

Oral # 1

Category: Clinical Vignette

Program: Ascension Providence Hospital

Program Director: Robert Bloom, MD, FACP

Presenter: Dr. Alina Guseynova

Additional Authors: Lauren Weiner MD; Cynthia Vakhariya DO

An Unexpected Cause of Splenomegaly and B Symptoms

Introduction: Primary humoral immunodeficiency comprises of mostly inherited disorders characterized by low antibody production. The diseases in this group have an incidence range of 1 out 700 to 1 out 379,000. This is a case of an adult who is diagnosed with an unspecified hypogammaglobulinemia.

Case Study: A 23-year-old female presents 10 days after a lymph node excisional biopsy for pain at the right axillary biopsy site. She had been experiencing symptoms of fever, chills, and night sweats for a year prior to seeing the oncologist and also had episodes of severe abdominal pain. In the hospital, the patient had a CT scan of the abdomen and pelvis that showed splenomegaly, enlarged retroperitoneal lymphadenopathy and an innumerable amount of pulmonary nodules in the lung bases. The lymph node biopsy showed reactive lymphoid hyperplasia associated with primary hypogammaglobulinemia. There was no evidence of lymphoma. Serum immunoglobulins results showed low total levels of immunoglobulin G (IgG), immunoglobulin M (IgM), and immunoglobulin A (IgA). The patient was treated for cellulitis of the right underarm with intravenous antibiotics and referred to the hematoimmunology clinic on discharge from the hospital.

Conclusions: Primary hypogammaglobulinemia, a type of primary humoral immunodeficiency, is characterized by impaired B cell production. Most primary hypogammaglobulinemias rarely present past an age of 2.5 years. Anyone with unexplained hepatosplenomegaly should ideally have immunoglobulin levels tested. This adult patient has no reported history of childhood infections. She has a lymph node excision biopsy negative for lymphoma but positive for an unspecified hypogammaglobulinemia.

Oral # 2

Category: Clinical Vignette

Program: Sinai Grace Hospital – DMC

Program Director: Mohamed Siddique, MD, FACP

Presenter: Dr. Hamid-Reza Moein Moein

Additional Authors: Rohan Naik, MD; Marc A. Feldman, MD, FACP

Stroke: A Rare but Debilitating Complication of Cardiac Catheterization

Introduction: Percutaneous coronary intervention (PCI) is the most common cardiovascular procedure worldwide. Rate of stroke after PCI is less than 1%. Ischemic stroke often occurs in 24 hours after the PCI. Older age, hypertension, diabetes, presence of coronary artery thrombus, and longer procedure time are the main risk factors.

Case Description: 88-year-old gentleman with history of hypertension presented with sudden onset of chest pain. Initial ECG showed normal sinus rhythm and troponin was elevated (0.05 ng/ml). Repeat ECG was suggestive of anterior-lateral ischemia and troponin increased to 2.25 ng/ml. Trans-thoracic echocardiography demonstrated an ejection fraction of 40-45% and septum and apex akinesia. Left heart catheterization revealed 90% occlusion of left anterior descending artery. Balloon angioplasty and stent insertion were unsuccessful. In the recovery room, patient developed diplopia and intractable nausea. Neurologic exam showed binocular horizontal diplopia, right gaze nystagmus, right cranial nerve IV, V, and VI palsies, bilateral defect in finger to nose, and severe unsteadiness when attempting to stand. CTA of the head and neck showed left posterior cerebral artery stenosis. MRI brain revealed an acute lacunar ischemic infarct of posterior circulation. Aspirin, Plavix, and statin were initiated. Symptoms improved markedly over 3 weeks with rehabilitation.

Discussion: Acute thromboembolic ischemic stroke secondary to dislodged atherosclerotic plaque is the most likely cause of stroke post PCI. Posterior circulation stroke comprises most of these strokes; therefore, detailed neurologic examination, especially gait and vision, is highly recommended. Minimizing catheterization manipulation and contrast use may be beneficial to reduce the risk of stroke post PCI.

Oral # 3

Category: Clinical Vignette

Program: Ascension Providence Hospital

Program Director: Robert Bloom, MD, FACP

Presenter: Dr. Sarah Makadsi

Additional Authors: Sarah Makadsi, MD; Evan Asper, MD; Andrew Easow, MD; Priyanka Jain, MD; David White, MD; Steven Miles, MD

A Fatal Case of Metformin Toxicity

Metformin is first line drug therapy for patients with type II Diabetes Mellitus. Common adverse effects reported by patients include bloating, vomiting and diarrhea. This case presents fatality from Metformin-associated lactic acidosis (MALA), an adverse effect that has an incidence of <10 cases per 100,000 patient years.

A 57-year-old female with medical history of Type II Diabetes Mellitus, Hypertension, CKD stage III, coronary artery disease, and reduced ejection fraction heart failure who presented with a 3-day history of vomiting and diarrhea. Patient takes 1000 mg of Metformin twice daily. Upon presentation, she was found to be hypoglycemic, hypotensive and tachycardic. Laboratory studies showed pH of 6.90, HCO₃⁻ of 7.3, AGAP of 36, Lactic acid of 17.9 mmol/L, creatinine of 9.6, and hyperkalemia with potassium of 7.7 mmol/L. Her hypotension worsened despite resuscitation with crystalloid and she became unresponsive. She required intubation and four vasopressors. Emergent hemodialysis sessions were started. Lactate levels worsened up to 33.8 mmol/L. MALA was suspected given kidney injury, hyperkalemia, and lactic acidosis. Patient's hypotension continued, and she expired after an episode of ventricular fibrillation and asystole. Metformin level was reported days after death and was 38 mcg/mL which is significantly elevated from therapeutic levels.

Metformin toxicity should be considered in patients taking metformin who present with significantly elevated lactate. This case illustrates the importance of discussing adverse effects of medications with patients. With metformin, it is necessary to educate patients on the possible toxicity and the need to discontinue metformin in times of dehydration.

Oral # 4

Category: Clinical Vignette

Program: McLaren Regional Medical Center/MSU Flint

Program Director: Parul Sud, MBBS, FACP

Presenter: Dr. Swathi Koneti

Additional Authors: Muhammad Elgamal, Kavitha Kesari, Mahin Khan and Trevor Singh

A Low-Grade Primary Lymphoma of Brain in a Young Patient with Systemic Lupus Erythematosus(SLE) Not on Immunosuppressive Therapy

Introduction: There is increased risk of systemic diffuse large cell lymphoma in patients with autoimmune diseases like SLE on immunosuppressive therapy. However, low-grade primary lymphoma of the brain is rare, especially in the absence of active flare. We present a rare case of low-grade primary lymphoma of brain in a patient who had never received immunosuppressive therapy.

