

American College of Physicians, Michigan Chapter Residents Day 2018

Oral Presentation No. 1

Presenter: Puja Gupta

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Institution: Beaumont Hospital – Dearborn

Program Director: Ruaa Elteriefi, MD, FACP

Improving Adherence to the AHA Get-With-The-Guidelines Cardiac Arrest Initiative By Empowering Nurses with Simulation Training

Introduction/Significance

Ventricular fibrillation (VF) and pulseless ventricular tachycardia (pVT) are the initial rhythms that yield the most hope of survival for in-hospital cardiopulmonary arrest. Defibrillation within the electrical phase of VF/pVT (first 1-4 minutes) shows survival rates approaching 50%. Mortality increases by approximately 7-10% for each minute of defibrillation delay. The American Heart Association's Get-With-the-Guidelines Initiative (GWTG) challenges hospitals to perfect resuscitative efforts with high quality CPR and defibrillation <2 minutes of event recognition. Hospitals that adhere to GWTG at least 84.6% of the time are presented the GWTG Gold Standard Award.

At Beaumont Hospital – Dearborn (BHD), defibrillation is often delayed until arrival of the ACLS team, after the electrical phase of arrest. In the first quarter of 2016, BHD aligned with GWTG 62.5% of the time. With the availability of automated external defibrillators and training, nurses can quickly and competently defibrillate patients with shockable rhythms.

Aim Statement

We seek to empower BLS nurses at BHD to increase our adherence with GWTG of 62.5% to the goal of 84.6% in the measure of "time to first shock <2 minutes" (TTS), from January to May 2017.

Methods/Results

We devised a 1-hour-rapid-cycle-debrief training session around VF/pVT simulation with a high-fidelity mannequin in a dedicated patient room, dubbed the "Beaumont-Dearborn BLS Bootcamp". The third PDSA cycle showed the following results in post-intervention performances:

Average improvement of 105 seconds and 100% adherence in TTS (statistically significant $p < 0.05$); 100% adherence to 100 Chest compressions/minute; 90% adherence to time off chest <10 seconds.

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Oral Presentation No. 2

Presenter: Abhishek Bhandiwad

Additional Authors: Rebecca Russell, Chin-I Cheng, Albert Linden, Michael Fazzini, Neli Ragina, Matthew Newman, Haritha Yedla, Juliette Perzhinsky

Institution: Central Michigan University – Saginaw

Program Director: Josephine P. Dhar, MD, FACP

Evaluating Co-prescribing of Dual Anti-platelet Therapy in Elderly Patients with and Without Dementia

Introduction: The presence of dementia makes the use of medications for secondary stroke prevention more challenging. Use of dual antiplatelet therapy in elderly patients is a balancing act between risks of fall and intracranial bleeding versus benefits of stroke prevention, but it is unclear whether documentation of risk is being done.

Methods: After obtaining IRB approval, a retrospective chart review using the EMR was conducted during 05/01/16 to 05/31/17. A total of 500 charts of patients over 65 years analyzed, of which 250 patients had dementia and 250 patients did not have dementia.

Physician documentation of the indication, risks and potential adverse effects of the prescribed medications was analyzed from outpatient visits during the study period.

Results: In the dementia group, 58% were on Aspirin ($p < 0.03$), 13.6% on Clopidogrel ($p = 0.08$) and 11.6% on a combination of Aspirin & Clopidogrel ($p = 0.06$)

Among the non-dementia group, 53% were on Aspirin, 11.4% on Clopidogrel and 6.8% on Aspirin & Clopidogrel combination. The documentation of risk was remarkably low at 10.4% for Aspirin ($p = 0.03$), 3.6% for Clopidogrel ($p = 0.08$) in the dementia group and 3.6% for Aspirin and 1.2% for Clopidogrel in the non-dementia group.

Conclusion: The combined use of dual antiplatelet drugs had a higher occurrence in patients with dementia. Documenting the risk of antiplatelet therapy and making an informed decision with the patient and/or care-provider is paramount. Our study illustrates the need to explain, elucidate and document the risk-benefit of co-prescribing antiplatelet drugs in frail, elderly patients, especially in those with dementia.

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Oral Presentation No. 3

Presenter: Nishant Chaudhary

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Institution: Allegiance Health

Program Director: Vivek Kak, MD, FACP

Minimal Change Disease as a Presentation for Hodgkin's Lymphoma

A number of glomerulopathies can signal the presence of an underlying malignancies especially membranous nephropathy, presenting as paraneoplastic syndrome in lymphoid malignancies. In particular, the association of Minimal change disease with Hodgkin's Lymphoma (HL) is rare, we hereby present a case where Minimal change disease preceded the diagnosis of HL.

A 21 year old female presented to the ER with a 3 week history of nausea and diffuse anasarca. Physical examination was unremarkable except anasarca and significant nephrotic range proteinuria on workup, prompting a renal biopsy, which showed Minimal change disease. She was initiated on prednisone, which improved her symptoms however, she returned to the ER in 3 months with dyspnea, abdominal pain and worsening proteinuria despite prednisone therapy. Physical examination showed new supraclavicular lymphadenopathy, prompting imaging and biopsy diagnostic of nodular sclerosing variant of HL. She is currently on ABVD therapy which has reversed proteinuria, suggesting association with Minimal change disease.

The occurrence of nephrotic changes as manifestation of HL, suggests immunological abnormalities in the pathogenesis of this association, and may be the initial presentation for HL. The etiology however remains elusive, studies have suggested that autoimmune disorders of T-lymphocyte function and natural killer cell deficiency may lead to nephropathy in HL. The course of NS does not always run parallel to that of the lymphoma, as seen in our case, this raises a question for work up of lymphomas in persistent proteinuria, as timely treatment has shown to reverse the nephropathy.

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Oral Presentation No. 4

Presenter: Sarah Hartkop

Additional Authors: Alexander Halalau, MD

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

The Impact of a 30-day Digital Personalized Recovery Support Intervention (Workit) on Patients Indicating Substance Abuse

Introduction: 80 million Americans fall into the category of risky substance use, defined as those who use alcohol and drugs in ways that threaten public health and safety. Despite staggering prevalence and exuberant cost, our healthcare system leaves a person with such behaviors few discrete and affordable options. Our goal was to identify the prevalence of substance abuse in our clinic and ascertain if a personalized digital tool aids in impacting risky behaviors.

