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Abstracts and Case Reports Index

Thursday, September 7, 2023

Session Time: 17:30 - 18:15

Presentation Time: 17:36 - 17:48

Imperial Ballroom AB

Track: Oral Abstracts

(O-T1) Occlusion Myocardial Infarction and Non ST Segment Elevation Acute Coronary Syndrome in Emergency Department

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Objectives: This study aimed to evaluate the OMI rate and hospital outcomes in NSTE-ACS patients in ED.

Background: Acute coronary syndrome is one of the most important causes of mortality in the emergency department (ED), and early reperfusion reduces morbidity and mortality. Recently, the definition of myocardial infarction with occlusion has been made. Occlusion myocardial infarction (OMI) is defined as acute coronary occlusion or near occlusion with insufficient collateral circulation leading to downstream myocardial infarction.

Methods: This retrospective, single-center study included 2158 consecutive acute coronary syndrome who presented to the ED. Patients' characteristics, laboratory results, and in-hospital death have been noted. Those who were taken to angiography after applying to the emergency department were evaluated as ACS. Patients with TIMI 0 and 1 according to their angiography reports were evaluated as OMI. Two groups were compared as the OMI group and those without OMI. OMI status was evaluated in NSTE-ACS patients, as STEMI patients underwent angiography in the early period.

Results: A total of 2158 patients with acute coronary syndrome were enrolled in the study. 648 (30%) of the patients were women. The median age was 63 [54-72] years. The most common complaints of the patients were chest pain (n=1690, 78.3%) and nausea (n=547, 25.3%). 43 patients (2%) were brought in as cardiac arrest. According to the initial ECG evaluations, 776 (36%) of the patients had STEMI, 859 (39.8%) NSTEMI and 523 (24.2%) UAP. OMI detected in

234 (27.2%) of NSTEMI patients and 64 (12.2%) of the UAP patients. OMI was detected in 298 patients (21.6%) of all NSTE-ACS patients. 217 of those with OMI were male (72.8%), and those without OMI (65.8%) (p=0.022). Patients in the OMI group, compared to OMI negative group, had significantly higher troponin ($p < 0.001$), creatinine ($p = 0.011$). In-hospital death were higher in the OMI group but this was not statistically significant (p=0.634).

Conclusions: In this study, the rates of NSTE-ACS patients with OMI were evaluated. Most of the NSTE-ACS patients are not evaluated angiographically in the early period, which may lead to increased morbidity. Although we did not evaluate ejection fraction in our study, we found that mortality was slightly higher in OMI patients.

References (Optional):

Funding: N/A

Thursday, September 7, 2023
Session Time: 17:30 - 18:15
Presentation Time: 17:49 - 18:01
Imperial Ballroom AB
Track: Oral Abstracts

(O-T2) Predicting High Risk Emergency Department Bouncebacks: A Natural Language Processing Approach to Provider Notes

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Co-Author: Moein Enayati, Ph.D. - Mayo Clinic

Objectives: Emergency Department (ED) Provider Notes can be used to predict high-risk ED bouncebacks using natural language processing machine learning techniques.

Background: Emergency Department (ED) 72-hour return visits are a marker for high-risk patient visits and can be a surrogate marker for lapses in the quality of care at the index visit. 1 Published risk factors for bounce backs resulting in hospitalization include age, public insurance, and end-stage renal disease amongst others. 2 While structured data from the medical record has been analyzed for factors associated with high-risk bounce backs, there is a paucity of evidence analyzing the large volume of unstructured data that is contained in provider notes, and that lend additional insight into the features associated with high-risk bouncebacks.

Methods: The authors analyzed patient encounters in the Mayo Clinic Midwest Emergency Departments from 05/04/2018 through 09/30/2022. ED encounters were included if the repeat ED visit was within 72-hours and resulted in a disposition of admission, hospital observation, expired, send to the operating room, send to cath lab, and transfer to another healthcare facility. ED encounters were excluded if the patient was not discharged on the index visit or experienced an irregular departure (eloped, left without being seen, left against medical advice). Notes from different provider types documenting on the same encounter were combined. Machine learning methods used included text cleaning, TFIDF and Count vectorization, creation of 1 to 3 n-grams, splitting data into test and training set, model fitting using support vector classifiers and logistic regression. Model explain ability techniques include LIME and SHAP.

Results: A total of 397,125 patients among 639,693 encounters were eligible for inclusion. Of these 10,094 (2.5%) resulted in a 72-hour bounceback with a concerning disposition. Prediction accuracy on the concerning bounceback cohort achieved 67% accuracy, precision of 68%, recall of 71% and an area under the receiver operative curve (AUROC) of 71%. Figure 1. After applying SHAP (SHapley Additive exPlanations), the top ten text features associated with the concerning repeat visits include “return’, “discharged”, “significant”, “ed”, “pending”, “iv”, “mild”, “plan”, “discussed”, and “care.” Figure 2.

Conclusions: Natural Language Processing techniques applied to Emergency Department Provider notes can be utilized to predict high-risk bounce-backs as surrogate markers for gaps in quality of care. Furthermore, NLP Machine Learning explainability techniques give insight into the types of terminologies that are associated with high-risk bouncebacks. These features

can be combined with previously studied risk factors for high risk bouncebacks to increased prediction accuracy, and to generate comprehensive clinical phenotypes of ed patients at risk for these serious outcomes.

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Funding: N/A

Thursday, September 7, 2023

Session Time: 17:30 - 18:15

Presentation Time: 18:02 - 18:14

Imperial Ballroom AB

Track: Oral Abstracts

(O-T3) Investigating the Efficacy of Rapid Molecular Assays in the Diagnosis of Bloodstream Infections

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Objectives: The purpose of this systematic review and meta-analysis is to evaluate the diagnostic accuracy of different commercially available rapid molecular assays in the diagnosis of bloodstream infections.

Background: Sepsis is a life-threatening condition, characterized by a dysregulated systemic host response to infection. Early management with adequate antimicrobials has been shown to be associated with improved outcomes. The ’gold standard’ blood culture techniques in the diagnosis of bloodstream infections, however, have long turnaround times. To address that problem, rapid molecular assays have been developed. Methods requiring whole blood samples allow earlier pathogen detection and identification, compared to methods performed on positive blood culture samples, therefore even shorter turnaround time can be achieved.

Methods: A comprehensive search strategy was developed to identify studies that compared rapid molecular assays to blood culture techniques in patients with suspected or documented bloodstream infections. The systematic search was conducted in four databases: MEDLINE, Cochrane Trials, Web of Science and Embase, up to 10 January 2023. All eligible studies investigating the diagnostic accuracy of rapid molecular assays compared to blood cultures in patients with presumed or documented bloodstream infections were included. Pooled sensitivity and specificity were calculated and visualized on a two-dimensional plot.

Results: Preliminary results: The systematic search resulted in 55159 records. After duplicate removal and title-abstract selection of 39037 articles, 709 eligible articles were identified, 15 of which we extracted data for preliminary data synthesis for one commercially available device. Using rapid molecular tests in the detection and identification of pathogens compared to blood

culture showed a sensitivity of 67% [95% CI] = 0.57-0.76) and a specificity of 83% [95% CI] = 0.77-0.87) respectively. We found significant heterogeneity among the included articles (sensitivity: $I2 = 83\%$, $p < 0.01$; specificity: $I2 = 98\%$, $p < 0.01$). The reasons for this could be the heterogeneous population or the different indications of performing the rapid test in individual studies.

Conclusions: Preliminary conclusions: Rapid diagnostic tests appear to have higher specificity than sensitivity. Based on the evidence presented here, it remains difficult to make recommendations about the clinical utility of rapid molecular assays in the setting of suspected or documented bloodstream infections.

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Funding: No funding

Friday, September 8, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:00 - 08:12

Elafos A

Track: Oral Abstracts

(O-A1) Point-of-care Ocular Ultrasound vs. Ophthalmoscopy for the Evaluation of Acute Visual Complaints in the Emergency Department

Oral Presenter / Co-Author: Ruth Lewis, MD, FAAEM - Lewis Katz School of Medicine at Temple University

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Co-Author: Thomas G. Costantino, MD, FAAEM - Lewis Katz School of Medicine at Temple University

Objectives: The objective of this study was to compare the test characteristics of EP-performed ophthalmoscopy with ocular POCUS using formal ophthalmologist evaluation as the gold standard.

Background: According to the 2017 National Hospital Ambulatory Medical Care Survey, visual complaints account for over 1% of all emergency department visits nationwide. Prior to the introduction of point-of-care ultrasound (POCUS), emergency medicine physician (EP) performed non-dilated ophthalmoscopic exam was considered standard of care. However, limited training and experience significantly limits the accuracy of this physical examination.

