The following Abstracts have been Accepted for either ORAL or POSTER PRESENTATION and will be presented during SMA’s Scientific Assembly in Destin, Florida, October 31-November 2, 2013. Abstracts are published below in order by specialty/topic area.

Cardiology
Stress Induced Cardiomyopathy: A Retrospective Cohort Study
Atef El Gassier, MD; Yousef Hadi Darrat, MD; Supria Batra, MD; Abdhrman Hamo, MD; Todd W. Gress, MD; Rameez Sayyed, MD; Marshall University, Huntington, WV.

Background/Knowledge Gap: Recently, a significant increasing number of stress induced cardiomyopathy (SICM) cases, mainly occurring in elderly women, have been documented worldwide. Although different names have been used to describe this condition, the similarities in clinical, electrocardiographic, echocardiographic, and angiographic features suggest that they represent the same spectrum of diseases with different underlying causes. The pathophysiology of stress cardiomyopathy remains controversial.

Methods/Design: This is a retrospective study, to describe the clinical characteristics of patients admitted to a regional heart institute and diagnosed with SICM between 2008 and 2011. The data collected includes medications used and clinical outcomes. We also investigated the influence of beta blocker, angiotensin converting enzyme (ACEi), angiotensin receptor blocker (ARB) and selective serotonin re-uptake inhibitor use in this patient population.

Results/Findings: Forty eight patients (45 females and 3 males) were included in this study. Mean age is 66.25 years. The use of beta blockers beforehand occurred in 21 patients (43.7%), ACEi in 17 patients (35.4%) and ARB in 7 patients (14.6%). Results will be presented at the conference.

Conclusions/Implications: Stress induced cardiomyopathy is prevalent among elderly females and carries a favorable outcome.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Stress induced cardiomyopathy predominantly affects elderly females.
2) Outcome is favorable.
Introduction: Neurofibromatosis 1 (NF1) is an autosomal dominant condition that affects 1 in 3700 people, making it one of the most common inherited disease. Cardiac manifestations are infrequent and may include headaches, hypertension, vascular abnormalities like aneurysms and AV fistulae. We present a rare cardiac complication of pericarditis in a young woman with NF1.

Case: A 32 year old woman with history of NF1 presented with cough, shortness of breath and generalized swelling for 1 year. Past medical history significant for hypothyroidism. She had normal vital signs and a BMI of 48.1. Physical exam revealed elevated JVD up to ears, positive kussmaul’s sign, decreased breath sounds at bases bilaterally, anasarca and nodules in arms, legs and abdominal wall. Labs included hemoglobin 11.6, Total Bilirubin 3.3 (direct 0.7) and elevated alkaline phosphatase(140). Pleural and peritoneal fluid analysis revealed transudative pathology. 2D echo showed hyperdynamic left ventricle with EF 74%. Cardiac catheterization revealed severe biventricular congestive heart failure, diastolic dysfunction and marked elevation of right and left heart filling pressures. Cardiac MRI revealed adhesion of the visceral and parietal layers in the anterolateral and inferior surfaces suggesting pericardial constriction despite the fact that the pericardium was not markedly thickened or adhesive on all surfaces. Endomyocardial biopsy revealed normal myocardial tissue. Laparoscopic thoracotomy revealed inflamed pericardium and constrictive pathology. She required pericardiectomy and pathology suggested fibrosed pericardium. She was discharged home and followed up after 2 weeks without any recurrence of edema or symptoms.

Discussion: NF gene on chromosome 17 is responsible for production of Neurofibromin which is a negative growth factor. Cardiovascular involvement is caused by mutated NF gene leading to overgrowth of non neural crest cells in heart, endothelial and smooth muscles of blood vessels and fibroblasts present in blood vessels. We present the case of normal thickness pericarditis associated with NF1.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Understand presenting signs and symptoms of chronic constrictive pericarditis and its management.
2) Recognize cardiac complications of neurofibromatosis type 1.
Cardiology

A Rare Case of Noncompaction Cardiomyopathy Presenting with Unstable Angina
Trevanne Matthews Hew, MD; Tracy Ashby, DO; Jason Hew, MD; Department of Medicine, University of Florida College of Medicine, Jacksonville, FL.

Introduction: Noncompaction Cardiomyopathy (NCM) is a rare disorder which has been classified as a genetic cardiomyopathy by the American Heart Association. The characteristic features include a two layered ventricular wall with a thinner compact epicardial layer and a non-compact myocardium with trabeculations and deep intertrabecular recesses. The diagnosis is based on either echocardiography or Cardiac Magnetic Resonance (CMR) imaging criteria. The clinical presentation in adults is variable but most frequently dyspnea is seen. Optimal management and prognosis is unknown for these patients. There are even fewer case descriptions on the management of patients with this genetic disorder who present with acute coronary syndrome.

Case Report: We describe a 53 year old female who presented with escalating chest pain occurring at rest on presentation. Her EKG demonstrated T wave changers in the anterior leads. An echocardiogram performed demonstrated multiple trabeculations and deep trabecular recesses with global hypokinesis and a depressed ejection fraction. Cardiac Magnetic resonance imaging clinched the diagnosis of NCM with the ratio of noncompacted myocardium to compacted myocardium being measured at approximately 2:1. This patient was initially managed medically for unstable angina but subsequently underwent diagnostic left heart catheterization which revealed severe three vessel coronary artery disease involving the left main coronary artery. Triple vessel CABG was then performed successfully without complication.

Discussion: NCM is a disorder with familial and sporadic forms. Many mutations have been implicated but none are specific for this disease and the diagnosis continues to be dependent on cardiac imaging. There is no uniform agreement on treatment and outcome among the governing authorities. It does appear however that a worse prognosis is seen with individuals with depressed cardiac function. In cases where open heart surgery is necessary successful outcomes have been achieved such as was demonstrated in our index case.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) NCM is a rare genetic disorder with familial and sporadic forms.
2) Diagnosis is based on specific criteria from echocardiography or cardiac magnetic resonance imaging.
3) No uniform management exists for this disease and prognosis is variable.

Unlabeled Use: Describe the investigational use of endobronchial valves in the treatment of persistent air leaks.
Cardiology
Sinus Arrest and Prolonged Asystole From a Peripherally Inserted Central Catheter
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Background/Knowledge Gap: Transient bradycardia is frequently associated with hypoxemia or oropharyngeal manipulation. Central lines have been associated with a variety of cardiac arrhythmias, however, prolonged sinus arrest and asystole have not been documented.

Methods/Design: A 38-year-old woman admitted for sepsis had several episodes of prolonged sinus arrest, slow junctional escape rhythm, and asystole. The episodes of bradycardia did not coincide with tracheal suctioning, were not prevented by escalating doses of glycopyrrolate, and were not accompanied by AV conduction disturbance as is seen with transient increase in vagal tone. Medications were carefully reviewed and none were deemed to cause the cardiac events. Review of the patient’s chest X-ray and chest CT revealed that the tip of a peripherally inserted central catheter migrated to the high right atrium in comparison to the original imaging studies that showed appropriate placement of the catheter. In addition the catheter was sutured on placement. Removal of the catheter resulted in prompt resolution of the episodes of sinus arrest.

Results/Findings: Figure 1 represents an episode of abrupt and profound bradycardia. Panel A illustrates a 24-hour heart rate trend curve. Panel B is a continuous 30-second telemetry rhythm strip that starts with normal sinus rhythm with short PR intervals followed by brief periods of sinus deceleration and complete sinus arrest lasting 20.5 seconds. Letter "E" shows a slow junctional escape rhythm with periods of asystole lasting up to 6 seconds. Figure 2 shows the repeat chest X-ray and chest CT that show the tip of the PICC line in the high right atrium (arrows). Cardiac dysfunction resolved with removal of the PICC line.

Conclusions/Implications: This case demonstrates that catheter migration to the vicinity of the sinoatrial node can provoke prolonged sinus bradycardia, sinus arrest, and asystole.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Understand that asystole is a rare but potential risk with peripherally inserted central catheters.
2) Be able to identify reversible causes of asystole in critically ill patients.
3) Demonstrate that central catheters migrate despite securing in place with sutures and confirming correct placement on initial radiographic imaging.
Chest Diseases

Use of ArterioVenous CO2 Removal (AVCO2R) in a Patient with Hypercapnic Respiratory Failure

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Introduction: Mechanical ventilation remains the cornerstone of management of patients with acute hypercarbic respiratory failure (AHRF). It has proven to be harmful, particularly at high tidal volumes and peak pressures. Lung protective ventilation (LPV) is now considered basic to the management of AHRF. AVCO2R is a simple arteriovenous shunt that works on the concept of uncoupling oxygenation and carbon dioxide clearance, using a gas exchange membrane for CO2 removal. AVCO2R has been successfully used to facilitate LPV in intubated patients with AHRF. This case reports its use in a non-intubated patient with severe AHRF.

Case Report: A 41-year-old Hispanic male with history of respiratory failure secondary to kyphoscoliosis with multiple tracheostomies in the past, dwarfism, HTN, NSTEMI atrial fibrillation, presented with fever, shortness of breath and chest pressure for 2 days. The exam showed decreased air entry in left base, obvious scoliosis, and bilateral lower extremity pitting edema. Significant laboratory results included a bicarbonate of 34 & troponin of 5.46. ABG revealed pH of 7.2 with PaCO2 of 79 mm Hg. EKG showed ST depressions in V1 and V2. CXR revealed LLL infiltrate. Patient was admitted and started on BiPAP. NSTEMI was medically managed. He became drowsy and diaphoretic. ABG revealed pH of 7.18 and pCO2 of 113. Despite being on BiPAP, PaCO2 rose to 128. AVCO2R was started in lieu of intubation due to his history of poor airway access and severe kyphosis. The patient showed improvement requiring minimal non-invasive ventilation. He was maintained on this treatment for several days. However, he later suffered a cardiac arrest requiring emergent cricothyroidotomy,. The cause of the arrest was unknown. The pH and PaCO2 were unchanged from prior to the arrest. Further ICU course was complicated by C.diff colitis and renal failure, requiring hemodialysis. Two days later, the trach dislodged leading to cardiopulmonary arrest and death.

Discussion: The concept of AVCO2R is based on the inverse relation between arterial PaCO2 and alveolar ventilation. Therefore, early use of AVCO2R is a feasible therapeutic option to prevent intubation in patients with AHRF. Futuristic ventilatory management goals for patients with AHRF may include an extracorporeal carbon dioxide removal circuit like AVCO2R, associated with non invasive ventilation. This would minimize sedation, prevent ventilator-induced acute lung injury and nosocomial infections.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Consider alternative methods of CO2 removal.
2) Use extracorporeal CO2 removal in the appropriate patient.
**Chest Diseases**

**A Near Lethal Case of Secondary Spontaneous Pneumothorax with Persistent Air Leak**

Jason Hew, MD; Tariq Khurrham, MD; Trevanne Matthews Hew, MD; Amita Singh, MD; James Cury, MD; Department of Medicine, University of Florida College of Medicine, Jacksonville, FL.

**Introduction:** Secondary spontaneous pneumothorax (SSP) is a complication that arises from underlying lung disease most commonly from chronic obstructive pulmonary disease (COPD). SSP unlike primary spontaneous pneumothorax (PSP) is more likely to be complicated by a persistent air leak (PAL). The treatment of choice involves the removal of blebs and pleurodesis using VATS or open thoracotomy however a non-surgical approach is sometimes necessary. The off label use of endobronchial valves (EBV) is being explored as a minimally invasive option for the treatment of PAL.