Case description: 33 year old female, history of SLE, not on immunosuppressive therapy, presented to optometrist with proptosis of Left eye, headache for six months. Referred to endocrinologist for possible hyperthyroidism. MRI brain showed, large lobulated dural mass 2.6x8.6 cm left frontal and temporal lobes with vasogenic edema causing 8 mm supracallosal herniation. Craniotomy performed to debulk tumor with clinical suspicion of atypical meningioma. Histopathology showed low-grade malignant B-Cell lymphoma. On PET scan, bone marrow biopsy, no evidence of systemic lymphoma. After surgery, underwent palliative radiation with Fludarabine. Now, free of mass-related symptoms, on levetiracetam and lamotrigine for seizure prophylaxis.

Discussion: Primary central nervous system lymphoma, rare disease, accounts for up-to 1% Non-Hodgkin lymphoma. PCNSL is well studied in patients with AIDS or organ transplantation. Several cases reported with Myasthenia gravis and Crohn's disease, however with SLE only 8 cases reported. All patients with SLE, who were reported to have PCNSL had taken Mycophenolate Mofetil, reported interval from initial use of MMF to onset of PCNSL varied from 1-11 years. To our knowledge, our's is the first reported case of SLE never been on immunosuppressive therapy developed a low-grade PCNSL.

Oral # 5

Category: Research

Program: Central Michigan University - Saginaw

Program Director: Nicholas Haddad, MD, FACP

Presenter: Dr. Rawan Amir

Additional Authors: Abdullah Al-Hweish, Ibrahim Abdulrahman, Tamer Salamoni, Mousa Alharbi, Abdullah Alshehri, Sami Ghazal, Abdulsalam Noor, Hani Mansour

Tidal Peritoneal Dialysis Versus Ultrafiltration in Type 1 Cardiorenal Syndrome: A Prospective Randomized Study

Background

Ultrafiltration (UF) is an alternative strategy to diuretic therapy for the treatment of patients with acute decompensated heart failure. Little is known about the efficacy and safety of peritoneal dialysis in patients with acute cardiorenal syndrome (ACRS).

Methods

We randomly assigned a total of 88 patients with type 1 ACRS to a strategy of UF therapy or tidal peritoneal dialysis (TPD). The primary end point was the change from baseline in the serum creatinine level and left ventricular function represented as ejection fraction (EF), as assessed 72 hours and 120 hours after random assignment.

Results

UF therapy was inferior to TPD therapy with respect to the primary end point of the change in the serum creatinine levels at 72 and 120 hours ($p=0.041$) and EF at 72 and 120 hours after enrollment ($p=0.044$) and $p=0.032$). At 120 hours, the mean change in the creatinine level was 1.4 ± 0.5 mg/dl in the UF-therapy group, as compared with 2.4 ± 1.3 mg/dl in the TPD group ($p=0.023$). At 72 hours and 120 hours there was significant difference in weight loss and net fluid loss between patients in the two groups ($p=0.025$). Adverse events were more observed in the UF-therapy group ($p=0.007$). TPD patients had fewer rehospitalization for HF ($p=0.022$).

Conclusion

In patients with type 1 CRS, the use of TPD was superior to UF-therapy for the preservation of renal function, improvement of cardiac function and net fluid loss. UF-therapy was associated with more adverse events.

Oral # 6

Category: Clinical Vignette

Program: Ascension Providence Hospital

Program Director: Robert Bloom, MD, FACP

Presenter: Dr. Chad Nicholson

Additional Authors: Chad Stennett, MD; Maria Markosyan-Karapetyan, MD; Ana Capatina-Rata, MD

An Uncommon Case of Stevens-Johnson Syndrome Linked to Vancomycin Therapy

Stevens-Johnson Syndrome (SJS) is a rare hypersensitivity reaction typically characterized by skin and mucosal involvement. Medications including allopurinol, carbamazepine, and phenytoin continue to be a predominant cause of this condition. SJS caused by vancomycin, however, remains quite unusual and has been reported in less than 10 cases.

A 62-year-old female underwent lumbar fusion for intractable back pain. She was discharged after an uncomplicated stay but returned three weeks later after developing postoperative wound drainage and increased pain. Wound cultures demonstrated MRSA and vancomycin was initiated. Two weeks after beginning therapy the patient presented again to the emergency department with complaints of blisters on her lower lips, ocular drainage, and intense pruritus over much of her body. A diagnosis of SJS was presumed and vancomycin was promptly discontinued. Physical examination revealed vesicular lesions in the oral and vaginal mucosa, uvular edema, purulent drainage from the right eye, conjunctival injection, and a faint macular rash on the arms and legs. Her temperature was 100.4 degrees Fahrenheit and leukopenia was present on admission. High-dose corticosteroids were initiated in addition to symptomatic treatment with a proprietary blend mouthwash and emollient cream. The patient's symptoms slowly improved and on hospital day nine she was discharged to complete a six week course of daptomycin.

This case illustrates the potential for a rare and severe mucocutaneous reaction with a commonly prescribed antibiotic. Although there have been few reported cases of vancomycin-induced SJS, early recognition was critical in limiting progression of disease course.

Oral # 7

Category: Research

Program: Michigan State University – East Lansing

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Presenter: Dr. Shiva Shrotriya

Additional Authors: Nisraj Basnet MD, Varunsiri Atti MD, Sowmika Rao MD, Mukta Sharma MD, Supratik Rayamajhi MD

What Predicts Readmissions Among Hospitalized Cancer Patients?

Background: Reducing unplanned hospital readmission has been a national policy priority aimed at improving health care quality. We conducted a retrospective cohort study to identify rates and predictors of readmission among cancer inpatients.

Methods: We conducted a retrospective cohort study including all consecutive admissions with between January and December 2013 at an academic cancer center. We conducted logistic regression analyses to identify predictors of readmission.

Results: There were 1210 admissions. Of these, 262 inpatients were readmitted within 30 days (21.6%). Of the readmitted patients, 57% were females; mean age (\pm SD) was: 63 ± 12.2 years; 72% were Caucasians and 23% were African Americans. Median (range) length of stay among readmitted patients was 4(0-46) days. Common cancers were renal (72%), lymphoma (22%), lung (21%) and breast (17%). On univariate analysis, those with renal and gastric cancers were at higher readmission risk. Comorbidities such as respiratory illness, anemia, infections, hypertension, venous thromboembolism; VTE, diabetes, hepatic diseases, anxiety, congestive heart failure, pressure ulcers cerebrovascular diseases increased ALT and increased AST were also associated with increased readmission risk on univariate analysis. On multivariate analysis, only infections (OR: 2.01; 1.06-3.80) and respiratory illnesses (OR: 4.21; 1.58-11.19) remained independent predictors of readmission.