Methods: This was a single center, prospective, observational study of a convenience sample of adult patients who presented to an urban, university hospital with >105,000 visits annually. Patients, who presented with acute visual complaints, were eligible to be enrolled between January 2017 - May 2019. The treating physician, a PGY1-3 Emergency Medicine resident performed a visual inspection of the eye and the non-dilated fundoscopic examination. A separate PGY1-3 Emergency Medicine resident, blinded to the indication, performed the ocular POCUS using the Logiq e linear transducer (4-10 MHz) and a separate visual examination of the eye without the use of an ophthalmoscope. Each resident had performed >25 previous ocular ultrasounds per the American College of Emergency Physicians and Accreditation Council for Graduate Medical Education (ACGME) guidelines for emergency medicine POCUS training. Using a power analysis of 80%, our sample size calculation of 40 patients was based on previous data demonstrating a 50% difference in sensitivities between ocular POCUS and EP-performed ophthalmoscopy for diagnosing acute ocular pathology with an average prevalence of 30% in patients presenting with acute visual complaints. Data are presented as proportions with 95% confidence intervals (CIs). Statistical analysis included Fisher Exact and chi square tests.

Results: 226 patients were enrolled. 104 of whom had a formal consultation and evaluation by a board-certified ophthalmologist within 24 hours of the patient's emergency department visit. 87 patients were diagnosed with ocular pathology yielding a prevalence of 83.65% (95% CI 32.12-45.18). The following are the test characteristics for EP-performed ophthalmoscopy: sensitivity 16.49% (95% CI 9.73-25.4), specificity 100% (95% CI 59.04-100), and accuracy 67.85% (95% CI 75.12-90.18). The following are the test characteristics for ocular POCUS:

sensitivity 87.21% (95% CI 78.27-93.44), specificity 100% (95% CI 81.47-100), and accuracy 95.08% (95% CI 88.98-98.35).

Conclusions: Point-of-care ocular ultrasound was more sensitive and specific than EP-performed ophthalmoscopic examination for the diagnosis of acute ocular pathology in the emergency department.

References (Optional):

Funding: none

Friday, September 8, 2023
Session Time: 08:00 - 09:30
Presentation Time: 08:12 - 08:24
Elafos A
Track: Oral Abstracts

(O-A2) The Application of Point-of-care Ultrasound in Improving Cardiopulmonary Resuscitation

Oral Presenter / Co-Author: Soheil Saadat, MD PhD - University of California, Irvine
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Co-Author: Megan E. Guy, MD - University of California, Irvine
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Co-Author: Shadi Lahham, MD, MS - Kaiser Permanente
Co-Author: Jonathan Rowland (he/him/his), MD - UT MD Anderson Cancer Center
Co-Author: Andy Nguyen, MD - Desert Valley Hospital
Co-Author: Jessa Baker, MD - University of California, Irvine
Co-Author: Matthew Whited, MD - University of California, Irvine
Co-Author: Ryan Gibney, MD - University of California, Irvine
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Principal Investigator: John Christian Fox, MD - University of California, Irvine

Objectives: To use point of care ultrasound during pulse check in cardiac arrest to evaluate return of spontaneous circulation (ROSC) of the carotid artery using B- mode. We hypothesize that ultrasound will be more sensitive and accurate in detecting ROSC faster with pulsatility of the carotid pulse than manual palpation.

Background: Pulse checks remain a critical component of the current Cardiopulmonary Resuscitation (CPR) algorithm. Medical providers identify ROSC by the manual palpation of a pulse or with an arterial line. In patients presenting to the emergency department in cardiopulmonary arrest, physicians rely on manual palpation of pulses for ROSC, as these patients do not generally have an arterial line. Manual palpation is considered the default method for pulse checks during CPR. Studies have shown that carotid ultrasound pulse checks have potential to be superior to manual palpation and it may be better than manual palpation in low flow states.

Methods: Patients who present to the emergency department who require cardiopulmonary resuscitation (CPR) will be enrolled into the study. During CPR, undergraduate research associates will be using a butterfly handheld ultrasound device to record the carotid artery. The research associates are trained to detect carotid pulsation using a task trainer. During pulse checks, the researcher will record ultrasound image videos and keep timing for the entire duration of the pulse checks based on manual palpation. We will keep track of whether the pulse check ended in manual palpation of a pulse or in resuming compressions. Data obtained via ultrasound will not be used to change the CPR algorithm in any way. On occasions where ROSC is achieved, we will compare how long it takes to identify a pulse based off manual palpation versus how long to identify a pulse check on the ultrasound. On review, we will

determine if there were any instances where a pulse was seen on ultrasound but not palpated manually OR if there was a pulse palpated manually but not seen on ultrasound. We will survey nurses and physicians regarding their opinions on the usefulness of POCUS carotid artery pulse checks during CPR.

Results: At the time of writing, 0 patients have been enrolled into the study.

Conclusions: Using ultrasound to better detect carotid pulsatility during cardiac arrest could decrease inappropriate chest compressions when a pulse is present and reduce both patient and emergency department staff and resource burden if POCUS is more sensitive and accurately identifies ROSC compared to manual palpation. A notable difficulty of enrollment for this study may be the limited number of cardiac arrests and the undergraduate research coordinators level of experience. Through the adoption of ultrasound guided pulse checks in cardiac arrest, we hope to see a reduction in the risk of adverse effects from prolonged inappropriate cardiac arrest management.

References (Optional):

Funding: None

Friday, September 8, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:24 - 08:36

Elafos A

Track: Oral Abstracts

(O-A3) Retrospective Analysis of the Use of Viscoelastic Hemostatic Assay (ClotPro) in an Academic Emergency Department

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Co-Author: Péter Vass, Dr - Department of Emergency Medicine, Semmelweis University

Co-Author: Judit Imecz, Dr - Department of Emergency Medicine, Semmelweis University

Co-Author: Csaba Varga, Dr - Department of Emergency Medicine, Semmelweis University

Co-Author: Bánk Gábor Fenyves, Dr - Department of Emergency Medicine, Semmelweis University

Objectives: We aimed to comprehensively analyse retrospective data of the viscoelastic haemostatic assays (VHA) used at the emergency department (ED). Specific goal was to analyse associations between the patient population, VHA indications, ordered test types, and therapeutic haemostatic interventions.

Background: In the ED, healthcare providers frequently encounter hemostatic disorders of a variety of etiologies like hemorrhages or hematological diseases. Precise diagnostic tools with quick turnaround time are necessary to help decision-making regarding emergency management and therapy of bleeding patients. The use of VHA in the diagnosis of hemostatic disorders and during hemostatic resuscitation has been increasing worldwide. However, their use in the ED is not well-documented yet.

Methods: In our retrospective analysis, we processed data of patients for whom a ClotPro test was ordered between 07/15/2019 – 31/12/2021 at the ED of Semmelweis University. Exclusion criteria was missing patient identifier. We collected demographic, laboratory, and clinical data, as well as ClotPro results. We analysed the correlation between laboratory and ClotPro test results, compared different patient groups based on ClotPro findings, and assessed the relationship between therapeutic interventions and ClotPro results.

Results: After exclusion, we processed the data of 381 patients (178 (43.7%) female). There were 7 major indication categories identified based on the discharge reports. We found significant correlation between EX test clotting time (CT) and INR values, EX MCF (maximal clot firmness) and fibrinogen levels, EX MCF and platelet count, FIB MCF and fibrinogen levels, and IN CT and activated partial thromboplastin time (all p-values < 0.05). There was no EX and FIB test profile difference between different subgroups of bleeding patients. Of the 63 patients who presented with a hemorrhagic event and were on novel oral anticoagulant (NOAC) therapy, only 26 (41.3%) had NOAC-specific RVV or ECA test. Patients with prolonged EX CT had higher likelihood of receiving prothrombin complex concentrate (PCC) or fresh frozen plasma (FFP) (OR=3.12; 95% CI=1.99-4.88). However, during the detailed analysis of patients with a prolonged EX CT, we found that patients with prolonged INR value were more likely to receive PCC/FFP therapy than patients with normal or unknown INR (79.1% vs. 36.5% and

36.3%) [figure1].

Conclusions: VHA is increasingly used in the ED and may be useful in the workup of patients with haemostatic pathologies. ClotPro results correlate well with conventional laboratory tests, making it a reliable diagnostic tool. Data suggests positive correlation with optimal therapeutic decisions. However, our further analysis shows that the haemostatic therapeutic approaches are driven mainly by the standard laboratory results. Further detailed analysis is necessary to establish the patient-oriented outcomes of ClotPro use.

