



# 2023 GME Resident Scholarly Activity Projects



## FOREWORD

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Congratulations Kaweah Health resident and faculty physicians! You continue to meet the rigorous standards of this graduate medical education program and you should be proud of the scholarly achievements showcased in this booklet.

Through these accomplishments, you have learned, measured and applied knowledge in new ways. You are contributing to the collective scientific knowledge of the world.

We are very excited to be able to support this quality work. By participating in the research and publication process, you demonstrate your abilities to make meaningful contributions within your own community, your areas of interest and throughout the world of health care. We are proud of you, and look forward to the differences you will make.

Sincerely,

**Lori D. Winston, MD FACEP**

Chief Medical Education Officer, Designated Institutional Official

## Case Report: Resistant Hypertension-Renovascular Hypertension (Renal Artery Stenosis)

### INTRODUCTION/BACKGROUND:

Secondary hypertension is often overlooked, due to control of hypertension with various medications without accessing the reasoning behind the uncontrolled blood pressures. Renovascular hypertension is one of the most common correctable causes of secondary hypertension. This case report emphasizes the importance of further evaluation of patients who present with uncontrolled hypertension after maximizing three appropriate medications.

### DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

This case presents a 60-year-old female who presented to the emergency department following a syncopal episode with loss of consciousness. The patients' subjective findings included headaches, vertigo, and a syncopal event 2 days prior. Initial vital sign assessment showed remarkable blood pressure of 250/170. The patient's laboratory results showed elevated BNP, high sensitivity troponin and positive nitrate and E. coli in urinalysis. The patient was admitted for a hypertensive emergency due to the elevation in blood pressure and abnormal renal laboratory results.

### DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

The patient remained an inpatient for 7 days, with continued elevation of blood pressure. The patient was administered 10 mg IV hydralazine bolus and a medication increase of 50mg hydrochlorothiazide and 50mg losartan with an additional 10mg amlodipine. Medications were increased and altered to control the patients elevated blood pressures and was unsuccessful. On day 4 the care team began to look for secondary causes of the hypertensive crisis. The laboratory results on day 6 showed elevated creatinine while on losartan, upon this medication being discontinued, the creatine levels returned to baseline level. On day 7 the patient's blood pressure was within normal limits 110/72, and she was discharged home with aspirin and statins to control the renal artery stenosis caused hypertension.

### IMPLICATIONS FOR PRACTICE:

Consideration of secondary causes of hypertension is important due to the high prevalence of hypertension. This case report evaluated renovascular disease and the sopping of ACE/ARB use with the inclusion of aspirin and statin for prevention and treatment of cardiovascular disease.

Anu  
Adediji, MD

Family Medicine



**Matthew  
Bordbari, DO**

Emergency Medicine

## Clevidipine-associated Severe Hypertriglyceridemia

### **INTRODUCTION/BACKGROUND:**

Clevidipine is a short acting dihydropyridine calcium channel blocker that is utilized for patients with hypertension. This drug has been effective in treatment with hypertensive patients with intracranial hemorrhage due to its ability to dilate the blood vessels to return blood back to the heart and ultimately lower blood pressure. Clevidipine is a 20% lipid emulsion intravenous infusion and has adverse effects including acute cardiac, pulmonary or renal hypersensitivity reactions, fat embolism or overload, hypertriglyceridemia, and pancreatitis.

### **DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**

This case presents an 80-year-old male with a previous medical history of hypertension, hyperlipidemia, heart failure with preserved ejection fraction, and gastroesophageal reflux disease. This patient was admitted to the Intensive Care Unit (ICU) for atraumatic intraparenchymal hemorrhage and increased altered mental status. The patient had an external ventricular drain (EVD) placed and was administered clevidipine via lipid emulsion infusion as an antihypertensive agent.

### **DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**

On day four of the patient's hospital stay, routine laboratory results revealed triglyceride counts greater than 10,000 mg/dL. Following these lab results the clevidipine was discontinued. The patient became febrile, tachycardic, was intubated for acute respiratory distress syndrome and started on broad spectrum antibiotics. The patient developed oliguric acute kidney injury and was placed on 2 sessions of plasmapheresis due to severe hypertriglyceridemia. The patient continued to decline and was placed on palliative care measures, expiring on the 7th day of his hospital stay.

### **IMPLICATIONS FOR PRACTICE:**

This case reports evidence of rapid and severe onset of lipemia following a high dose of clevidipine intravenous lipid emulsion therapy. The patient's deterioration was multifactorial, however, the presence of severe lipidemia from clevidipine was evident. This case also revealed that plasmapheresis was effective in treating hypertriglyceridemia. Overall, hypertriglyceridemia is a serious side effect of clevidipine and should be observed for prevention and treatment.

*\*Shared project with Aaron Wille, MD*



**Armando  
Cervantes, DO**

Family Medicine

## Thiamine Deficiency Case Study

### **INTRODUCTION/BACKGROUND:**

Thiamine is a macronutrient that assists in energy metabolism. A deficiency in thiamine can affect the body as a whole and several organ systems. It is often misdiagnosed or mistreated due to the range of symptoms it results in. Early recognition of thiamine deficiency can reduce the risk of fatal consequences or in this case study, we present nystagmus as an early sign of thiamine deficiency.

### **PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**

This case study presents a 59-year-old female with no past medical history who was experiencing dizziness and vomiting. The patient admitted to drinking a 12 pack of beer per day for the last 10 years. The patient had not had an alcoholic drink for 3 days prior to admission. The patients' clinical findings were significant for high blood pressure, dizziness, nystagmus, excessive vomiting and mild transaminitis on initial laboratory results. CT, MRI, and ECG evaluations were unremarkable as well as the patients complete blood count and chemistry panel.

### **PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**

The patient was treated with 10 mg amlodipine and 100 mg labetalol for blood pressure, and meclizine for dizziness. The meclizine was unsuccessful in treatment; therefore 100 mg of thiamine was administered. The patient left the ED soon after the thiamine administration instead of waiting for an inpatient bed but explained that she was feeling better. Mild alcohol withdrawal could have been the source of the nausea and vomiting; however, dizziness and nystagmus are not typical findings associated with alcohol withdrawal. Chronic alcoholism impairs intestinal thiamine absorption, increases the metabolic need for thiamine.

### **IMPLICATIONS FOR PRACTICE:**

Deficient thiamine can result in permanent neurological damage if proper diagnosis and treatment are not enacted. Upon clinical findings of nystagmus and related symptoms to thiamine deficiency, this case study recommends empiric treatment with thiamine while obtaining further neurological tests as a preventative measure of neurological damage.

## COVID-19 as a Possible Cause of Functional Exhaustion of CD4 and CD8 T-cells and Persistent Cause of Methicillin-Sensitive Staphylococcus aureus Bacteremia

### INTRODUCTION/BACKGROUND:

The COVID-19 pandemic literature has sparse information relating effects of COVID-19 on the human immune system and susceptibility of infection. However, cytokines and immune regulation are imperative for the body's immune response. There is evidence that correlates a cytokine storm to increased disease severity. Elevated Th1 and Th2 cytokines have been detected in COVID-19 patients and account for acute respiratory distress syndrome, multi-system organ failure with high mortality and morbidity rates. This case study attempts to correlate the COVID-19 infection with other infectious processes.

### DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

This case report presents a 73-year-old male with a medical history of DM, osteomyelitis, MSSA bacteremia. The patient presented to the emergency department with lower back and left flank pain, urinary incontinence, and altered mental status. The patient's laboratory results revealed a decreased WBC of 13.6 with neutrophilia, a CT result of cystitis and pyelonephritis and TTE revealed infective endocarditis.

### DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

Due to the MSSA, the patient was administered vancomycin, piperacillin/tazobactam, cefazolin and fluids intravenously. Upon workup, the patient also tested positive for COVID-19 and was started on hydroxychloroquine. Daily blood cultures for the patient continued to grow MSSA and the antibiotic therapy was changed to IV daptomycin. Continuing with extensive MSSA growth, oral rifampin was initiated, and the bacteria blood cultures began to slow in growth. It is unknown if rifampin played a role in the MSSA blood clearance. The patient also had complications such as epidural abscess and aortic route abscess.

### IMPLICATIONS FOR PRACTICE:

This patient presented with recurrent MSSA bacteria and osteomyelitis with complications of spinal epidural abscess, endocarditis, and aortic root abscess despite medication regimen. COVID-19 patients can experience the complications of cytokine storm and end-stage organ failure. This case suggests further research to expand correlation between COVID-19 immunosuppression and other infectious processes.

*\*Shared project with Haowei Han, Kaushik Manthani Sandeep Gandhi, and Rameshchandra Dabhi*



**Ivana  
Choudhury, DO**

Family Medicine

## Locally invasive high-grade spindle cell sarcoma of the mesentery presenting as perforated viscus

### INTRODUCTION/BACKGROUND:

Intra-abdominal lesions with spindle cell morphology are rare however very similar in their histological appearance. This combination presents a diagnostic challenge requiring careful and knowledgeable physicians from when patients present to ultimately when their surgically resected specimens are observed under the microscope. One of these is intra-abdominal fibromatosis also known as a solitary fibrous tumor. These are rare, however, are also considered to be the most common primary tumor of the mesentery.

### PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

A 67-year-old male presented to our emergency department with a one-month history of progressive worsening abdominal pain, bloating and distention. He reported a one-week history of increasing diarrhea however denied weight loss and rectal bleeding. He reported no previous medical or surgical or family history as well as no prior colonoscopies. On physical examination, a large mass was palpable in the left abdomen, but also appreciated was sharp tenderness with manual palpation.

### PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

Routine lab work was only significant for an increased lactate on a venous blood gas sample. Notable was the patient's tachycardia which was progressively increasing throughout his workup. Contrast-enhanced computed tomography demonstrated a large heterogeneous soft tissue mass in the left abdomen, abutting and encasing the colon and small bowel loops and measuring 30 x 30 x 20 cm in maximum dimensions. Also seen was moderate abdominal and pelvic ascites, including a loculated collection in the left posterolateral abdomen.