Methods: All patients aged 18-40 who presented to the Beaumont Outpatient Clinic during a one-year period were eligible for enrollment. Each patient received two validated screening surveys: WHO quality of life (QOL) and ASSIST survey regarding substance usage. Those that screened positive for risky substance use were emailed a personalized login to enroll in the Workit program, an online platform that engages patients in exercises and provides 24-hour a day live chats with licensed counselors. At the end of 30 days, patients were resent the screening surveys. Data was collected in regards to prevalence of patients with risky substance use, exercises and chats from the Workit platform, QOL differences between those screening positive and negative and comparison of QOL after Workit.

Results: 174/288 (60.4%) of patients screened positive and 114/288 (39.6%) screened negative for risky substance usage. Final data analysis will be available soon.

Conclusions: There is a staggering amount of patients in our clinic population with substance abuse issues and further investigation is warranted into digital programs to aid with addiction.

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Oral Presentation No. 5

Presenter: Kaitlin Liroff

Additional Authors: Halalau, Alexandra, MD, FACP

Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

The Impact of Anxiety and Depression on Frequency to Follow up

Introduction:

Mental health issues are common in the general population and cause a significant amount of days lost to disability. Recently, the World Health Organization identified depression as the leading cause of disability worldwide. Furthermore, patients with any mental illness have a shorter life expectancy. The primary purpose of this study is to investigate how co-morbid psychiatric conditions, specifically anxiety and depression, affect the likelihood to follow up in a general medicine clinic. Our hypothesis is that the patients with psychiatric conditions are less likely to follow up than patients without these conditions, leading to a less than optimal overall medical care

Methods:

This was a retrospective chart review including patients who were initially seen in the internal medicine outpatient clinic during 2014 year, and following them through 2017. This time period was chosen to include patients following the establishment of the Affordable Care Act to ensure uniformity of insurance coverage. Patients were separated into three groups by ICD 10 codes: anxiety, depression, and other mental illness. They were then matched and compared to the general clinic population without these diagnoses. The propensity matching was done based on age, gender, race and modified Charlson comorbidity index (CMI). Frequency of follow up over the course of three years will be determined by frequency of appointments.

Results/Conclusion:

There will be 2614 patients in the analysis. At this time, statistical analysis is under review with the biostatistician. The results will be fully available at time of presentation.

Oral Presentation No. 6

Presenter: Elisa Quiroz

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Institution: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Primary Cardiac Lymphoma

Primary cardiac lymphoma (PCL) is a rare condition described as a lymphoma localized to the heart or pericardium. Although cardiac involvement is seen in 10-20% of non-Hodgkin's lymphomas, PCL is extremely rare. It comprises merely 0.5% of all lymphomas and 1.3–2% of cardiac malignancies. Clinical presentation typically correlates with the cardiac region involved. As in the case of our patient, malignant pericardial effusion presents classically with chest pain and dyspnea. It is often a clinical emergency as PCL commonly presents with heart failure, cardiac tamponade, or arrhythmia.

An 85-year-old female presented with complaint of dyspnea and chest pain. Chest CT revealed a pericardial effusion and subsequent echocardiogram demonstrated a large circumferential effusion with respiratory variation concerning for impending cardiac tamponade. She was admitted to the intensive care unit and underwent emergent pericardiocentesis. Flow cytometry of the fluid revealed monoclonal B-cells with significant large cell component. Overall morphologic and immunophenotypic features were consistent with high grade B-cell lymphoma with t(8;14). Bone marrow biopsy demonstrated <1% of monotypic B-cells confirming the diagnosis of high grade B-cell lymphoma. The patient was started on rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone (R-CHOP) with excellent response. She was transferred out of the ICU within days and discharged home for outpatient follow up.

Primary cardiac lymphoma is a rare entity and early detection is essential to avoid potentially fatal complications. Prognosis is highly dependent on the management of cardiac complications. The etiology of PCL is still unknown and molecular characterization has yet to be studied.

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Oral Presentation No. 7

Presenter: Madline Chembola

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Institution: Central Michigan University – Saginaw

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The Sooner than Later is Always Better: A Case of Ebstein's Anomaly that Became Symptomatic in the Fifth Decade

INTRODUCTION:

Ebstein's anomaly is a congenital malformation with abnormalities of tricuspid valve and right ventricle due to apical displacement of the septal and posterior leaflets of the tricuspid valve. It has a wide spectrum of clinical presentations any time from birth to adulthood.

CASE REPORT:

Our patient is a 52 year old female marathon runner who presented to cardiology clinic with symptoms of dyspnea on exertion and decreased exercise tolerance from running 16-20 miles to 8-12 miles per week. Physical exam revealed a systolic murmur in lower left sternal border and a split S2. An EKG showed P wave inversion in V1 and septal Q waves. Two dimensional echocardiogram revealed normal ventricular systolic function, mildly increased RV thickness, severely enlarged right ventricle, severely dilated right atrium, Ebstein's Anomaly was present- Dysplastic tricuspid valve with severe tricuspid regurgitation, septal leaflet is shortened and only mildly apically displaced, anterior and septal leaflets are tethered with poor coaptation and apical displacement, mildly dilated pulmonary artery, and mildly elevated pulmonary artery pressure. Holter monitor showed no arrhythmia. Cardiac catheterisation and stress echocardiogram showed no coronary artery disease.

CONCLUSION:

In the natural history of Ebstein's anomaly, only 5% of patients survive beyond the fifth decade. About fifty percent of patients in adulthood present with cyanosis, heart failure or arrhythmias likely SVT. Commonly they have associated ASD. This case is very unique due to her atypical and late presentation, and she had none of the common manifestations as mentioned above.

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Oral Presentation No. 8

Presenter: Laith Jacob

Additional Authors: Harpreet Singh, MD

Institution: Allegiance Health

Program Director: Vivek Kak, MD, FACP

Potentially Lethal Doses of Insulin in Otherwise Normal Persons, Can be Helpful in the Management of Refractory BB & CCB Toxicity

BACKGROUND

The literature on using insulin in management of patients with beta blocker (BB) and calcium channel blockers (CCB) overdose is limited. Animal studies have shown that Insulin up to 10 units/Kg/min showed marked inotropic properties and were superior in efficacy when compared with glucagon and epinephrine.