References (Optional):

Funding: No funding

Friday, September 8, 2023
Session Time: 08:00 - 09:30
Presentation Time: 08:36 - 08:48
Elafos A
Track: Oral Abstracts

(O-A4) Correlation and Agreement Between Arterial and Venous Blood Gas Analysis in Patients with Hypotension—an Emergency Department-based Cross-sectional Study

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Co-Author: Nagasubramanyam Vempalli, MD - AIIMS RISHIKESH, INDIA
Co-Author: Naman Agrawal, MD - All India Institute of Medical Sciences Raipur, India

Objectives: The study aimed to determine the relationship and agreement between ABG and VBG for the parameters pH, pCO2, HCO3, lactate, and base excess in hypotensive patients in the ED and also to develop prediction models in measuring pH, pCO2, HCO3, lactate, and base excess in arterial and venous samples.

Background: Hypotension is one condition where findings of ABG and VBG comparability are inconsistent. Obtaining ABG in hypotensive patients in emergency settings is very difficult, so obtaining a VBG while performing cannulation is a better alternative. A few studies tried to study the correlation between arterial and venous samples in hypotensive patients, but their study findings were not uniform and varied widely. As their conclusions were inconsistent, we conducted our study to sort out the inconsistency to find the correlation and agreement between ABG and VBG in hypotensive patients.

Methods: A single-center, prospective study was performed from January 2021 to June 2022 in the Emergency Department of All India Institute of Medical Sciences, Rishikesh, Uttarakhand, India, to evaluate the correlation and agreement between ABG and peripheral VBG measurements. The study included every adult hypotensive patient whom the ED physician found to be in need of both ABG and peripheral VBG analysis. Those who did not give consent and who had contraindications for ABG, an interval of more than 10 minutes between ABG and VBG, inappropriate sample transfer to the laboratory, and postcardiac arrest patients were excluded. An arterial sample (0.5–1 mL) was collected using a heparinized syringe from the radial artery at the wrist level. The venous blood sample was obtained from the cubital or dorsal hand veins. Both samples were collected with minimum delay (less than 10 minutes). Both samples were analyzed as soon as possible using a blood gas analyzer. All data will be entered into an Excel sheet and analyzed using SPSS 23.0 version.

Results: The study included 250 patients with a mean age of 53.25±15.71 years. 56.8% of patients were male. There were 45.6% septic, 34.4% hypovolemic, 18% cardiogenic, and 2% obstructive shock patients. The study found a strong correlation and agreement for ABG and VBG pH, pCO2, HCO3, lactate, sodium, potassium, chloride, ionized calcium, blood urea nitrogen, base excess, and arterial/alveolar oxygen ratio. Hence, regression equations were made for those mentioned earlier. There was no correlation observed between ABG and VBG pO2 and SpO2. Our study concluded that VBG could be a reasonable alternative for ABG in hypotensive patients. We can also mathematically predict values of ABG from VBG using regression equations derived for parameters that showed correlation and agreement.

Conclusions: ABG sampling causes most unpleasant patient experiences and is associated

with complications like arterial injury, thrombosis, air embolism, hematoma, aneurysm formation, and reflex sympathetic dystrophy. The study concludes that we can use a VBG obtained while peripheral cannulation for blood gas evaluation as an alternative to ABG in hypotensive settings in ED. This can decrease the chance of needle stick injury while taking an ABG and consume less time for blood gas obtainment. The limitation was that it was a single center study and the study design and setting did not allow follow-up on the mortality of the patients studied.

References (Optional): 1. Breathnach CS. The development of blood gas analysis. Med Hist. 1972;16(1):51–62. Available from: https://www.cambridge.org/core/journals/medical-history/article/development-of-blood-gas-analysis/31ECB FE315829F07A1C7C43A05230BC9. [cited 2022 Apr 11]. 2. Henderson LJ. Das Gleichgewicht zwischen Basen und Säuren im tierischen Organismus. Ergeb Physiol. 1909;8(1):254–325. https://doi.org/10. 1007/BF02321087. ([cited 2022 Apr 12]). 3. Hasselbalch KA. Die Berechnung der Wasserstofzahl des Blutes aus der freien und gebundenen Kohlens??ure desselben, und die Sauerstofbindung des Blutes als Funktion der Wasserstofzahl. Berlin: Julius Springer; 1916. 4. Whitehead T, Slutsky AS. Ventilation. In: Fink M, Hayes M, Soni N, editors. Classic papers in critical care. London: Springer; 2008. p. 1–29. https://doi. org/10.1007/978-1-84800-145-9_1. 5. Kelly A. Agreement between arterial and venous blood gases in emergency medical care: a systematic review. Hong Kong J Emerg Med. 2013;20(3):166–71. Available from: http://journals.sagepub.com/doi/10. 1177/102490791302000307. [cited 2022 Apr 12]. 6. Severinghaus JW. The invention and development of blood gas analysis apparatus. Anesthesiology. 2002;97(1):253–6. https://doi.org/10.1097/ 00000542-200207000-00031. ([cited 2022 Apr 12]). 7. Davis MD, Walsh BK, Sittig SE, Restrepo RD. AARC clinical practice guideline: blood gas analysis and hemoximetry: 2013. Respir Care. 2013;58(10):1694–703. Available from: http://rc.rcjournal.com/content/ 58/10/1694. [cited 2022 Apr 12]. 8. Treger R, Pirouz S, Kamangar N, Corry D. Agreement between central venous and arterial blood gas measurements in the intensive care unit. Clin J Am Soc Nephrol. 2010;5(3):390–4. Available from: https://cjasn. asnjournals.org/content/5/3/390. [cited 2022 Apr 12]. 9. Adrogué HJ, Rashad MN, Gorin AB, Yacoub J, Madias NE. Assessing acid-base status in circulatory failure. N Engl J Med. 1989;320(20):1312–6. https://doi.org/10.1056/NEJM198905183202004. ([cited 2022 Apr 12]). 10. Criscuolo C, Nepper G, Buchalter S. Refex sympathetic dystrophy following arterial blood gas sampling in the intensive care setting. Chest. 1995;108(2):578–80. Available from: https://www.sciencedirect.com/scien ce/article/pii/S0012369215446768. [cited 2022 Apr 12]. 11. Turner JS, Briggs SJ, Springhorn HE, Potgieter PD. Patients' recollection of intensive care unit experience. Crit Care Med. 1990;18(9):966–8. https:// doi.org/10.1097/00003246-199009000-00012. ([cited 2022 Apr 12]). 12. Patel K, Gandhi S, Sutariya H. Radial artery pseudoaneurysm: a rare complication after a single arterial puncture for blood-gas analysis. Indian J Crit Care Med. 2016;20(10):622–6. Available from: https://www.ijccm.org/ doi/10.4103/0972-5229.192066. [cited 2022 Apr 12]. 13. Capewell S, Ali NJ, Makker H, Cockwell P, Davies DP, Rogers S, et al. Radial artery puncture: a comparison of threehaemostatic techniques. Respir Med. 1990;84(6):495–7. Available from: https://www.sciencedirect.com/ science/article/pii/S0954611108801151. [cited 2022 Apr 12]. 14. McKeever TM, Hearson G, Housley G, Reynolds C, Kinnear W, Harrison TW, et al. Using venous blood gas analysis in the assessment of COPD exacerbations: a prospective cohort study. Thorax. 2016;71(3):210–5. Available from: https://thorax.bmj.com/content/71/3/210. [cited 2022 Apr 12]. 15. Brandenburg MA, Dire DJ. Comparison of arterial and venous blood gas values in the initial emergency department evaluation of patients with diabetic ketoacidosis. Ann Emerg Med. 1998;31(4):459–65. Available from: https://www.sciencedirect.com/science/article/pii/S0196064498702549. [cited 2022 Apr 12]. 16. Elborn JS, Finch MB, Stanford CF. Non-arterial assessment of blood gas status in patients with chronic pulmonary disease. Ulster Med J. 1991;60(2):164–7. 17. Converting venous acid–base

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Friday, September 8, 2023
Session Time: 08:00 - 09:30
Presentation Time: 08:48 - 09:00
Elafos A
Track: Oral Abstracts

(O-A5) Utilization of Contrast-enhanced Ultrasound in the Setting of Blunt Abdominal Trauma

Oral Presenter / Co-Author: Soheil Saadat, MD PhD - University of California, Irvine
Primary Author: Albert Lee, MD - UC Irvine
Co-Author: Megan E. Guy, MD - University of California, Irvine
Co-Author: Edmund Hsu, MD - University of California, Irvine
Co-Author: Brenda Nash, RDMS - University of California, Irvine
Co-Author: Nora Perez-Moreno, RDMS - University of California, Irvine
Principal Investigator: John Christian Fox, MD - University of California, Irvine
Co-Author: Austin DeJong, MS-IV - Western University

Objectives: The purpose of this scoping review is to examine the breadth of evidence related to using CEUS during the FAST exam.

Background: Contrast-enhanced ultrasound (CEUS) provides a prompt, reproducible, repeatable, and safe method of identifying solid organ injury of the abdomen; however, it is rarely used in the initial evaluation of trauma. Understanding that this contrast agent is safe and lacks ionizing radiation, it may be of particular benefit to children and those with renal or hepatic impairment. There is existing literature showing that using CEUS during focused assessment for trauma (FAST) can improve sensitivity and specificity when compared to traditional FAST exams.