### IMPLICATIONS FOR PRACTICE:

Undifferentiated pleomorphic sarcoma, previously known as malignant fibrous histiocytoma, has historically been poorly understood. In the past, this group of soft tissue sarcomas were described as the most common soft-tissue sarcoma in adults. With more recent advancements in histopathologic and genetic analysis, the knowledge surrounding this disease has increased and its management has slowly improved. UPS still proves to be a difficult disease to control due to its local aggressiveness however with continued study, additional adjuvant and neoadjuvant treatments may prove useful.

**Brian S. Chu, MD**

Surgery



**Elvin  
Diaz, DO**

Emergency Medicine

## Identifying esophageal versus endotracheal intubation in a gelatin simulator using POCUS by novice users

### INTRODUCTION/BACKGROUND:

There is significant evidence to support that ultrasounds are an acceptable imagining modality to differentiate between endotracheal and esophageal intubation as well as learning through simulation models. We aimed to integrate both simulation education and portable, handheld point of care ultrasound to discover whether novice ultrasound users with minimal ultrasound exposure and minimal instruction can be taught to identify endotracheal versus esophageal intubation using a homemade phantom ultrasound model.

### METHODS/RESULTS:

Two models were developed using non flavored, unsweetened gelatin and psyllium fiber supplement. Each of these models were designed to mimic the appearance of an endotracheal intubation or an esophageal intubation with ultrasound. Minimal instruction was given regarding proper identification. Novice users, first and second year medical students, were then asked to use their own personal handheld POCUS device and examine both ultrasound models. The participants then completed a survey regarding their level of medical school training, prior ultrasound experience, and whether they identified an endotracheal or esophageal intubation.

### RESULTS:

A total of 111 medical students participated with a breakdown of 62 second year and 49 first year medical students. 92 of those students self-identified as having no prior career as an ultra-sonographer while 19 self-identified as working in a professional setting as an ultra-sonographer. On the simulation models, 65.8% of the students could accurately identify an endotracheal intubation while 69.4% of the students who participated could accurately identify an esophageal intubation.

### IMPLICATIONS FOR PRACTICE:

The medical students identified an endotracheal and esophageal intubation at a somewhat lower rate than expected in comparison to prior studies with the gelatin model. This may be due to variability in the gelatin models and variability in ultrasound interest from the medical students. Further studies are required to account for inconsistencies in the gelatin models, instruction in identification, and student interest in ultrasound.

*\*Shared project with Richard Nho, DO*

## A Systematic Review of Physical Function Tests as Predictors of Key Clinical Outcomes for Adults with Blood Cancers

### INTRODUCTION/BACKGROUND:

The purpose of this study was to determine which standardized physical performance tests are being used for assessment of adult patients before, during or after treatment of hematologic malignancies. We also studied which of these functional tests have been demonstrated to have a correlation between mortality, progression-free survival, complete remission, hospital readmissions, emergency department visits, and hospital length of stay.

### METHODS:

PubMed/MEDLINE electronic databases were searched up to June 2021. The search was restricted to English language and was inclusive to physical performance data of patients with hematological malignancy. The initial results were assessed by two reviewers that utilized the PRISMA guidelines and Tooth criteria. A third reviewer was utilized to resolve any discrepancies. The main characteristics of each article, including sample size, population characteristics, physical performance testing methods, and significant and non-significant findings were extracted and compared.

### RESULTS:

Out of the 1,256 studies identified, 14 were included in this systematic review. All included studies scored  $\geq 0.59$  on the Tooth Criteria, indicating moderate to high quality of reporting. Our review found six recurring measures of objective physical function assessed for correlation with clinical outcomes, primarily morbidity and mortality. The heterogeneity of each study precluded aggregate data analysis.

### IMPLICATIONS FOR PRACTICE:

This review was a first step in evaluating which objective physical performance tests are best suited for identifying functional impairment before, during, and after oncologic treatment for adults with blood cancers/hematologic malignancies. Additional studies are needed to determine the optimal objective functional measures to use as a guide in clinical decision making in the hematologic patient population.

**Rosalie  
Ellis, DO**

Transitional Year



**Inbal  
Epstein, MD**

Emergency Medicine

## Emergency Medicine Residency Satisfaction with COVID-19 Virtual Didactics

### INTRODUCTION/BACKGROUND:

The COVID-19 pandemic shifted traditional in-person residency didactics to a virtual format. The Kaweah Health Emergency Medicine residency shifted to a virtual format on March 19th, 2020 and administered the American Board of Emergency Medicine In-Training Exam (ITE) on February 25th, 2021. Therefore, most education for the 2021 ITE was delivered virtually. We evaluated the effect of this format on resident wellness and education.

### METHODS:

A four-section survey was administered via Google Forms. The first section included Likert scale responses regarding wellness, learning, and ITE preparation. The second section asked residents about pros and cons of virtual didactics. The third section discussed their ideal split of virtual to in-person didactics. The fourth section was an optional free response section. In addition to the survey, ITE data was compared from 2018-2021.

### RESULTS:

Residents slightly preferred attending virtual didactics (mean 3.84, SD 2.56), were neutral about learning through virtual didactics (mean 3.16, SD 1.72), were neutral about using virtual didactics

for ITE preparation (mean 3.42, SD 2.23), and strongly agreed virtual didactics were better for wellness (mean 4.42, SD 5.11). Pros of virtual didactics included multitasking, increased sleep, and the chat feature. Residents varied in their ideal breakdown of virtual and in-person formats. 16% preferred virtual-only, 21% preferred 75% virtual, 37% preferred a 50/50 split, 21% preferred 25% virtual, and 5% preferred an in-person only format. The mean on the ITE in 2021 was the 40.51st percentile, compared to the 47.93rd percentile from 2018-2020, without a statistically significant difference ( $p=0.068$ ).

### IMPLICATIONS FOR PRACTICE:

Virtual didactics provide similar learning and ITE preparation while improving wellness. An ideal schedule would involve a mix of both virtual and in-person sessions. ITE scores decreased in 2021, however not in a statistically significant fashion.



**Jorge  
Garcia, MD**

Emergency Medicine

## Identifying Communities at Risk for Hospitalization Due to COVID-19 within Tulare County

### INTRODUCTION/BACKGROUND:

The COVID-19 pandemic has demonstrated a higher level of morbidity and mortality in Latino American and African American communities. The goal of this research is to further investigate the demographics between COVID-19 and those admitted or being seen at Kaweah Health. The data collected included age, sex, self-identified race/ethnicity, and the zip code of residence.

### METHODS:

This study was performed in Tulare county's level II trauma center from December 1st, 2020 – January 20th, 2021. The patient population focused on those who tested positive for COVID-19 and had a range of active symptoms. Primary outcome focused on the population that required hospitalization and the investigators sought to identify the communities that are at high risk to develop or spread COVID-19.

### RESULTS:

It was evident that there was increased risk of infection and hospitalization based on geographic location, age, sex, and race/ethnicity. Of the 33 Tulare County zip codes, 5 of them were more significantly more affected with COVID-19 and with inpatient hospital visits. However, within each demographic factor, one zip code demonstrated

more COVID-10 prevalence than others, meaning that different factors played a part in each location with respect to their COVID-19 rates.

### IMPLICATIONS FOR PRACTICE:

This population would benefit from further study, to include the number of people present per household, occupation, income, and outcome of hospitalization to more accurately identify at-risk communities. However, with the communities known to have increased COVID-19 rates, public health resources should be provided. These resources include clinic space, patient education, and improved vaccine outreach.

*\*Shared project with Benjamin Camacho, MD, Yueqi Yan, PhD, and Omar Guzman, MD*



**Ethan  
Hartman, DO**

Emergency Medicine

## Improving SEP-1 Compliance with Simulation Based Education

### INTRODUCTION/BACKGROUND:

Sepsis can cause life-threatening organ dysfunction that is caused by a host response to infection. Sepsis can progress to severe sepsis which can lead to septic shock and multiple organ failure. Kaweah Health Hospital uses the SEP-1 guidelines, which stands for “The Severe Sepsis and Septic Shock Management Bundle” to ensure compliance with national sepsis guidelines. With the prevalence of infection and significant mortality rate associated with septic shock, it is evident that residents, specifically emergency medicine residents, should be able to identify the signs of sepsis, perform exams, order labs, antibiotics, and properly document within the SEP-1 guidelines.

### METHODS:

To increase compliance with SEP-1 guidelines, we initiated a simulation session that allowed residents to perform laboratory evaluations, treatment, workups, and source control. There was a pre-test prior to the simulation, a case study to utilize in the simulation followed by a post-test. The residence in the simulation followed a critical action checklist to maintain compliance with SEP-1. The data was collected, and this study reviewed Emergency Department compliance 3 months prior to the SEP-1 simulation education and 3 months following the education.

### RESULTS:

There was no statistically significant difference when using the 2 tailed T-test comparing the 3 months prior to the simulation and 3 months following. This could be due to the limited access to resident population size when compared to the number of providers that work within the emergency department that include non-emergency residence, advanced providers, and attending physicians.

### IMPLICATIONS FOR PRACTICE:

The goal of this study was to increase sepsis assessment and ensure compliance with recognition, treatment, and documentation in the Emergency Department. This study emphasized the need to have continued sessions with Emergency Department residents to increase understanding of sepsis guidelines. It is recommended that these sessions could also be helpful for other resident specialties to improve patient outcome and recognition.

*\*Shared project with Preya Sheth, MD*



**Nathan  
Heldt, MD**

Transitional Year

## Electronic Cigarette Exposure Modulates Blood-Brain Barrier Response to Acute Inflammation via Nicotine-Dependent Signaling

### INTRODUCTION/BACKGROUND:

E-cigarette use has grown increasingly popular across large cross-sections of today's youth, and several elements remain in common with traditional tobacco products. Due to a long history of use, the range of outcomes which accompany combustible cigarette use are well known.