CASE REPORT

47 years old gentleman (108 Kg) presented to ED with unresponsiveness secondary to overdosing on 42 tablets of Metoprolol 100 mg each and 21 tablets of Amlodipine 10 mg each, along with other medications. The patient was admitted to ICU with cardiogenic shock (BP 78/37 and PR of 39) and acute hypercapnic respiratory failure. He was intubated, and treated with fluids, pressors (norepinephrine, vasopressin, epinephrine, and dopamine), calcium and glucagon, with no significant improvement in his vitals.

Poison control center recommended to start patient on insulin 300 units/ hour and to increase it by 0.5 units / kg/ 30 minutes targeting 8 units/kg/hr, which was done. Dextrose 50% was added targeting blood sugar around 100 mg/dl. On the 3rd day of admission, we approached 600 units of insulin/hr. He was fully conscious, BP 108/56, pulse 95. Subsequently he was weaned off pressors and insulin, was extubated and transferred to medical floor. He was discharged in stable condition.

CONCLUSION

Our case highlights that maintaining adequate cardiac output in these subset of patients requires a multitude of simultaneous therapies that support adequate circulation. Clinicians should consider high dose insulin in refractory cases.

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Oral Presentation No. 9

Presenter: Yanal Alnimer

Additional Authors: Dr Ghassan Bachuwa.

Institution: Hurley Medical Center/MSU – Flint

Program Director: Ghassan Bachuwa, MD, FACP

The Effect of Perioperative Bevacizumab on Disease Free and Overall Survival in HER-2 Negative Breast Cancer

Introduction: Neoadjuvant chemotherapy has been widely used for locally advanced breast cancer. Artemis, Geparquinto, NSABP-B40 and CALGB (4063) found that adding Bevacizumab to neoadjuvant chemotherapy increases the pathological complete response in HER-2 negative breast cancer. We conducted this meta-analysis to evaluate the effect of adding Bevacizumab in the perioperative period on disease free and overall survival in HER-2 negative breast cancer. Methods: We performed a systematic search for randomized control trials (RCT) measuring the effect of perioperative Bevacizumab on disease free survival and overall survival. The Mantel-Haenszel method and Random effect model were used to analyze the data. A total of 3909 patients of the 3 randomized controlled trials (Artemis, Geparquinto, NSABP-B40) were included in the meta-analysis for disease free survival, while 3911 patients of the same RCT were included in overall survival analysis. The same trials were included in the sub-analysis for hormonal receptors positive tumors, while Beatrice trial was added in triple negative breast cancer sub-analysis. Results: No statistically significant difference was found after adding Bevacizumab to standard chemotherapy in disease-free survival for the overall population, hormonal receptor positive and negative tumors with a HR 0.98 (0.86-1.12), HR 0.99 (0.82-1.20) and HR 0.93 (0.81-1.06) respectively. In similar, no statistically significant improvement in overall- survival after adding bevacizumab in the overall population, hormonal receptor positive and negative tumors with a HR 0.9 (0.76-1.06), HR 0.99 (0.82-1.20) and HR 0.94 (0.8-1.10) respectively. Conclusion: No survival benefit was found after adding bevacizumab to standard chemotherapy in locally advanced breast cancer

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Oral Presentation No. 10

Presenter: Darshan Sarode

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Institution: Beaumont Hospital – Royal Oak

Program Director: Nancy Crossley, MD, Member

Imagination of Images when Virus Attack the Lungs

Introduction: Viral infections of lower respiratory tract (LRTIs) are a challenge in patients admitted to intensive care unit (ICU) and is difficult to associate a particular finding on computed tomography (CT) imaging. The purpose of this study was to identify if there is any particular pattern of imaging associated with viral LRTIs.

Methods: We retrospectively reviewed CT images of patients diagnosed with viral LRTIs through polymerase chain reaction. CT scan findings were as reported by radiologists. Descriptive statistical method was applied to analyze the data.

Results: Consolidation and ground glass opacities (GGO) were most common patterns. Consolidation was found in 52.3% of patients with 66% of those in lower lobes. GGO, was found in 40.1% of patients with 83.8% of those in upper lobes. Nodular pattern was found in 32.7% cases, 54.3% of which showed bilateral involvement. Other changes noted were Tree in bud (9.34%), reticular (3%), honey combing (2%). Consolidation along with GGO was seen in 18.7%. Bilateral pleural effusion was also a frequent finding (38.3%).

Conclusion: Changes involving consolidation were higher in the lower lobes distributed diffusely. While ground glass opacities were seen in the upper lobes. There can be considerable overlap in radiological appearances seen with the viral infections. The imaging changes can be confounded by concomitant bacterial LRTI or underlying lung diseases. These CT images can be used to make decisions on empirical use and de-escalation of antibiotics in assistance with other tools.

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Oral Presentation No. 11

Presenter: Nina Garza

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Advanced Stage Placental Site Trophoblastic Tumor: A Case Report

Placental site trophoblastic tumor (PSTT) is a rare subtype of gestational trophoblastic neoplasia that is a result of intermediate trophoblastic cells that have undergone neoplastic transformation. PSTT can follow normal pregnancy, ectopic or molar pregnancy. Unlike choriocarcinoma, PSTT usually presents with low beta-HCG levels. Diagnosis is confirmed by histologic analysis. PSTT is generally poorly responsive to chemotherapy and carries a poor prognosis.

Our patient is a 42 year old G2P2 who presented four days after an uncomplicated vaginal delivery with abdominal pain. Abdominal ultrasound revealed retained products of conception and she underwent D&C. She returned six days later with shortness of breath and abdominal pain. CT imaging found lesions in the brain, lungs, liver, adrenal glands and uterus concerning for choriocarcinoma. Pathologic review of the intrauterine contents from her D&C found that the lesions were consistent with PSTT, not choriocarcinoma. Due to the high risk of life threatening bleeding and multiple extant complications, she was not offered radiation therapy or surgical resection. Instead, she was started on weekly cisplatin at half standard dosage. Her pre-treatment beta-HCG was 96,000, and after two treatment cycles, was 14,000. She was discharged home to continue palliative chemotherapy with plans for possible addition of other chemotherapeutic agents.

PSTT is a rare subtype of gestational trophoblastic disease, but it is imperative to recognize the pathology quickly to give our patients the best outcome. This case illustrates the critical nature of advanced gestational trophoblastic disease, as well as introduces a potential palliative therapy option.

