting 2019

Medical Student Poster #60

Category: Clinical Vignette

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, ACP Member

Presenter: Charlene Lin

Additional Authors: Melissa Olken

Challenges in Diagnosis of Abdominal Compartment Syndrome in Critical Care Patients

Abdominal compartment syndrome (ACS) is a pathophysiologic consequence of increased intra-abdominal pressure (IAP) (De Backer). Intra-abdominal hypertension (IAH) is defined as sustained IAP that is greater than 12mmHg (Luckianow), while ACS is defined as sustained IAP that is greater than 20mmHg with the presence of an attributable organ failure. Demographic data show that 32.1% of ICU patients have IAH, while up to 4.2% of patients requiring critical care have been reported to have ACS (Luckianow). This estimation is likely low as critically ill patients tend to have other causes of circulatory or respiratory failure that can mask ACS (De Backer). It is pertinent to rule out ACS early in the presentation due to high morbidity and mortality rate (Shida). Our case presents a 52-year-old female with a chief complaint of altered mental status. The case was challenging by limited history and unremarkable physical examination initially. While hospital course showed increased bladder pressure, ACS was not listed as a differential. Exploratory laparotomy was indicated for ischemic bowel, and abdominal compartment syndrome was subsequently diagnosed. Several literature guidelines show that, even with limited history, patients with sepsis and elevated bladder pressure should have ACS considered early on.

Medical Student Poster #61

Category: Research

School: Western Michigan University School of Medicine

Clerkship Director: Melissa Olken, MD, ACP Member

Presenter: Shaan Manawar

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Is Image Guidance and Sedation Necessary and Safe for Bone Marrow Biopsy and Aspiration?

Bone marrow biopsy (BMB) and aspiration are procedures that have evolved throughout modern medicine. Its main purpose is in the diagnosis of diseases pertaining to red blood cells, white blood cells, and platelets. Although the pain associated with BMB and reported complications are rare, many BMB are now conducted under anesthesia using image-guided techniques including fluoroscopy and CT scanning. There is a paucity of studies that discuss the risks and complications of BMB, particularly in relation to radiation exposure and anesthesia. Although the radiation dosage during needle guidance is a fraction of that received during diagnostic imaging, it has been shown that radiation exposure in the pediatric population is correlated with an increase in the incidence of certain cancers, particularly leukemias and brain tumors. Clinicians must be aware of the administered dose of radiation in order to anticipate potential complications. Anesthesia in the setting of BMB has been researched and is an aspect of the procedure that can vary from one hospital to the next. Different approaches to the use of anesthesia in BMB have been described, along with their potential complications. Further research must be done to determine the safest, most cost-effective approach in administering anesthesia during these procedures, ranging from local anesthetics to deep sedation. Our review of the literature discussed the current state of knowledge regarding the history BMB techniques, benefits, risks of the procedure itself as well as the risks of anesthesia and imaging.