**Case Report:** We describe a case of an 81 year old male with very severe COPD with an FEV-1 of less than 25% who presented to our hospital with worsening dyspnea. He was noted to have severe bullous disease on chest radiograph with a questionable large right pneumothorax versus a large thin walled bulla. Hypoxemic respiratory failure soon ensued and he was intubated and placed on mechanical ventilation. Computer tomography (CT) chest with contrast post intubation demonstrated extensive bullous disease with a large right tension pneumothorax. Emergent pleural drainage was undertaken with tube thoracostomy. Repeat CT chest 3 days after the procedure noted incomplete resolution of the pneumothorax. Thereafter a PAL was diagnosed and treated with the bronchoscopic placement of three EBVs in the right upper lobe of the lung. This was effective in stopping the air leak and the pneumothorax completely resolved.

**Discussion:** SSP should be considered in all patients with COPD who present with sudden onset of worsening dyspnea. It complicates existing lung pathology and therefore usually presents with greater clinical severity when compared to PSP. Occasionally imaging with CT chest is required to distinguish a pneumothorax from a thin walled bulla. Pleural drainage is the definitive management but this may be complicated by a PAL. In non-surgical candidates the placement of EBVs offers a reasonable option for the management of a PAL.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1) Secondary spontaneous pneumothorax is usually clinically more severe than PSP due to decreased pulmonary reserve in the affected subjects.

2) Distinguishing between a thin walled bulla and pneumothorax can be difficult and imaging with CT chest may be necessary.

3) PAL complicates SSP and can be isolated with the placement of EBVs by an experienced bronchoscopist as seen in this case and other studies. However the use of this device for this purpose remains investigational due to the absence of Randomized clinical trials.

**Disclosure:**

*Unlabeled Use or Not Yet Approved by the FDA:* Describe the investigational use of endobronchial valves in the treatment of persistent air leaks
Emergency Medicine

Spontaneous Rectus Sheath Hematoma in a Healthy, Non-anticoagulated Female

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Introduction: Acute abdominal pain is one of the most frequent presenting complaints in the emergency department. The etiology of acute abdominal pain can range from benign conditions to life-threatening surgical emergencies. The ED physician must keep a broad differential in mind for those presenting with a chief complaint of abdominal pain to avoid missing these potentially life-threatening conditions. Spontaneous rectus sheath hematoma is a rare but potentially life-threatening cause of acute abdominal pain. A ruptured vessel or muscle tear results in accumulation of blood in the rectus sheath. Typically this condition results from blunt force trauma. Spontaneous rectus sheath hematomas are more common in those on anticoagulation. This case report details a healthy, non-anticoagulated female that presented to the ED with acute non-traumatic left lower abdominal pain.

Case Report: A 41 year old otherwise healthy female presented to the emergency department with a 3 hour history of abrupt onset of severe left lower quadrant pain. The patient stated that the pain started suddenly while walking at the mall. She denied recent trauma or exercise. She described the pain as sharp and very severe. Physical examination was significant for slight tachycardia at 109 and a firm exquisitely tender swelling in the left lower abdomen. A bedside ultrasound was performed soon after arrival in the ED and showed a complex mass in the left rectus sheath consistent with a rectus hematoma (Fig. 1, 2). The size of the mass was measured at 4x8cm. Because the mass appeared to be increasing in size on subsequent exam approximately 1 hour later, the decision was made to perform a contrasted CT exam to evaluate for active bleeding (Fig. 3).

Figure 1: Rectus sheath hematoma in left lower abdomen

Figure 2: Normal right lower abdomen

Figure 3: CT image

Discussion: A rectus sheath hematoma develops following rupture of blood vessels in the abdominal wall. Above the arcuate line, it may be due to rupture of the superior epigastric arteries, and below the arcuate line it is the result of damage to the inferior epigastric arteries. Rupture of the deep circumflex artery, although rare, may also occur causing a hematoma in the oblique muscles. Many risk factors for rectus sheath hematoma have been identified. The condition is usually seen following trauma in an anticoagulated patient. Significant rectus sheath hematoma requiring intervention can occur following a benign tussive episode. Other case reports have also described patients that developed rectus sheath hematoma following surgery. The remaining risk factors in addition to trauma and surgical trauma include pregnancy, collagen vascular diseases, degenerative muscular disorders, coagulation disorders, and strenuous exercise. Preexisting arteriovenous malformations may also provide the source of the bleed. Presentations of rectus sheath hematoma range from localized pain to abdominal compartment syndrome.
resulting in renal failure and difficulty ventilating, necessitating laparotomy\(^6\). The other commonly associated symptoms include abdominal pain, swelling/mass, fall in hemoglobin, nausea/vomiting, tachycardia, orthostasis, hypotension, ecchymosis, syncope, peritoneal signs, and fever\(^6\). Many of the presenting symptoms can mimic intra abdominal pathology. Rectus sheath hematoma can be differentiated from other abdominal pathology by computed tomography or ultrasound\(^7\). A low threshold to pursue these imaging options is important to avoid missing this diagnosis. It is also important to identify the presence or absence of active extravasation on CT scan.

Management involves resuscitation if the hemorrhage is extensive enough and evacuation of the clot if the sequelae of compression and increased abdominal pressure develop. Another key aspect of treatment is reversal of anticoagulation. The case described in this report required only pain control and observation in the hospital setting. However, previously mentioned cases have described patients requiring exploratory laparotomy and interventional procedures. The case described in this article is unique in that the patient has none of the previously described risk factors. This patient experienced no trauma and was not on any anticoagulation. Per patient report, she was ambulating only. It was quickly identified by bedside ultrasound and then confirmed by CT scan. Even though the incidence of rectus sheath hematoma is increasing as more and more patients are being anticoagulated, it is still a potential source of abdominal pain in many other patients.

**Conclusion:** The abdominal wall is a significant source of abdominal pain as the case and previously reported cases have suggested. Typically, anticoagulated patients are at greater risk of RSH even following benign traumas. This case extends the possibility of this potentially serious diagnosis to patients not on anticoagulant therapy. Ultrasound is a practical and efficient mode of evaluating the abdominal wall as well as intraabdominal organs and can identify RSH.

**References:**

**Emergency Medicine**

**Does EMS Arrival Affect Patient Satisfaction with the Emergency Physician?**

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**Background/Knowledge Gap:** Patient satisfaction is becoming more important in emergency medicine. Previous Emergency Department (ED) studies have demonstrated increased patient satisfaction with acceptable wait time, adequate pain management, and receiving sufficient medical information. Our goal was to determine whether arrival to the ED by EMS (ambulance) affects patient satisfaction with emergency physicians.

**Methods/Design:** This was a prospective, cohort study at one large Level 1 Trauma Center and teaching hospital. All patients were asked to participate who were brought by either EMS or personal vehicle (POV) during semi-randomly selected 7 hour episodes over a 10 week period. Only patients discharged home were surveyed as this is the typical practice for ED satisfaction surveys. The patients answered 4 physician related questions from the Press Ganey® survey on a scale of 1 to 5 (1= very poor, 5 = very good) regarding (1) courtesy, (2) time to listen, (3) notification of treatment, and (4) comfort.

**Results/Findings:** There were 63 EMS patients and 245 POV patients. EMS patients had lower fractions of very satisfied patients (score = 5) than POV patients for all 4 questions, but only Question 2 had a statistically significant difference (71.4% and 84.9%, p = .021). Since the groups differed for female gender, average age, and ED LOS, the 63 EMS patients were compared to a sample of 63 POV patients matched for these characteristics. In this matched comparison, the EMS patients again scored physicians lower than the POV patients for all 4 questions, but statistically significant only for Question 2 (71.4% and 87.3%, p = .047).

**Conclusions/Implications:** This small pilot study is the first study investigating the effect of EMS arrival on patient satisfaction in the ED. EMS patients were less likely to feel their emergency physician had time to listen to them even when the cases are corrected for gender, age, and ED LOS.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1. Recognize that the mode of arrival does affect the patient’s satisfaction with the courtesy of the emergency physician. The reasons for this result are not known, but may be due to the physician’s discussion with the EMS provider rather than the patient.
2. Understand that this finding may aid the physician in better managing EMS patients, and should be addressed when making comparisons between satisfaction scores.
**Family Practice**

**Inner City Women With Chronic Disease and Without Advanced Directives (AD)**

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**Background/Knowledge Gap:** During the 1980’s, HIV infections increased female mortality. ADs were encouraged in these HIV+ patients (pts) since situations occurred where an incapacitated pt was unable to direct care. In 2005 highly active antiretroviral therapy helped to drastically decrease HIV mortality. Presently there is little data on whether HIV+ women have AD’s. Our objectives were to evaluate the status of ADs with HIV+ women prior to and during hospitalization, as well as demographics, and number of years since HIV diagnosis.

**Methods/Design:** An AD was defined as a Living Will, Health Care Proxy or a Do Not Resuscitate order. Focusing on HIV+ women, a retrospective chart review was conducted on admissions from 2005-2011 to determine AD status. Demographics, years since diagnosis and status of outpatient care were collected.

**Results/Findings:** 29.6% of 182 HIV+ pts identified were women. Their median age was 49.5 years (yrs) [22 to 85 yrs]. Median time since HIV diagnosis was 9 yrs [0 to 21 yrs]. 11% of pts were from private practice and 46.3% from a clinic setting. Intravenous drug use (33%) was the greatest risk behavior. CD4 counts were known in 83% of pts. 19% of HIV+ women had + serology for Hepatitis C. 96.3% of women lacked an AD at admission; this increased by 2.7% during hospitalization. Age >55 yrs did not influence AD decisions prior to or during hospitalization.

**Conclusions/Implications:** Although >50% had prior care in a clinic or private practice, our study found 96.3% of HIV+ women lacked an AD. During hospitalization, ADs only slightly increased. This is a disturbing trend for inner city women. Different approaches are needed to address ADs for HIV+ women in an ambulatory setting and during hospitalization.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1) Identify the female patients most in need of a discussion regarding ADs.

2) Have an open discussion with their patient regarding end of life care.
**Family Practice**

**Purpurial Septic Shock Due to Group A Streptococci: A Case Report of Pasteur’s Dilemma in the Modern Era**

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**Introduction:** Louis Pasteur is credited with recognizing that purpurial sepsis was the result of streptococcal infection. While Group A Streptococcus (GAS) remains a common cause of post-partum infection in developing countries, it is rarely seen in the US. According to the CDC, approximately 232 cases of postpartum invasive GAS infection occurred in the United States in 1997, an incidence of 0.06 cases per 1000 live births. Further, a review of 47 cases noted that only 3 cases of post-partum invasive GAS resulted in septic shock. Because of its rarity, we present a case of post-partum septic shock due to invasive GAS requiring aggressive intensive care.

**Case Report:** A 22 year old female, G2P1, had a normal spontaneous vaginal delivery at full-term with rupture of membranes at the time of delivery and no vaginal laceration. On postpartum day one she complained of severe, excruciating abdominal pain. Abdominal ultrasound was non-diagnostic. The WBC was 10.5 with 17 bands. The next day, she was hypotensive and tachycardic (BP= 77/43, P=154). She was transferred to the ICU. On arrival, the abdomen was very tender and the fundus was slightly enlarged. The WBC was 4.1 with 26% bands. Treatment was initiated with intense fluid resuscitation, vasopressors, broad spectrum antibiotherapy. The next day, Group A streptococci was identified in blood cultures. She became hemodynamically stable off pressors and sent to the medical floor.

**Discussion:** Postpartum patients are more susceptible to severe GAS infections due to the immunologic changes that occur during pregnancy and the trauma/mucosal disruption during delivery. Decrease maternal exposure and high level suspicion for early diagnosis can avoid further organ damage and improve outcome.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1) How and when to recognize postpartum GSA TSS.
2) Once clinical suspicion, how to manage condition promptly and effectively for better outcome.
3) Apply appropriate measure to prevent occurrence of infection in the perinatal period.
Introduction: Since first described in the 19th century, periodic paralysis remains a rare neuromuscular disorder. It is characterized by episodes of painless muscle weakness triggered by various precipitants. An acquired variant associated with hyperthyroidism is a more puzzling clinical entity that can present with features of thyrotoxicosis. While most common in young Asian males, the syndrome of thyrotoxic periodic paralysis (TPP) can strike all nationalities. We present a case of a young Hispanic male with TPP in order to help clinicians recognize this rare condition.