Methods: The authors followed the Joanna Briggs Institute approach to conducting scoping reviews. In 2022, the authors systematically searched Pubmed, ScienceDirect, EMBASE, and SCOPUS for eligible studies published between 1990 - November 2022. Three reviewers screened articles independently for those that met inclusion criteria and extracted data in a duplicate record. When eligible studies were found, the reviewers searched their references for further eligible studies. If abstracts were subsequently published, the abstract was excluded in favor of the published paper. A third-party reviewer will serve as a tiebreaker to resolve any disagreement.

Results: At this point, the study is ongoing. 356 studies have been screened, and 52 have been selected to include. The selected literature includes 2 meta-analyses, 15 literature reviews, 16 comparative studies, 5 cohort studies, 5 clinical trials, 1 abstract, 2 evaluation studies, 5 case studies, and 1 essay. These studies examined the performance of contrast-enhanced ultrasound in identifying intrabdominal injury in both adult and pediatric populations when compared to computed tomography and traditional ultrasound. Of the 52 studies selected, the first was published in 2003, and the most recent was in 2022. 16 (30.8%) were published in the years 2003-2007, 10 (19.2%) in the years 2008-2012, 15 (28.8%) in the years 2013-2017, and 11 (21.2%) between 2018-November 2022.

Conclusions: According to the reviewed literature in this ongoing study, the role of CEUS in

the FAST exam remains unclear. Many of the studies were underpowered, and the conclusions drawn varied. Additionally, much of the literature lacked a specific research question, making it difficult to draw useful clinical information from the studies. While further research is needed, there is consistent evidence that this safe and widely tolerated study has improved sensitivity and specificity when compared to traditional FAST exam.

References (Optional):

Funding: None

Friday, September 8, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:00 - 08:12

Elafos B

Track: Oral Abstracts

(O-B1) A retrospective Cohort Study to Determine the Injury Prevalence of Cervical Spine Injuries in Elderly Patients Undergoing Full Trauma CT

Oral Presenter / Primary Author: John S. Batchelor, MD - Manchester University Foundation Trust

Co-Author: Pedro Simoes, MD - Manchester University Foundation Trust

Co-Author: Khalid Abdelsadig, MD - Manchester University Foundation Trust

Objectives: The aim of the study was to determine the prevalence of cervical spine injuries and injury patterns in elderly patients (>65 years) with low energy injuries who underwent a pan trauma CT.

Background: Cervical spine injuries sustained from low energy injuries or falls are often relatively occult due to the absence of significant cervical spine symptoms or pre-existing arthritis. There is some debate as to the whether the pan CT should be undertaken in all elderly fallers. Recent evidence has shown that cervical spine fragility fractures are uncommon in the elderly fallers due to a higher bone density in this region(1). In contrast osteoarthritis of the cervical spine is common and has been shown to be a risk fracture for cervical spine fractures(2).

Methods: The Emergency Department at North Manchester General Hospital automatically undertakes a pan CT in elderly patients with one or more of the following:- haemodynamic instability; evidence of chest wall tenderness; evidence of respiratory compromise; multi-level spinal pain; cervical spine tenderness plus evidence of torso injury or high impact injury. The CT scan reports, and clinical notes were reviewed of all elderly patients (over 65 years of age) who had a full trauma CT (head, neck, chest, abdomen and pelvis) over a twelve-month period (September 2020 – September 2021). The number of patients with cervical spine fractures and their age was recorded. The type and location of cervical spine injuries was also recorded.

Results: Sixty-six elderly patients underwent a full trauma series over the twelve-month period. High impact injuries and haemodynamic instability account for a small number of patients because the Emergency Department at North Manchester General Hospital is a non-trauma centre. The mean age of the cohort was 83.2 years, 26% (n= 17) of the patients in the cohort were aged 90 years or over. 39% (n=26) of the patients were identified to have a least one injury detected on CT scan. 86% (n=57) were due to ground level falls. Three patients out of sixty-six were noted to have cervical spine fractures (4.5%). One patient was an isolated C2 fracture, one patient had a C2 fracture with an associated T4 fracture and the third patient had a C5 fracture with an associated T1 and occipital fracture.

Conclusions: The results of this study demonstrated that 4.5% of elderly patients sustained cervical spine injuries following low level falls. 39% of the cohort had at least one significant injury identified by the pan CT. The results from this study justify a fairly liberal approach to the use of the pan trauma CT in elderly patients.

References (Optional): 1. Schoder G., Hiepe L., Moritz M et al. Why insufficiency fractures are rarely found in the cervical spine even with osteoporosis. Z Orthop Unfall. 2022. Dec; 160(6): 657-669. 2.CT evaluation of the pattern of odontoid fractures in the elderly-relationship to upper cervical spine osteoarthritis. Lakshmanan P., Jones A., Lyons K. Eur Spine J. . 2005. Feb; 14(1): 78-83.

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Friday, September 8, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:12 - 08:24

Elafos B

Track: Oral Abstracts

(O-B2) An Observational study to Compare the Incidence of traumatic intracranial Haemorrhage in Elderly patients on Anticoagulants Compared to those with Either LOC or PTA

Oral Presenter / Primary Author: John S. Batchelor, MD - Manchester University Foundation Trust

Principal Investigator: Salam Hama, MB ChB - Manchester University Foundation Trust

Co-Author: Eltigani Ahmed, MB ChB - Manchester University Foundation Trust

Co-Author: Mustafa Ageza, MB ChB - Manchester University Foundation Trust

Objectives: The aim of the study was to determine the incidence of traumatic intracranial haemorrhage in patients over 65 years of age comparing those on anticoagulants versus those with either LOC or PTA over a twelve-month period.

Background: Classical risk factors for traumatic intracranial haemorrhage are well established. Warfarin is thought to carry an increased risk for of traumatic intracranial bleeding; with an odds ratio of approximately two. More recent studies have suggested that the risk of intracranial haemorrhage may not been quite as high as originally thought.

Methods: Elderly patients over 65 years of age with a head injury were included in the study if they had documented evidence of being on an anticoagulant (Warfarin or NOAC) or documented evidence of either LOC or PTA. The study included patients who underwent a trauma CT head performed during the period September 2020 to August 2021. North Manchester General Hospital is a non trauma centre but does see a large number of elderly fallers. The majority of elderly fallers with head injuries under go a CT head. Patients requiring a pan trauma CT were excluded from the study. Patients with other criteria other than those included above were also excluded from this observational study.

Results: During the study period September 2020 to August 2021, 516 patients underwent a trauma CT head. Of these 197 patients met the inclusion criteria. A total of thirteen patients had a positive scan. Eighty patients of the 197 patients were found to be on anticoagulants and of these three had a positive scan (1.5%). One hundred and seventeen patients had either LOC or PTA of these 10 patients had a positive scan (8.5%). The standard chi squared test ($X2 = 1.7739$) was found not be statistically significant $p=0183$ $p < 0.5\%$

Conclusions: Despite the fact that early studies suggest that anticoagulants, namely warfarin was a high risk factor for intracranial bleeding the results of this study suggest that anticoagulants may not be a significant risk factor for intracranial bleeds when compared to other medium risk factors in elderly fallers.

References (Optional):

Funding: None

Friday, September 8, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:24 - 08:36

Elafos B

Track: Oral Abstracts

(O-B3) Correlation Between Mild Traumatic Brain Injury and D-dimer: A Prospective Study

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Primary Author: Ilaria Balsamo, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Principal Investigator: Marcello Candelli, MD. PhD - Fondazione Policlinico Universitario A. Gemelli- IRCCS of Rome, Italy

Co-Author: Stefania Gemma, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Giulia Pignataro, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

Co-Author: Martina Pala, MD - Università Cattolica del Sacro Cuore, facoltà di medicina

Co-Author: Maria Lumare, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Gianluca Tullo, MD - Emergency Medicine - Fondazione Policlinico A. Gemelli IRCCS, Università Cattolica del Sacro Cuore

Co-Author: Michela Novelli, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Giacomo Spaziani, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Marta Sacco Fernandez (she/her/hers), MD - Università Cattolica del Sacro Cuore, Facoltà di medicina, Rome, Italy

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Co-Author: Andrea Piccioni, MD, PhD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Veronica Ojetti, MD - Università Cattolica del Sacro Cuore, facoltà di medicina

Co-Author: Francesco Franceschi, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

Objectives: The aim of this study was to evaluate the prognostic role of D-dimer in predicting cerebral hemorrhage in patients with mild TBI. In particular, the primary endpoint was to analyze differences in D-dimer blood values measured at the arrive in the emergency department between patients with and without intracranial complications.