Conclusions: Hospitalized cancer patients are at high risk of readmission. Comorbidities, particularly infections and respiratory illnesses, are independent predictors of readmission. Interventions aimed at reducing readmissions should target this high-risk population to reduce health care resource utilization and burden to patients.

Oral # 8

Category: Clinical Vignette

Program: Ascension Providence Hospital

Program Director: Robert Bloom, MD, FACP

Presenter: Dr. Kyle Zakkar

Additional Authors: Avery Mendelson MD, Michael Rosen MD, Vijaya Kinni MD

The Pressure is On! A Unique Presentation of A Paraganglioma

A paraganglioma located in the sympathetic paravertebral chain of the chest, abdomen or pelvis is a rare neuroendocrine tumor that secretes catecholamines. We present a patient with catecholamine release from a paraganglioma induced by withdrawal of anesthesia. A literature search has not identified a similar case.

A 52-year-old African-American male with a history of controlled hypertension presented with hypertensive emergency and flash pulmonary edema after anesthesia withdrawal following rotator cuff surgery at an outpatient facility. His blood pressure continued to elevate and he was transported to our hospital. On admission his BP was 198/112. It was suspected that the patient was having reflex hypertension from clonidine withdrawal. Despite administration of multiple intravenous antihypertensives, blood pressure remained elevated. Evaluation for secondary hypertension was initiated with renal doppler flow and aldosterone levels. These were within normal limits. Urine catecholamines were ordered which showed metanephrine and normetanephrine levels at 33 and 44 times the upper limit, respectively. CT of the abdomen with contrast was ordered for increased pancreatic enzymes. The scan demonstrated a 5.1 x 5.3 x 5.5 mass left of the distal aorta. Patient was started on alpha blockade and phenoxybenzamine. An MIBG scan enhanced the area of the para-aortic mass. The mass was surgically excised without complication utilizing appropriate anesthesia and antihypertensives. The patient became normotensive following surgery.

Paraganglioma induced secondary hypertension is a well-documented topic except in anesthesia withdrawal. This case highlights the importance of clinical suspicion and differential diagnosis in patients with hypertensive emergency.

Oral # 9

Category: Clinical Vignette

Program: Sinai Grace Hospital - DMC – Detroit

Program Director: Mohamed Siddique, MD, FACP

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Additional Authors: Tanya Odisho, MS-IV; Anand Agarwal, MD; Fnu Abhishek, MD; Rana Ismail, PhD, MSc.

Case Report: Does Moyamoya Disease Increase Posterior Circulation Susceptibility to Aneurysms?

Introduction: Moyamoya Disease (MMD) is a rare cerebrovascular occlusive disease characterized by progressive non-atherosclerotic stenosis of the internal carotid artery (ICA) resulting in a network of collaterals at the base of the brain which give a unique “puff of smoke” appearance on imaging. It is more prevalent in Asian countries and has a female predominance with bimodal distribution.

Case Presentation: An obese 41 year old African American female with a medical history significant for hypertension presented to the hospital complaining of the severe headache and coughing. In the ED, she was found to be profoundly hypertensive. CT-head showed a large SAH. CTA revealed a 4mm saccular aneurysm at the tip of the basilar artery. Stent supported coil embolization of the aneurysm was performed. Interestingly, CTA also revealed extensive Moyamoya pathology involving bilateral ICA with Suzuki grade V changes.

Discussion: SAH from pseudoaneurysms at collateral vessels or saccular aneurysms in the Circle of Willis is the most common symptom leading to the diagnosis of MMD in adults. In our patient, CTA showed evidence of MMD and a saccular aneurysm at the tip of the basilar artery. The origin of such aneurysms is thought to be a result of compensatory increase in blood flow and hemodynamic stress on the vessel walls of the posterior circulation. Chronically, this may cause enlargement and increased risk of rupture. This highlights the importance of undertaking a careful angiographic search for an aneurysm of the posterior circulation, in particular the basilar artery bifurcation in patients with MMD.

Oral # 10

Category: Research

Program: Ascension Providence Hospital

Program Director: Robert Bloom, MD, FACP

Presenter: Dr. Max Zlaptopolsky

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Unobserved Ambulatory Blood Pressure Measurement in a Predominantly African-American Cohort: More Effort but Less Pressure

Hypertension is the most common reason for a clinic visit in the United States and is more prevalent in African-Americans than Caucasians. The ability of clinicians to accurately assess and treat hypertension with the goals of minimizing end-organ damage and proceeding morbidity/mortality remains difficult. This is further complicated by the discrepancy in measured ambulatory and at-home blood pressures. Office blood pressure measurement has recently undergone a paradigm shift. Automated blood pressure measurement (ABPM) with a period of rest prior to repeat readings has been shown to better reflect true blood pressure. The research that originally shed light on this topic was performed in a predominantly Caucasian population. We therefore chose to investigate the role of unobserved ABPM (uABPM) in a predominantly African-American cohort in an outpatient internal medicine clinic. We performed a prospective non-blinded non-randomized trial in which patients underwent traditional operator-present (Omron) automated BPM and operator-absent (Welch Allyn) BPM on three subsequent measurements, 5 minutes apart. Preliminary data analysis of 148 patients using a two-tailed T-test reveals a statistically significant difference between unobserved and traditional blood-pressure measurements (systolic average $p < 0.001$ and diastolic average $p < 0.05$). Average uABPM systolic blood pressure readings were ~7 mmHg lower than the initial operator-present reading and add credence to recent trial data that supports the use of uABPM over traditional measurement to avoid misdiagnosis.

Oral # 11

Category: Clinical Vignette

Program: Ascension St. John Hospital

Program Director: Raymond Hilu, MD, FACP

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Ketogenic Diet Resulting in Dry Beriberi

Low carbohydrate, high protein (ketogenic) diet has been gaining popularity worldwide, as an effective diet for rapid weight loss. Physicians and patients should be aware of the potential morbidity of such a diet, as this case demonstrates.

A 22-year-old female with no significant history presented with numbness and weakness in her legs. Her symptoms started 10 days prior with progressive ascending numbness to her knees, followed by weakness in hand grip, and unsteady gait. She denied difficulty breathing, leg or back pain, headaches, neck rigidity, bowel or bladder incontinence, fevers, or chills. She gave further history of a 50 lb weight loss after being on a ketogenic diet for 4 months, consuming less than 10g carbohydrates daily. Her exam revealed absent ankle and knee reflexes, and decreased light touch sensation below the knees. She had left foot-drop, and noticeable decrease in hand grip strength. Spinal fluid studies were unrevealing except for pleocytosis (WBC 23, lymph 100%). MRI of her brain and entire spine were unremarkable.