Case Report: A 36-year-old Hispanic man presented to the Emergency Department with a 2-3 day of progressively severe muscle weakness. His initial workup revealed a potassium of 3.2 mEq/L and no etiology could be identified for the patient’s symptoms. He returned less than 12 hours later noting he could no longer ambulate. Physical exam revealed diffuse, symmetrical muscle weakness. His laboratory investigation was normal except the potassium level was now 1.7mEq/L. Additional history revealed he was recently diagnosed with hyperthyroidism and started on propanolol, but he failed to follow-up with his recommended therapy. Potassium supplementation resulted in rapid clinical improvement and early hospital discharge.

Discussion: Periodic paralysis can be congenital or acquired and may pose a diagnostic dilemma. Patients may be inappropriately labeled as conversion disorder or malingering. We will review the evaluation and management of TPP in order to provide clinicians with the tools to accurately diagnose and treat this curable condition.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Awareness of TPP for the management of hyperthyroidism.
2) Consider the possibility of PPT in patients with hypokalemic paralysis even with a euthyroid state.
3) Maintain a euthyroid state to prevent subsequent attacks.
**Family Practice**

**Herpes Zoster Prior to the Discovery of a GIST Tumor: A Case Review and Systematic Review of the Literature**

*Kenneth S. France, MD¹, Robert Dachs, MD, FAAFP²; Gary Dunkerley, MD¹; ¹Ellis Hospital Family Medicine Residency Program, ²Department of Emergency Medicine, Ellis Hospital, Schenectady, NY.*

**Introduction:** Herpes Zoster (HZ) or Shingles, presents as an excruciatingly painful rash which is due to the reactivation of varicella-zoster virus (VZV). Reactivation of VZV has been linked to immunosuppression. However, it remains uncertain if HZ is a potential signal of an underlying malignancy. We describe a case of GIST, a rare GI tumor, in a 65 year-old patient treated 3 weeks earlier for shingles. A review of the literature regarding the potential link between HZ and subsequent cancer diagnosis will also be presented.

**Case Report:** A 65 year-old female presented to her primary care physician (PCP) complaining of epigastric and right upper quadrant pain, bloating and belching. Three weeks earlier she was treated for shingles. Ultrasound evaluation revealed a lesion between the liver and stomach and subsequent CT scanning revealed a 4.4 cm non-cystic mass. CT guided biopsy of the mass demonstrated GIST on pathology analysis. PET scanning did not show evidence of metastatic disease. The tumor was located along the lesser curvature of the stomach and was excised by a laparoscopic method. The patient has been followed for five months post-surgical resection and is doing well.

**Discussion:** While HZ often follows the diagnosis of cancer, many have questioned if its presence can be a signal of a yet to be uncovered cancer. In the past decade, 4 of 5 large population-based studies suggest a small but clear link between HZ and a subsequent cancer diagnosis. The most common cancer discovered is non-Hodgkin’s lymphoma. However, no clear association with GI tumors has been established. Our case represents an opportunity to review the literature regarding the potential link between HZ and cancer. It also re-emphasizes the need for careful and detailed H & P along with relevant studies in patients with unexplained symptoms whether they have or have not had a recent HZ infection.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1) Initiate a discussion with patients regarding the possibility of an occult malignancy with VZV reactivation.
2) Understand the need for careful H & P and relevant ancillary studies in patients presenting with VZV reactivation.
Family Practice

Medical Home Model of Patient-Centered Health Care

Jon Parham, DO, MPH, Department of Family Medicine, UT-GSM, Knoxville, TN; Sandra Berryman, DrNP, College of Nursing, UAMS, Little Rock, AR.

Background/Knowledge Gap: The Patient-Centered Medical Home originated in pediatric chronic care patients and its elements have indolently remained in health care service, unorganized for decades. Economic pressures and social interest to synchronize these elements now alert all patient providers to consider if and how their health care practice will incorporate these PCMH elements. There is ignorance, inexperience and therefore resistance to change among many medical practices. This poster addresses some of this ignorance and discusses some of the challenges that providers and their practices face in adopting a PCMH model that itself is dynamic.

Conclusions/Implications: In at least some PCMH trials there have been successful implementation of this practice model with meaningful lessons learned, significant cost savings, increased patient satisfaction, and improved quality of patient care.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Define the Patient-Centered Medical Home
2) Identify and discuss at least 2 benefits of the PCMH
3) Identify and discuss at least 2 challenges of implementing the PCMH
Family Practice

Transcutaneous Acupuncture
C. Norman Shealy, MD, PhD; Holos Institutes of Health, Fair Grove, MO.

Background/Knowledge Gap: Acupuncture has been increasingly accepted in the U.S. over the past 35 years, but it requires special training and time and must be done in the practitioner's office. Transcutaneous electrical nerve stimulation has also been used but requires more time than many patients are willing to spend.

Methods/Design: Over the past 20 years 5 acupuncture circuits have been shown to raise either DHEA, Aldosterone, oxytocin, or calcitonin or to reduce free radicals at least 80%. Initially, human DNA frequency of 54 to 78 GHz was used to demonstrate biochemical efficacy. Patients with rheumatoid arthritis, depression, migraine, diabetic neuropathy and pain achieved 70 to 80% improvement. Because of the time required for individuals to achieve these results, an alternative method was developed using specific blends of essential oils applied to the acupuncture points.

Results/Findings: DHEA, aldosterone, oxytocin, & calcitonin were increased as well with the essential oils as with electrical stimulation. Depression and anxiety have been well controlled clinically with this approach, which requires only 30 seconds for application and it can be done by the patient at home.

Conclusions/Implications: Transcutaneous application of essential oils is safe and is as effective as electrical stimulation and needles and is much more acceptable to patients. It is a cost effective method. Perhaps the most significant finding is 80% reduction in free radicals, which has implications for improving all inflammatory disorders.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Assist in major free radical reduction
2) Assist patients in overcoming depression without use of drugs.
3) Provide safe alternatives to acupuncture needles.

Disclosure:

Honoraria: C. Norman Shealy
Geriatric Medicine

A Brief Educational Intervention to Improve Staff Management of Disruptive Behaviors in the Nursing Home

Lorene Nicole Rodriguez, MD; Anna Mirk, MD; Emory University, Atlanta, GA.

Background/Knowledge Gap: Disruptive behaviors from dementia encountered in the nursing home (NH) leads to falls, hospitalizations, emergency room visits, medication usage, and decreased staff job satisfaction. NH staff lack understanding of causes and treatments of disruptive behaviors. Previous studies show that staff knowledgeable about common causes of disruptive behaviors results in fewer adverse outcomes and increased satisfaction.

Methods/Design: Anonymous knowledge and needs assessment survey in managing disruptive behaviors in the NH administered to 20 staff at the Atlanta VA NH. Staff completing the assessment included certified nursing assistants, registered nurses, nurse practitioners, social workers, recreational therapists, physical and occupational therapists. Identified deficits were incorporated into a 45 minute face-to-face didactic session by a physician focused on the Antecedents-Behaviors-Consequences or "ABC" method of responding to disruptive behaviors. Post-presentation assessment was given to determine whether knowledge of dementia related behaviors had increased.

Results/Findings: Initial assessment identified deficits in understanding progression advanced dementia (N=6, 30%), appropriate use of medications for disruptive behaviors (N=6, 30%), and potential adverse effects of medications (N=5, 25%). Post-intervention assessment (N=20) showed staff presented with an alternative non pharmacological method were more likely to use it 70 to 90% of the time. 100% of staff were able to correctly indentify side effects of dementia medications and 100% recognized that dementia disruptive behaviors in residents are often a sign of physical or emotional discomfort.

Conclusions/Implications: Brief staff education directed towards specific disruptive behavior management techniques increases staff knowledge and willingness to implement non-pharmacologic interventions and central to improved quality of care for patients with dementia and to reduced use of antipsychotic medications mandated by the Centers for Medicare and Medicaid services.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Understand disruptive behaviors in NH.
2) Understand types of non-pharmacological interventions and when to use them.
3) How to use the ABC method to respond to disruptive behaviors.
**Infectious Diseases**

The Clinical Characteristics and Outcomes of Mucormycosis in 2 Community Hospitals in West Texas: A Case Series

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**Background/Knowledge Gap:** The Mucorales are ubiquitous filamentous fungi, several species of which can cause mucormycosis. Most human infections result from the inhalation of fungal spores or the direct inoculation of fungal elements into disrupted skin. Major risk factors for this infection include; diabetes mellitus, corticosteroid use, organ transplantation and hematological malignancies. The increasing prevalence of these risk factors has led to a dramatic increase in the number of patients at risk for this deadly infection.

**Methods/Design:** A retrospective chart review was performed of patients hospitalized with mucormycosis at two community hospitals in Amarillo, Texas between 1/1/2001 and 31/12/2011.

**Results/Findings:** Ten patients, 7 males and 3 females, were diagnosed with mucormycosis during the study period with a mean age of 58.8 years. There were 5 cases of pulmonary infection, 2 cases of cutaneous infection and 1 case of rhinocerebral, gastrointestinal and sinus infection, each. Diabetes mellitus was the most common risk factor, identified in 6 patients, followed by hematological malignancy, immunosuppression and trauma. Nine patients received antifungal therapy, 4 of these in combination with surgical debridement. The patient with cutaneous infection underwent surgical debridement alone. Lipid formulations of amphotericin B were prescribed for 8 patients; used alone in 2 cases and combined with posaconazole in 5 cases and combined with caspofungin in 1 case. One patient was treated with posaconazole alone. The most common side effect of treatment was acute kidney injury which was reported in 4 patients. Nine patients were discharged from the hospital alive; 4 were released home, 4 transferred to long-term care facility and 1 went to hospice. The cohort mean hospital length of stay was 44.9 days. Mortality rate at 6 month follow up was 40%.

**Conclusions/Implications:** Mucormycosis is a serious fungal infection that continues to carry a significant morbidity and mortality. At risk patient populations are on the rise. Early diagnosis and aggressive combined approach with surgical debridement and antifungal therapy are pivotal in improving patient outcomes.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1) Recognize Mucormycosis and associated risk factors.
2) Antifungal options for treatment of Mucormycosis.
3) Outcome of Mucormycosis.
A Fatal Case of Cryptococcal Meningitis
Sunil Buddaraju, MD; Sami Mohammed Abdus, MD; Rajashekar Katuru, MD; Subhakar Gummadi, MD; Venkat Banda, MD; BRG-Tulane Internal Medicine Residency Program, Baton Rouge, LA.

Case: 44 y/o AA female with history of HTN, DM and chronic Hepatitis B & C on treatment and transplant list presents with altered mental status and witnessed new onset seizure. PE was generally well with no meningeal signs, or neurological deficit except for drowsiness and confusion. She was extensively worked up with multiple CT scans and EEGs which were normal. An LP was performed which suggested meningitis, and she was empirically started on ceftriaxone and vancomycin. The patient continued to spike fevers and was confused. Antibiotics were continued and acyclovir was started to cover viral etiology. Screening for bacterial etiology and encephalitis panel were negative. Antibiotics were discontinued, but antivirals continued as HSV and West Nile were pending. She started to improve clinically and was less confused, more oriented, tolerating diet and starting to do physical therapy. Overnight patient deteriorated rapidly, developed respiratory failure s/p intubation, was unresponsive, comatose and transferred to the ICU. Subsequent CT showed substantial cerebral edema, and physical signs suggested brain herniation. The cultures later grew fungal organisms identified as cryptococcal meningitis. Amphotericin B and flucytosine was initiated. Therapeutic LP was done and about 20 cc of CSF was removed. After two days patient was unresponsive, comatose with no brain stem reflexes. Due to poor prognosis the family decided to withdraw care.