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Oral Presentation No. 12

Presenter: Justin Bahooora

Additional Authors: Kinjel Shastri, Nick Poponea, Emad Shehada

Institution: McLaren Oakland

Program Director: Jo Ann Mitchell, DO

The Dark Side of Vaping: Acute Dyspnea and Granulomatous Lung Disease Associated With Electronic Cigarettes

Introduction: In recent years, the usage of electronic cigarettes has skyrocketed. They're perceived by many as a less harmful alternative to traditional cigarettes, however, evidence suggests that e-cigarettes may not be as safe as popular opinion suggest. In light of this, we present the case of a 43 year old patient who developed acute dyspnea after substituting traditional smoking with e-cigarettes.

Case: A 43 year old male presented to a community ED with 7 days of worsening dyspnea and chest tightness. He admitted to smoking one pack/day for nearly twenty years, but stated that he had ceased traditional smoking seven days prior and instead had been using e-cigarettes. Patient had a CTA of his chest, which showed multiple small, bilateral, pulmonary nodules. These lesions were not noted to be present on a CT scan performed one year prior. Patient underwent fiberoptic bronchoscopy with transbronchial biopsy of the right upper lobe, which revealed epithelioid noncaseating granulomas.

Discussion: The contents of e-cigarette vapor include a litany of substances, including the flavoring agents known as diacetyl compounds. Numerous reports exist in the medical literature implicating diacetyl compounds as the likely etiology for cases of interstitial and inflammatory lung diseases. In our patient's case, he had biopsy-proven granulomatous lung disease, which we suspect arose from his usage of e-cigarettes and resolved after abstaining from them. This temporal association supports the contention that e-cigarette vapor was the most likely cause of this patient's condition.

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Oral Presentation No. 13

Presenter: Tania Kohal

Additional Authors:

Institution: Henry Ford Health System – Detroit

Program Director: Odaliz Abreu Lanfranco, MD, FACP

A Curious Case of Chronic Lymphocytic Leukemia

Introduction: There is sparse literature on chronic lymphocytic leukemia (CLL) presentation in the oropharynx. Prior case reports have observed ontological and cutaneous manifestations, which are known to predict poor prognosis.

Case Presentation: A 75-year-old male with a 10-year history of CLL on surveillance management by his PCP, presented with fever, sore throat, and progressively worsening dysphagia. A recent computed tomography (CT) revealed splenomegaly and enlarged mediastinal and retroperitoneal lymph nodes (LNs). Direct laryngoscopy showed an immobile left vocal cord and fullness over the piriform recess. A CT scan of the neck revealed a soft tissue mass involving the tongue base and vallecula extending inferiorly to the left aryepiglottic fold. The patient notably had new onset left-sided deficits including facial droop, ptosis, hoarseness of his voice, acute otitis media, and sinusitis. The initial concern was for a new primary neoplastic process, and there was urgency to evaluate, given the concern for development of airway occlusion. The multiple left-sided deficits were attributed to the mass effect of the oropharyngeal mass and LNs on mediastinal structures; however, no clear etiology was identified. The oropharyngeal mass was biopsied and pathology revealed a lymphocytic infiltrate correlative of CLL/small lymphocytic lymphoma.

Discussion: Oropharyngeal manifestations of CLL are rare. However, we present a patient here with CLL mass in the base of the tongue with multiple associated cranial nerve deficits that resolved with treatment. Biopsy was key in diagnosis, and this manifestation of CLL should be considered in patients presenting with similar symptoms.

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Oral Presentation No. 14

Presenter: Georgette Cooke

Additional Authors: Faraz Haq, MD and Nazia Khan, MD

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Impact of Financial Incentives on Residents' Performance

I-PASS hand-offs improve patient safety by reducing medical errors. Our participation in the Society of Hospital Medicine Mentored Implementation I-PASS Program resulted in improved quality of both verbal and written patient hand-offs. While verbal hand-offs were quickly adopted, written hand-offs were not updated frequently in the electronic medical record (EMR). The aim of this CQI/EBM (QI) project was to increase adherence to written hand-offs using financial incentives provided by the I-PASS program.

The project was conducted on the inpatient service over 12 blocks. The Chief resident monitored the EMR written hand-offs daily for updates. Target adherence was >80% updated hand-offs averaged over each block. The winning team was given \$10 gift card per person to a place of their choice. The Chief resident sent weekly reminders with teams' cumulative progress in the form of a side-to-side bar graph for comparison. The overall results and winning team for each block were released on the last day.

Weekly reminders served to encourage residents and the bar graph generated competition between teams. Ten out of twelve blocks had winners (adherence ranging from 82.5% to 96.3%). Two blocks had no winning team (<80% adherence). Winning teams' senior residents were surveyed regarding their motivation and strategies. No one listed financial incentive as their primary reason for adherence.

Financial incentives may be encouraging to residents, but motivation to lead was the primary reason for hand-off compliance. We intend to confirm our findings by removing incentives for the next six months while continuing to monitor adherence.

Oral Presentation No. 15

Presenter: Zabila Saeed

Additional Authors: Nasir Khan MD, Mark Spoolstra MD

Institution: Mercy Health Grand Rapids/MSU

Program Director: Mark Spoolstra, MD, FACP

I Can't Handle the PRESure

Posterior Reversible Encephalopathy Syndrome (PRES) is a clinical radiographic syndrome of heterogeneous etiologies characterized by headaches, altered consciousness, visual disturbances and seizures.

A 68-year-old female with history of diabetes mellitus type II, hypertension, hyperlipidemia, chronic back pain presented to the ED with a 3 day history of progressive altered mental status. The patient was oriented to her first name with BP of 207mmHg/89mmHg. Laboratory results showed creatinine 2.1mg/dL, serum calcium of 14.8mg/dL. CT of the head demonstrated edema within the subcortical white matter of parietal and occipital lobes. The hypertension was controlled with labetalol and IV nicardipine. Multiple Myeloma was diagnosed with markedly elevated kappa free light chain of 1235 with low IgA, IgG, and IgM. Beta-2 microglobulin 16.9 mg/L and uric acid 8.9 mg/dL. Bone marrow biopsy revealed 80% plasma cell involvement. Patient was treated with aggressive IV fluids with dexamethasone and pamidronate with improvement in serum calcium levels. Chemotherapy was started with Velcade and dexamethasone. The patient's encephalopathy improved and she was transferred to long term rehabilitation center.