Electromyography suggested an inflammatory motor and sensory neuropathy, with both demyelinating and axonal involvement. Thiamine level was 33 nmol/L (74-222). Repeat spinal fluid analysis revealed persistent lymphocytic pleocytosis (WBC 40). Thiamine deficiency, due to inadequate intake from ketogenic diet, led to dry beriberi resulting in quadriplegia.

Dry beriberi develops into a symmetrical peripheral neuropathy characterized by both sensory and motor impairment. Causes include TPN, bariatric surgery, and inadequate thiamine consumption. This case is alarming, demonstrating a ketogenic diet leading to quadraparesis.

Oral # 12

Category: Research

Program: Ascension St. John Hospital

Program Director: Raymond Hilu, MD, FACP

Presenter: Dr. Bishoy Abraham

Additional Authors: Bishoy Abraham, MD, Michael Megaly, MD, MS, Mina Fransawyalkomos, MD, Mina Sous, MD, Marwan Saad, MD, PhD, Robert Fraser, MD, Jo

The Use of Torsemide Versus Furosemide in Patients with Heart Failure, A Systematic Review and Meta-Analysis

Objective: Using published data, we compared clinical outcomes with the use of torsemide and furosemide in patients with chronic heart failure (HF).

Background: While torsemide's oral bioavailability and half-life theoretically render it a more efficient diuretic than furosemide, the clinical outcomes of torsemide compared with furosemide remain unclear.

Methods: We performed a systematic review and meta-analysis including all published studies that compared torsemide and furosemide use in HF patients from inception to March 2019. **Results:** Fifteen studies (8 RCTs, and seven observational studies) including 9758 patients were included. During a mean follow-up duration of 8 ± 3 months, torsemide was associated with a lower risk of hospitalization (8.6% vs. 12.7%; OR 0.63, 95% CI 0.44, 0.91, $p=0.01$, $I^2=8\%$; NNT=23) and cardiac mortality (1.6% vs. 4.4%; OR 0.37, 95% CI 0.20, 0.66, $p<0.001$, $I^2=0\%$; NNT=37); and more improvement in functional status from New York Heart Association (NYHA) class III/IV to I/II (72.5% vs. 58%; OR 2.34, 95% CI 1.32, 4.15), $p=0.004$, $I^2=27\%$; NNT=5) compared with furosemide. There was no difference in all-cause mortality or medication side effects between both groups. In sensitivity analysis including RCTs only, improvement in functional status remained significant between torsemide and furosemide groups. However, there was no difference in cardiac mortality between the two groups. With subgroup analysis, there was no difference in hospitalization when analyzing subgroups of RCTs and observational studies individually.

Conclusion: In this meta-analysis, compared to outcomes with furosemide, torsemide use was associated with improved functional status, fewer hospitalizations and lower cardiovascular, but not all-cause, mortality.

Oral # 13

Category: Clinical Vignette

Program: Ascension St. John Hospital

Program Director: Raymond Hilu, MD, FACP

Presenter: Dr. Kootaybah Al Sheikhly

Additional Authors: Hiba Obeid MD, Jason Donaghue MD

Spontaneous Coronary Artery Dissection in Multiple Gestation Peripartum Period

Non-atherosclerotic spontaneous coronary artery dissection (SCAD) is defined as a non-traumatic and non-iatrogenic separation of the coronary arterial wall. SCAD is a highly uncommon cause of myocardial infarction (0.1 to 0.4 %).

40-year-old African American woman, G1T1P0A0L2, with past medical history of tobacco abuse and obesity who had uncomplicated cesarean section delivery for healthy twins two weeks prior presented with substernal, sudden onset chest pain. The pain radiated to left arm and back, and it was pressure-like in nature. She had normal vital signs upon presentation. Physical examination was benign except for well-healed cesarean section wound. Electrocardiogram showed normal sinus rhythm with nonspecific ST abnormality. First set of troponins was less than 0.03, second set showed troponins 0.18 and D-dimer 2340. Chest x-ray was unremarkable. Echocardiogram showed only mild to moderate mitral valve regurgitation. CT angiography of the chest showed no evidence of pulmonary embolism. She was started on heparin drip and cardiac catheterization next day showed no atherosclerotic coronary artery disease, but SCAD of inferior diagonal first branch. No intervention was done, heparin was stopped. Patient was started on aspirin, statin, Clopidogrel, Metoprolol and Lisinopril per cardiology recommendation.

In most SCAD patients, conservative therapy is the preferred strategy after the diagnosis is secured. Patients with symptoms of ongoing ischemia or hemodynamic compromise should be considered for revascularization with PCI or coronary artery bypass grafting. Current recommended conservative medical management includes long-term aspirin, beta blocker, and one year of clopidogrel, with the addition of a statin in patients with dyslipidemia.

Oral # 14

Category: Research

Program: Ascension St. John Hospital

Program Director: Raymond Hilu, MD, FACP

Presenter: Dr. Muneer Al-Husseini

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Incidence and Mortality in Pancreatic Adenocarcinoma Patients in Michigan; SEER-Based Cohort

Introduction: Pancreatic adenocarcinoma (PAC) is the most common malignant tumor of the pancreas. It has a five-year survival rate of less than 10%, ranking last among cancers in prognosis. In our study we examine the incidence and mortality rates of PAC among different races in Michigan.

Methodology: We used SEER 18 database to study PAC cases in patients residing in Michigan during 2000-2015. Incidence and mortality rates of PAC were calculated by race and were expressed by 100,000 person-years. Annual percent change (APC) was calculated using joinpoint regression software.

Results: We reviewed 6,208 PAC patients in Michigan, of which 72.3% were whites, 26.5% were blacks, and 1% were Asians. PAC incidence in Michigan was highest among blacks (11.43) followed by whites (8.61) and Asians (4.34). PAC incidence among whites increased significantly over the study period (APC=2.21%, $P<.001$), but it did not change for blacks and Asians. PAC mortality in Michigan was highest among blacks (10.51), followed by whites (7.65) and Asians (3.73). Mortality among blacks decreased significantly since 2012 (APC=-18.5%, $P=.039$). Similarly, mortality among whites decreased significantly since 2013 (APC=-25.41%, $P=.004$). However, this decrease in mortality was not observed among Asians who showed an increased mortality rate over the study period (APC=6.95%, $P=.022$).

Conclusion: Our study showed that PAC incidence and mortality are changing among different racial groups in Michigan. The incidence of PAC was highest in blacks. Fortunately, mortality rates in whites and blacks have been improving. Further studies are required to evaluate the observed differences among racial groups.