Discussion: Cryptococcal meningitis is generally thought to be associated with immunocompromised patients and while rare, immunocompetent patients are susceptible. The incidence among immunocompetent patients has risen in recent years, and is associated with significant morbidity and mortality. The diagnosis is often delayed because of non-specific subtle symptoms and the rarity of the disease. Specific treatment is not implemented until the organism is identified or a cryptococcal antigen is detected. The outcome of the disease can be severe unless diagnosed early.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Recognize the signs and symptoms of cryptococcal meningitis.
2) Describe the prevalence, pathophysiology and treatment of cryptococcal meningitis.
A Case Report of Imported Cerebral Malaria

Shohala Numaira, MD; Melanie McKnight, MD; Vasudev Tati, MD; BRG-Tulane Internal Medicine Residency Program, Baton Rouge, LA.

Case: A 49 y/o AA male, recently returned from a trip to Cameroon, presented to the ER after a witnessed seizure. He was taken to a hospital a day before for subjective fevers, chills, headache and confusion, was diagnosed with malaria and discharged from the ER on oral quinine and doxycycline. He went to Cameroon, Africa to visit friends and relatives for 2 weeks, and did not take malaria prophylaxis. Approximately 15 days prior while in Africa he had food poisoning with N/V/D, and was treated with IV fluids at that time. PE: Positive scleral icterus, sluggish reacting pupils. He was confused, oriented to person, disoriented to place and time. He had mild transaminitis and elevated bilirubin which trended to normal after a few days. His LDH was high which trended down. CSF showed mild elevated proteins. UA showed orange color, 2+ bilirubin, >8 urobilinogen. Peripheral smear showed heavy parasitemia (25-30%) and RBCs with ringed trophozoites having double chromatin dots. No characteristic gametocytes were evident, but the findings favored P. falciparum. He was admitted to ICU and started on IV D5W at 100cc/hr, IV doxycycline and IV quinidine gluconate. CDC was contacted due to non-availability of IV quinidine, and it was dispensed the same night. Eventually his mental status improved. After 24 hrs of IV medications, was switched to oral medications. He developed bradycardia and 1st degree AV block due to quinidine side effects, so it was discontinued and atovaquone/proguanil started. He improved clinically and was treated for 7 days and discharged with close follow-up.

Discussion: Delays and errors in the treatment of malaria can cause increases in both the occurrence of severe malaria and the number of deaths. There is an urgent need for better education of travelers and health care providers about malaria risk, prevention, diagnosis and management.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Describe the prevalence, pathophysiology and management of advanced malarial infection.
2) Describe the preventive measures needed to reduce the worldwide incidence of drug-resistant malaria.
3) Describe the importance of chemoprophylaxis against malaria for travelers to endemic areas.
**Infectious Diseases**

**Disseminated Lactobacillus Osteomyelitis – Unique Radiographic Presentation**

Kamla Sanasi-Bhola, MD; Sharon Weissman, MD; Helmut Albrecht, MD; Joseph Horvath, MD; University of South Carolina, Columbia, SC.

**Introduction:** Anaerobic bacteria are an uncommon etiology of osteomyelitis and most cases have been reported in children. This case describes an adult male who was found to have lactobacillus osteomyelitis with an unusual radiographic presentation.

**Case:** A 28-year-old with sickle cell disease, HIV negative, s/p right hip arthroplasty and poly-substance use presented to a tertiary care center in Columbia, SC with fever, leukocytosis (35.1x10^9 cells/L), and altered mental status. His portacath was noted to have a needle and syringe attached to it. He had no recent travel, no exposure to tuberculosis, no recent dental work, and he denied the use of yogurt or probiotics. He reported a 20 pound weight loss, night sweats, intermittent fevers and back pain over a two month period. Significant examination findings included fever (104 degrees Fahrenheit), anasarca, dry necrotic area overlying the site of portacath, with no erythema or elicited pain at the right hip. A computed tomography scan of the abdomen showed gas in vertebral bodies (L2, L4 and L5), sacrum and ileum (figure 1). Bone biopsy and blood culture from hospital day 4 grew Lactobacillus rhamnosus. The lesions in the bone improved after two weeks of Meropenem (figure 2). Hospital stay was complicated by multiple soft tissue and intra-abdominal abscesses, the largest of which was drained and cultures also grew L. rhamnosus. He was discharged after completing 12 weeks of intravenous carbapenem therapy.

**Discussion:** Only two case reports of lactobacillus bone or joint infections have been published in the English speaking literature and prolonged treatment may be required. While rare in adults, it is important for clinicians to be aware of the uncommon clinical and radiological presentations of infections due to mucosal microbiota as they can be associated with significant morbidity and mortality.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1) Recognize osteomyelitis presenting as gas in the bone.
2) Understand that anerobic organisms can cause severe osteomyelitis.
3) Identify lactobacillus species as a potential pathogenic anerobic organism.
Infectious Diseases

The Story of a Brain Abscess – A Classic ‘Whodunnit’!
Abhishek Seth, MD; Saurabh Rajpal, MD; Taru Saigal, MD; Seth M. Berney, MD; Department of Internal Medicine, LSU Health Sciences Center, Shreveport, LA.

Introduction: Brain abscess, a focal collection of pus, represents up to 2% of all intracranial space occupying lesions. The possible sources of infection can be intracranial (paranasal sinuses, middle ear or teeth) or extracranial (hematogenous seeding from elsewhere) . However, 20-30 %, “cryptic” abscesses, have no causative organism.

Case Report: We present a 61 year old black female who returned from a Jamaican cruise 3 weeks prior, with no past medical history, admitted to an outside hospital with headaches for 3 weeks and a seizure on the day of admission. Her brain MRI indicated several ring enhancing lesions and a CXR revealed a RLL infiltrate. After 5 days of intravenous ceftriaxone, metronidazole and vancomycin, she was transferred. She arrived to our hospital, intubated and sedated, with a fever of 101 F, without other physical examination abnormalities. Her significant laboratory results included WBC = 22000, Hb/Hct of 12.1/37.5 and blood glucose of 197. Biopsies of the lesions were consistent with abscess, without any organisms. Additional lab tests which were normal included VDRL, Toxoplasma IgM/IgG, HIV, coccidiodes, taenia solium, cysticercus, cryptococcal Ag, urine, aerobic and anaerobic blood cultures, AFB/fungal blood and tissue cultures and quantiferon gold. The cerebrospinal fluid contained an elevated glucose (91 mg/dl), normal protein (53 mg/dl), 8 nuleated cells, and many RBC’s with fibrillary glial fragments, but without malignant cells. A CAT scan of the chest, abdomen and pelvis revealed only right upper and bilateral lower lobes consolidations with air bronchograms. A transesophageal echocardiogram was normal. Because this could represent an atypical presentation of neurocysticercosis, we added albendazole to the other antimicrobials. She underwent a repeat excisional biopsy of the frontal lobe lesion with the same pathologic results. After 4 weeks a repeat brain MRI indicated significantly smaller abscesses and she continued to improve.

Discussion: Sterile brain abscesses occur in two circumstances: 1) partial treatment with antimicrobials prior to adequate microbiological evaluation, and 2) when no organism is identified. Our patient had a RLL infiltrate on CXR which was presumed to be the source. We speculate, the antibiotics suppressed the growth of the causative bacteria resulting in sterile cultures. This case illustrates the importance of early neurosurgical intervention at time of initial diagnosis of brain abscess to optimize the patient’s chance of recovery.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Recognize the pathologic entity “sterile vs. cryptic brain abscess”.
2) Recognize the critical importance of early neurosurgical intervention at time of initial diagnosis of brain abscess.
A Unusual Case of CMV Encephalitis in an HIV Patient
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Introduction: Cytomegalovirus (CMV) encephalitis was a major cause of morbidity and mortality in the pre-HAART era. Since the advent of HAART the incidence in HIV has now significantly decreased to about 5–10% of previous estimates. Cerebrospinal fluid PCR for the detection of CMV DNA provides a useful diagnostic technique in the early management of these patients. Historically CMV encephalitis was diagnosed at the time of autopsy.

Case: We report the case of a 39-year-old Hispanic male who presented with increasing weakness and worsening mentation over a two-month period. Past medical history included HIV/AIDS, not on HAART, with a recent CD4 count of 80. Physical examination revealed an afebrile gentleman who was alert and oriented x 1 only, with grade 2/5 power and evidence of spasticity in both lower extremities. Initial complete blood count and chemistry panel were unremarkable. Brain MRI revealed diffuse T2 hyperintensity of the white matter of the cerebral hemispheres, consistent with a leukoencephalopathy and suggesting a viral etiology. MRI of the spine was negative for evidence of myelitis. Lumbar puncture was remarkable for elevated protein of 166 mg/dL. CSF PCR was positive for CMV and negative for JC, EBV and West Nile virus. The patient was diagnosed with CMV encephalitis. HAART therapy was initiated and he was treated with intravenous ganciclovir for 21 days. His mental status improved significantly and he was discharged on oral valgancyclovir for a duration of therapy determined by his time to recovery of immune competence.

Discussion: This case of CMV encephalitis is unique for several reasons. CMV typically manifests in AIDS in patients with CD4 counts < 50; chorioretinitis has accounted for 80–90% of the CMV disease seen in patients with AIDS. Historically, CMV chorioretinitis has been diagnosed in approximately 60% of patients ultimately found to have CMV on autopsy. Out patient with CD4 of 80 had no evidence of chorioretinitis. Clinicians today uncommonly encounter CMV neurological disease with the availability of HAART. This case highlights the importance of placing CMV encephalitis in the differential diagnosis of diffuse encephalopathy in the AIDS patient. Historically, CMV encephalitis has been a diagnosis made at autopsy.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) CSF PCR is an effective method of making an early diagnosis of CMV encephalitis.
2) CMV encephalitis is not always associated with chorioretinitis.
3) CMV encephalitis should still be investigated in patients with a CD4 count > 50.
Infectious Diseases

Defining the Rural HIV Epidemic in South Carolina: Correlation of Patient Survey Results and Standard Rural Definitions

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Background/Knowledge Gap: Increasingly the human immunodeficiency virus/ acquired immune deficiency syndrome (HIV/AIDS) epidemic in the United States has shifted to the South where a larger portion of the epidemic is occurring in rural areas. In 2010, 40% of people living with AIDS in the US resided in the South. In several southern states there has been a 35.6% increase in new AIDS diagnosis compared with 5.2% increase in the US. As the epidemic continues to shift, a better understanding of rural populations affected by HIV will be critical for future prevention, interventions and treatment efforts. To the best of our knowledge, there are no studies that have evaluated the patients’ perception regarding rural or urban location and access to care. Understanding the rural HIV/AIDS epidemic is further complicated by the difficulty with defining the rural population. There are many definitions for “rural” depending on the source and purpose with considerable disparity depending on the definition used.

Methods/Design: HIV-infected patients from the Immunology Center Clinic in Columbia, SC, and Hope Health clinics in Florence, Orangeburg and Aiken, SC are currently being invited to complete a survey with questions about their perceptions regarding access to care; commute time and their type of residence; rural versus urban. Responses will be compared to the three standard rural definitions. Respondents’ charts will be reviewed for information such as CD4 cell count and viral load.

Results/Findings: About 350 questionnaires have been distributed at the above locations. As at July 2013 we have administered over 270 questionnaires and have reviewed their corresponding medical records for information such as current viral load and CD4 T-cell lymphocyte counts. We hope to complete data entry by August 2013 and then validation, cleaning and analysis by September 2013.