Even single episodes of exposure influence the functioning of multiple organ systems, including hematologic and cardiovascular parameters.

### METHODS:

Male C57BL/6 mice were purchased from Jackson Laboratories at 7 weeks of age, and were allowed to acclimate to the housing facility for 1 week prior to initiation of experiments. Studies were planned and conducted in accordance with ARRIVE guidelines and ethical approval. Mice were exposed to five daily sessions of two hours each using an inhaled model with previously established clinical parallels.

### RESULTS:

In the present study, acute alterations of BBB function in response to e-cigarette vapor exposure are reported in a rodent model for the first

time. The ability of e-cigarette exposure to reduce subsequent BBB response to inflammatory stimuli and reduce leukocyte-endothelial cell interaction was unexpected based on existing cerebrovascular literature.

### IMPLICATIONS FOR PRACTICE:

In summary, the findings presented here provide evidence for nicotinic modulation of BBB permeability and function immediately following acute exposure to e-cigarette vapor. Further studies are needed to better understand the molecular mechanisms within neurovascular and immune cell populations which mediate these findings and the broader implication for human users.



**Jessi  
Hill, DO**

**Emergency Medicine**

## Transgender Teenage Simulation Study

### INTRODUCTION/BACKGROUND:

Transgender-identified individuals face higher rates of poverty, chronic health problems, and inadequate access to medical care than the general US population. In addition to inability to access care many transgender patients avoid seeking medical care out of fear of negative experiences. A national survey of transgender health revealed 21% of transgender patients report avoiding needed emergency medical services with half citing lack of provider knowledge about transgender health as reason for avoidance. There are currently no standard requirements for medical schools to teach LGBTQIA specific healthcare. Studies show wide variability among medical schools LGBTQIA education and revealed lack of formal LGBTQIA healthcare training in residency.

### METHODS:

In Fall of 2022 Kaweah Health residents were asked to participate in a survey regarding their attitudes, knowledge, and comfort with transgender patients. Residents from emergency medicine, anesthesia, transitional year, and emergency medicine APPs participated. Residents then participated in a 30-minute simulation session. Actors played the roles of a teenage female-to-male transgender-identified patient, their parent, and an attending physician. Goals for participants included ascertaining preferred

name and pronouns, building rapport, presenting the patient to the attending physician, and correcting them when the attending misgenders the patient. The simulation concluded with a debrief and discussion. A post-simulation survey was conducted.

### RESULTS:

22% of participants reported no medical school curriculum dedicated to LGBTQIA healthcare and 27% reported no dedicated gender identity curriculum. When compared to pre-simulation survey, post-survey results were higher when participants were asked about feelings of importance regarding ascertaining gender identity and utilizing preferred pronouns for patients (82% vs. 100% and 86% vs. 94%). Additionally, more respondents reported feeling their education on gender identity was adequate in the post simulation survey (32% vs. 41%). However, none of these results reached statistical significance.

### IMPLICATIONS FOR PRACTICE:

Although this study did not achieve statistical significance, the importance of providing adequate and efficient care for the LGBTQIA community is evident. Proper gender identity education and curriculum will promote a quality work environment and improve satisfaction among LGBTQIA healthcare.

*\*Shared project with Andrew Moss, MD*



**Nancy  
Huynh, DO**

Emergency Medicine

## The Effect of Scripting on Provider Satisfaction in the Emergency Department

### INTRODUCTION/BACKGROUND:

The ability of health care professionals to communicate with patients is vital for establishing a strong doctor-patient relationship and achieving quality patient care. Multiple studies have demonstrated that strong communication is associated with improved patient outcomes and patient satisfaction. Scripting is a tactic that has been shown to improve patient satisfaction and reduce the rate of patient elopement in the emergency department. However, little has been explored regarding the effect of scripting on provider satisfaction in relation to patient communication. Given this, we developed a scripting workshop for emergency medicine residents to examine the effect of scripting tactics on provider satisfaction.

### METHODS:

This was a pre- and post-interventional study conducted at a community training site from October 2022 to January 2023 to assess the effects of a scripting workshop on provider satisfaction. Residents received an hourlong interactive workshop regarding the benefits of scripting and specific scripting strategies, and a post-intervention survey was then administered 4 months to the residents following the workshop.

### RESULTS:

In total, thirty-four residents were included as subjects in this study and the data were then analyzed using descriptive statistics. Following the workshop, a post-intervention survey was sent to all residents in attendance after three months, which was completed by fifteen residents. Our initial results demonstrate there is an improvement with usage of scripting and comfort level with navigation of difficult patient conversations, but no difference in provider satisfaction.

### IMPLICATIONS FOR PRACTICE:

We sought to determine the effects of scripting as a tool to assist health care professionals with patient communication and its impact on provider satisfaction. Our study demonstrated modest improvements in scripting utilization and comfort with difficult conversations, without differences in provider satisfaction. This may be secondary to several limiting factors and will require additional study to determine the effects on provider satisfaction.



**Shuba  
Jain, MD**

Transitional Year

## Pathophysiology and Management of Burn Injury-Induced Pain

### INTRODUCTION/BACKGROUND:

One of the most debilitating aspects of burn injuries that patients experience is pain. Providers that treat burn-injuries have a challenging time due to the pathophysiology and dynamic nature of pain in both the acute and recovery phases. Pain management is not always aligned with clinical management and personalization of patient experience. The purpose of this study is examining the pathophysiologic mechanisms of burn pain and proper clinical management.

### METHODS:

This study discusses the following types of pain: neuropathic, inflammatory, cholinergic anti-inflammatory background, procedural, breakthrough, postoperative, and chronic. Each pain type is described by its pathophysiology and elaborates on the mechanism of the standard treatment therapy for each. Non-pharmacological treatments were also identified to compare the effectiveness of treatment in collaboration with opioid and analgesic therapy.

### RESULTS:

Non-pharmacological agents are utilized to provide multi-modal pain management along with medication regimens. Burn patients report a reduction of pain

by 35-50% when engaging in activities such as visual distraction, hypnosis, and relaxation therapies. Utilizing the multi-modal pain regimen alongside non-pharmacological interventions has the potential to reduce anxiety and procedural pain in burn injury patients.

### IMPLICATIONS FOR PRACTICE:

Multimodal pain regimen in conjunction with nonpharmacologic adjunctive agents will provide adequate clinical management to the multifaceted nature of burn injury pain. This approach requires sufficient knowledge regarding anatomic, metabolic and psychological factors that contribute to burn injury induced pain but contribute to effective control and clinical management.



**Gursimran  
Kehal, DO**

Emergency Medicine

## Behcet Syndrome: An Unusual Presentation

### INTRODUCTION:

Behcet syndrome is a rare disease that typically affects those of Mediterranean descent. This disease can be missed due to the criteria required for diagnosis and evolution of symptoms that arise. This case presented 48-year-old Caucasian female who was battling an undiagnosed condition referred to as Behcet syndrome.

### PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

The patient had many previous urgent care and emergency department visit prior to her diagnosis. The patient presented at the urgent care clinic 6 months prior with oral ulcers, 3 days after this visit she arrived again with neurological symptoms that coincided with a TIA or CVA. MRI and CT were negative, and the oral ulcerations were diagnosed as “canker sores”, the patient was referred to follow-up with her primary care provider. Following this visit, the patient visited the emergency department 3 times and on the 3rd visit presented with oral and vaginal ulcerations. The patient’s STI screening was negative and a biopsy of her one of lesions presented with leukoclastic vasculitis with neutrophil infiltration.

### PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

Rheumatology and Dermatology were consulted after the patient’s biopsy confirmation to evaluate the possibility of Behcet’s syndrome. After consulting syndrome positive diagnosis was made. The patient was started on colchicine, solumedrol and topical steroids for initial treatment.

### IMPLICATIONS FOR PRACTICE:

Behcet’s syndrome is rare, and the purpose of this case study is to present the signs and symptoms associated with this disease and their evolution. Some features of Behcet’s are common such as oral ulcerations, which arise in more than 97% of patients. This study also emphasizes the importance of following up with a primary care provider in order to recognize symptoms and prevent recurrent flares.

*\*Shared project with Sara Bansai, MD*



**Chih  
Lee, MD**

Surgery

## The Impact of Native Leptomeningeal Collateralization on Rapid Blood Flow Recruitment Following Ischemic Stroke

### INTRODUCTION/BACKGROUND:

The leptomeningeal collateral status is an independent predictor of stroke outcome. By means of optical coherent tomography angiography to compare two mouse strains with different extent of native leptomeningeal collateralization, we determined the spatiotemporal dynamics of collateral flow and downstream hemodynamics following ischemic stroke.

### METHODS:

A robust recruitment of leptomeningeal collateral flow was detected immediately after middle cerebral artery (MCA) occlusion in C57BL/6 mice, with continued expansion over the course of seven days. In contrast, little collateral recruitment was seen in Balb/C mice during- and one day after MCAO, which coincided with a greater infarct size and worse functional outcome compared to C57BL/6, despite a slight improvement of cortical perfusion seven days after MCAO.

### RESULTS:

Both strains of mice experienced a reduction of blood flow in the penetrating arterioles (PA) by more than 90% 30-min after dMCAO, although

the decrease of PA flow was greater and the recovery was less in the Balb/C mice. Further, Balb/C mice also displayed a prolonged greater heterogeneity of capillary transit time after dMCAO in the MCA territory compared to C57BL/6 mice.

### IMPLICATIONS FOR PRACTICE:

Our data suggest that the extent of native leptomeningeal collaterals affects downstream hemodynamics with a long lasting impact in the microvascular bed after cortical stroke.



**Michael  
Lethin, DO**

Transitional Year

## Midazolam for Anesthetic Premedication in Children: Considerations and Alternatives

### INTRODUCTION/BACKGROUND:

Pediatric patients have been shown to express increased preoperative anxiety, leading to negative outcomes such as increased pain, sleep disturbances and negative behavioral outcomes. Two forms of treatment have been used; pharmacological and non-pharmacological. Pharmacological agents, such as midazolam have been contraindicated in children under 3 years old due to neurological compromise. However, the relationship between the general anesthetic and early neurological development is not well established. This study targeted the evidence for and against the use of midazolam as a premedication anesthetic in pediatric surgery.