Oral # 15

Category: Clinical Vignette

Program: Ascension St. John Hospital

Program Director: Raymond Hilu, MD, FACP

Presenter: Dr. Ryan Bean

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Pseudomonas Mendocina Cellulitis and Bacteremia

Introduction: *Pseudomonas (Ps.) Mendocina* is an aerobic, gram-negative rod, found in soil and water. It generally has not been a human pathogen until 1992. There have been less than 10 documented infections, mostly infectious endocarditis.

Case: 75 year old morbidly obese male with diabetes mellitus, and metastatic prostate cancer presented with pain, swelling, and redness of his right leg. Symptoms were preceded by a swarm of flies that had attacked him at a lake, one week prior. He endorsed subjective fevers. On admission, he was febrile at 101.6 °F, with an absolute neutrophil count of 210 cells/mcL. Physical exam was significant for tachycardia, three salmon-colored patches, and mild edema bilateral lower extremity edema. His right lower extremity was tender to palpation, over a confluent circumferential patch, with well-demarcated borders, extending from his ankle to proximal leg. Smaller ovoid patches were present on his right medial distal thigh, and left distal ventral forearm. Venous duplex ruled out deep venous thrombosis. Pan-susceptible *Ps. Mendocina* was isolated from both sets of blood cultures drawn at admission. The patient improved with antibiotic treatment, and was discharged on levofloxacin 750mg daily. He completed a 14-day course of antibiotic therapy, achieving complete resolution of his rash.

Discussion: *Ps. Mendocina* has been described in medical literature to be a human pathogen only a handful of times. Most cases documented, involved bacteremia and infective endocarditis. His distal skin changes were unique. It is hypothesized that the flies acted as a vector, transmitting the bacteria causing the infection.

ACP Michigan Chapter Scientific Meeting 2019

Oral # 16

Category:

Program: Authority Health – Detroit – Internal Medicine

Program Director:

Presenter:

Additional Authors:

Abstract Removed

Oral # 17

Category: CQI/EBM

Program: Ascension St. John Hospital

Program Director: Raymond Hilu, MD, FACP

Presenter: Dr. William Dillon

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A Quality Improvement Study to Assess the Effectiveness of a Meaningful Use Protocol in the Reduction of PICC Line Use and Complications

Introduction: The use of Peripherally-Inserted Central Catheters (PICC) has grown substantially overtime due to their ease of insertion, cost-effectiveness, and relative safety. With increased use, however, complications have also increased.

Objectives: 1) To determine the rate of PICC line use at our hospital; 2) To determine rates of complications associated with PICC lines, including CLABSI and DVT; 3) To compare the metrics listed above before and after implementation of meaningful use protocol.

Methods: We performed a retrospective chart review of all inpatient admissions between the periods of 6/1/2017 to 9/1/2017 who had inpatient PICC line insertion. This was compared to data gathered from 6/1/2018 to 9/1/2018, following the implementation of a meaningful use protocol.

Results: A total of 281 patient cases were reviewed with 166 cases before protocol implementation and 115 patient cases after. Following the implementation of a meaningful use protocol there was a significant reduction in the overall use of PICC lines with a rate of 23 per 1000 before intervention and a rate of 17.2 per 1000 after intervention ($p < 0.007$).

Conclusions: Implementation of a Meaningful Use Protocol reduced the rate of PICC line use at our institution by 5.42%. Additionally, our meaningful use protocol shifted PICC line use characteristics, reducing the number of PICC lines used for unknown reasons. Widespread implementation could have significant impact in the reduction of PICC line use.

Oral # 18

Category: Research

Program: Ascension St. John Hospital

Program Director: Raymond Hilu, MD, FACP

Presenter: Dr. Paul Kudla

Additional Authors: Paul Kudla, MD. Internal Medicine; Krystyn Kudla, OD; Susan Szpunar, Rajaninder Sharma, M.D. Internal Medicine, Ascension St. Jo

Portable Retina Photography in an Outpatient Internal Medicine Clinic

Introduction: Diabetic retinopathy (DR) is the leading cause of preventable vision loss between the ages of 25 to 74. Early detection is key to prevent vision impairment. The American Diabetes Association recommends yearly dilated eye exams for patients with diabetes. Through experience in the Internal Medicine Specialty Clinic (IMSC), proper follow-up with dilated eye exams is poor.

Methods: Patients with diabetes in the IMSC were enrolled in the study, and informed consent was obtained. A patient questionnaire was completed. Undilated funduscopy was performed with the D-EYE camera. A chart review was performed to collect patient data. A medical optometrist analyzed the pictures for DR and graded the quality of the images. Internal Medicine residents were educated about DR and then analyzed D-EYE pictures for the presence of DR and quality of image. Resident answers were compared to the medical optometrist's.

Results: The patient questionnaire showed that 83.3% of patients believed that the use of a retinal camera in the IMSC would make them more likely to follow-up with eye exams. Only 43.3% of patients had yearly follow up with dilated eye exams. Retinopathy was detected in 33.3% patients; only one previously had the diagnosis of DR. The average performance of residents when asked to determine the presence of DR was $63.5\% \pm 10.3$.

Conclusions: There is a significant amount of undiagnosed DR in IMSC patients. The use of the D-EYE camera should be further investigated to determine if it improves follow-up with diabetic eye exams.

Oral # 19

Category: Clinical Vignette

Program: Ascension St. John Hospital

Program Director: Raymond Hilu, MD, FACP

Presenter: Dr. Nouf Turki

Additional Authors: Philip Vendittelli, DO, Hussein Othman, MD

A Case of Coronary Artery Milking

Introduction: Myocardial bridging (MB) is a congenital anomaly where segments of the coronary arteries have an intramyocardial course and are compressed during systole. Although it is usually a benign disease, MB can be associated with arrhythmias, myocardial infarctions (MI) and syncope. We present a case of MB-induced supraventricular tachycardia (SVT) leading to syncope.

Case Presentation: 51-year-old healthy male presented with chest pressure and syncope while playing soccer. Vitals on presentation showed a heart rate of 168 and blood pressure of 86/55. On exam he was diaphoretic and tachycardic but otherwise unremarkable. EKG showed an SVT and ST-segment depression in inferior leads. Lab work was remarkable for an elevated troponin. Echocardiogram showed a normal left ventricle and valve function. Table tilt testing was negative. Cardiac catheterization revealed patent vessels however there was evidence of MB in the left anterior descending artery confirmed by intravascular ultrasound. This was believed to be the trigger of the SVT and cause of his syncope. The patient was started on beta-blocker therapy and remained asymptomatic during follow-up.