Conclusions/Implications: Information from this survey may be helpful in improving healthcare delivery to rural communities.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Understand how the designation as rural/urban currently used by various agencies may not accurately represent the rural population with regards to health care.

2) Recognize the difficulties the rural population with HIV/AIDS have in accessing care.
Infectious Diseases
Silent Dysfunction: Compromised Cardiac Autonomic Reflex in a HAART-Naïve AIDS Patient
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Case: A 24 y/o African American male presented to the ED with sinus pain and headache. He reported chronic allergies, with recent fatigue and white discoloration of his face and legs. On exam, he was febrile, tachycardic and in moderate distress. The skin discoloration was patchy, white, and diffuse in a malar distribution across his face; arms and legs had excoriations. Labs revealed profound pancytopenia; head CT showed pansinusitis and mastoiditis. An HIV test was positive and the CD4 count was 1. The patient had an extended hospital course, during which he remained persistently febrile despite vancomycin and piperacillin-tazobactam. Coverage was then extended with linezolid and meropenem for resistant organisms. Initial blood cultures grew gram negative rods, then remained negative thereafter. CSF cultures and assays for CMV, cryptococcus, histoplasma were negative. On hospital day 8 the patient reported “blacking out” upon standing. Evaluation revealed profound orthostatis (SBP 130 standing/105 sitting/73 standing) and postural tachycardia (HR 83 supine/103 sitting/142 standing), accompanied by vision changes, nausea and pre-syncope. The patient became increasingly symptomatic, unable to ambulate, and eventually sit without assistance. EKG was compared to his initial admission; measurement of the QT/QTc interval was shortened, decreasing from 0.320ms on admission to 0.280ms at this time. Midodrine therapy was initiated with mild symptomatic relief.

Discussion: Cardiac autonomic dysfunction, manifested as syncope, orthostatic hypotension and postural tachycardia, is a known sequelae of HIV/AIDS; more profound symptoms have been observed to correlate with lower CD4 values. However, to date this has been documented only after HAART therapy has been initiated. In this HAART-naive patient, a clear effect of the virus on cardiac autonomic function was observed. Although difficult to quantify in the clinical setting, using the QT/QTc interval as a surrogate measurement of parasympathetic and sympathetic reflexes may be useful to identify cardiac autoimmune dysfunction.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Describe the prevalence and pathophysiology of compromised cardiac autonomic function in HAART-treated and HAART-naive AIDS patients.
2) Describe the use of the QT/QTc interval as a surrogate measure cardiac autoimmune dysfunction.
Infectious Diseases
Diagnostic and Therapeutic Dilemmas in AIDS-related Progressive Multifocal Leukoencephalopathy (PML): A Case Report
Anita Mannancheril, MD; Gary Dunkerley, MD; Robert Dachs, MD; Ellis Medicine, Schenectady, NY.

Introduction: Progressive multifocal leukoencephalopathy (PML) is the result of the failure of cell-mediated immunity allowing reactivation of the John Cunningham (JC) virus which ultimately destroys affected oligodendrocytes and astrocytes. Immunosuppressed patients, particularly those with HIV, remain at the highest risk for developing PML. ART has dramatically decreased the mortality associated with this disease. However, patients who are unaware they are infected with HIV or those that refuse HAART therapy and develop AIDS may present with neurologic changes that may be due to PML or other opportunistic CNS diseases. Diagnosis and therapeutic dilemmas will confront the clinician in such cases. We present a case of a middle-aged male with untreated HIV infection that presented with progressive weakness and review the diagnostic and treatment strategies involved.

Case Report: A 51 year-old male with a history of HIV/AIDS for more than 20 years, noncompliant with HAART, presented with progressive generalized weakness, gait disturbance and frequent falls for 1 week. Serology revealed viral load/CD4 counts of 104,000/95, respectively. CSF testing showed: protein, glucose, and negative for VDRL. PCR testing for JC virus was positive. MRI revealed nonspecific white matter abnormalities and T2 and FLAIR hyperintensities in the cerebral white matter were consistent with PML. The patient was started on HAART therapy. The patient subsequently was stable without progression of weakness and control over his intractable headaches. There was also no evidence of IRIS (Immune reconstitution inflammatory syndrome) with the initiation of HAART.

Discussion: PML in patients with AIDS remains prevalent but confirming the diagnosis requires vigilence. Treatment with HAART can lead to suppression of reactivation of JC virus and clinical improvement but the clinician should be aware that this therapy has been associated with the complication known as IRIS.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Know pathogenesis and epidemiology of PML.
2) Know how to diagnose PML.
**Medicine**

A Case Report of Non-Hodgkin’s Lymphoma with Metastasis to Pituitary Gland Resulting in Anterior Hypopituitarism and Hyperprolactinemia  
*Deepa Ponnusamy, MD; and Veronica Piziak, MD, PhD; Scott & White Healthcare, Temple, TX.*

**Introduction:** Most common primary neoplasm metastasizing to the hypothalamic-pituitary region is breast and lung cancer and they constitute 1-2% of sellar masses. Metastatic disease to the pituitary preferentially involves the posterior lobe with diabetes insipidus being the most common clinical presentation. We report a case of recurrent Non-Hodgkin’s Lymphoma metastasizing to the pituitary gland resulting in anterior hypopituitarism without involvement of the neurohypophysis.

**Case:** A 51 year old, Caucasian, immunocompetent female with no significant past medical history presented in Mar 2012 with right inguinal and left axillary lymphadenopathy. Lymph node excision biopsy revealed malignant diffuse large B-cell lymphoma. She completed 6 cycles of R-CHOP and went into remission in June, 2012. In Nov, 2012 she had central nervous system relapse with parenchymal and leptomeningeal involvement. She received intrathecal methotrexate and rituximab. In April 2013, she developed right eye ptosis and right sided weakness. MRI brain showed thickening with abnormal enhancement of the pituitary infundibulum and optic chiasm that was presumed to be metastasis from the lymphoma. In May 2013, FSH was 9.9 and LH 0.5 compared to 2012, when FSH and LH was 160.3 and 45.5 respectively. Prolactin was elevated at 67 (3-30 ng/mL). TSH and FT4 was low at 0.03 and 0.75 respectively. IGF-1 was normal at 144 (53-287). Pituitary-adrenal axis was not checked as patient was on steroid therapy. Serum sodium, osmolality and urine osmolality were normal excluding diabetes insipidus. Pt was started on levothyroxine therapy and had palliative radiotherapy. Unfortunately in May 2013, she had recurrence of systemic disease and opted for palliative care.

**Discussion:** Incidence of pituitary involvement in lymphoma is exceedingly rare and is only 0.5%. Anterior pituitary hypofunction without diabetes insipidus is unusual. We thus report a case of Non-Hodgkin’s Lymphoma with anterior hypopituitarism, hyperprolactinemia and chiasmal involvement sparing the neurohypophysis.

**Learning Objectives:** Upon completion, attendees should be better prepared to:
- 1) Non-Hodgkin’s Lymphoma can metastasize to the Pituitary gland although it is a rare phenomenon.
- 2) Metastasis to Pituitary gland can cause anterior hypopituitarism without involving the posterior pituitary gland.
An Unusual Cause of SVT
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Introduction: Echinococcus is a tapeworm infection primarily affecting the liver. The lungs can be affected in up to thirty percent of cases. Infection occurs through the oral fecal route after contact with the primary host (sheep or dogs). While most patients are asymptomatic, symptomatic patients usually present with superimposed infection, rupture of the cyst (which can mimic an acute abdomen), or from compression of adjacent structures by the cyst.

Case: We present a thirty-two year old Iraqi male admitted through the emergency department (ED) with SVT and hypoxia. A CT chest with contrast was completed to rule out pulmonary embolism in the ED. While negative for PE, the CT demonstrated diffuse patchy airspace disease along with an eleven centimeter cystic, septated mass involving the majority of the left hepatic lobe. The findings were concerning for pulmonary and hepatic echinococcosis. The diagnosis was confirmed by positive serum echinococcus antibody serology. A thorough work up did not reveal another source for his SVT. Anti-parasitic agents are available, but treatment is primarily surgical. The PAIR (Percutaneous Aspiration Instillation and Reaspiration) procedure is a new modality with reduced morbidity and mortality. Using a minimally invasive approach, the cysts are initially aspirated of their contents, injected with an alcohol or other substance to eradicate remaining infectious organisms, and reaspirated. Surgery and infectious disease were consulted, but further treatment was deferred to a specialized center in Birmingham, Alabama. A search of the literature did not reveal a prior case of echinococcus infection causing SVT.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Understand the epidemiology of echinococcosis
2) Understand the treatment modalities for echinococcosis.
Medicine

Slow But Quincke: Delayed ACE-Inhibitor Induced Angioedema in a Hypertensive Patient
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Introduction: Quincke’s edema is a rare side effect to ACE-inhibitor use.

Case: 49 y/o African American man with hypertension successfully treated by lisinopril for three years presented in severe distress with gurgling respirations, difficulty speaking, and swollen face, jaw, and tongue. Physical examination revealed significant facial, neck, and submandibular swelling and obscuring of the posterior pharynx with poor gag reflex. His vital signs were stable on nasal cannula, and he was given an intramuscular injection of epinephrine 0.5mg in preparation for airway securement. Several attempts to intubate failed due to airway narrowing and an emergency cricothyroidectomy was performed which later became dislodged. An endotracheal tube was then placed via the cricothyroid membrane. The patient suffered periods of hypoxia during airway management attempts but continued to perfuse adequately. Chest radiographs revealed bilateral pneumothoraces and pneumomediastinum. The patient was taken to surgery for revision of his airway to a tracheostomy and to place chest tubes bilaterally. The patient was transferred to the ICU where he was maintained on mechanical ventilation requiring sedation. The patient progressed well and was converted to an endotracheal airway as his swelling subsided. His pneumothoraces resolved and his cricothyroid wound was cared for locally. His thorocostomy tubes were removed in stepwise fashion and the patient was transferred to the floor where his course was uneventful.

Discussion: ACE-inhibitor use is associated with 10-fold increases in bradykinin and angioedema in 0.1 to 2.2 percent of patients unrelated to prescribed dosage. No current screening tests exist, and patients may not experience adverse reactions for months to years after beginning treatment. The diagnosis of ACE-inhibitor induced angioedema is made clinically and is associated with African American race. This case demonstrates that it is paramount to make a quick diagnosis, consider the possibility of slow onset angioedema symptoms, and immediately discontinue ACE-inhibitor therapy.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Recognize the signs and symptoms of Quincke’s edema.
2) Describe the prevalence, pathophysiology and management of ACE-inhibitor induced angioedema.
**Medicine**

Antibiotic De-escalation in Bacteremic Urinary Tract Infections: Potential Opportunities and Effect on Outcome

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**Background/Knowledge Gap:** Bacterial antibiotic resistance poses a significant threat. Antibiotic de-escalation is a potential strategy advocated to conserve the effectiveness of broad-spectrum antibiotics. This practice gains exceptional importance in the face of slow antibiotic development.

**Methods/Design:** A retrospective chart review of patients admitted to Northwest Texas Hospital in Amarillo, Texas with bacteremic urinary tract (UTI) infection during the year 2008. Antibiotic de-escalation was defined as changing the empiric antibiotic regimen to a single agent with a narrower spectrum than broad-spectrum cephalosporins, expanded-spectrum penicillins and carbapenems. Patients who were started empirically on a narrow-spectrum antibiotic or who grew resistant bacteria prohibiting the use of a narrow-spectrum antibiotic were excluded from subsequent analysis.