This case illustrates a unique presentation of multiple myeloma presenting with PRES. The most common etiology of PRES is hypertension followed by renal diseases and chemotherapy. This patient had hypertension which was potentiated by acute kidney injury in the setting of hypercalcemia and newly diagnosed MM likely due to disordered cerebral auto regulation and endothelial dysfunction. Recognition of this presentation is critical to institution of appropriate therapy and avoiding chemotherapeutic drugs that would predispose the patient to redevelopment PRES.

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Oral Presentation No. 16

Presenter: Om Dawani

Additional Authors: Asfar Ghauri , Negar Salehi , Syed Jawad Shah, Rajit Pahwa

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Wunderlich's Syndrome in Advanced Tuberous Sclerosis Complex: A Rare Case of Perinephric Hematoma

Wunderlich's syndrome (WS) is defined as spontaneous non-traumatic hemorrhage in the perinephric space that has majorly been associated with the rare autosomal dominant Tuberous Sclerosis Complex (TSC).

We report a case of a 36 year old Caucasian female with known TSC who was admitted to the hospital with complaints of 2 episodes of near syncope. On examination, she was pale and drowsy, with a pulse rate of 110 and BP of 80/55 mmHg. One day after admission, her Hb drastically dropped from 6.2 gm/dl from 8.2 gm/dl, with no apparent source of bleeding or trauma. The patient only reported a new presenting complaint of a severe backache.

Emergency CT abdomen and pelvis revealed bilateral renal masses with distortion of the renal anatomy consistent with angiomyolipomas (AML), a feature of TSC. A diagnosis of WS was made and fluid along the lateral aspect of the right kidney thought to represent hemorrhage into Gerota's fascia, was also evident. The patient was stabilized with fluid resuscitation and red blood cell transfusion and was taken for embolization of the right renal artery with coiling and injection of tris-acryl gelatin microspheres. She recovered uneventfully with no evidence of further bleeding.

Large AML tumors in the setting of the TS are high risk for WS with selective arterial embolization remaining a preferred strategy for the treatment. While there are other options, like partial or total nephrectomy, each patient should have an individualized treatment plan based on the clinical situation as determined by the physician.

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Oral Presentation No. 17

Presenter: Prajwal Dhakal

Additional Authors: Shiva Sharma, Ling Wang, Manoj Rai, Sagar Panthi, Supratik Rayamajhi

Institution: Michigan State University - East Lansing

Program Director: Supratik Rayamajhi, MD, FACP

Is Computed Tomography Pulmonary Angiography Used Appropriately for Diagnosis of Pulmonary Embolism?

Objective: To evaluate if computed tomography pulmonary angiography (CTPA) or ventilation perfusion (V/Q) scan are ordered appropriately for acute pulmonary embolism (PE) diagnosis. **Methods:** A retrospective cohort study in adult patients who underwent CTPA or V/Q scan in emergency department between 01/01/2014-12/31/2016 were included. Retrospective calculation of Wells score, along with d-dimer values, was used to determine if the order of CTPA or V/Q scan was justified.

Results: Out of 9601 patients, 94% underwent CTPA and 6% underwent V/Q scan. Acute PE was diagnosed in 63 (0.7%) patients. D-dimer assay was done in 35% of patients with low or moderate pretest probability. Among PE-positive patients, Wells criteria showed low, moderate, and high pretest probability in 28%, 70%, and 2% of patients, respectively ($p < 0.001$). D-dimer assay, done in 19 patients with PE, was elevated in all instances. Deep vein thrombosis was positive in 71% of PE-positive patients.

Conclusion: CTPA and V/Q scan were significantly overutilized (>99% were negative), and D-dimer was underutilized (ordered in 1/3rd patients) for PE evaluation. The sensitivity of Wells score for PE was questionable as only 28% of PE-positive patients had low pretest probability. Thus, in addition to accurate calculation of Wells score, appropriate use of d-dimer and adherence to guidelines, other strategies such as use of age-adjusted d-dimer cutoffs and pulmonary embolism rule-out criteria (PERC) may be needed in low to moderate risk patients. This may lead to reduction in hospital costs, ineffective use of hospital resources, and potential harm to patients.

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Oral Presentation No. 18

Presenter: Stela Tereziu

Additional Authors: Taylor McCarty DO; Mohamad Hatahet MD; William Corser Ph.D.

Institution: McLaren Oakland

Program Director: Jo Ann Mitchell, DO

Characteristics of Homeless Adults Presenting with Acute and Chronic Pain in Detroit, Michigan: A Retrospective Chart Review

Introduction:In the Detroit Metropolitan Area there are over sixteen thousand homeless people with little data concerning the prevalence of common medical condition. Pain is a commonly encountered chief complaint. This study examines factors related to homeless patient presenting with a pain related complaint.

Methods:Electronic and paper records of homeless adults receiving care at Tumin center in Detroit, Michigan between October 2nd, 2015 and May 27th, 2016 were reviewed (n=277).Once a non-normal distribution of encounter type responses was confirmed (i.e., Shapiro-Wilk = 0.588, df 255, $p < 0.001$), a series of non-parametric stepwise binary logistic regression predictive models for acute-chronic encounter type were completed with patient records.

Results:A total of 101 (36.5%) patients had come to the clinic with a chief complaint of acute or chronic pain. Pain was significantly correlated with: a) whether patient had come for an acute or chronic care encounter (Pearson correlation – 0.201, $p = 0.001$), b) patient age category (Pearson correlation – 0.142, $p = 0.018$), and c) patient racial affiliation (Pearson correlation + 0.168, $p = 0.005$).

Conclusion:Healthcare providers to this population should ensure adequate pain management strategies, due to the high clinic use due to pain. Research has shown that clinicians providing care to the homeless population manage chronic pain alone, without a structure or process in place. Tailoring resources that address patient's pain, as well as their chronic needs may improve patient care that is often lacking within the homeless.

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Oral Presentation No. 19

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Factors Associated with Increased Mortality in Critically Ill Patients Admitted with Spontaneous Bacterial Peritonitis

We sought to examine the mortality of SBP in critically ill ESLD patients admitted to the ICU in an era of both increased awareness of the condition and increased antibiotic resistance. Also, we sought to identify characteristics in ICU patients associated with an increased mortality.