Conclusion: Myocardial bridging occurs when the coronary arteries are intertwined in the myocardium and can become compressed with ventricular contraction. It most often affects young healthy patients and is typically asymptomatic but rarely can be associated with myocardial infarctions, arrhythmias and syncope. Diagnosis is made by angiography and can be aided with intravascular ultrasound which shows compression of artery segments during systole and artery expansion during diastole. Treatment is with beta-blocker or rarely surgical interventions.

Oral # 20

Category: Research

Program: Ascension St. John Hospital

Program Director: Raymond Hilu, MD, FACP

Presenter: Dr. Photios Vassilyadi

Additional Authors: Sharma A, MD; Szpunar S, PhD; Alton K, MD

Young Adults in Medical Limbo – Analyzing Trends in Patients Without a Medical Home

Background: National data reports high use of the emergency department (ED) in young adults, with 24.5% reporting no other source of care. The purpose of this study was to determine what proportion of patients used the ED for common outpatient complaints and how many endorsed a primary care physician (PCP).

Methods: We conducted a retrospective chart review of all patients 18-24 years who were admitted to Ascension St. John Hospital ED in January 2018. Patients were classified in “medical limbo” if previously endorsing a pediatrician but not following with an adult-world physician.

Results: Among the 904 young adults studied, 68% were female and 91% were Black. Overall, 47% endorsed a PCP, 26% were in medical limbo and 27% had no care at all. There were 733 patients (81%) who presented for common outpatient complaints. The proportion of patients in medical limbo decreased with increasing age while the proportion of patients with continued care increased with increased age ($p < 0.0001$). Patients with no insurance were less likely to have a PCP than patients with private or public insurance (62.4% vs. 49.6%, $p = 0.001$).

Conclusion: Our community-based hospital serves thousands of young adults per year. Over 50% of the patients studied lacked a medical home (either in medical limbo or with no care at all) forcing them to present to the ED. Barriers to transitional medical care need to be identified and addressed so that young adults can have the continual care they deserve.

Oral # 21

Category: Research

Program: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Dr. Jordan Bushman

Additional Authors: Alexandra Halalau, MD, FACP

Effect of Long-Term Proton Pump Inhibitor Use on Glycemic Control in Patients with Type Two Diabetes

Introduction

Proton pump inhibitors (PPI) are widely used to treat a variety of gastrointestinal conditions. The long-term use of PPIs is becoming more common, but the consequences are not well understood. Previous studies that investigated the effects of PPI on glycemic control in patients with type-two diabetes mellitus showed conflicting results. We aim to investigate the time dependent relationship between PPI exposure and improvement in glycemic control in patients with diabetes.

Methods

This is a retrospective cohort study performed at Beaumont Hospital during 2007-2016. Inclusion criteria were adults >18 years old with a diagnosis of type-two diabetes, >1 HbA1c measurement and taking >1 oral antidiabetic medication (OAM). Patients using insulin, corticosteroids or H2-blockers were excluded. The primary outcome was difference in HbA1c in patients taking PPIs + OAM compared to those taking OAM alone. Secondary outcomes included incidence of chronic kidney disease, dementia, major cardiovascular events and death.

Results

Our search revealed 38,430 patients to be included in the analysis. 6,626 patients were found to be using PPIs for at least one year. Primary and secondary outcomes will be evaluated for both groups, adjusted analysis will be performed to balance the baseline characteristics between the groups.

Discussion

If a relationship between PPI use and glycemic control in patients with type-two diabetes is confirmed, we will not only have a better understanding of the long-term effects of these medications, but they may also become a mainstay in the management of type-two diabetes. Final data analysis will be presented at the conference.

Oral # 22

Category: Clinical Vignette

Program: Western Michigan University School of Medicine

Program Director: Jayne Barr, MD, FACP

Presenter: Dr. Minh Nguyen

Additional Authors: Nic Helmstetter, MD FAAP. Tooba Tariq, MD. Eric Sieloff, MD

Portal Vein Thrombosis as an Initial Presentation of Crohn's Disease

Inflammatory bowel diseases (IBD) can increase the risk of thromboembolism, including portal vein thrombosis (PVT). PVT are exclusively described in confirmed IBD cases and more commonly related to ulcerative colitis. This report highlights a rare case of PVT as an initial manifestation of Crohn's disease.

A 38-year-old gentleman presented with abdominal pain in the last three months. The initial diagnosis was diverticulitis and a course of ciprofloxacin was prescribed. A colonoscopy showed diverticulitis in the colon, and pathological report demonstrated acute cryptitis from rectum to cecum. A CT without contrast showed inflammatory changes in the small bowel. Despite another course of antibiotics with the addition of oral steroids, the pain worsened, which led to a repeat CT with contrast. The study showed an acute on chronic PVT. Patient was subsequently sent to our institution.

Physical exam was unremarkable. Laboratory studies revealed mildly elevated inflammatory markers. Hematologic workups were noncontributory. Patient endorsed a history of tobacco abuse, but no previous abdominal surgery. A CT enterography showed skip lesions suggestive of Crohn's enteritis, along with thrombus in the right main portal vein. Pathological report from a repeat colonoscopy showed chronic active colitis. Patient improved with high dose oral steroids. He was discharged on oral anticoagulant and a tapered course of steroids, with outpatient hematology and gastroenterology follow-up

In summary, PVT should be suspected in every IBD patient with minimal or no signs of active inflammation and in the setting of persistent abdominal pain. Early recognition of portal vein thrombosis may expedite treatment and prevent future complications.

Oral # 23

Category: Research

Program: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Dr. Sohail Farshad

Additional Authors: Alexandra Halalau, Whitney Townsend, Elena Schiopu

Coronary Calcium Scoring in Connective Tissue Disorders for Evaluation of Coronary Atherosclerosis - A Systematic Review

Objectives: To assess the current state of knowledge for the utility of coronary calcium scoring (CCS) in connective tissue disorders (CTDs) as it relates to the presence of coronary atherosclerosis.

Methods: Following PRISMA guidelines, a literature search via PubMed, Embase, Scopus, Web of Science Core Collection, CINAHL, and Cochrane Database of Systematic Review retrieved 1019 studies from which 121 manuscripts were eligible for full text review. Inclusion criteria consisted of studies that investigated CCS in adults with respective CTDs. Studies were excluded if a complete manuscript was not written in English, or was a single case report.

Results: 31 studies were included (27 with healthy age/gender matched control group for comparison and 4 without). CTDs analyzed in articles with control group: 11 rheumatoid arthritis (RA), 14 systemic lupus erythematosus (SLE), 4 systemic sclerosis (SSc), 1 idiopathic inflammatory myopathies (IIM), 1 Takayasu arteritis, and 1 psoriasis. 9 out of 11 RA studies, 12 out of 14 SLE studies, and 2 out of 4 SSc studies showed statistically significant increased CCS when compared to control group. CTDs analyzed in studies without control group: 2 Kawasaki disease, 1 juvenile idiopathic arthritis (JIA), and 1 antiphospholipid syndrome (APS) article which demonstrated increased coronary arterial calcium (CAC) burden, however, without statistically significant data.