**Results/Findings:** Sixty six patients were admitted with bacteremic UTI. Mean age was 56.4 years (yrs). Mean APACHE II score was 14.1. E. coli was isolated in 48 patients (72.7%). The mean hospital length of stay (LOS) was 6.6 days with a mortality rate of 7.6%. Sixteen patients were not eligible for subsequent analysis because of the above mentioned exclusion criteria. Among the 50 patients who were eligible for de-escalation, the treating physicians failed to de-escalate antibiotics in 23 cases (46.0%). The mean age and APACHE II scores were not different between the group in whom antibiotics were de-escalated (gp 1) and the group in whom there was no antibiotics de-escalation (gp 2); 58.2 yrs vs. 63.2 yrs and 14.4 vs. 15.3 with p-values of 0.3 and 0.4, respectively. Floroquinolones’ resistance and discharge to long-term care facilities predicted failure of de-escalation; p-value was 0.01 for each. Twenty-one patients in gp 2 (91.3%) continued to be on more than 1 antibiotic and the above listed broad-spectrum antibiotics were used in 22 out of the 23 patients in this group. The difference between mean hospital LOS and mortality between the above 2 groups was not statistically significant with p-values of 0.4 and 0.2, respectively.

**Conclusions/Implications:** Antibiotic de-escalation is under recognized and sporadically practiced. It has the potential to reduce side effects, drug-drug interactions and health-care costs. When understood and carried out appropriately, it is likely to help in conserving broad-spectrum antibiotics without compromising patients’ outcome.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1) Recognize the practice of antibiotic de-escalation.

2) Recognize its importance in reducing side effects, interactions and health care cost.
A Case of the Vanishing Hydrocele

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Introduction: Continuous cycling peritoneal dialysis (CCPD) is used as treatment for end-stage renal disease (ESRD) in an increasing number of patients. Its prevalence of use in the United States is estimated to be about 7%. We present an unusual dialysis-related complication that can be difficult to recognize without a high index of clinical suspicion.

Case: We present a case of a 67-year-old Caucasian male with a history of ESRD on CCPD, who presented with increasing scrotal swelling of five days duration. Prior to admit, he was seen by his primary care physician who treated it as orchitis, with prednisone and doxycycline. After failing to improve, he called the PD clinic and was asked to be admitted to the hospital for further evaluation. Upon admission, the patient then underwent a modified CT peritoneography. The results showed contrast material tracking down the right inguinal canal in the right scrotum with abundant scrotal swelling and some contrast diffusion into bilateral hydroceles, suggesting an open processus vaginalis. PD was discontinued and hemodialysis was initiated. The patient’s symptoms improved afterward, and he was discharged with plans to follow up with general surgery.

Discussion: This case highlights the importance of recognizing peritoneal scrotal leakage as a cause of scrotal swelling, a known but rare finding in patients on CCPD. The wide differential which includes orchitis, inguinal hernia, and testicular hydrocele, among many others, can lead to inaccurate use of medications and testing that can cause unnecessary harm to the patient. This case should help to raise the clinical suspicion of peritoneal scrotal leak for any physician involved in the care of their patients on CCPD who present with scrotal edema. Prompt recognition can lead to timely management and help the patient remain confident in the CCPD technique.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Recognize the signs, symptoms and differential diagnoses of continuous cycling peritoneal dialysis related peritoneal scrotal leakage.

2) Describe the pathophysiology and management of peritoneal scrotal leakage.
Obstetrics

Pregnancy Muddles the Picture

Marco Rajo Andrade, T4 MS1; and Alec Hirsch, MD2; 1Tulane School of Medicine LEAD Academy; 2Tulane School of Medicine Baton Rouge; Baton Rouge, LA.

Case: A 31 y/o female presented to the ED with nausea, vomiting, abdominal pain, and profuse diarrhea after undergoing C-section 15 days prior. Vital signs indicated hypotension, fever and tachycardia; labs indicated platelet and WBC counts of 800,000 and 28,000. A small area of skin dehiscence at the right lateral aspect of the Pfannenstiel incision was noted. X-ray revealed dilated loops of small bowel with air-fluid levels. The patient was admitted, managed conservatively for ileus, and begun IV antibiotics. After failure to progress, CT on hospital day four was notable for ileus. A right hepatic mass was noted and determined to be consistent with hematoma, probably secondary to HELLP syndrome. This mass was palpable on physical exam. Most problematic on CT was near-complete dehiscence of the uterus, with multiple surrounding fluid collections, thought to be sources of infection. The patient was begun on TPN, and her antibiotic regimen changed due to leukocytosis and fever. The patient failed to show improvement and showed mental status changes. Repeat CT on hospital day 7 revealed no change in her ileus, resolution of pelvic fluid collections, and persistence of the hepatic lesion. At this point, the family recalled being aware of a mass four weeks prior to delivery, reporting a visible bulge on the patient’s RUQ. This information raised concern of hepatic abscess, so it was drained surgically. Drainage produced 120cc of purulent material, which grew Peptostreptococcus and Provatella bovinus on culture. Following drainage, the patient recovered quickly. Her ileus resolved, she advanced to a regular diet, and her mental status returned to baseline. The patient was discharged on hospital day 17.

Discussion: This case illustrates that pregnancy and child birth involve many physiologic changes, making pathologic changes difficult to recognize; therefore, a high index of suspicion is required to reach an accurate diagnosis.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Describe how pregnancy may alter abdominal physical examinations and radiological studies.
2) List the differential diagnoses of abdominal infections in pregnant and post-partum women.
3) Describe the complications and management of abdominal infections, including the management of hepatic abscess in pregnant and post-partum women.
Oncology

Acute Kidney Failure in Plasma Cell Leukemia
Sunil Buddaraju, MD; Anusha Nallaparaju, MD; Srikar Mapakshi, MD; Richard Todd Cooley, MD; Patrick M. Stagg, MD; 1BRG-Tulane Internal Medicine Residency Program; 2Baton Rouge Clinic; 3Medical Oncology LLC; Baton Rouge, LA.

Case: 79 y/o white male with chronic back pain and pathological L2 lumbar fracture s/p kyphoplasty three months ago presents with diverticulosis, gastroenteritis, poor oral intake, and acute renal failure with a serum creatinine of 7.4. He had no h/o CKD and normal serum creatinine three months ago. Given his age, back pain, bland urinalysis with Bence Jones proteinuria, he was worked up for dysproteinemia. The serum and urine electrophoresis demonstrated a single M spike in the gamma region. Serum electrophoresis with immunofixation showed IgG monoclonal protein with kappa light chain specificity and monoclonal free kappa light chains. The free kappa light chains in the serum were extremely high at 11,900 and a kappa/lambda ratio of 761.84. Serum B2 microglobulin was 20. Bone marrow biopsy showed 95% involvement by kappa restricted plasma cell with plasmablastic morphology and cytogenetic analysis abnormal. Peripheral blood showed 30% circulating plasma cell and plasmablasts, compatible with plasma cell leukemia. His condition was consistent with high risk, stage III multiple myeloma, subtype primary plasma cell leukemia. His kidney function continued to deteriorate and he was started on hemodialysis. Treatment was with bortezomib and dexamethasone to decrease the tumor load, production and synergy. He received two doses of chemotherapy, but considering his other medical conditions, frailty and poor prognosis, the patient opted for palliative care.

Discussion: Plasma cell leukemia is a rare yet aggressive variant of multiple myeloma characterized by circulating plasma cells in the peripheral blood. The prognosis remains poor with a median survival of 6-11 months. The incidence of renal failure is much higher in plasma cell leukemia, with one third presenting with renal insufficiency secondary to light chain deposition disease. There is limited literature on treatment and no prospective randomized trials have been reported for plasma cell leukemia, which makes treatment extremely challenging.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Describe the prevalence and pathophysiology of plasma cell leukemia.
2) Discuss the treatment options for plasma cell leukemia.
**Oncology**

**Rare Metastasis of a Rare Cancer**  
*Shohala Numaira, MD; Vasudev Tati, MD; Melanie McKnight, MD; BRG-Tulane Internal Medicine Residency Program, Baton Rouge, LA.*

**Introduction:** Initial presentation of advanced esophageal carcinoma is uncommon, and has 5 year survival rates of only 23%. Likewise, the incidence of brain metastasis is only 1.5%; because of this rarity there are no firm treatment guidelines.

**Case:** A 62 y/o black male presented after a witnessed seizure. He had a history of syncopal episodes, had lost 40 lbs in the last year, had decreased appetite, and difficulty swallowing solids and liquids. He reported being a chronic alcoholic and chronic smoker. PE: He appeared cachectic, alert and oriented x3. Neurological exam showed sluggish pupils, muscle strength 4/5 in right upper and lower extremities, 5/5 in left upper and lower extremities. Reflexes were normal. X-ray: pulmonary nodules with interstitial changes. CT: 3.4 x 2.8 cm ring-like posterior left frontal convexity mass lesion with adjacent reactive brain edema and localized mass effects which was confirmed with MRI. Patient was started on IV dexamethasone and levetiracetam. EGD showed a fungating circumferential ulcerated ragged friable mass extending 24cm to 33cm from incisors to distal esophagus. Biopsies showed poorly differentiated adenosquamous carcinoma with positive cytokeratin 5/7 and p53. Whole brain radiotherapy was initiated, and he underwent esophageal stenting.

**Discussion:** Adenosquamous carcinoma is a rare type of esophageal cancer with both squamous and glandular features occurring together. The glandular component could originate in esophageal glands or their ducts, in the presence of subepithelial tumors covered by non cancerous squamous epithelium. The symptoms at presentation could encompass wide neurological deficits, personality changes, seizures, visual or sensory disturbances. Risk factors for cerebral metastasis include the stage and the size of the primary tumor. Aggressive treatment with surgery and whole brain radiation therapy appears to improve outcomes; however, there is a lack of randomized trials assessing the efficacy of various treatment modalities due to the rarity of the disease.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1) Recognize the signs and symptoms of adenosquamous carcinoma with brain metastasis.
2) Describe the prevalence, pathophysiology and histogenesis of advanced esophageal carcinoma with brain metastasis.
Oncology
An Unlikely Case of Aggressive Meningioma Presenting with Heminanesthesia
Jason Hew, MD; Robert Zaiden, MD; Trevanne Matthews Hew, MD; Department of Medicine, University of Florida College of Medicine, Jacksonville, FL.

Introduction: Meningiomas account for as much as one third of the primary central nervous system tumors. Most meningiomas are benign and are classified as WHO grade 1 based on morphological criteria. Rhabdoid meningioma is an uncommon variant with malignant features and assumes a WHO grade 3, classification. This tumor tends to follow an aggressive clinical course which is characterized by local invasion and postsurgical recurrence and often portends a poor prognosis.

Case Report: A 60 year old female presented to our hospital with loss of sensation affecting the left side of her body with associated progressive hearing and memory loss over a 2 week period. Physical findings were significant for left hemiparesis and hemianesthesia. MRI of the Brain revealed a large extra – axial mass in the right frontal region with homogenous enhancement consistent with a meningioma. Adjacent frontal bone hyperostosis was noted. In addition there was invasion of the superior sagittal sinus and extensive edema with right to left subfalcine and uncal herniation. Craniotomy and tumor resection was performed. The histological findings were that of a meningioma with a prominent rhabdoid component with multifocal brain invasion. This patient subsequently received adjuvant chemoradiation and is undergoing postsurgical radiological surveillance.