### METHODS:

Midazolam in the pediatric population is administered orally with a dosage of 0.25-0.75 mg/kg. The goal of this drug is to create an anxiolytic and amnestic effect. Pediatric patients experience high levels of anxiety prior to surgery and this can affect their behavior and procedural compliance. Midazolam, like any medication is not without side effects. Midazolam has been shown in animal models to create behavioral complications, and one study showed hippocampal size reduction.

### RESULTS:

Upon review of published studies, the animal models focused on long term sedation and used dosages 10-100 times more than would be used in a child under 3 years old. The hippocampal growth study did not report the dosages used to reach these effects. The FDA in 2017 labeled Midazolam unsafe for pediatric administration below age 3 due to neurological effects without concrete evidence to support the link of Midazolam and neurological compromise.

### IMPLICATIONS FOR PRACTICE:

There are no definite links between Midazolam and neurological deficit or compromise, although every medication, especially anesthetics do not come without adverse effects. The authors of these studies urge further investigation to better understand the risk profile of the medication and identify safer medications suitable for premedication for pediatric patients undergoing surgery.



**Katherine  
Miotke, MD**

Transitional Year

## Aortic Dissection Case Study

### INTRODUCTION/BACKGROUND:

Aortic dissection arises from a tear in the aortic intima exposing the medial layer to the pulsatile blood-flow. The incidence of aortic dissection is 4 to 6 per 100,000 person per year, but primarily concentrated to those over the age 65 with an incidence of 30 per 10 per 100,000 person per year; those younger are typically those with underlying predisposing genetic condition. Risk factors include male sex, age > 65, HTN, smoking, known aneurysm, connective tissue diseases, inflammatory/rheumatological diseases, and bicuspid aortic valve, and of these HTN is considered the most important risk factor.

### PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

45 y.o. Male who presents to the ED with 3/10 substernal chest pain that has been ongoing for one day. 10 point ROS is otherwise negative. No past medical history, denies methamphetamine or cocaine use, no family history of early MI. On arrival to the ED, EMS presents a 12 lead EKG that shows diffuse ST depression. Triage SBP 70 mmHg over palpation with three separate readings. Patient appears to be in pain but is otherwise awake, alert, interacting appropriately, not diaphoretic.

### PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

USC was contacted and accepted the patient for transfer. Pt was airlifted to USC but died en route. Follow-up diagnostic and other test results were unable to be obtained. Pt underwent all treatment recommendations by his physician team, however pt died in route to higher level of care.

### IMPLICATIONS FOR PRACTICE:

Rapid identification of aortic dissection is of keen interest as it has a mortality of 58% if untreated, and rises at 1-2% per hour. Risk factors should be screened for on all patients with chest pain to determine if further investigation is needed, however in this patient the only known risk factor is male sex. POCUS is currently under-utilized in screening for aortic dissection, being utilized in 32.7% of AD cases. CT Angiography should remain the gold standard for diagnosis as it gives a much better view of the affected vessels and anatomy, as well as determining if surgical intervention is warranted.



**Kendra  
Lian, MD**

Transitional Year

## Motivational Interviewing for Community Based Interventions

### INTRODUCTION/BACKGROUND:

Motivational Interviewing (MI) is an evidence-based approach to behavioral change that encourages patients to explore their intrinsic motivations for change. First used in the field of addiction medicine, this guiding-style of communication has now expanded to widespread use throughout healthcare. During this rotation, the fundamentals of MI were studied and condensed into a reference manual which will be used by community health workers to lead community-based interventions for future randomized trials.

### METHODS:

To create a reference manual on MI, an online course from Psychwire titled “Motivational Interviewing – Brief Interventions in Healthcare” was completed. Throughout 19 modules, the basics of MI including the four processes (engaging, focusing, evoking, planning) and the four core skills (asking, affirming, listening, summarizing) were explored. Building motivational interviewing skills: A practitioner workbook and other online resources were also used to create the manual. These reference materials were edited with the help of a research team led by Amytis Towfighi (MD) and Alejandra Casillas (MD).

### RESULTS:

BP- REACH and REACH-ICH are two current studies funded by the National Institute on Minority Health and Health Disparities (NIMHD). One of the main aims of both studies is to use multilevel community and team-based interventions to improve blood pressure (BP) control among vulnerable populations in LA County. As part of an intervention, community health workers (CHWs) across the country have been hired as motivational interviewing coaches to address barriers to BP med adherence with patients. The reference materials are now being used to pilot online training sessions motivational interviewing coaches.

### IMPLICATIONS FOR PRACTICE:

As BP-REACH and REACH-ICH studies continue over the next three years, motivational interviewing will serve an important role to improve BP control among vulnerable populations in LA County.



**Tawny A.  
Louie, DO**

Anesthesiology

## To Extubate or Not to Extubate? That is the Question- An Unconventional Approach to a Case of Severe Bronchospasm with Resolution Upon Extubation

### **INTRODUCTION/BACKGROUND:**

Bronchospasms are a reversible hyperreactive spasm in the smooth muscle of the airway. They indicate a potential airway emergency due to airway resistance or obstruction. Treatment of bronchospasms under anesthesia includes increasing anesthetic depth, beta-2 agonists, bronchodilators, and potential epinephrine administration to place endotracheal tube.

### **DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**

This case presents a 40-year-old female with a medical history of GERD, obesity with BMI of 42.2, asthma, and current smoking. This patient was scheduled for a laparoscopic cholecystectomy in spring with a high pollen count. Pre-operative evaluation was completed to establish an adequate airway and cervical range of motion. The patient after induction was atraumatically intubated, however upon auscultation there were no lung sounds or chest rise. The tube was immediately removed, patient was placed in Trendelenburg, and given 100% oxygen with no significant improvement. A glideslope was utilized to re-intubate the patient with no success in improving

airflow. It was established the patient was having a bronchospasm event and was taken to the PACU without performance of procedure.

### **DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**

The patient was experiencing an allergic event assumed due to pollen-triggered bronchospasm. Due to the patients NPO status, previous pollen allergy, and prior atraumatic intubation, it was concluded that intubation itself was the evident cause of bronchospasm, and was relieved with extubation.

### **IMPLICATIONS FOR PRACTICE:**

Bronchospasms are life threatening and require immediate identification and treatment. Extubation during a bronchospasm is unconventional, however should be considered if all other solutions have failed, there is a loss of airway patency and hypoxia is present. Extubation is a viable option to relieve bronchospasm in the event a patient can be easily reintubated.

*\*Shared project with Joseph V. Villaluz, MD*



**Garret M.  
Morgan, DO**

Anesthesiology

## Avoiding Rupture of a Large Pulmonary Bulla in a Patient Requiring Emergent Surgery for Cervical Cord Syndrome

### **INTRODUCTION/BACKGROUND:**

Pulmonary bullae are a complication of chronic lung disease and can occur spontaneously in healthy young adults. Blebs, which form bullae result from a loss of lung structure support. Bullae can rupture and cause intraoperative pneumothorax impairing successful anesthesia. Strategies to lower risk include reducing positive pressure ventilation (PPV) and avoidance of nitrous oxide. Screening for bullae is not routinely included in a pre-operative workup, but many are found through pre-operative imaging.

### **DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**

This case presents a 57-year-old male who is undergoing a C3-6 laminectomy to relieve cervical stenosis that is causing central cord syndrome due to a motor vehicle collision vs pedestrian accident that resulted in paralysis of legs and weakness of arms. His medical history includes COPD, alcoholic liver cirrhosis, smoking, and methamphetamine use. Pre-operative imaging revealed multiple pulmonary blebs and one large bulla in the right lung.

### **DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**

The patient was intubated semi-awake with the fiberoptic bronchoscope. Pressure controlled ventilation (PVC) with peak inspiratory ventilation (PIP) was applied to maintain adequate ventilation throughout procedure. The I:E ratio of 1:4 was used to minimize breath stacking and the procedure was completed without complications.

### **IMPLICATIONS FOR PRACTICE:**

Blebs and Bullae occur commonly in COPD patients and sporadically in healthy young adults. Detection of large bullae can be seen on X-ray scans; however, smaller bullae and blebs may not be visualized. Goal of minimizing PPV with utilization of PVC and low PIP provide efficient tidal volume and oxygenation for ventilation. Potential risk should be considered when designing an anesthesia plan for patients.

*\*Shared project with Eric Morell, MD and Emily Smith, MD*

## Transgender Teenage Simulation Study

### INTRODUCTION/BACKGROUND:

Transgender-identified individuals face higher rates of poverty, chronic health problems, and inadequate access to medical care than the general US population. In addition to inability to access care many transgender patients avoid seeking medical care out of fear of negative experiences. A national survey of transgender health revealed 21% of transgender patients report avoiding needed emergency medical services with half citing lack of provider knowledge about transgender health as reason for avoidance. There are currently no standard requirements for medical schools to teach LGBTQIA specific healthcare. Studies show wide variability among medical schools LGBTQIA education and revealed lack of formal LGBTQIA healthcare training in residency.

### METHODS:

In Fall of 2022 Kaweah Health residents were asked to participate in a survey regarding their attitudes, knowledge, and comfort with transgender patients. Residents from emergency medicine, anesthesia, transitional year, and emergency medicine APPs participated. Residents then participated in a 30-minute simulation session. Actors played the roles of a teenage female-to-male transgender-identified patient, their parent, and an attending physician. Goals for participants included ascertaining preferred

name and pronouns, building rapport, presenting the patient to the attending physician, and correcting them when the attending misgenders the patient. The simulation concluded with a debrief and discussion. A post-simulation survey was conducted.