Conclusions: CTDs, especially SLE and RA, are associated with higher CCS compared to control group, indicating an increased risk of cardiovascular events. Our search did not elicit sufficient publications or statistically significant results in many other connective tissue disorders.

Oral # 24

Category: Research

Program: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Dr. Ramy Mando

Additional Authors: Marina Maraskine, Alexandra Halalau

Trends in Modifiable Risk Factors Following Myocardial Infarction: A Call for Improvement

Introduction:

Coronary artery disease (CAD) is a major cause of morbidity and mortality when left untreated and can progress to myocardial infarction (MI). Modifiable risk factors of CAD include hypertension, diabetes, weight, and cholesterol levels. We sought to establish trends in modifiable risk factors following an MI to identify areas of improvement for both patients and clinicians.

Methods:

This is a retrospective study. We queried our electronic medical record system for patients with a diagnosis of MI from 1/2007 through 12/2015. Blood pressure (BP), body mass index (BMI), Hemoglobin A1c and lipid panels were then obtained for 2 years following the discharge date. For each measure, all available values were averaged to create a mean at baseline and quarterly for two years.

Results:

18,694 patients were included with 40-69% of patients having measures for at least one point in time. Mean age was 71.6 + 14.4 years. 44% were of female gender. Overall, we observed an increase in BP, A1c, and BMI as high as 5.3%, 6.5%, and 3.4%, respectively. Initially, a 10% reduction in total cholesterol and a 16% reduction in LDL was observed at three months but levels regressed to near baseline at 2 years. There was as much as a 9.4% improvement in HDL levels.

Conclusion:

At 2 years follow-up, patients post-MI had an increase in BP, A1c and BMI values while cholesterol levels remained stable. Clinicians and patients need to aggressively work towards improving modifiable risk factors in efforts to prevent future MI.

Oral # 25

Category: CQI/EBM

Program: University of Michigan – Ann Arbor

Program Director: John Delvalle, MD, FACP

Presenter: Dr. Theresa Anderson

Additional Authors: Dr. Diane Levine, Dr. Aula Ramo, Anthony Gaynier

Identifying Themes in Internal Medicine Clerkship Evaluations: Analysis of Resident and Attending Physician Narrative Comments

Most medical schools utilize the National Board of Medical Examiners' (NBME) shelf exams with narrative evaluations from residents and faculty to assess third year students. Shelf exams provide an objective measure of student knowledge, which allows for comparison to national norms. When considering the narrative assessment, however, national data and standardization is lacking. This form of assessment is criticized as unreliable by students due to the subjective nature of such assessments. To address this concern, medical educators are moving toward a competency-based evaluation and use of milestones (Santen et al., 2015). At this time, however, medical schools collect written feedback for incorporation in Departmental and Medical Student Performance Evaluation (MSPE) letters.

Given the continued focus on written feedback, our team sought to identify themes derived from narrative assessment and their relation to core competencies. Wayne State School of Medicine provided de-identified written evaluations from the 2014-2015 academic year for a class size of 283 students. Three individuals independently coded over 1,500 third year student end of rotation evaluations from the core internal medicine clerkship. Two umbrella categories emerged and were labeled as “character oriented” and “skill oriented” themes. The skill-oriented group contained eight subcategories (written documentation, physical exam, assessment, therapeutic plan, oral presentation, medical knowledge), which represented 43.8% of the total data. The character group consisted of three subcategories (work ethic, self-directed learning, professionalism) and comprised approximately 56.2% of the data. Physicians are most likely to comment on character-related qualities when evaluating medical students. The reasons for this are unclear and require further study.

Oral # 26

Category: Research

Program: Wayne State University – Detroit

Program Director: Jarrett Weinberger, MD, FACP

Presenter: Dr. Suganya Chandramohan

Additional Authors: Amanda Harris; Reda Ahmad Awali, M.D., M.P.H; Glenn Tillotson, PhD, FIDSA; Teena Chopra, M.D., M.P.H

Physicians' Attitude and Knowledge Regarding Antibiotic Use and Resistance in Ambulatory Settings

The alarming rise in the inappropriate antimicrobial use has resulted in several unwanted antimicrobial resistance and adverse events. As key stakeholder, physicians have the prime role in the optimal usage of antimicrobial. Enhancing the prudent use of antibiotics require a full understanding on antimicrobial guidelines. Our study aim was to assess the attitudes of physicians towards antibiotic prescribing and explore their knowledge about antimicrobial resistance [AMR] in ambulatory care settings.

Methods: A cross-sectional survey was administered to physicians working primarily in ambulatory care settings in the United States. The survey was 35- item questionnaire, delivered through electronic mail and online forums. A descriptive univariate analysis was conducted using SPSS 23 (SPSS Inc, Chicago).

Results: 323 physicians responded. 99% of respondents agreed that AMR is a national problem but only 63% agreed that AMR is a problem within their own facilities. 94% percent of the respondents reported that each antibiotic prescription can impact AMR; however, 23% still believed that aggressive prescribing is necessary to avoid clinical failures. Factor perceived to have a low to moderate impact on choice of antibiotic was the presence of prescription guidelines (54%). Top measures reported to be effective in reducing the emergence of AMR were institution specific guidelines (94%), institution specific antibiogram (92%), educating healthcare providers (87%), and regular audits and feedback on antibiotic prescribing (86%).

Conclusions: Multidisciplinary measures incorporating interactive education and feedback, along with input of local experts are critically needed to address the problem of AMR.

Oral # 27

Category: CQI/EBM

Program: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Dr. Christienne Shams

Additional Authors: Karen Fernandes, MD., Francisco Davila, MD.

Identifying Predictors of Self-Discharge: An Analysis of Patients Who Leave Against Medical Advice

Introduction:

Discharges against medical advice (DAMA) represent 0.8-2.2% of all hospital discharges each year. Compared with patients discharged conventionally, readmission rates for patients who leave against medical advice are 20% to 40% higher.

Objectives:

This retrospective study aims to:

1. Determine patient factors prominent in those electing to leave AMA
2. Quantify the number of admissions that resulted in DAMA from January-December 2015 at Beaumont
3. Evaluate outcomes associated with DAMA by determining patient readmission rates
4. Determine independent risk factors for DAMA at Beaumont Royal Oak when compared with conventionally discharged patients

Methods:

Using electronic medical records, a retrospective review of discharges from January to December 2015 from all inpatient services at Beaumont Health – Royal Oak Campus produced a cohort of charts of patients that elected to leave AMA. To be included in the study; patients needed to be > 18 years old, competent and admitted to any inpatient services.