Patients were obtained through the Medical Information Mart for Intensive Care III database comprising patients admitted to BIDMC between 2001 and 2012. 98 patients were included in this study who were admitted to the ICU from 2001 to 2012 with known ESLD and an ICD diagnosis of SBP, defined as an ascitic fluid sample with > 250 PMNs or a positive fluid culture. Statistical analysis was performed using R 3.4.2.

Of the 98 patients, 55 patients survived while 43 died with an overall mortality rate of 43.9%. Predictably, higher MELD-NA scores (28.8 vs 23.5, $p=0.0167$) and older age (61.3 vs 56.7, $p=.0463$) were associated with higher mortality. Gram positive organisms (48%) were responsible for the majority of infections compared to gram negative organisms (34%) and fungal infections (18%). Mortality rates for all three were 38%, 59%, and 67% respectively. This study shows a mortality rate of 43.9% in patients admitted to the ICU, showing that the rate of mortality has not drastically increased, even in the sickest of patients. It confirms previous findings that a higher MELD-Na and age are associated with increased mortality. Gram positive infections were more common than gram negative, but gram negative organisms were associated with a higher mortality rate.

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Oral Presentation No. 20

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Residents Choose Wisely

Introduction: The Choosing Wisely guidelines advise against ordering routine blood tests for hospitalized patients unless they change management. Unnecessary testing can lead to adverse effects (e.g., iatrogenic anaemia, poor sleep quality, risk for infections, increased cost of care).

Methods: An 8-week quality initiative aimed at reducing unnecessary blood tests was implemented in three internal medicine resident inpatient services. The initiative included a 30-minute educational session, reminders prior to and mid rotation, and posters in work areas that displayed lab pricing and urged judicious testing. Residents were encouraged to justify the purpose of ordering tests in their daily progress notes. Attending physicians were made aware of the initiative. Pre and post intervention time points were used to compare key metrics. A >10% decrease between time periods was used as an evaluation criterion.

Results: There were 293 patient records reviewed in the pre-intervention period and 419 in the post period. The two groups were similar in terms of age and gender. Median blood test count (CBC/BMP/CMP) decreased from 4 to 2 tests per patient per day (50% decrease) after the intervention. The median length of hospital stay decreased from 4.9 to 3.9 days (21% decrease). A decreased percentage of people requiring transfusions was also noted (2016: 6.1%, 2017:2.9%).

Conclusion: The frequency of unnecessary routine blood tests ordered in the hospital can be decreased by educating resident physicians, making them cost conscious and aware of the indications for ordering routine labs. Frequent reminders are needed to sustain the educational benefit.

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Oral Presentation No. 21

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A Case of Malarial Hepatitis

Introduction

Mild elevation in liver enzymes (up to 3 times of normal) is commonly observed in Plasmodium falciparum malaria but involvement of liver leading to acute hepatitis [alanine transaminase (ALT) >10 times of normal level] is a rare complication which is associated with a higher incidence of cerebral malaria, shock and acute respiratory distress syndrome (ARDS).

Case Description

A 22-year-old African man, who had recently returned from Burundi, Africa, presented with acute onset fever, headache, epigastric pain, vomiting, dark coloured urine and cough. Labs were significant for aspartate transaminase of 73 U/L, ALT 65 U/L, total bilirubin 6.6 mg/dL and platelets 63,000/microliter. Patient was found to have P. falciparum on blood smear with 2.3% parasitemia. With initiation of IV quinidine and IV doxycycline, parasitemia improved to 0.1% however his liver enzymes continued to trend upwards and his respiratory status worsened. On day three of hospitalisation, ALT had increased to 437 U/L, he developed ARDS and required intubation. Other causes for elevated transaminases, including Hepatitis A, B and C, were ruled out and CT was negative for any related pathology. With continued anti-malarial treatment, ALT then slowly trended down. He was successfully extubated on day six and discharged home.

Conclusion

Liver function tests should be performed at the time of diagnosis of P. falciparum malaria, as well as repeated at regular intervals, to ensure the early recognition of malarial hepatitis as these patients need close monitoring due to the high risk of complications.

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Oral Presentation No. 22

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Left Atrial-Esophageal Fistula with Cerebral Air Embolism – A Devastating Complication of Atrial Fibrillation Ablation!

Introduction:

Left atrial-esophageal fistula occurs in 0.01-0.2% of patients undergoing radiofrequency ablation for atrial fibrillation, days to weeks postoperatively. It is a diagnostic challenge due to its non-specific clinical and is associated with a mortality of 71.4-83%.

Case Description:

A 42-year-old male with non-ischemic cardiomyopathy presented to Emergency Department with chest pain and encephalopathy, four weeks after pulmonary vein isolation for atrial fibrillation. Examination revealed paraparesis and blindness. CT-Head showed evidence of multiple cerebral air emboli. Cardiac troponins were markedly elevated hence patient was initially anticoagulated. He was transferred to the ICU where his neurological status deteriorated. Repeat CT-Head demonstrated intracerebral hemorrhage, therefore anticoagulation was discontinued. CT Angiogram of the thorax demonstrated accumulation of air between the left atrium and esophagus, and bedside transthoracic echocardiography showed a transmural defect in the left atrium. The patient worsened hemodynamically, requiring vasopressors and intubation. Overnight he developed massive gastrointestinal bleed requiring multiple transfusions. The following day, patient had multiple episodes of cardiac arrest and expired. Autopsy revealed a 2 cm x 0.8 cm transmural defect of the esophagus communicating with a defect in the left atrium.

Conclusion:

Left atrial-esophageal fistula is a rare complication that occurs due to thermal injury to the esophagus during pulmonary vein isolation and should be suspected in patients presenting with new neurological deficits post ablation. Emphasis on intraoperative preventative strategies and improved awareness of this condition may reduce the incidence of this highly fatal complication. Prompt diagnosis, followed by immediate surgical repair, is vital to improve survival.

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Oral Presentation No. 23

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When the Good Becomes the Bad: A Case of *Lactobacillus Rhamnosus* Septicemia Unrelated to Probiotic Use

Introduction: Lactobacilli are gram positive, facultative anaerobic bacilli that live as commensals in the gastrointestinal and genitourinary tracts. They are promoted as probiotics. Although they are considered non-pathogenic, there are case reports of *Lactobacillus*-related serious infections in immunosuppressed hosts - mostly associated with probiotics use. We present a case of *Lactobacillus* septicemia unrelated to probiotic use.