### RESULTS:

22% of participants reported no medical school curriculum dedicated to LGBTQIA healthcare and 27% reported no dedicated gender identity curriculum. When compared to pre-simulation survey, post-survey results were higher when participants were asked about feelings of importance regarding ascertaining gender identity and utilizing preferred pronouns for patients (82% vs. 100% and 86% vs. 94%). Additionally, more respondents reported feeling their education on gender identity was adequate in the post simulation survey (32% vs. 41%). However, none of these results reached statistical significance.

### IMPLICATIONS FOR PRACTICE:

Although this study did not achieve statistical significance, the importance of providing adequate and efficient care for the LGBTQIA community is evident. Proper gender identity education and curriculum will promote a quality work environment and improve satisfaction among LGBTQIA healthcare.

*\*Shared project with Jessi Hill, DO*



**Andrew  
Moss, MD**

Emergency Medicine



**Victoria  
Nguyen, DO**

Transitional Year

## A Case of Delayed Diagnosis of Adult-Onset Still's Disease

### INTRODUCTION/BACKGROUND:

Adult-onset Still's disease (AOSD) is a rare systemic auto-inflammatory condition characterized by symptoms including intermittent fevers, arthralgias, and evanescent salmon-colored macular rash. Delay in treatment can result from lack of diagnosis as the condition is rare. AOSD has an incidence of 0.16 cases in 100,000 people, with most studies derived from isolated clinical reports or case series. Currently the Yamaguchi criteria is the most widely used to diagnose AOSD. Overall early identification of AOSD can be of great benefit to patients to initiate early treatment.

### METHODS/RESULTS:

A 44-year-old male was hospitalized for intermittent fevers, polyarthralgia of wrists and ankles, and evanescent rash for 5 days. Fevers spiked to 101F with a macular nontender, nonpruritic rash over his trunk that became more apparent when febrile. Workup included leukocytosis of 13 with 95% neutrophils, elevated inflammatory markers with ESR 62 and CRP 166. Rheumatology was consulted and the patient was diagnosed with Adult-onset Stills Disease (AOSD) per the Yamaguchi criteria.

### RESULTS:

Upon review, it was determined the patient also met criteria for AOSD during a hospitalization one year prior when he was diagnosed with presumed drug reaction to gemfibrozil during treatment of hypertriglyceridemia-induced acute pancreatitis. At that time the patient also had intermittent fevers, polyarthralgia, diffuse macular rash, and hepatosplenomegaly with leukocytosis of 16 with 91% neutrophils, elevated inflammatory markers with ESR 85 and CRP 230. Gemfibrozil was discontinued as the suspected offending agent and the patient had resolution of symptoms with prednisone treatment. After the diagnosis of AOSD, the patient was again started on prednisone with improved symptoms and was discharged with a plan to start Anakinra (IL-1 antagonist) during rheumatology follow up.

### IMPLICATIONS FOR PRACTICE:

Adult-onset Still's Disease should be considered in patients with intermittent fevers, arthralgias, and effervescent rash that meet the Yamaguchi criteria. This case highlights the importance of a collaborative interdisciplinary team to fully elucidate key factors responsible for patients' clinical presentation and to prevent a missed diagnosis.

## Identifying esophageal versus endotracheal intubation in a gelatin simulator using POCUS by novice users

### INTRODUCTION/BACKGROUND:

There is significant evidence to support that ultrasounds are an acceptable imagining modality to differentiate between endotracheal and esophageal intubation as well as learning through simulation models. We aimed to integrate both simulation education and portable, handheld point of care ultrasound to discover whether novice ultrasound users with minimal ultrasound exposure and minimal instruction can be taught to identify endotracheal versus esophageal intubation using a homemade phantom ultrasound model.

### METHODS/RESULTS:

Two models were developed using non flavored, unsweetened gelatin and psyllium fiber supplement. Each of these models were designed to mimic the appearance of an endotracheal intubation or an esophageal intubation with ultrasound. Minimal instruction was given regarding proper identification. Novice users, first and second year medical students, were then asked to use their own personal handheld POCUS device and examine both ultrasound models. The participants then completed a survey regarding their level of medical school training, prior ultrasound experience, and whether they identified an endotracheal or esophageal intubation.

### RESULTS:

A total of 111 medical students participated with a breakdown of 62 second year and 49 first year medical students. 92 of those students self-identified as having no prior career as an ultra-sonographer while 19 self-identified as working in a professional setting as an ultra-sonographer. On the simulation models, 65.8% of the students could accurately identify an endotracheal intubation while 69.4% of the students who participated could accurately identify an esophageal intubation.

### IMPLICATIONS FOR PRACTICE:

The medical students identified an endotracheal and esophageal intubation at a somewhat lower rate than expected in comparison to prior studies with the gelatin model. This may be due to variability in the gelatin models and variability in ultrasound interest from the medical students. Further studies are required to account for inconsistencies in the gelatin models, instruction in identification, and student interest in ultrasound.

*\*Shared project with Elvin Diaz, DO*

**Richard  
Nho, DO**

Emergency Medicine

## Huntington's disease – Providing Safe Anesthesia for Veterans: A Case Report

### INTRODUCTION/BACKGROUND:

Huntington's disease is a rare autosomal dominant, progressive neurodegenerative disorder affecting the caudate and putamen. Occurring at a rate of 4 to 10 cases per 10,000, it affects men and women equally. The defining symptom of Huntington's disease at diagnosis is unconscious chorea of the face, limbs, and trunk. Progressive psychiatric symptoms result in irritability, depression, isolation, paranoia, delusions, and hallucinations. Cognitive decline and dementia also occur that worsen as the disease progresses with death usually occurring within 30 years of onset of symptoms.

### PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

Our 53-year-old male patient weighing 82 kg was a veteran with co-morbidities including post-traumatic stress disorder (PTSD), late-stage Huntington's disease presenting for dental exam and cleaning with flexible cystoscopy. Upon medication review, patient was taking mirtazapine 25mg, tetrabenazine 12.5mg at noon and 25mg at night, haloperidol 5mg, melatonin 6mg, and tylenol 975mg as needed. Of note, the patient has reported history of seizures years prior, but at the time had negative electroencephalography findings, a negative brain computed tomography imaging, and with no treatment for a seizure disorders.

### PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

After applying standard ASA monitors in the operating room, deep sedation was initiated with propofol 75 mg/kg/min, midazolam 1 mg, ketamine 10 mg, and lidocaine 50 mg. The patient was induced with a propofol 50 mg, fentanyl 25 mcg, ketamine 10 mg. The patient was adequately sedated with no lid reflex, after which rocuronium 25 mg was given. The decision was made to proceed with rapid sequence intubation using video laryngoscopy. The vocal cords were observed to be open, but quivering. A 7.0 mm endotracheal tube was placed atraumatically, and ventilated was initiated. The intra-operation period was uneventful.

### IMPLICATIONS FOR PRACTICE:

Patients with Huntington's disease can be safely anesthetized utilizing MAC or TIVA with propofol. Awake intubation, spinal anesthesia or nerve blocks can help reduce aspiration risks and in these patients with complex pharmacologic therapies. Careful medication selection is necessary to minimize adverse drug interactions and side effects.

**Jared  
Olson, DO**

Transitional Year



**Sang  
Park, DO**

Anesthesiology

## Leontiasis Ossea: A Rare Case of Difficult Airway Presentation and Open Tracheostomy

### INTRODUCTION/BACKGROUND:

Leontiasis ossea is described as facial and cranial bone hypertrophy associated with diseases such as Paget's disease, fibrosis dysplasia, kidney disease and hyperparathyroidism. This condition comprises bony overgrowth of the maxillary bone with intrusion to the orbit, mouth, nose, sinuses, and optic nerve. These deformities can negatively impact airway management.

### DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS :

This case involved a middle-aged male with a history of ESRD, secondary hyperparathyroidism, renal osteodystrophy, and paraplegia who presented with hyperkalemia and was admitted for hemodialysis. The patient developed respiratory distress and acidosis secondary to hypercarbia and was placed on BiPAP. Upon examination, the patient had facial deformities of the mandible and neck and presented with an enlarged tongue. The patient was unable to clear secretions and was not a candidate for nasotracheal or orotracheal intubation due to severe dysplasia of his jaw and tissues within his oropharynx.

### DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

The occluded airway, secretions and jaw deformities led the surgical team to operatively insert an open tracheostomy. This procedure included a transverse incision below his cricoid cartilage and above the sternal notch, where the subcutaneous tissue was divided, tracheal rings 2-4 were exposed and a tracheostomy tube was inserted.

### IMPLICATIONS FOR PRACTICE:

There are limited cases of leontiasis ossea in literature, however a thorough examination is important to plan proper airway management in patients with bone deformities. Techniques such as awake fiberoptic intubation, open tracheostomy, and retrograde intubation have been described in literature as ways to avoid or manage airway obstruction in these individuals.

*\*Shared project with Richard Romo, MD*



**James  
Pham, MD**

Transitional Year

## Herpes Simplex Virus (HSV) Encephalitis

### INTRODUCTION/BACKGROUND:

HSV encephalitis is an acute infectious encephalopathy with high morbidity and mortality. Untreated, HSV encephalitis has a mortality rate of greater than 70%, highlighting the importance of rapid diagnosis and treatment with acyclovir. Additionally, 42% of encephalitis cases are of infectious etiology, with HSV being the most common pathogen (19%). The typical MRI findings in HSE include temporal lobe abnormalities, characterized by increased T2 signal and restricted diffusion on diffusion-weighted imaging (DWI).

### PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

The patient is a 61-year-old male with significant past medical history of hypertension, who presented to the emergency department due to an acute onset of confusion and left-sided tingling for 1 day. The night prior, the patient complained of a headache and had an episode of vomiting. Patient described the headache as a “popping sensation inside his head.” The patient had initially presented to another hospital where workup was reportedly unremarkable. However, due to persistent and ongoing confusion, the patient was brought by family to the emergency department of this institution for reevaluation. On interview, patient was fully alert and oriented, however speaking in short, declarative sentences.

### PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

In the ED, the patient was afebrile with all other vital signs stable. Patient was alert and oriented x3 with an NIHSS of 0. Initial laboratory workup was unremarkable, no leukocytosis, no electrolyte abnormalities, and urinalysis was negative. MRI brain was negative for acute infarcts, however, demonstrated edema in L mesial temporal lobe, concerning for herpes encephalitis. The patient was admitted for further workup for AMS in the setting of suspected herpes encephalitis.

### IMPLICATIONS FOR PRACTICE:

In this case report we discussed a case of aseptic encephalitis with temporal lobe findings on MRI initially diagnosed to be HSV encephalitis. This case presentation was unique, given that initial laboratory and CSF findings were all negative, and diagnosis was initially made primarily through imaging. However, as the patient was eventually determined not to have HSV encephalitis, this highlights the importance of using neuroimaging characteristics to distinguish temporal lobe HSV encephalitis from its mimics.



**Tammy  
Rojas, DO**

Emergency Medicine

## Rapid Identification of Hemorrhagic Strokes

### INTRODUCTION/BACKGROUND:

A cerebrovascular accident is when brain tissue does not receive adequate oxygen to perform normal function potentially causing brain cell death. Two ways in which this occurs: 1) blood supply is blocked, known as ischemia; 2) blood is extravasated from a vessel, known as hemorrhagic. While 87% of CVAs in the United States are due to ischemic events, hemorrhagic strokes make up 13%. National guidelines recommend CT should be completed within 25 minutes of arrival in patients who present with typical stroke symptoms. Patients without stroke symptoms will not activate the stroke alert, which may cause delay in imaging. Our aim is to identify clinical outcomes of adult patients who presented to Kaweah Health Emergency Department with hemorrhagic CVAs who did not activate stroke protocol and identify patient indicators.

### METHODS:

A retrospective cross-sectional study was performed targeting patient indicators such as elevated blood pressure (systolic >160) and those with history of stroke in the last 6 months. Data was collected from the previous 3 years of existing de-identified patient charts with diagnosis of hemorrhagic stroke, either

via the stroke protocol, or those that were missed. Chi squared and Pearson models were utilized for data collection and synthesis.

### RESULTS:

Chi square and Pearson model showed positive correlation between elevated blood pressure and CVAs while finding no significant correlation between previous history of stroke and hemorrhagic stroke. We observed higher age >60 years and those with risk factors such as having a history of diabetes, hyperlipidemia or hypertension were common with patients suffering from CVA.

### IMPLICATIONS FOR PRACTICE:

In conclusion there is a significant association between elevated blood pressure as a possible risk factor for hemorrhagic stroke, but the study has not yet been completed. The research needs expansion to increase power and confidence of the study.

## Latent Autoimmune Diabetes in Adults: Case Report of Diagnosis and Management of LADA

### INTRODUCTION/BACKGROUND:

LADA stands for Latent Autoimmune Diabetes in Adults, this disease usually begins in adulthood, is slow developing and does not require insulin injections for at least 6 months after diagnosis. LADA reflects similarities to Type I Diabetes and Type II Diabetes in genetic, immunologic, and metabolic features.

### PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

This case report presents a 38-year-old Caucasian male with no significant medical history, however, has a family history of Type II Diabetes. The patient began experiencing polyuria, polydipsia, blurred vision, and oral thrush. Upon visit to the emergency department, laboratory results found the patient to be hyperglycemic and he was administered metformin and insulin. Other laboratory results revealed the HbA1c was equivalent to 11.6, and results revealed normal baseline for glutamic acid decarboxylase antibodies, yet positive for islet antigen-2 antibodies.

### PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

Upon reviewing the laboratory finding the patient was diagnosed with Latent Autoimmune Diabetes in Adults (LADA). This disease requires the first 6 months to be treated similarly to Type II Diabetes and thereafter the need for insulin to treat the patient as a Type I Diabetic.

### IMPLICATIONS FOR PRACTICE:

This case report brings awareness to LADA and the importance of healthcare providers to understand the diagnostics, progression, and treatment process of this disease.

*\*Shared project with Roxanne Talamayan-Pascua, MD*



**Mark  
Said, MD**

Family Medicine



**Vivek  
Sharma, DO**

Transitional Year

## Contrast media induced acute iodide sialadenitis.

### INTRODUCTION/BACKGROUND:

Iodide sialadenitis or “iodide mumps” is a complication that can occur minutes to days following administration of iodinated contrast. The pathogenesis is currently thought to be a pseudoallergic reaction related to iodine accumulation in the salivary gland ducts causing the salivary gland swelling. Recent data suggests that it is being underdiagnosed with an incidence of around 1-2%, replacing the prior belief that this is a rare adverse reaction. While efficacy of treatments has not been proven, anecdotal improvement has been noted with antihistamines, corticosteroids, hyperhydration, dialysis (for patients with renal failure), and therapeutic sialendoscopy. However, due to the benign self-limited course, iodide sialadenitis is generally conservatively managed with observation and supportive therapy.

### PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

A 61-year-old male presented to the surgical ICU after a Thoracic Endovascular Aortic Repair (TEVAR) under general anesthesia. Preoperatively, the patient had no complaints and a benign exam. His intubation and intra-operative course were uncomplicated. After closure and uncomplicated extubation, patient was brought to the surgical ICU in stable condition where he was found to have sudden and rapidly enlarging left facial swelling

overlying the angle of the mandible. There was no fluctuance, induration, overlying skin changes, sites of active drainage, or ecchymosis or signs of hematoma/fluid collection. Left Stenson’s duct was draining clear saliva. Patient denied pain, dyspnea, dysphonia, dysphagia, or odynophagia. His vitals remained stable.

### PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

Bedside ultrasound showed surrounding vessels to be intact. 8 hours later, the patient reported decreased swelling. ENT consult diagnosed the patient with iodide sialadenitis secondary to the contrast dye received during the endovascular procedure. Condition was monitored with plan for conservative management. Patient continued to show decreasing swelling without pain, respiratory distress, or difficulties swallowing. After significant improvement was noted on post-operative day 3, the patient was discharged.

### IMPLICATIONS FOR PRACTICE:

Awareness of iodide sialadenitis as an adverse effect of contrast dyes is critical for reducing rates of underdiagnosed cases and preventing further complications. In many cases, such as this one, observation and conservative management is sufficient.



**Preya  
Sheth, DO**

Emergency Medicine

## Improving SEP-1 Compliance with Simulation Based Education

### INTRODUCTION/BACKGROUND:

Sepsis can cause life-threatening organ dysfunction that is caused by a host response to infection. Sepsis can progress to severe sepsis which can lead to septic shock and multiple organ failure. Kaweah Health Hospital uses the SEP-1 guidelines, which stands for “The Severe Sepsis and Septic Shock Management Bundle” to ensure compliance with national sepsis guidelines. With the prevalence of infection and significant mortality rate associated with septic shock, it is evident that residents, specifically emergency medicine residents, should be able to identify the signs of sepsis, perform exams, order labs, antibiotics, and properly document within the SEP-1 guidelines.

### METHODS:

To increase compliance with SEP-1 guidelines, we initiated a simulation session that allowed residents to perform laboratory evaluations, treatment, workups, and source control. There was a pre-test prior to the simulation, a case study to utilize in the simulation followed by a post-test. The residence in the simulation followed a critical action checklist to maintain compliance with SEP-1. The data was collected, and this study reviewed Emergency Department compliance 3 months prior to the SEP-1 simulation education and 3 months following the education.

### RESULTS:

There was no statistically significant difference when using the 2 tailed T-test comparing the 3 months prior to the simulation and 3 months following. This could be due to the limited access to resident population size when compared to the number of providers that work within the emergency department that include non-emergency residence, advanced providers, and attending physicians.

### IMPLICATIONS FOR PRACTICE:

The goal of this study was to increase sepsis assessment and ensure compliance with recognition, treatment, and documentation in the Emergency Department. This study emphasized the need to have continued sessions with Emergency Department residents to increase understanding of sepsis guidelines. It is recommended that these sessions could also be helpful for other resident specialties to improve patient outcome and recognition.

*\*Shared project with Ethan Hartman, DO*



**Reshma  
Shiwadin, DO**

Family Medicine

## HIIT Induced Rhabdomyolysis Case Report

### **PURPOSE OF THIS CASE REPORT, WHAT DOES IT CONTRIBUTE TO SCIENTIFIC LITERATURE?:**

This case report presents the development and complications of rhabdomyolysis after a High Intensity Interval Training (HIIT) workout. Rhabdomyolysis and its complications can be severe and life-threatening, this report expands on the potential causes and contributes awareness to scientific literature.

### **PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**

This study discusses the case of a 34-year-old female who presented to the emergency department with severe lower extremity pain within her thigh, fatigue, and excessive cramping. The patient has had a previous rhabdomyolysis episode, and a social history of fitness and exercise engagement. The patient's home medication list included oral contraceptive pills, multivitamins, and a workout protein supplement. The patient's physical examination expressed a fit female, with and atraumatic head, eyes, ears, nose, and throat examination (HEENT), and no current pallor or scleral icterus. The patient did not have any murmurs, had clear breath sounds, active bowel sounds, and did not present with any swelling

of joints or rashes on skin. After completing a laboratory panel, her creatine kinase (CK) was 87,338, creatine (CR) 7.01 and AST/ALT 1590/837.

### **PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**

After obtaining the patients' labs, aggressive IV hydration was initiated. The patient experienced edema and skin tightening following the IV hydration and was given Lasix. The patient's laboratory values were redrawn which presented with liver function improvement, but creatine still elevated. The patient had a vas catheter placed for acute hemodialysis, later transitioning to placement of a permanent hemodialysis catheter. The patient was discharged home and referred to follow up with nephrology.

### **IMPLICATIONS FOR PRACTICE:**

The implications of this case report will bring awareness of the various causes of rhabdomyolysis including high intensity interval training workout or training (HIIT). This form of exercise is common for those who engage in physical activity and should be considered a serious risk factor for rhabdomyolysis.