Background: Traumatic brain injury is the most common cause of death and disability worldwide It is associated with a physical and psychological signs or symptoms that may appear immediately or same days or weeks later. It is known that acquired disorders of coagulation are associated with traumatic brain injury and correlated with in-hospital mortality. D-dimer high levels of plasma found at the time of admission are thought to reflect the overall up-regulation hemostasis after traumatic brain injury. In some studies the relation between D.dimer and poor clinical outcome in TBI was found, in other it was not statistically significant.

Methods: From April 1 to September 30, 2022, we collected data on all patients admitted to the Gemelli Hospital emergency department with a mild head injury. For all patients, we analyzed demographic characteristics (age, sex, comorbidities), preexisting risk factors (eg, alcohol use and anticoagulants), and post-traumatic risk factors (eg, vomiting, amnesia). We classified patients into low, moderate, and high risk according to Italian guidelines. D-dimer levels were determined in all included patients. We divided patients into two groups: patients with cerebral hemorrhage and patients without cerebral hemorrhage on CT scan. We examined all known risk factors to determine which of them were actually associated with cerebral hemorrhage in both univariate and multivariate analysis after adjustment for confounders. We also examined D-dimer concentrations in patients with and without cerebral hemorrhage. We compared D-dimer concentrations between patients with cerebral hemorrhage and patients without posttraumatic cerebral hemorrhage. Finally, we examined D-dimer concentrations in different subgroups of patients (patients with fractures, patients not taking anticoagulants, and patients with fractures not taking anticoagulants)

Results: We enrolled 370 patients, 178 (48%) male, with a mean age of 63 ± 24 years, Approximately 60% of the enrolled patients had pre-existing risk factors in particular 57.8% were aged > 65 years, 16.5% were taking anticoagulants. The major dynamic of the trauma was the most frequent (21.4%) risk factors resulting from trauma. 82 patients were taking antiplatelet drugs and 61 patients were on anticoagulant therapy. 51 cerebral hemorrhages were found at the first CT scan performed (18 subdural, 20 subarachnoid, 2 epidural, and 11 intraparenchymal hemorrhage). Only one patient need for neurosurgery and 4 died within 30 days. In univariate analysis, gender (p=0.013), headache (p=0.012), loss of consciousness (p=0.022), retrograde amnesia (p < 0.001), and major dynamics (p=0.012) were found to be significantly associated to hemorrhage;In multivariate analysis, only male sex was found to be an independent risk factor for hemorrhage (OR=2.101, p=0.030). D-dimer values were not statistically different between patients with and without cerebral hemorrhage (3128±4592 vs 2471±3187, p=0.32); However, in the subset of patients without fractures and without anticoagulant therapy, the D-dimer difference in patients with and without cerebral hemorrhage reached statistical significance (2235±4488 vs 1373±1936, p=0.05).

Conclusions: D-dimer does not discriminate between patients with and without cerebral hemorrhage after a mild traumatic injury. Its usefulness in a specific subgroup of patients (not taking anticoagulants and not having fractures) should be further investigated in prospective studies and with a larger number of subjects.

References (Optional):

Funding: .

Friday, September 8, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:36 - 08:48

Elafos B

Track: Oral Abstracts

(O-B4) The Association Between Sonographic Common Bile Duct Dilatation and Outcomes in Emergency Department Patients with Cholangitis

Oral Presenter / Primary Author: Evan Avraham Alpert (he/him/his), MD - Hadassah Medical Center- Ein Kerem

Principal Investigator: Ayelet Rotter, MD - Hadassah Medical Center

Co-Author: Benjamin Koslowsky, MD - Shaare Zedek Medical Center

Co-Author: Tali Bdolah-Abram, MSc - Hebrew University School of Medicine

Co-Author: Alon Schwartz, MD - Shaare Zedek Medical Center

Principal Investigator: Nadav Granat, MD - Rabin Medical Center

Objectives: To determine whether sonographic common bile duct (CBD) dilatation in emergency department (ED) patients with acute cholangitis (AC) predicts outcomes including sepsis, hospital length of stay (LOS), admission to the intensive care unit (ICU), time to ERCP, and mortality.

Background: The presentation of the patient with AC ranges from mild illness to life-threatening shock. Therefore, prompt diagnosis and treatment are critical. Abdominal ultrasound (US) is the imaging of choice to locate bile duct dilatation. Other modalities include abdominal computed tomography (CT) or endoscopic retrograde cholangiopancreatography (ERCP).

Methods: Electronic medical records of all patients hospitalized in a tertiary care medical center between July 2012- February 2021 with a discharge diagnosis of cholangitis were assessed. Patients were dichotomously classified as CBD dilated or CBD non-dilated based on ultrasound. Dilation was defined as CBD larger than 6 mm in patients younger than 60 or larger than 6 mm + 1 mm per decade in patients over 60.

Results: The study included 271 patients- 172 with CBD dilation versus 99 without. Mean LOS was 9.92 days for those with a dilated CBD versus 13.4 days without. The mean time to ERCP was 4.26 days for those with a dilated CBD versus 6.56 days without. Sepsis, mortality, and ICU admission were scarce and there was no statistically significant difference between the cohorts.

Conclusions: Patients with a dilated CBD per the abdominal US performed during the patient's ED stay, underwent ERCP earlier, and were hospitalized fewer days than patients without CBD dilation.

References (Optional):

Funding: None

Friday, September 8, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:48 - 09:00

Elafos B

Track: Oral Abstracts

(O-B5) Thromboelastography Differences in Geriatric Patients with Traumatic Intracranial Hemorrhage by Unfavorable or Favorable Outcomes

Oral Presenter / Co-Author: Joshua J. Solano (he/him/his), MD - Florida Atlantic University

Primary Author: Miguel Castro, MS - FAU

Co-Author: Scott Alter, MD - FAU

Co-Author: Patrick Hughes, DO - FAU

Co-Author: Lisa Clayton, DO - FAU

Principal Investigator: Richard D. Shih, MD FAAEM - Florida Atlantic University Schmidt College of Medicine

Objectives: In geriatric patients with traumatic ICH, are there differences in TEG results between patients with unfavorable outcomes and those who had favorable outcomes?

Background: Intracranial hemorrhage (ICH) is prevalent in the geriatric population due to polypharmacy, comorbidities, and age-related alterations in physiology that may result in head injury. Thromboelastography (TEG) is a global test of coagulation that assesses clot formation, strength, and lysis. There are limited studies evaluating TEG in geriatric patients with traumatic ICH.

Methods: Patients aged ≥ 65 years presenting to two level-1 trauma centers with head trauma resulting in acute ICH over the course of a year were prospectively followed. Those with a TEG performed were included. Chart review included demographics, comorbidities, medications, and hospital disposition. Patients were stratified by outcome of unfavorable (death or discharge from hospital to hospice) or favorable (all others). TEG component values were compared between groups.

Results: 324 patients were included who sustained an ICH after head trauma with TEG performed. Average age was 81.9 years (SD 8.1) and 40.7% were female. Patients with unfavorable outcomes were more likely to have a coagulation disorder (3.6% vs 0.4%, p=0.023) or congestive heart failure (16.1% vs 4.1%, p=0.001). All other comorbidities were similar among patients. Anticoagulant use and antiplatelet use were similar between unfavorable and favorable groups (4.9% on warfarin, 17.3% on direct-acting oral anticoagulants, 51.5% on aspirin, and 20.4% on P2Y12 inhibitor). The only TEG values that were significantly different between patients with unfavorable and favorable outcomes were % inhibition adenosine diphosphate (ADP) and maximum amplitude (MA)-ADP (37.7% vs 27.6%; difference 10.1; 95% CI: 3.0 to 17.3; p=0.006) and (46.6mm vs 52.7mm; difference -6.1; 95% CI: -10.5 to -1.7; p=0.007), respectively. The other TEG values were similar among patients.

Conclusions: Geriatric patients with acute traumatic ICH who have increased % inhibition of ADP or decreased MA-ADP are more likely to have unfavorable outcomes. This is due to weaker clot strength, which this study could not determine the cause of. In these patients, consideration should be given to treatments that promote improved platelet function at the time

of ICH diagnosis, to potentially prevent unfavorable outcomes.

References (Optional):

Funding: FMMJUA

Friday, September 8, 2023

Session Time: 08:00 - 09:30

Presentation Time: 09:00 - 09:12

Elafos B

Track: Oral Abstracts

(O-B6) An Analysis of Emergency Medical Services Responses During Six Waves of COVID-19: A National Study from Israel

Oral Presenter / Primary Author: Evan Avraham Alpert (he/him/his), MD - Hadassah Medical Center- Ein Kerem

Co-Author: Bezalel Eliav, MD - Shaare Zedek Medical Center

Co-Author: Maximilian Nerlander, MD - Karolinska Institute

Co-Author: Roman Sonkin, MD - Soroka Medical Center

Co-Author: Ari M. Lipsky, MD - Afula Medical Center

Principal Investigator: Eli Jaffe, PhD - Magen David Adom

Objectives: The objective of this study was to investigate how the prehospital response by the Israeli national EMS system (Magen David Adom, MDA) was affected by the first six waves of COVID-19.