Case Description: A 64-year old male presented with complaints of jaundice and an unintentional 40 pounds weight loss. Physical exam revealed a cachectic male with whole-body jaundice and scleral icterus with epigastric tenderness. The patient and family denied any probiotic use. Laboratory tests suggested an obstructive jaundice. CT-abdomen revealed a mass in the head of the pancreas with intra and extra hepatic biliary dilatation. He underwent ERCP followed by percutaneous biliary drainage. His post-operative course was further complicated by sepsis due to fungemia. While on Micafungin (and having completed a course of Meropenem and Vancomycin, empirically for cholangitis), his sepsis remained unresolved. Repeat blood cultures grew *Lactobacillus Rhamnosus* (4 sets) with resistance to Vancomycin (MIC1:256). In view of multiple comorbidities and recent antibiotic use, he was treated with Daptomycin and repeat cultures after 72 hours were negative with improvement in his sepsis.

Conclusions: It was hypothesized that the recent instrumentation along with the tumor eroding the vessels and ductal system of the pancreas resulted in the translocation of *Lactobacillus* into the bloodstream. This case recognizes *Lactobacillus* as a potential pathogen and that blood cultures with susceptibility testing are important in guiding treatment.

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Oral Presentation No. 24

Presenter: Carleigh Zahn

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A Serpent in the Heart: Paradoxical Embolism Traversing a Patent Foramen Ovale

Background: The incidence of patent foramen ovale(PFO) in the general population is 25-30%. They are increasingly recognized as a potential cause of peripheral embolization. The diagnosis of paradoxical embolism is usually presumptive when a PFO is seen however true visualization of a thrombus spanning the PFO is rare.

Case: 77 year old female presented with worsening abdominal and chest pain. Physical exam revealed lower extremity edema, tender abdomen, and absence of cardiac murmur. Abdominal x-ray revealed a small bowel obstruction. Echocardiogram obtained during pre-surgical clearance showed an ejection fraction of 60-65% and a cylindrical mass in the left atrium suspicious for thrombus vs tumor. She was taken to the operating room where 10cm of ischemic terminal ileum was removed. Post-surgical transesophageal echocardiogram (TEE) revealed 6cm by 1cm serpentine thrombus in the left and right atrium through a PFO. Computer tomography revealed filling defects in right basilar pulmonary vessels, non-occlusive thrombi in the super mesenteric artery and numerous renal infarcts. Doppler ultrasound revealed acute thrombi in left femoral, popliteal and posterior tibial veins. Cardiothoracic surgery recommended later closure of PFO but no direct thrombus intervention and inferior vena cava (IVC) filter placement. Repeat TEE revealed PFO without thrombus. Patient remained on systemic anticoagulation with outpatient follow up for closure of PFO two months later.

Conclusion: Prompt diagnosis and treatment of PFO are critical in preventing further complications when peripheral embolization is present. The timing of imaging procurement and echocardiogram technologist proficiency are key factors in visualizing a PFO spanning thrombus.

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Oral Presentation No. 25

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Diagnostic Utility of Carotid Doppler Ultrasonography in the Setting of Syncope

Introduction: Carotid Doppler Ultrasonography (CDUS), historically one of the most common tests ordered in setting of syncope, is of low diagnostic yield and there is insufficient data regarding which patients will benefit from ultrasound screening for syncope.

Methods: This retrospective chart review included patients admitted for syncope who had CDUS performed for its evaluation. Patients who presented with near syncope, TIA or stroke were excluded. Statistical analyses were performed using SPSS version 22.

Results: A total of 165 patients (73 males) had CDUS performed for syncope evaluation. The average age was 65 years; 30.3% had diabetes; 41.2% had dyslipidemia; 30.3% had other vascular events; 33.9% were current smokers and 21.8% had an episode of previous syncope. There was a statistically significant difference favoring patients with a positive CDUS test in regards to dyslipidemia ($p < 0.003$) and previous history of vascular disease ($p < 0.017$). The results of CDUS showed: 52.1% had a normal study bilaterally; 36.3% mild stenosis; 7.8% unilateral mild stenosis; 2.4% moderate stenosis and 0.6% unilateral severe and complete occlusion.

Discussion: Patients with a diagnosis of syncope who had a CDUS test had more than 50% chances of the test being normal and in those who had carotid disease it was associated with the presence of risk factors and other vascular events. As studies have shown CDUS to be low yield and an imprecise diagnostic study in identifying an etiology for syncope, it should prompt clinicians in recognizing the patient population who actually need CDUS and thereby optimizing its utility.

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Oral Presentation No. 26

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Gemella Endocarditis: A Case Report and a Review of the Literature

Infective endocarditis (IE) remains a prevalent disease with a high rate of morbidity and mortality, there have been shifts in the microbial causes of IE over the recent years particularly with the advances in molecular diagnostic advancements. We describe a case of Gemella-related endocarditis with literature review.

Case: A 81-year-old man presented with dyspnea and fatigue. His initial exam revealed a systolic murmur along with bilateral lung crackles. Echocardiogram revealed severe mitral regurgitation with 1-centimeter vegetation. His blood cultures grew *G. haemolysans* and therapy was initiated with penicillin and gentamicin. A colonoscopy was done to assess for the source of the bacteremia and revealed a rectal polyp with a high grade of dysplasia. Patient subsequently developed cardiogenic shock and was enrolled in hospice.

We searched PubMed for cases of Gemella Endocarditis using appropriate keywords.

Analysis included 66 cases, of which, 72% occurred in males. The mean age was 51-year and 42% of the patients were older than 60. Fever was the most common presentation and most of the cases presented sub-acute. The mitral valve was the most affected site and 50% of the patients needed surgical intervention. *G. morbillorum* was the most common subtype and a total of 3 cases were found to be associated with colorectal neoplasm.

Gemella species are a rare cause of IE and mostly affect older males, the absence of a clear source of bacteremia warrants further evaluation for a gastrointestinal source. The infection can be destructive and must be promptly treated to avoid complications.