Discussion: Rhabdoid meningioma is an aggressive clinical variant that can clinically present with a wide variety of neurological signs and symptoms. Neuroimaging is not a reliable method of differentiating benign from atypical or malignant meningioma. When surgically feasible complete resection of the tumor should be undertaken and histopathological criteria should be used to guide management and prognosis. In the case of Rhabdoid meningioma there is high risk of local recurrence and surgery followed by radiation therapy is the standard of care. The use of systemic therapy has less validation in altering the natural history of this disease.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Rhabdoid meningioma is a rare and aggressive clinical subtype that should be recognized for its association with recurrences and a poor prognosis.
2) Histopathological evaluation is the only reliable method to confirm a diagnosis.
3) Systemic therapy is often pursued in these patient but none to date have been proven to prevent recurrence or offer survival advantage.
Presenting author did not grant permission to publish this abstract.
Introduction: Statins are commonly prescribed for their lipid lowering and cardioprotective properties and are generally considered safe medications with minor side-effects. With increasing numbers of statin users, however, there have been increasing numbers of reports of musculoskeletal side-effects. We report two cases of statin-associated tendinopathy and provide a summary of the literature on this topic in an effort to raise awareness among orthopaedists of this association and to educate patients accordingly.

Case 1: 51 year old male with no risk factors developed Achilles tendinopathy five months after starting statin therapy. His symptoms resolved with statin cessation.

Case 2: 55 year old male with no risk factors developed tibialis anterior tendinopathy one month after beginning statin therapy. He failed conservative management including statin cessation and required operative intervention.

Discussion: Statins have been shown to be beneficial in ways other than reducing LDL levels. The Heart Protection Study demonstrated a 13% reduction in all-cause mortality, 24% reduction in major cardiovascular events, and 28% decrease in ischemic stroke with daily simvastatin compared to placebo. Recommending against statin use to prevent musculoskeletal complications is imprudent. However, it is important for orthopaedists to recognize the association between statin use and tendinopathy given their prevalence. The causes of tendinopathy are often multifactorial and cessation of statin therapy may not lead to improvement in the condition. Given the minimal risk associated with a brief cessation of a statin drug, though, discontinuing the medication in a patient with a clinical history highly suggestive of statin-associated tendinopathy is warranted. Alternative lipid-lowering treatments may be considered as part of the treatment for statin-associated tendinopathy in coordination with the patient’s primary care practitioner. Patients should be educated on the possible musculoskeletal side-effects associated with statin therapy and should be regularly monitored for these, especially in the first year of therapy.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Recognize the prevalence of statin-associated tendinopathy.
2) Understand the treatment algorithm for statin-associated tendinopathy.
3) Educate patients regarding the possible tendinous side effects of statin therapy.
Teaching the Millennial Student: How Well Have the Baby Boomer/Generation X Teachers Adapted in an Academic Orthopaedic Department?

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Ilia Iliev, MS
Thomas Riley, PGYIII
Ali Oliashirazi, MD
Felix Cheung, MD
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Background/Knowledge Gap: Members of the Millennial Generation (1981-2001) fill our medical school and residency programs. This group is optimistic and self-confident. Millennials embrace technology and use it to enhance collaboration and teamwork. Millennials feel distinct and unique because of their use of technology and its incorporation into their daily social interactions, with a smartphone considered more important than a stethoscope or medical library. The traits and values of the Millennial group are different from those responsible for their matriculation through the medical education process including the Baby boomers (1946-1964) and Generation X (1965-1980). Current medical education reform focuses on optimizing medical curriculum to account for these generational differences.

Methods/Design: Online surveys consisting of 10 questions were administered to an academic orthopaedic faculty to assess their understanding of generational differences and see if they have effectively optimized teaching methods. The surveys were validated using benchmark data from the PEW Research Center.

Results/Findings: The faculty members in the survey group consisted of 33% Baby Boomer, 59% Generation X, and 8% Millennial. Data included the following: 83% have not had training on teaching Millennial learners; 67% did not identify teamwork as an important trait and characteristic for this group; 25% integrated technology beyond Powerpoint into didactic teaching; 42% felt that no benefit would come from computer-based teaching environments.

Conclusions/Implications: Generational differences impact the orthopaedic resident and medical student learning process. In meeting the challenges of teaching across generations, we need to do a better job of making the faculty understand the Millennial Generation as well as providing them guidance for using more effective tools in passing on their knowledge to this tech-savvy and collaborative learning generation.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Determine the traits and characteristics of millennial learners.
2) Define what millennial learners need/expect in order to optimize education.
3) Reveal what educators of millennial learners must do to improve effective communication and education.

Disclosure:
Franklin Shuler, MD
Honoraria – Consultant: Lilly
Orthopaedic & Trauma Surgery
Quorum Sensing and Quenching
Thomas Emmer, MD; Franklin D. Shuler, MD, PhD; Thomas Schlerf, MS IV; Department of Orthopaedic Surgery, Marshall University Joan C. Edwards School of Medicine, Huntington, WV.

Background/Knowledge Gap: Bacteria have evolved complex methods of chemical communication involving small signaling molecules that interact with receptors. These interactions influence gene expression and thus exert control over methods of antibiotic resistance, biofilm formation, and secretion of virulence factors. This process is dependent on the bacterial population reaching a threshold size or "quorum" and is known as “quorum sensing” (QS). “Quorum quenching” (QQ) is the notion of using various methods to inhibit quorum sensing mechanisms and thereby disrupt bacterial pathological processes. This poster introduces the topic and mechanisms of quorum sensing and quorum quenching.

Methods/Design: Literature review of the current data and published works concerning quorum sensing and quenching.

Results/Findings: Mechanisms of quorum sensing and quorum quenching are discussed along with several clinical trials and their implications.

Conclusions/Implications: Quorum sensing is best described as a population-dependent bacterial cell signaling pathway that has the capability of regulating gene expression. Quorum sensing inhibitors (QSI) have been shown to improve antibiotic success rates for medically important biofilm-forming bacteria with different QS systems. New strategies involving quorum quenching and quorum sensing inhibitors are being developed to address the emergence of antibiotic resistant bacteria and prevent human disease.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Understand basic mechanisms of quorum sensing.
2) Understand concept of quorum quenching and quorum sensing inhibitors.
3) Appreciate the clinical relevance of quorum quenching and quorum sensing inhibitors.
Pathology

A Quantitative Approach to Estimate the Percentage of Tumor Associated Macrophages and Reed-Sternberg Cells in Classical Hodgkin Lymphoma

Catherine S. Chaudoir, MD; Diana Veillon, MD; James Cotelingam, MD; Louisiana State University Health Sciences Center, Shreveport, LA.

**Background/Knowledge Gap:** Hodgkin lymphoma (HL) accounts for 10% of all lymphomas and 0.6% of all cancers diagnosed annually worldwide. Classic HL is unique from other B cell lymphomas in its cellular composition consisting of a minority of neoplastic Reed Sternberg cells in an inflammatory background. Recently, tumor associated macrophages (TAMs) have been considered to have prognostic significance. An increase in the # of CD68 positive macrophages has correlated with a shortened survival in patients with Classical HL. A grading score has been established based on the % of TAMs and is as follows: 1 ≤ 5% (macrophages/inflammatory cells); 2 between 5-25%; and 3 if > 25%. However, there seems to be uncertainty among pathologists over how to interpret these stains. Recent studies fail to address these issues. This lack of consensus poses a major limitation to this technology. We have previously demonstrated CD163 to be a superior stain to CD68 in its reproducibility amongst pathologists. However, great difficulty is still encountered in accurately estimating the percentage of TAMs. We utilized a dual immunostain for CD30 and CD168 and demonstrated that its use allowed more accurate and precise calculation of the % of TAMs and RS cells.

**Methods/Design:** The database at our institution was searched for cases of Classical HL diagnosed between January 2007 and January 2013 (IRB No H13-057). Cases were selected based on availability of blocks. 45 cases were obtained. Dual immunohistochemical stains were performed with CD30 (brown) and CD163 (red). The % of TAMs to inflammatory cells was then recorded by three independent investigators. A grading score was established for each case. Comparison was made between the 9 cases previously scored with a CD163 stain.

**Results/Findings:** After analyzing 45 cases of Classical HL there was a statistically significant difference between the grading obtained using CD163 and a dual immunostain. The dual immunostain allowed for a more accurate differentiation between macrophages and inflammatory cells which may improve the reproducibility amongst pathologists. The dual immunostain also allowed for RS cells to be more easily identified.

**Conclusions/Implications:** While previous data, including our own, support CD163 as a more reliable stain in the assessment of TAMs, our recent use of dual stain may prove to be a more accurate indicator especially in cases with intermediate grading scores. The dual stain allowed for a more accurate assessment of RS cells, especially when differentiating them from macrophages. Difficulty is inherent in the assessment of the percentage of macrophages due to the random biological variation of macrophages within a section. This variation precludes the reliability of microarray technology. Further studies are needed to address the variation amongst different subclasses of HL.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1) Understand how Classical Hodgkin lymphoma differs from other B cell lymphomas and how treatment protocols may differ.

2) Understand the role the macrophage has in predicting treatment outcome in patients with CHL.

3) Understand how a dual immunostain may play a role in assisting pathologists to better assess these TAMs.
Pathology

Acute Spontaneous Papillary Muscle Rupture
Bradley J. Cheek, MD; Robin McGoey, MD; Department of Pathology, Louisiana State University, New Orleans, LA.

Background/Knowledge Gap: Acute papillary muscle rupture is a catastrophic cardiac emergency with a nearly 80% mortality. The most frequent preceding cause is an acute myocardial infarct (AMI) in the setting of coronary artery disease (CAD). Rupture of the posteromedial (PM) papillary muscle is 5-8 times more common than rupture of its anterolateral (AL) counterpart, thought to be due to the vasoprotective dual blood supply typical for the AL muscle versus the sole supply that serves the PM muscle. Cases of spontaneous, non-CAD, non-AMI associated papillary muscle rupture are exceedingly rare, with only four previously reported cases. The causal link, in these cases, has yet to be elucidated.

Methods/Design: A case of fatal spontaneous papillary muscle rupture was authorized for complete autopsy by the Department of Pathology. Full external and internal exam was conducted including histologic examination of ventricular and papillary muscle myocardium. The ruptured papillary muscle was serially sectioned and entirely submitted for histologic examination. The intact muscle was submitted for a histologic comparative control. Chart review was conducted for antemortem clinical correlation.

Results/Findings: The heart was 1,020 grams (400 +/- 69) with left ventricular hypertrophy and a right-dominant coronary circulation. There was no significant coronary atherosclerosis but long-segment myocardial bridging of the left anterior descending artery at <0.7cm. There was complete rupture of the AL papillary muscle with an intact PM muscle. Histologic sections showed coagulative necrosis involving only the AL muscle. The intact PM muscle and ventricular myocardium were unremarkable.

Conclusions/Implications: This case, having no evidence of AMI or CAD, is the fifth reported case of spontaneous papillary muscle rupture, but only the second involving the AL muscle. A role for myocardial bridging is considered and comparison to the previously reported spontaneous cases is made leading to a conclusion that preexisting hypertension may be a common feature in non-AMI associated rupture of papillary muscles.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Identify the most common cause of papillary muscle rupture.
2) Identify proposed causes of non-CAD, non-AMI associated papillary muscle rupture.
Pediatrics & Adolescent Medicine

Local Antibiotic Sensitivities for Uncomplicated Urinary Tract Infections: 1st Generation Cephalosporins vs 3rd Generation Cephalosporins
Scott Herskovitz, MBBS; Clay Jones, MD; Michael Bolton, MD; Our Lady of the Lake Children’s Hospital, Baton Rouge, LA.

Background/Knowledge Gap: Escherichia coli (E. coli) is the most common bacterial cause of urinary tract infections (UTIs) among children. Historically, uncomplicated UTIs have been treated with 2nd or 3rd generation cephalosporins. Literature review and anecdotal local data suggest 1st generation cephalosporin may adequately treat UTIs. Consequently, it is unclear whether a single narrow-spectrum antibiotic such as a 1st generation cephalosporin can be used to treat uncomplicated pediatric UTIs at a local level. Thus, the goal of the present study is to determine whether a single narrow-spectrum antibiotic particularly 1st generation cephalosporins can adequately treat uncomplicated UTIs.