Background: The COVID-19 pandemic has had significant effects on health systems worldwide in general, and on emergency medical systems (EMS) in particular. While there is literature looking at the effect of the initial wave of COVID-19 on EMS, there is a paucity of studies analyzing all of the waves to date.

Methods: This was a retrospective study using the command-and-control database of MDA from January 1, 2020 through July 31, 2022. EMS responses from each of the six waves of COVID-19 were compared to a historic control period using a 7-day moving average.

Results: A total of 1,242,225 EMS responses were included in the study. During the first wave, there was a relative increase in daily responses to cases of fever (83.1 vs 40.3; $p < 0.05$) and respiratory symptoms (177.0 vs 151.7; $p < 0.05$). but a decrease in the total number of daily responses, especially for major trauma (78.3 vs 100.4; $p < 0.05$) and motor vehicle accidents (MVA) (44.4 vs 104.4; $p < 0.05$). In the second wave, there was a similar trend. In the third wave, there were no statistically significant differences in responses to respiratory complaints, cardiac complaints, or major trauma. During the fourth, fifth, and sixth waves, there were statistically significant increases for all types of responses compared to the control periods. (Table 1)

Conclusions: During the first two waves of COVID-19, there was an increase in responses for fever and respiratory symptoms and a decrease in responses for major trauma and MVA, with the latter probably due to lockdowns limiting movement. In the subsequent waves, a gradual return to the trend of an overall increase in the number of responses over time compared to the control period was observed which may be due to the introduction of vaccinations.

References (Optional):

Funding: None

Friday, September 8, 2023
Session Time: 08:00 - 09:30
Presentation Time: 09:12 - 09:24
Elafos B
Track: Oral Abstracts

(O-B7) Comparing the Prognostic Value of Lactate to the Neutrophil to Lymphocyte Ratio Among Sepsis Patients: A Prospective Cohort Study

Oral Presenter / Primary Author: Ralph Bou Chebl, MD - American University of Beirut
Co-Author: Saadeddine Haidar, MD - Henry Ford
Co-Author: Nadim Kattouf, MD - Beth Israel Deaconess Medical Center
Co-Author: Mohamad Assaf, MD - Germany
Co-Author: Mohamed Khamis (he/him/his), MD - American University of Beirut
Co-Author: Karim Abdeldaem, MD - American University of Beirut
Co-Author: Maha Makki, n/a - American University of Beirut
Co-Author: Hani Tamim, PhD - American University of Beirut
Principal Investigator: Gilbert Abou Dagher, MD - American University of Beirut

Objectives: The objective of this study was to compare the prognostic value of the neutrophil to lymphocyte ratio (NLR) to lactate with regard to in-hospital mortality among septic patients and different septic patient subgroups.

Background: The role of the neutrophil-to-lymphocyte ratio (NLR) was studied in conditions, such as appendicitis, cardiovascular disease, malignancy and sepsis. In sepsis, it was shown to be useful in predicting bacteremia, diagnosing sepsis, predicting mortality and monitoring response to therapy. Lactate is a widely used biomarker in diagnosing and risk stratifying patients with sepsis. However, a single serum lactate has its limitations; lactate levels can be elevated by several commonly used medications and in liver and kidney disease. Lactate can also be elevated in patients with hematologic malignancies with no apparent infection.

Methods: This was a prospective cohort study including adult septic or septic shock patients presenting to the Emergency Department of a tertiary care center , between September 2018 and February 2021. Sepsis was defined according to the sepsis-3 guidelines. Patients were divided into two groups: survivors and non-survivors. Stepwise logistic regression including all statistically and clinically significant variables was performed to find the best model that fits the data and that explains the association between mortality and all predictor variables. The prognostic value of both NLR and lactate was determined using receiver operating characteristic curves from which we obtained their AUCs.

Results: A total of 874 septic patients were included in this study. 22.77 % of the patients died during their hospital stay. The mean lactate level and NLR of the whole population was 2.95±2.27 mmol/L and 16.84±20.28. The NLR and lactate level were significantly higher in the non-survivor group (20.53±25.18 vs 15.77±18.52, p=0.02 and 3.79±3.45mmol/L vs 2.70±1.71mmol/L, p-value < 0.0001). The AUC value of the NLR ratio was 0.552 with a 95% CI=0.504-0.599, whereas that of lactate was 0.591 with a 95% CI=0.544-0.637. There was no significant difference in the AUC between both variables with a p-value=0.22. There was no statistically significant difference in the AUCs between lactate and NLR in patients with septic

shock, Lactate < 2, Lactate≥2, diabetes, malignancy, chronic kidney diseases, other sources of infection, albumin ≥30 and age ≥ 65. However, lactate outperformed NLR in the following subgroups: albumin < 30 g/L, patients less than 65 years of age and patients with sepsis due to a urinary tract infection. In the stepwise logistic regression, NLR was not associated with in-hospital mortality (OR=1.003, 95% CI=0.994-1.012, p=0.544), whereas lactate was associated with hospital mortality (OR=1.188, 95% CI=1.086-1.299, p< 0.0001)

Conclusions: In this study, lactate but not NLR was associated with in-hospital mortality. There was no significant difference in the AUCs between lactate and NLR among sepsis patients and among the majority of the subgroups in this study (including septic shock patients). However, lactate outperformed NLR in the following subgroups: albumin < 30 g/L, patients less than 65 years of age and patients with sepsis due to a urinary tract infection. Our results advocate for the continued use of serum lactate rather than NLR, despite its limitations, as a predictor of mortality among septic patients and the different subgroups in this study.

References (Optional):

Funding: None

Friday, September 8, 2023
Session Time: 09:45 - 11:15
Presentation Time: 09:45 - 09:57
Elafos A
Track: Oral Abstracts

(O-C1) Mixed-method Study of Point-of-care Ultrasound Documentation Compliance

Oral Presenter / Primary Author: Marc I. Blatt (he/him/his), MD MBA - Beth Israel Deaconess Medical Center
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Co-Author: Tyler W. Barrett, MD, MSCI - Vanderbilt University Medical Center
Co-Author: Jeremy S. Boyd, MD - Vanderbilt University Medical Center
Co-Author: Michael J. Ward, MD, PhD, MBA - Vanderbilt University Medical Center
Faculty Advisor: Jordan D. Rupp, MD - Vanderbilt University Medical Center

Objectives: Phase One of this mixed-method study aimed to illuminate emergency physicians' perceptions of the point-of-care ultrasound (POCUS) submission workflow and their receptivity to various proposed interventions. Phase Two then analyzed the efficacy of the implemented intervention that had garnered the most support in the initial qualitative portion.

Background: POCUS has been disruptive to many experienced emergency physicians as it requires competence in a new physical skill, real-time image interpretation, and navigation of novel software for submission to the electronic health record (EHR). Incomplete documentation of a performed POCUS study used for clinical decision-making represents a medicolegal liability and uncapturable reimbursement while potentially exposing the patient to avoidable ionizing radiation and unnecessary cost. This research group previously explored the effect of financial incentives and penalties on the use and subsequent documentation of emergency department (ED) POCUS (1). The most effective facilitator of POCUS submission requires additional investigation.

Methods: The study took place at a tertiary-care, academic, Level I trauma center which utilized Epic (Epic Systems, Verona, WI, USA) for its EHR and Qpath "Classic" (Telexy Healthcare, Maple Ridge, BC, Canada) for POCUS archiving. Participants included 68 emergency medicine attending physicians clinically active for the entire study period: July 2020 – July 2021. During the initial study phase, eligible physicians were stratified into "high," "low," and "never" utilizers based on recent POCUS documentation performance. Subsets of high and low utilizers participated in recorded, semi-structured, audiovisual interviews. Thematic analysis was performed on interview transcriptions using the Technology Acceptance Model, a proven theoretical framework (2,3) that explores "usefulness" and "ease of use" as perceived by end users considering adoption. Just prior to the start of the interviews, the ED administration introduced an ongoing incentive program: minimum POCUS documentation numbers were rewarded with additional shift scheduling flexibility. The second phase of the study involved implementation of the proposed intervention that received the most support from both high and low utilizers during Phase One interviews – daily documentation reminder emails. The efficacy of the schedule request incentive and our email intervention in augmenting POCUS documentation was assessed through retrospective data analysis.