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Oral Presentation No. 27

Presenter: Ambreen Allana

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Creating HPV Vaccine Awareness Amongst Clinic Patients of a Community Hospital: A QI Project

Introduction: The Human Papilloma Virus (HPV) is an extremely common virus that can cause significant morbidity and mortality; nearly 80 million people are currently infected in the United States. According to 2016's National Immunization Survey, only 43.4% of all teens were up-to-date with the recommended HPV vaccine series. The objective of our study was twofold:

determine the barriers to HPV vaccination; increase compliance with HPV immunization in patient population eligible for HPV vaccination in our community-based internal medicine clinic.

Methods: Patient data regarding their knowledge about HPV immunization and current vaccine status was evaluated through a questionnaire. HPV vaccine status was then confirmed using Michigan Care Improvement Registry. Vaccine was made available in the clinic and given to interested patients. A short survey was conducted amongst the medicine residents to gauge their knowledge about the HPV vaccine. Survey helped to determine the barriers residents encountered during the implementation of this project.

Results: After three months of introducing HPV vaccination in our clinic, number of patients vaccinated increased by 5.3%, with a p-value of 0.7. Lack of knowledge about HPV was the major barrier leading to non-compliance with the vaccine.

Discussion: Despite making HPV vaccines available in the clinic, the rate of vaccination continued to be low. Even though perception and acceptance of the vaccine in the society has improved over the last few years, more education is needed for both patients and providers. A population based intervention would be the next recommended step to promote immunizations in the future.

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Oral Presentation No. 28

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Program Director: David Steinberger, MD, FACP

A Variant Radiological Presentation of Legionella Pneumonia Mimicking Tumor in an Immunocompromised Host

Introduction: Legionella pneumonia constitutes 2-8% of CAP cases with high mortality rates of 1 per 10. Patchy unilobar infiltrate is the most common radiological presentation, however in immunocompromised state it may present as pleural based rounded opacity. We present a rare case of a neutropenic host with multiple myeloma currently undergoing chemotherapy who presented with a large dense solid lung mass.

Case Description: 71-year-old male with multiple myeloma being treated with dexamethasone, elotuzumab and bortezomib, prior mediastinal plasmacytoma s/p chest radiation therapy and Crohn's disease was admitted with high-grade fever, chills, productive cough. Labs revealed pancytopenia with neutrophil count of 1.2. Patient was started on broad-spectrum antibiotics for febrile neutropenia. IV Azithromycin was added to the regimen based on positive legionella UA test. CT chest showed 7 x 8 cm large opacity in right lower lobe abutting the pleura concerning for lung mass. Bronchoscopy with BAL showed positive PCR for legionella pneumophila. He showed a good clinical response on IV azithromycin but re-spiked fevers on being transitioned to oral azithromycin. This was attributed to reduced bioavailability of antibiotic secondary to Crohn's disease. Patient was continued on 5 more days of inpatient IV Azithromycin before switching to oral to complete a 21 day course. He was advised a follow-up chest CT in 4-6 weeks.

Discussion: The radiographic findings of legionella pneumophila in an immunocompromised host may vary from nodular infiltrates mimicking invasive fungal infections to solid mass-like lesion. Our report highlights the distinct presentation of legionella in an immunocompromised host.

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Oral Presentation No. 29

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New Methodologies to Manage Central Sleep Apnea

Background: Central sleep apnea (CSA) comprises a group of sleep-related breathing disorders where respiratory effort is decreased at times or in a cyclical manner during sleep. In general population, the prevalence of CSA is less than 1%. We conducted an evidence-based review of newer CSA management methods.

Methods: A literature search was performed using evidence-based electronic databases PubMed and Cochrane, with the following keywords: CSA, Continuous positive airway pressure (CPAP), Bilevel Positive Airway Pressure (BiPAP), Adaptive Servoventilation (ASV). 15 studies were found and 7 were critically appraised. The American Academy of Sleep Medicine guidelines were also assessed.

Results: ASV demonstrated superiority to CPAP for controlling CSAs, improvements in sleep architecture and daytime hypersomnolence in Cheyne-Stokes breathing (CBS)-CSA, central sleep apnea syndrome, and complex sleep apnea conditions. Both ASV and CPAP decreased the apnea-hypopnea index (AHI); with ASV lowering AHI to 10 per hour. ASV also reduced central apneas and AHI in long-term opiate patients. ASV reduced more CSB-CSA when compared to oxygen therapy for a period of 8 weeks. BiPAP may be a treatment consideration for patients who failed CPAP, ASV and oxygen therapy. Adding 100-150 mL enhanced expiratory rebreathing space (EERS) demonstrated improved CSA. Supplemental CO₂ (5%) has shown to have similar results to EERS.

Conclusions: For patients with CSA who failed CPAP, other options can be considered like oxygen supplementation, ASV, BiPAP and adding dead space or inhaled CO₂. ASV is superior to oxygen supplementation but the latter is more widely accepted and less expensive.

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Oral Presentation No. 30

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A Massive Thrombus Trapped Within an Atrial Septal Defect

Atrial septal defect (ASD) is one of the most common congenital heart diseases which can present at any age. Rarely it may be complicated with a venous thrombus entrapment within an abnormal interatrial communication.

A 39-year-old male presented with acute shortness of breath and severe pleuritic chest pain to the emergency room. His vital signs were significant for oxygen saturation of 80% requiring a non-rebreather mask. Labs were significant for elevated troponin at 2.35 ng/mL and B-type natriuretic peptide at 309 pg/mL. Chest tomography revealed extensive bilateral pulmonary embolism. Transesophageal echocardiogram (TEE) showed significant right ventricle strain and a massive, 10 cm thrombus traversing both atria via ASD occupying the left atrial appendage(LAA) and protruding into the left ventricle. Lower extremity Doppler ultrasound was consistent with acute occlusive deep venous thrombosis in the right femoral and popliteal vein. The patient was transferred to Intensive Care Unit where cardiology, thoracic surgery and interventional radiology were consulted. A multidisciplinary decision was made to proceed with emergent sternotomy with a removal of intra-cardiac thrombus, closure of ASD, LAA occlusion (50mm ArtiClip) and pulmonary artery thromboembolectomy along with a temporal inferior vena cava filter placement. All procedures were performed without complications. Thrombus entrapment in an abnormal interatrial communication with left ventricular extension is a rarely documented complication of pulmonary embolism with a high risk of life-threatening outcomes. This case highlights the importance of timed diagnosis with echocardiography and the need for an interdisciplinary approach to manage further treatment.