**Brian  
Strain, DO**

Emergency Medicine

## tPA and Hemorrhagic Conversion of Ischemic Stroke

### **INTRODUCTION/BACKGROUND:**

Kaweah Health Medical Center offers thrombolytic therapy for ischemic stroke as the current standard of care. As part of this treatment process patients and their surrogate decision makers are informed of the risks and benefits of the use of tPA (Alteplase) for thrombolysis which quotes a risk of Hemorrhagic Transformation of 6.8%. The investigators sought to determine how this rate compared to the actual rate of hemorrhagic transformation observed at Kaweah Health for patients treated in 2020 and 2021 along with descriptive statistics reporting on patients receiving tPA for ischemic stroke during this timeframe.

### **METHODS:**

A retrospective descriptive statistical analysis of chart abstracted data was performed using data collected from the Kaweah Health Stroke Program for patients treated with tPA from January 1st, 2020, to December 31st, 2021. Data elements included patient: age, gender, NIHSS score, time from last known well "LKW" to time tPA given, intracranial hemorrhagic transformation.

### **RESULTS:**

Analysis determined the observed hemorrhagic conversion rate at Kaweah Health Medical Center to be 5.62% which is less than the quoted risk of 6.8% in the consent process. The infrequency of occurrences precluded further secondary analysis of risk factors or patterns relating to age, gender, or time to tPA from last known well time.

### **IMPLICATIONS FOR PRACTICE:**

This study serves as a foundation for additional monitoring of hemorrhagic transformation rates to facilitate awareness of future trends, identify opportunities for quality improvement efforts, and provide a historical comparison upon transition to other thrombolytic agents.



**Ethan  
Sy, DO**

Transitional Year

## Agreement of 2D and 3D Hepatic Magnetic Resonance Elastography Stiffness Measurements and Region-of-Interest Size using Rigid versus Flexible Drivers and 50% versus 70% Amplitude Strength in Morbidly Obese Adults

### INTRODUCTION/BACKGROUND:

The purpose of this study was to assess the agreement of an investigative flexible driver against the FDA-approved rigid driver and 50% against 70% amplitude strength in 2D and 3D magnetic resonance elastography (MRE) at 1.5T and 3T in adults with morbid obesity.

### METHODS:

49 adults (38 female, 11 male) with body mass index > 34.5 kg/m<sup>2</sup> (mean 40.29, range 34.64-54.52) prospectively underwent 2 same-day MRE exams with interexam repositioning at 2 sites. The subjects were subdivided into 16 adults scanned at 1.5T and 33 adults scanned at 3T. 2D gradient-echo-recalled (GRE), 2D spin-echo echo-planar-imaging (SE-EPI), and 3D SE-EPI MRE were acquired with both flexible and rigid drivers. 21 (5 at 1.5T, 16 at 3T) adults were scanned using both 50% and 70% amplitude. Agreement between stiffness (kPa) and ROI size (pixels) using different driver types, amplitude strengths, and the combination of driver type and amplitude strength (8 total comparisons) was assessed using Bland-Altman (BA) plots and QIBA agreement metrics. Subjects optionally reported their driver type preference after their completed exam.

### RESULTS:

No significant bias was found between stiffness measurements of the combinations of driver type and amplitude strength (range -0.03 - 0.04). ROI size was consistently greater using the rigid driver when comparing the combinations of driver type and amplitude strength (range 255.71-500.41 pixels). Of the subjects that reported their driver type preference, most patients chose the flexible driver.

### IMPLICATIONS FOR PRACTICE:

The flexible driver is an investigative prototype that conforms more to the body habitus, offering better delivery of vibrations and reducing patient discomfort. This study offers a novel comparison of MRE performance using different amplitude strengths in morbidly obese patients.



**Joshua  
Szykowski, MD**

Surgery

## Improving Appropriateness of TPN Utilization

### INTRODUCTION/BACKGROUND:

Central line-associated bloodstream infections (CLABSI) are a subset of healthcare associated infections (HAI) which are defined as a new bloodstream infection in the presence of a central venous catheter that has not shown to be caused by an infection at another body site. This type of infection has been shown to be costly as they lead to both an increase in healthcare expenditures and patient morbidity and mortality. Each case of CLABSI has an associated increase in healthcare cost of \$46,000 on average. In addition there is a marked increase in the chance of in-hospital mortality with an odds ratio of up to 2.75.

### METHODS:

Kaweah Health has recognized CLABSI prevention as an area needing improvement for our hospital. A multidisciplinary “CLABSI Kaizen” event was held in Feb of 2020 to address this issue. Kaizen is a word originating from Japanese which embodies the concept of continuous improvement for the better. This principle has been adopted in the business and quality improvement realms during a Kaizen event where a large number of stakeholders come together to make rapid and concerted change.

### RESULTS:

Quality data regarding CLABI are routinely collected by Kaweah Health and are reported to the California Department of Public Health. More granular data regarding specific CLABSI related interventions are collected and reported internally. Following the implementations of the various interventions recommended at the CLABI Kaizen event a report was developed and presented at a Board of Directors meeting in August of 2021. The majority of the interventions were implemented by April 2020. However, the EMR TPN order set update was delayed until July 2020.

### IMPLICATIONS FOR PRACTICE:

The goal for all our patients should be to receive world class care at Kaweah. Encouraging clinicians to follow clinical practice guidelines and best available evidence while also providing them with space to deviate in the best interest of the patient provides the best chance of accomplishing that goal.

## Latent Autoimmune Diabetes in Adults: Case Report of Diagnosis and Management of LADA

### INTRODUCTION/BACKGROUND:

LADA stands for Latent Autoimmune Diabetes in Adults, this disease usually begins in adulthood, is slow developing and does not require insulin injections for at least 6 months after diagnosis. LADA reflects similarities to Type I Diabetes and Type II Diabetes in genetic, immunologic, and metabolic features.

### PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

This case report presents a 38-year-old Caucasian male with no significant medical history, however, has a family history of Type II Diabetes. The patient began experiencing polyuria, polydipsia, blurred vision, and oral thrush. Upon visit to the emergency department, laboratory results found the patient to be hyperglycemic and he was administered metformin and insulin. Other laboratory results revealed the HbA1c was equivalent to 11.6, and results revealed normal baseline for glutamic acid decarboxylase antibodies, yet positive for islet antigen-2 antibodies.

### PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

Upon reviewing the laboratory finding the patient was diagnosed with Latent Autoimmune Diabetes in Adults (LADA). This disease requires the first 6 months to be treated similarly to Type II Diabetes and thereafter the need for insulin to treat the patient as a Type I Diabetic.

### IMPLICATIONS FOR PRACTICE:

This case report brings awareness to LADA and the importance of healthcare providers to understand the diagnostics, progression, and treatment process of this disease.

*\*Shared project with Mark Said, MD*



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Anesthesiology

## Assessment of Anesthesiology Resident Knowledge of the Environmental Impact of Anesthetic Agent Use

### INTRODUCTION/BACKGROUND:

It has been shown in many studies now that the healthcare system is a significant contributor to environmental pollution and a great carbon emission producer. Healthcare produces 10% of all carbon emissions in the U.S., which makes it the second highest emitting system after agriculture. Overall, the U.S. healthcare system itself ranks 13th in the world for GHG carbon emission, higher than most countries in the world. There are certain sectors in the healthcare system that disproportionately produce pollutants, namely the hospital, with the operating room being the most energy-expensive department in the hospital. Surgery produces a significant amount of medical waste, while anesthesia produces over half of carbon emissions and air pollutants in the OR.

### METHODS:

Knowledge of its lasting effects may not be as pervasive as is needed to produce significant change in the field of anesthesia. The purpose of this study was to determine how knowledgeable anesthesiologists are on this topic, and to provide information and education to induce changes to anesthetic practices that may have a positive impact on the environment. This study consisted of

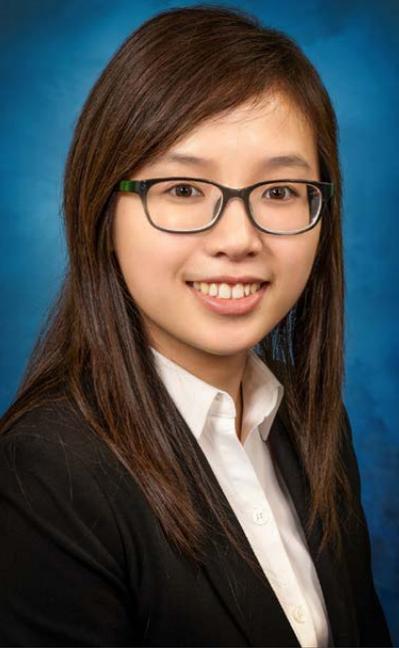
a survey that serves to analyze the depth of knowledge physicians have on this topic. The survey contains 20 questions that are either True/False or multiple choice questions regarding the impacts of different aspects that commonly used anesthesiology practices have on the environment. This is followed by a presentation that provides educational information and practical changes that are easy to apply to anesthetic practices without compromising patient care.

### RESULTS:

The effects of global warming will disproportionately affect marginalized communities, particularly the Global South, much more quickly, and much more intensely. Any changes that can be made to mitigate the effects of this human-made phenomenon should be seriously considered.

### IMPLICATIONS FOR PRACTICE:

We are hopeful that this study will provide knowledge and empower practitioners to make the necessary changes to their medical practices to safely limit the environmental impact that anesthesia causes.



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Anesthesiology

## A Case Report on Dexmedetomidine's Unique Role in Management of Postoperative Muscle Spasm

### INTRODUCTION/BACKGROUND:

Painful muscle spasms are common in postoperative patients and are treated with skeletal muscle relaxants. Centrally acting skeletal muscle relaxants are mostly available in oral forms, limiting their use in the postoperative anesthesia care unit (PACU). Dexmedetomidine is an alpha<sub>2</sub>- adrenoceptor agonist muscle relaxant that can be administered intravenously, being ideal for the PACU setting. Therefore, we report positive responses to dexmedetomidine in muscle spasm management of patients who underwent orthopedic shoulder surgery.

### DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

The case presented a 46-year-old male with a past medical history of anxiety, depression, post-traumatic stress disorder, chronic neck pain, obstructive sleep apnea and cervical spinal fusion who underwent elective right shoulder surgery. After surgery the patient rated their pain score from 8-10 and was administered Fentanyl 100 mcg. Upon assessment the patient denied right shoulder pain but experienced mild pain, muscle spasms, and limited range of motion on the cervical location of the neck.

### DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

Additional pain medication and oral muscle relaxants were contraindicated due to sedative effects and risk of aspiration. Dexmedetomidine was administered intravenously in incremental boluses of 8 mcg IV every 1-2 minutes for a total of 100 mcg. The patient began to experience improved cervical range of motion, decreased pain score, and was easily aroused. The patient stated for 10 years he has been on opioids and benzodiazepines for neck pain management, and that nothing compared to the relief Dexmedetomidine provided.

### IMPLICATIONS FOR PRACTICE:

Proper dosing of dexmedetomidine remains unclear, however upon titration of the drug, it was able to reach a therapeutic effect and plays a unique role in muscle spasm management of postoperative patients. Dexmedetomidine has a quick onset, available to be administered intravenously, and has been effective in decreasing severity and frequency of muscle spasms. Further comprehensive investigation is needed to evaluate the usefulness of dexmedetomidine in clinical management of muscle spasms.

*\*Shared project with Joseph E. Villaluz, MD*



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## Treating Mania in Chemotherapy-Induced Agranulocytosis Case Study

### **INTRODUCTION/BACKGROUND:**

In the United States in 2019, there were 1.7 million new cancer cases and 600,000 deaths. Each year about 650,000 cancer patients receive chemotherapy in an outpatient clinic. Many medications used in the treatment of acute manic episodes are associated with the development of agranulocytosis.

### **PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**

This case study presents a 30 year-old Hispanic male with no known chronic conditions prior to a cancer diagnosis (germinal cell carcinoma of the mediastinum). The patient was diagnosed with bipolar disorder in 2010. His sister was diagnosed with bipolar disorder. The patient was being treated with Taxel-Diphosphide-Platinum chemotherapy. The patient's main symptoms are insomnia, hyperverbal speech, elevated mood, irritability and grandiosity.

### **PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**

The patient was diagnosed with bipolar 1 disorder, current manic episode without psychotic features and agranulocytosis. The patient was

treated initially with Haldol, Lithium and Valium. The patient showed minimal response, and side effects of Parkinsonism including shuffled gait, psychomotor retardation and tongue deviation. Filgrastin was administered for agranulocytosis and the patient was eventually discharged.

### **IMPLICATIONS FOR PRACTICE:**

A high index of suspicion for the development of agranulocytosis should be considered in patients receiving concurrent treatment for acute mania and cancer chemotherapy.



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Family Medicine

## Tatton-Brown-Rahman Syndrome Case Report

### **INTRODUCTION/BACKGROUND:**

Tatton-Brown-Rahman syndrome (TBRS) is a genetic syndrome identified in individuals with a mutation to the DNA methyltransferase 3A (DNMT3A) gene, leading to an overgrowth phenotype in which affected individuals have a length/height and/or head circumference two or more standard deviations greater than the mean for age and sex. In addition, those with the syndrome may additionally display intellectual disabilities, joint hypermobility, hypotonia, skeletal abnormalities, as well neurologic and/or psychiatric disturbances. The genetic mutation identified as being associated with TBRS is a relatively new syndrome, first identified in 2014 during a research study involving 13 individuals with phenotypically similar features who were found to share pathologic mutations affecting the DNMT3A gene. The latest data (as of 2021) suggests that up to 250 individuals have been identified as carrying this pathologic mutation.

### **PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:**

In this case report, we identify a male diagnosed with TBRS in his fourth decade of life – who shares many anatomical and behavioral features with those previously identified. This case study

will further discuss the progression and findings of early onset osteoporosis in a male with no previous history of predisposing factors (i.e. chronic corticosteroid use) other than a TBRS diagnosis.

### **PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:**

To date, this genetic syndrome has been additionally associated with leukemias – suggesting a connection between this mutation and cells within the bone marrow.

### **IMPLICATIONS FOR PRACTICE:**

Being such a rare disorder, it is presently thought that this patient may be currently one of the oldest individuals worldwide with this diagnosis; as such, this case study seeks to illustrate features that may afflict individuals with TBRS as they reach adulthood and the need for additional screenings.

We hope to further illuminate risk factors and conditions that may afflict individuals with this overgrowth syndrome – both to broaden the knowledge of this rare disorder but also help guide future health maintenance monitoring in diagnosed individuals.



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Emergency Medicine

## Clevidipine-associated Severe Hypertriglyceridemia

### INTRODUCTION/BACKGROUND:

Clevidipine is a short acting dihydropyridine calcium channel blocker that is utilized for patients with hypertension. This drug has been effective in treatment with hypertensive patients with intracranial hemorrhage due to its ability to dilate the blood vessels to return blood back to the heart and ultimately lower blood pressure. Clevidipine is a 20% lipid emulsion intravenous infusion and has adverse effects including acute cardiac, pulmonary or renal hypersensitivity reactions, fat embolism or overload, hypertriglyceridemia, and pancreatitis.

### DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

This case presents an 80-year-old male with a previous medical history of hypertension, hyperlipidemia, heart failure with preserved ejection fraction, and gastroesophageal reflux disease. This patient was admitted to the Intensive Care Unit (ICU) for atraumatic intraparenchymal hemorrhage and increased altered mental status. The patient had an external ventricular drain (EVD) placed and was administered clevidipine via lipid emulsion infusion as an antihypertensive agent.

### DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

On day four of the patient's hospital stay, routine laboratory results revealed triglyceride counts greater than 10,000 mg/dL. Following these lab results the clevidipine was discontinued. The patient became febrile, tachycardic, was intubated for acute respiratory distress syndrome and started on broad spectrum antibiotics. The patient developed oliguric acute kidney injury and was placed on 2 sessions of plasmapheresis due to severe hypertriglyceridemia. The patient continued to decline and was placed on palliative care measures, expiring on the 7th day of his hospital stay.

### IMPLICATIONS FOR PRACTICE:

This case reports evidence of rapid and severe onset of lipemia following a high dose of clevidipine intravenous lipid emulsion therapy. The patient's deterioration was multifactorial, however, the presence of severe lipidemia from clevidipine was evident. This case also revealed that plasmapheresis was effective in treating hypertriglyceridemia. Overall, hypertriglyceridemia is a serious side effect of clevidipine and should be observed for prevention and treatment.

*\*Shared project with Matthew Bordbari, DO*

## Acute Onset Dysphagia: Using Awake Fiberoptic Techniques to Avoid Airway Disaster

### INTRODUCTION/BACKGROUND:

Foreign body ingestions and aspirations can be misdiagnosed and catastrophic. Acute onset dysphagia usually results from foreign body ingestion. Identification and treatment of foreign body ingestion includes flexible fiberoptic bronchoscopy or rigid bronchoscopy performed by a pulmonologist. In this study, we describe how the anesthesiology team can be beneficial in the workup of an acute dysphagia complication.

### DESCRIBE THE PATIENTS MAIN CONCERN AND IMPORTANT CLINICAL FINDINGS:

The case presents a 56-year-old female with uncontrolled diabetes, probable psychiatric history, and homelessness. The patient underwent a laparoscopic cholecystectomy and was fully examined prior to the procedure. Postoperatively (PACU), the patient was drinking a glass of orange juice and swallowed her partial denture. The patient was experiencing acute dysphagia, increased oral secretions, nausea, and drooling.

### DISCUSS PRIMARY DIAGNOSES, INTERVENTIONS, AND OUTCOMES:

The anesthesiology team obtained an X-ray in attempt to determine the exact location of the partial denture. The X-ray did not present a clear location; therefore, the anesthesiology team performed an awake oral fiberoptic exam using lidocaine, and the Ambu aScope '4 Broncho size 5.00mm/2.2mm. It was examined that the denture was lodged in the upper esophagus excluding the supraglottic, tracheal and bronchial locations. The object was then removed by gastroenterology.

### IMPLICATIONS FOR PRACTICE:

Proper diagnosis of ingested foreign material can prevent further complications. The anesthesiology team was able to utilize awake fiberoptic techniques to identify the location of the foreign object so that it could be removed safely and minimize sedation of the patient. Anesthesiologists can assist in a team approach with pulmonologists and gastroenterologists in diagnosis of acute onset dysphagia when foreign material ingestion is suspected.

*\*Shared project with Joseph Evan Villaluz, MD*



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## Assessment of Street Medicine Foot Care Program

### INTRODUCTION/BACKGROUND:

The purpose of this quasi-experimental study was to evaluate if patients could benefit from foot health education at a community health event and to assess their knowledge before and after foot health education. The outcome aimed to test if the experimental groups education increased, decreased, or remained unchanged after on-site education.

### METHODS:

This study took place at the Happy Feet Event in Visalia, California where patients from underserved and homeless backgrounds attended for education, feet washing, foot health assessments, community resources, and provisions. 21 adult participants consented to be a part of the study, with the exclusion of participants identified as vulnerable, underage, or cognitively impaired. At the event there was a brief pre-test, foot health educational materials and explanations by health professionals, and a post-test to assess post-educational knowledge.

### RESULTS:

Majority of subjects were individuals experiencing homelessness. T-test results indicate marginally significant improvement in self-rated foot care

knowledge after education (2.7 vs. 3.4,  $p=.058$ ) and as well as in the median number of correct answers in the post-test ( $p=.074$ ). Participants also reported a very high satisfaction rate with the study and likelihood to seek medical care after intervention.

### IMPLICATIONS FOR PRACTICE:

In conclusion, this study showed marginally significant improvement in knowledge and median number of correct answers. Moreover, there was an increased positive influence in participants attitude towards improved foot care. More foot health education events with larger participant populations may benefit the underserved community in improving and maintaining their foot health.