Results: Of 68 eligible faculty, only 47 documented a POCUS study during control period July

– December 2020. Individual POCUS documentation rate was calculated as studies submitted divided by studies performed (submitted plus unsubmitted) per month. Between 2/12/21 and 3/5/21, interviews were conducted with six physicians in the highest and six in the lowest documentation quartiles. Quantitative interview data has been summarized in [Table 1]. In Phase One, high utilizers emphasized the clinical utility of POCUS, whereas low utilizers expressed concerns over “double billing” and exposure to medicolegal liability with uncertain scan interpretations. For low utilizers, documentation decisions could depend on the performing resident physician’s displayed confidence. Both groups were frustrated by separation between Epic and Qpath. The monthly departmental documentation rate – total studies submitted divided by total performed for all physicians – is shown in [Figure 1]. In Phase Two, this aggregate rate increased appreciably with introduction of schedule requests (Incentive). The rate remained stable, but did not improve further, with addition of reminder emails (Intervention). When reminder emails ceased, but the day-off request incentive continued (Washout), the departmental rate did not drop. [Table 2] splits the department into quartiles based on individual performance over the entire study period.

Conclusions: The implementation of a shift scheduling incentive – additional flexibility through day-off requests – was associated with the largest increase in the departmental POCUS documentation rate. Interviewed physicians incorrectly predicted that email reminders would be the most influential administrative intervention. Departments hoping to improve their POCUS submission rate should identify similar low-cost, motivating incentives to yield a positive return on investment. The study was performed at a single academic site, so its generalizability is somewhat limited to community or county emergency departments, especially those without training programs.

References:
1. Melton M, Rupp JD, Blatt MI, Boyd JS, Barrett TW, Swarm M, Ward MJ: Description of the use of incentives and penalties for point-of-care ultrasound documentation compliance in an academic emergency department. Cureus. 2021, 13:e16199. doi.org/10.7759/cureus.16199.
2. King, WR, He J: A meta-analysis of the technology acceptance model. Inf Manag. 2006, 43:740-55. doi.org/10.1016/j.im.2006.05.003.
3. Nguyen, M, Fujioka, J, Wentlandt, K, Onabajo, N, Wong, I, Bhatia, RS, Bhattacharyya O, Stamenova, V: Using the technology acceptance model to explore health provider and administrator perceptions of the usefulness and ease of using technology in palliative care. BMC Palliat Care. 2020, 19:138. doi.org/10.1186/s12904-020-00644-8.

Funding: This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Friday, September 8, 2023

Session Time: 09:45 - 11:15

Presentation Time: 09:57 - 10:09

Elafos A

Track: Oral Abstracts

(O-C2) The Association of Image Gain Intensity to the Accuracy of Point-of-care Ocular Ultrasound

Oral Presenter / Co-Author: Soheil Saadat, MD PhD - University of California, Irvine

Primary Author: Albert Lee, MD - UC Irvine

Co-Author: Megan E. Guy, MD - University of California, Irvine

Co-Author: Edmund Hsu, MD - University of California, Irvine

Co-Author: Ryan Gibney, MD - University of California, Irvine

Co-Author: Brenda Nash, RDMS - University of California, Irvine

Co-Author: Nora Perez-Moreno, RDMS - University of California, Irvine

Co-Author: Matthew Whited, MD - University of California, Irvine

Co-Author: Jessa Baker, MD - University of California, Irvine

Co-Author: Melissa Chang, MD - UC Irvine

Co-Author: Nicole Finney, MD - UC Irvine

Co-Author: Shreya Gupta, MD - UC Irvine

Co-Author: Reem Sarsour, MD - UC Irvine

Co-Author: Jonathan Rowland (he/him/his), MD - UT MD Anderson Cancer Center

Principal Investigator: John Christian Fox, MD - University of California, Irvine

Objectives: To determine the effect on sensitivity, specificity, positive predictive value, and negative predictive value of detecting ocular pathology by stratifying gain settings on ocular point-of-care ultrasound.

Background: Point-of-care ultrasound (POCUS) plays a pivotal role in evaluating ocular complaints in the emergency department (ED). The rapid and non-invasive nature of ocular POCUS makes it a safe and informative imaging modality. Previous studies have investigated using ocular POCUS to diagnose posterior vitreous detachment (PVD), vitreous hemorrhage (VH), and retinal detachment (RD); however, little is known about the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of detecting ocular pathology at stratified gain levels.

Methods: We performed a retrospective review of ED patients who received ocular POCUS examinations and ophthalmology consultations as part of their evaluation for eye complaints at our urban level I trauma center ED from November 2017 to January 2021. 383 out of 706 exams qualified for the study. The primary analysis looked at the ability of ED physicians to recognize any posterior chamber abnormality on ocular POCUS.

Results: The images were found to have an overall sensitivity of 81% (95% confidence interval [CI] 76-86%), specificity of 82% (95% CI 76-88%), PPV of 86% (95% CI 81-91%), and NPV of 77% (95% CI 70-83%). Images acquired with a gain of (25, 50] had a sensitivity of 71% (95%

CI 61-80%), specificity of 95% (95% CI 85-99%), PPV of 96% (95% CI 88-99%), and NPV of 68% (95% CI 56-78%). Images acquired with a gain of (50, 75] had a sensitivity of 85% (95% CI 73-93%), specificity of 85% (95% CI 72-93%), PPV of 86% (95% CI 75-94%), and NPV of 83% (95% CI 70-92%). Images acquired with a gain (75, 100] had a sensitivity of 91% (95% CI 82-97%), specificity of 67% (95% CI 53-79%), PPV of 78% (95% CI 68-86%), and NPV of 86% (95% CI 72-95%). Secondary analysis looked at each gain range further stratified by specific pathology (PVD, VH, and RD).

Conclusions: High (75, 100] gain on ocular POCUS has a high degree of sensitivity for detecting any posterior chamber abnormality, as compared to intermediate (50, 75] and low (25, 50] gain levels. All gain levels are highly sensitive and specific for RD. Overall, we recommend incorporating the use of high gain for ocular POCUS to maximize sensitivity without sacrificing specificity. High gain is an effective screening tool for ocular pathologies in acute care settings and may be particularly valuable in resource-limited settings.

References (Optional):

Funding: None

Friday, September 8, 2023

Session Time: 09:45 - 11:15

Presentation Time: 10:09 - 10:21

Elafos A

Track: Oral Abstracts

(O-C3) Emergency Medical Services Activation for Anaphylaxis During the COVID-19 Pandemic: A Retrospective Study from Israel

Oral Presenter / Primary Author: Evan Avraham Alpert (he/him/his), MD - Hadassah Medical Center- Ein Kerem

Co-Author: Stephanie Rosenthal, MPH - Magen David Adom

Co-Author: Eli Jaffe, PhD - Magen David Adom

Principal Investigator: Nathan Rabinovitch, MD - National Jewish Hospital

Objectives: The objective of this study is to compare EMS activation by Israel's National Prehospital Response Organization- Magen David Adom (MDA) to calls for anaphylactic reactions during the Covid-19 pandemic versus routine times.

Background: Emergency Medical Services (EMS) has shouldered one of healthcare's largest burdens during the Covid-19 pandemic. During the first waves in 2020 and 2021, most EMS services worldwide experienced a decrease in activation. There is little data concerning EMS activation for anaphylaxis during this period.

Methods: This is a retrospective comparative study that assessed data regarding daily emergency calls within Israel for the code "anaphylaxis" between January 1, 2019, through December 31, 2019 (pre-pandemic period) versus January 1, 2020, through December 31, 2020 (pandemic period). All data was obtained by the command-and-control database used by MDA.

Results: During the study period, there was a total of 4,089 emergency responses for anaphylaxis with a negligible difference in EMS call volume from 2019 to 2020. There was a significant increase in the frequency of calls requiring an EpiPen between 2019, 5.7%, and 2020, 7.5% ($p = 0.02$). Age was not found to be a significant variable within this analysis ($p=0.15$).

Conclusions: The main finding of this study is that the number of anaphylaxis emergencies requiring EMS did not decrease during Covid-19. Specifically, during 2020 the call frequency remained almost equal to the prior routine-time year. However, there was a statistically significant increase in EMS responses requiring EpiPen use during the pandemic. This has important public health implications including maintaining vigilance to avoid potential allergens and keeping an up-to-date EpiPen available.

References (Optional):

Funding: None

Friday, September 8, 2023
Session Time: 09:45 - 11:15
Presentation Time: 10:21 - 10:33
Elafos A
Track: Oral Abstracts

(O-C4) Presence of Delirium in Emergency Department Fall Patients on Antithrombotic Agents

Oral Presenter / Primary Author: Howard A. Klausner, MD - Henry Ford Health System
Co-Author: Jo-Ann Rammal, BS - Henry Ford Hospital
Co-Author: Brandon Page, BS - Henry Ford Hospital
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Co-Author: Jimmy Nehme, MD - Henry Ford Hospital
Co-Author: Yasin Almri, RN - Henry Ford Hospital
Co-Author: Jacob Manteuffel, MD - Henry Ford Health System
Co-Author: Stephanie Stokes, MD - Henry Ford Health System
Co-Author: David Berger, MD - Beaumont Hospital
Co-Author: Ronny Otero, MD - Medical College of Wisconsin
Co-Author: Joseph B. Miller, MD, MS - Henry Ford Health System
Co-Author: Margaret Beyer

Objectives: In this study, we sought to explore the association between delirium and antithrombotic medications on clinical outcomes in the geriatric population presenting post-fall injury.