Results:

Of 46,998 discharges, 400 were DAMA and 46,598 non-DAMA discharges. Of those discharged AMA, 42.3% were readmitted to the hospital within 60 days. DAMA patients had approximately 13.5 times greater odds of being readmitted at 7 days, 4.5 times greater odds of being readmitted at 30 days, and 3.27 times greater odds of being readmitted at 60 days as compared to non-DAMA patients. Being; young, male, African American, uninsured, admitted on a weekend or with chronic conditions statistically increased the risk of DAMA.

Conclusions:

Strategies to identify these patients early may offer opportunities to decrease DAMA and improve health outcomes.

Oral # 28

Category: Research

Program: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Dr. Melda Sonmez Ince

Additional Authors: Jordan Bushman, MD; Jaspreet Hehar, MD; Subhash Edupuganti, MS4; Janna Fett, PharmD, Alexandra Halalau*, MD, FACP

Pharm-MD; An Open-Label, Randomized Controlled Phase II Study to Evaluate the Efficacy of a Pharmacist Managed Diabetes Clinic I

Introduction: Over 30 million Americans have diabetes and 1.5 million cases are diagnosed each year. Previous studies demonstrated for each 1% reduction in hemoglobin A1c (HbA1c), there was a corresponding reduction of 14% in myocardial infarction, 12% in stroke, and a 37% in microvascular complications. Our retrospective data showed patients of pharmacy managed diabetes clinic (PMDC) had a decrease of 3.2% versus 1.2% in HbA1c comparing to standard of care (SOC) at 6 months ($p=0.044$). We hypothesize PMDC will have a significant positive impact on diabetes management.

Methods: 76 patients were randomly assigned to SOC or SOC+PMDC groups. The intervention for the SOC+PMDC group was six extra visits focusing on diabetes management with pharmacists. Inclusion criteria are: residency clinic patients, >18 years of age, HbA1c >9% and no visits at PMDC within 3 months. A sample size of 86 was calculated to detect a 1.0 mean difference in HbA1c between groups (80% power, $p<0.05$). The primary outcome is the change in HbA1c at 3, 6 months.

Results: Preliminary analysis of 41/76 (21 intervention, 20 control) showed similar baseline characteristics. Mean HbA1c which was 11.9% in the intervention group and 10.8% in the control group at baseline, decreased to 7.7% and 9.1% at 3 months respectively.

Conclusions: If our study demonstrates improved patient outcomes in PMDC group, it may become an integral part in the care of high-risk patients with diabetes. This may reduce economic burden of the disease, improve life expectancy and disease related deaths.

Oral # 29

Category: Research

Program: Western Michigan University School of Medicine - Kalamazoo

Program Director: Joanne Baker, DO, FACP

Presenter: Dr. Michael Reaume

Additional Authors: Mireya Diaz, Vishal Deepak, Joanne Baker, Spencer Winters

Compliance with Low Tidal Volume Mechanical Ventilation in Obese Patients with Acute Respiratory Distress Syndrome

Background: Mechanical ventilation with low tidal volume ventilation (LTVV) improves mortality in Acute Respiratory Distress Syndrome (ARDS). Nonetheless, multiple studies have demonstrated poor compliance with this recommended intervention. Our study aimed to evaluate the use of LTVV in obese patients compared to their non-obese counterparts.

Methods: Subjects were retrieved from the MIMIC-III Critical Care Database. Adult subjects with an admitting diagnosis of ARDS (ICD-9-CM 518.82, 518.85) who were mechanically ventilated using a volume-control ventilation modality were included. Our cohort of 169 subjects were then grouped by standard body mass index (BMI) cutoffs. We evaluated 'compliance' with LTVV (defined as a tidal volume of 8mL/kg predicted body weight or less) in all groups at two intervals: 1) initial ventilator setting 2) lowest set tidal volume at any point.

Results: In our analysis of initial ventilator settings, 48.0% of subjects received LTVV. Subjects with a normal BMI received LTVV in 70.8% of cases versus 34.1% in obese subjects. Evaluating the lowest tidal volume prescribed, 58.0% received LTVV. Subjects with a normal BMI received LTVV in 81.3% of cases versus 42.7% in obese subjects. At both intervals, subjects with a prescribed tidal volume that is compliant with LTVV decreases with increasing BMI ($p < 0.001$).

Conclusions: Obese patients with ARDS are less likely to be prescribed LTVV, and compliance with LTVV has an inversely proportional relationship to BMI. Poor compliance with LTVV is more prevalent in obese patients, and further research is needed to delineate why clinicians choose higher tidal volumes for this subpopulation.

Oral # 30

Category: Clinical Vignette

Program: Beaumont Hospital – Royal Oak

Program Director: Sandor Shoichet, MD, FACP

Presenter: Dr. Shrinjaya Thapa

Additional Authors: Dilip Khanal, Yoshiko Nito

Not so Typical Hemolytic Uremic Syndrome!

Introduction

Complement mediated hemolytic uremic syndrome (aHUS) is rare but potentially deadly subtype of thrombotic microangiopathy with 25% mortality and 50% risk of progression to ESRD. Early diagnosis and initiation of anti-complement therapy is crucial to decrease the risk of irreversible renal injury and death.

Case Presentation

A 24-year-old-female presented with 4-day history of bloody diarrhea, vomiting and abdominal cramps that started a day after eating leftover food and hallucinogenic mushrooms. Her initial labs were unremarkable. CT abdomen revealed diffuse colitis. 24 hours later, she developed acute hemolytic anemia, thrombocytopenia, AKI but negative schistocytes. Her renal function continued to worsen despite supportive care; developing hematuria, proteinuria, severe oliguria, schistocytes, and lethargy prompting hemodialysis followed by plasmapheresis on day 5. Workup for PNH, TTP (ADAMTS13), stool culture including EHEC 0157, Shiga toxin including workup for glomerulonephritis were all unremarkable. C3 and C4 levels came back low. With ongoing evidence of hemolysis despite plasmapheresis, negative workup for alternate diagnoses, as well as very low complement levels; complement mediated HUS was considered. Atypical HUS labs were sent to outside center. Patient was started on weekly Eculizumab on day 6 which led to gradual improvement of her hematological parameters followed by complete renal recovery.

Conclusion

Although confirming diagnosis of aHUS early is difficult due to lack of immediately available confirmatory tests, we should have a high index of suspicion. Complement-inhibitor Eculizumab, while expensive, makes a dramatic difference in prognosis of these patients and should be considered early in suspected cases.