Methods/Design: Positive UTI cultures among patients ≤18 years of age from Our Lady of the Lake Hospital were evaluated to determine bacterial specimen and resistance to 1st generation cephalosporins. Cultures were considered positive if specimen growth was reported as >50,000 cfu/ml or >10,000 cfu/ml, (clean catch or straight catheter respectively).

Results/Findings: Among the 1967 total cultures, 288 were positive; 14 (4.9%) were enterococcus. Nearly three-quarters (n=213, 74%) of the positives were E. coli, 8 (3.8%) of which were 1st generation resistant. Of the remaining positive cultures 96.7% were species that are sensitive to 1st generation cephalosporins.

Conclusions/Implications: 96.2% of E. coli cultures were sensitive to a 1st generation cephalosporin, which is similar to the 3rd generation cephalosporins sensitivities reported in the literature. Excluding Enterococcus, 96.4% are sensitive to 1st generation cephalosporins. Thus it is likely that 1st generation cephalosporins alone may be as effective as 3rd generation cephalosporins in treating uncomplicated UTIs locally. This provides an avenue for antimicrobial stewardship at our institution.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Use of narrow-spectrum antibiotics is important to prevent increasing resistance.
2) Single antibiotic treatment for uncomplicated UTIs is indicated depending on local sensitivities.
**Public Health**

**Evaluating the Effects of Park Improvements in North Little Rock, AR on Park Use and Physical Activity**

*Al Bavon, PhD, University of Arkansas Clinton School of Public Service, Little Rock, AR.*

**Background/Knowledge Gap:** The literature suggests that improving the quality and the perceived safety of facilities in parks and recreation centers is critical to attracting more users and increasing population physical activity but there are few studies in which these assumptions have been tested. The purpose of this study is to assess the impact of park improvements on park use and physical activity.

**Methods/Design:** The study used a pretest-posttest evaluation design to measure the effect of changes to four intervention parks located in low-income, under-served community in central Arkansas by objectively measuring park use by residents before and after park improvements funded under the Communities Putting Prevention to Work (CPPW) initiative. Using the System for Observing Play and Recreation in Communities (SOPARC) tool, trained researchers observed the parks during time intervals during the week and conducted momentary sampling scans to measure the number of park visitors, types of activities, and the level of physical activity intensity. Data were collected in February 2012 and September 2012.

**Results/Findings:** The results of the analysis show that the intervention parks saw increases in visitors among all age groups and genders but only the increases among male adults and children were statistically significant. In addition, the results show statistically significant increases in sedentary, moderate and vigorous activity levels for male visitors between pre- and post-implementation of the improvements. The findings indicate that built features and structured recreation settings were associated with increased intensity of physical activity for all park visitors.

**Conclusions/Implications:** The study provides evidence that park improvements, even without organized program activities, appear to increase visitation and overall physical activity. This study provides empirical evidence to support the belief that parks may be an ideal place for health promotion and lifestyle disease prevention to the extent that they support active visits.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1. Understand use of System for Observing Play and Recreation in Communities (SOPARC) tool for measuring physical activity levels.
2. Understand how the physical environment impacts physical activity levels in the population.
Radiology
Limitations of Combined F-18 FDG and In-111 Octreotide Imaging in a Patient with Undifferentiated Breast Cancer and Lung Carcinoid
Amolak Singh, MD; Srinu Takkallapalli, MD; Ravi Bobba, MD; Shellaine Frazier, MD; University of Missouri-Columbia, Columbia, MO.

Introduction: Radiopharmaceuticals may target certain receptors or possess unique characteristics for tumor localization. In-111 Octreotide binds to the somatostatin receptors present in neuroendocrine (NE) tumors. F-18 FDG localizes in malignant lesions due to increased expression of glucose transporter Glut-1. Intuitively, one would expect that these radiotracers might help in making lesion distinction in patients with NE and non-NE tumors.

Case: An 83 YOF with left breast cancer underwent lumpectomy and regional node dissection. Pathology revealed poorly differentiated invasive ductal breast cancer with metastases to the axillary lymph nodes. An F-18 PET/CT scan revealed an 18 mm hypermetabolic lesion in the left breast (SUV max 6.9), left axillary nodes (SUV max 14.7), and a 2 cm lung nodule with SUV max of 3.2. Because of equivocal SUV in the pulmonary nodule a biopsy was obtained. Surprisingly, the nodule was found to represent lung carcinoid. Because of unexpected finding of lung carcinoid, NE tumor work included In-111 Octreotide scan, which revealed no additional lesions. Breast tumor assay for somatostatin receptors was negative. The octreotide scan was positive in breast cancer lesion with axillary lymph node metastases as well as in the lung carcinoid. Similarly, F-18 FDG was positive in both cancers. Combination of In-111 Octreotide and F-18 FDG scanning did not help in the accurate staging of breast cancer in this patient with two cancers until biopsy confirmation of lung carcinoid. With no distant spread of breast cancer, the patient was spared of chemotherapy.

Discussion: The case presented here describes limitations of current most advanced non-invasive imaging workup in accurate staging of the breast cancer. Octreotide scan may be positive in absence of somatostatin receptors. Lesion biopsy should be considered when a doubt exists about origin of a suspected metastatic lesion.

Learning Objectives: Upon completion, attendees should be better prepared to:
1) Learn about value and limitation of radiotracers for breast Ca staging.
2) Octreotide uptake in breast tumor may occur in absence of somatostatin receptors.
3) Mechanism of tumoral uptake of F-18 FDG and In-111 Octreotide.
**Radiology**

**CCK-Cholescintigraphy Helps in Distinguishing Choledochal Cyst from Gallbladder in a Patient with Chilaiditi Syndrome**

Srinu Takkallapalli, MD; Amolak Singh, MD; Jason Cox, MD; University of Missouri Hospital, Columbia, MO.

**Background/Knowledge Gap:** The accurate diagnosis of a choledochal cyst may be difficult on conventional examinations such as ultrasound (US), computerized axial tomography (CT) or hepatobiliary scan without cholecystokinin (CCK) stimulation. Hepatobiliary scintigraphy with CCK is commonly used to evaluate gallbladder contractility in patients with biliary dyskinesia and/or chronic cholecystitis. In our experience, these additional images after CCK are essential for accurate distinction between a choledochal cyst and a gallbladder. Apart from one case report, no prospective or retrospective studies exist to document optimal workup for choledochal cysts.

**Methods/Design:** A 7-month old baby was suspected to have choledochal cyst on the US and CT scans and gallbladder was felt to be absent. The patient had multiple anatomic anomalies including Chilaiditi syndrome with interposition of multiple bowel loops containing air and fluid between right hemi-diaphragm and liver which made it difficult to visualize gallbladder on the US and CT. With probable diagnosis of choledochal cyst a hepatobiliary scan was ordered. Images after intravenous (IV) injection of 2.8 mCi of Tc-99m-mebrofenin showed focal radio-tracer accumulation in the inferior portion of the right hepatic lobe. To distinguish a choledochal cyst from the gallbladder, a dose of 0.02 mcg/kg CCK was administered IV over 20 minutes and additional images were taken for 30 minutes.

**Results/Findings:** Following CCK administration, focal accumulation of the radiotracer (from the cystic structure seen on US and CT) diminished with response that is seen with normal gallbladder. The gallbladder ejection fraction was 38%. The contractility response to CCK excluded a choledochal cyst. On subsequent surgery performed to correct intestinal malrotation, a normal gallbladder was identified.

**Conclusions/Implications:** CCK-Cholescintigraphy can be used to differentiate normal functioning gallbladder from a choledochal cyst. Emptying of the radio-tracer from a cyst like structure shown on US or CT after CCK on a hepatobiliary scan excludes choledochal cyst.

**Learning Objectives:** Upon completion, attendees should be better prepared to:

1) How to make a distinction between choledochal cyst and gall bladder.

2) Additional value of CCK in cholescintigraphy in differentiating choledochal cyst and gall bladder.

3) Relative value and limitations of radiographic methods for choledochal cyst.


Radiology

Potential False Positive F-18 FDG Positron Emission Tomography (PET) Due to Extravasated Contrast Material

Srinu Takkallapalli, MD; Amolak Singh, MD; Farshad Bahador, MD; University of Missouri Hospital, Columbia, MO.

Introduction: F-18 FDG PET/CT imaging has become a standard of care for many cancers. Increased uptake of glucose analog due to hypermetabolism helps in visualization of cancerous lesions and tumor staging. However increased uptake may be seen in several benign conditions including areas with no pathology. Presence of dense material such as metal or radiographic contrast may lead to over-correction of attenuation caused by dense materials even when no lesions are present. This phenomenon is observed on attenuation correction (AC) images only and careful comparison with non-AC images can prevent false positive interpretations.

Case: A 79-years old female patient underwent PET/CT scan following intravenous injection of 12 mCi of F-18 FDG. A non-contrast PET/CT scan was ordered for staging of a newly diagnosed breast cancer. Images taken 1 hour after injection showed an unusual focus of markedly increased uptake in the pelvic region which corresponded with location of prior extravasated contrast. This extravasation was in a close proximity to the bilateral ureteral stents and rectum. Non-AC PET/CT images were reconstructed from data acquired earlier. Non-AC images revealed no such focus of increased uptake at the site of increased uptake on AC images thus proving the fact that increased uptake in the pelvis was artifactual on AC images. Interpretation of non-contrast pelvic CT images was limited by presence of unexpected dense material in the pelvis. No hypermetabolic pelvic lesion excluded pelvic metastasis.

Discussion: We report an unusual case when false positive study was avoided by careful scintigraphic interpretation in a patient with unexpected extravasated contrast from prior urinary intervention. Extravasated contrast material led to increased uptake mimicking a hypermetabolic lesion on standard F-18 FDG PET/CT AC images. Careful review of prior history and use of both non-AC and AC PET/CT fusion images can prevent false positive examinations.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Extravasated contrast material mimicks hypermetabolic lesion.
2) To use non-AC PET/CT fusion images in addition to regular AC PET/CT fusion images to prevent false positive findings.
All Out: The Inglorious End of “Buckyballs”

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Introduction: Recently, the U.S. Consumer Product Safety Commission banned the sale of small but powerful rare earth toy magnets marketed under the name "Buckyballs." This product is manufactured in China from an alloy of neodymium, iron, and boron, then nickel plated, and looks like harmless BB’s about 4 millimeters in diameter; however, they are almost 10 times stronger than ordinary magnets of the same size. Over 500 million are "loose" in the U.S. since their introduction 5 years ago. If ingested, the balls are powerful enough to damage tissue and may require open surgery to remove them; cases of bowel necrosis have been reported.

Case: At our institution, a 17 year old high school honors student athlete presented to the emergency department shortly after inserting several dozen Buckyballs into his urethra, presumably for self-stimulation purposes. Aside from taking dexmethylphenidate for attention deficit hyperactivity disorder, his history was unremarkable. We attempted to remove the Buckyballs by exerting gentle traction on the end of the chain; however, the internal balls had already contorted inside the bulbar urethra. Thus, the chain separated at the meatus, leaving about 50 balls remaining inside. The patient was then taken to the cystoscopy suite, where under general anesthesia, the balls were successfully removed individually over the next 3 hours via a 22 French cystoscope sheath and cold cup biopsy forceps. Recovery was aided by pushing their tangled mass up into the bladder and teasing them apart one by one. A catheter was placed overnight, and following its removal, he made an uneventful recovery. He was released to the custody of his parents, both of whom were physicians.

Conclusions/Implications: We must be aware that our patients of a tender age may be tempted to experiment with these dangerous magnets.

Learning Objectives: Upon completion, attendees should be better prepared to:

1) Identify Buckyballs.
2) Realize why they are dangerous.
3) Provide anticipatory guidance to teens.