Background: In the United States, prescription of antithrombotic medications is extremely common in the geriatric population. In addition, this demographic is also at risk for falls that can result in significant post-injury bleeding. Therefore, when assessing falls, antithrombotic medications can significantly complicate emergency department (ED) evaluations. Incidence of delirium can also impact clinical and functional outcomes in older patients.

Methods: This was a prospective observational study at two large, level 1 trauma centers in Southeast Michigan. Patients were eligible for analysis if they had falls while they were on any antithrombotic medications. We excluded patients < 55 years. Research assistants prospectively collected data at two institutions from September 2018 to February 2020. Antithrombotic medications were divided into antiplatelet and anticoagulant medications. Data on the presence of delirium was ascertained from treating clinicians. Outcomes included intracranial hemorrhage (ICH) and hospital admission. Analysis included univariate statistics and multivariable logistic regression.

Results: A total of 573 patients were included in the study of whom 206 (36.0%) were 80 years or greater and 334 (58.3%) were female. African Americans accounted for 274 (48.1%) of the patients, and 242 (42.5%) were Caucasian. Nearly half of the patients were admitted to the hospital (279, 48.7%). Delirium was present in 66 (11.1%) patients. Delirium was more common in those 80 years or older (16.0% versus 8.3%, p=0.014) as well as those with known dementia (28.9% versus 8.1%, p< 0.001). Patients with delirium have higher odds of intracranial

hemorrhage (odds ratio [OR] 3.36, 95% confidence interval [CI] 1.15 – 9.87). Most patients with delirium required hospital admission (68.2%). The use of anticoagulant as opposed to antiplatelet medications alone had higher odds of intracranial hemorrhage (OR 2.04, 95% CI 0.66 – 6.35), though this did not reach statistical significance.

Conclusions: Rates of delirium were low in this geriatric fall analysis but strongly associated with intracranial hemorrhage in patients with falls on antithrombotic medications. Given the increased risk for ICH in patients with delirium, caution should be used when prescribing anticoagulation and antiplatelet medications. Further studies are needed to evaluate the link between dementia delirium and falls on blood thinners.

References (Optional):

Funding: N/A

Friday, September 8, 2023
Session Time: 09:45 - 11:15
Presentation Time: 10:33 - 10:45
Elafos A
Track: Oral Abstracts

(O-C5) Clinician Preference for Worklist Selection in Point-of-care Ultrasound Workflow – a Quality Improvement Project

Oral Presenter / Co-Author: Soheil Saadat, MD PhD - University of California, Irvine
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Co-Author: Megan E. Guy, MD - University of California, Irvine
Co-Author: Albert Lee, MD - UC Irvine
Co-Author: Ryan Gibney, MD - University of California, Irvine
Co-Author: Brenda Nash, RDMS - University of California, Irvine
Co-Author: Nora Perez-Moreno, RDMS - University of California, Irvine
Co-Author: Jessa Baker, MD - University of California, Irvine
Co-Author: Matthew Whited, MD - University of California, Irvine
Co-Author: Jonathan Rowland (he/him/his), MD - UT MD Anderson Cancer Center
Principal Investigator: John Christian Fox, MD - University of California, Irvine

Objectives: This project aimed to streamline POCUS workflow, determine if there was improved clinician satisfaction with the new workflow, and determine the change in revenue generation from decreased errors in data entry.

Background: It has been shown repeatedly that Point-of-care ultrasound (POCUS) can improve clinical outcomes. It stands to reason that improving clinician satisfaction with the use of POCUS should promote utilization into everyday practice, which would likely result in further improved clinical outcomes for patients. Despite research demonstrating the positive impact POCUS has on patient outcomes, there are still several barriers to use including POCUS workflow.

Methods: A new workflow was created which automatically populated every registered Emergency Department (ED) patient into the worklist. The information technology department assisted in creating a method for automatically populating every registered ED patient into the worklist for all ED ultrasound machines. A temporary ED POCUS order was automatically ordered by the EMR once the patient was registered. As soon as the patient was registered in the ED, the ultrasound worklist populated on all POCUS machines in the department. Patient information would reside on the POCUS worklist until midnight when the list would reset. After this was implemented throughout the department, clinicians using POCUS were able to select the appropriate patient from the dropdown patient worklist, leaving only the operator ID to be manually entered. After the images were obtained and saved, this new system automatically linked the saved POCUS images to the patient's chart in the EMR, allowing the images to be seen by all treating providers both during that encounter and in future encounters. Clinician feedback related to their use of the new workflow was sought via survey after implementation. The number of medical record number (MRN) entry errors prior to and following implementation was manually reviewed and calculated.

Results: There was a strong preference for the new workflow, with 36 of 38 (94.7%) finding it to be more convenient to use than the old workflow and 37 of 38 (97.4%) finding it to be preferable to use compared to the old workflow. Implementation also resulted in a 36% reduction in database studies containing an MRN data entry error.

Conclusions: Automatic worklist generation and selection is strongly preferred over manual data entry for POCUS workflow among clinicians. Additionally, the rate of data entry error related to patient MRN was significantly reduced using an automated worklist. A reduction in errors allowed for improved quality review and increased revenue.

References (Optional):

Funding: None

Friday, September 8, 2023

Session Time: 09:45 - 11:15

Presentation Time: 10:45 - 10:57

Elafos A

Track: Oral Abstracts

(O-C6) If You Rebuild It, They Will Come: The Contribution of the Israeli field Hospital Emergency Department to the Response to the 2023 Earthquake in Turkey

Oral Presenter / Primary Author: Evan Avraham Alpert (he/him/his), MD - Hadassah Medical Center- Ein Kerem

Co-Author: Michael Malkin, MD, MSc - Israel Defense Forces

Co-Author: Deganit Kobliner, RN, MPH - Shaare Zedek Medical Center

Objectives: To describe the contribution of the Israeli Field Hospital Emergency Department to the response to the 2023 Earthquake in Turkey

Background: On February 6, 2023, an earthquake of 7.8 on the Richter scale devastated southeastern Turkey and parts of Syria resulting in over 50,000 deaths. The Israeli government organized a medical delegation of 142 personnel. They arrived in Turkey on February 8, 2023, and integrated within an existing hospital in Kahramanmaraş. The hospital had been essentially abandoned by its staff, some of whom were killed and some who needed to care for their families. From February 9, 2023, through February 14, 2023, working alongside volunteer Turkish doctors and nurses, the Israeli team helped rehabilitate the Necip Fazil City Hospital.

Methods: This is a descriptive analysis using the computerized administrative database known as “Haiti” of the activities of the ED staff during the official Israeli mission to the 2023 earthquake in Turkey.

Results: A total of 470 patients were examined by the Israeli staff (many in conjunction with volunteer Turkish ED physicians) in the emergency department during the six days of clinical operation. There was a peak of 152 patients on February 11, 2023. The ED staff treated 17 patients removed from the rubble of the earthquake. Ten patients underwent operations, 48 were hospitalized in the inpatient ward, and 27 in the intensive care unit.

Conclusions: A total of 470 patients were treated by the Israeli staff in the ED of the Necip Fazil City Hospital during the 2023 mission to Turkey. Many of these patients were treated in conjunction with volunteer Turkish doctors and nurses. However, the biggest accomplishment was helping rehabilitate the ED and overall hospital so that groups of volunteer Turkish physicians could continue its operation.

References (Optional):

Funding: None

Friday, September 8, 2023
Session Time: 09:45 - 11:15
Presentation Time: 10:57 - 11:09
Elafos A
Track: Oral Abstracts

(O-C7) De-escalating Techniques to Reduce Tension in the Emergency Department Amongst Staff

Oral Presenter / Primary Author: Mohamad Moussa, MD, FAAEM - University of Toledo College of Medicine and Life Sciences

Objectives: We hypothesized that some techniques utilized by ED staff would be less effective than other techniques at reducing tension.

Background: Due to the unique nature of the work environment in the emergency department, healthcare providers and staff in the ED often adapt unique strategies to respond to periods of increased tension that can regularly occur at work. This study aimed to identify the most effective techniques used by ED staff to rapidly de-escalate tension. Tension among staff may impair performance and team cohesion, therefore it is important to understand which techniques will effectively decrease this tension and which will not.

Methods: An online survey was administered to staff from seven separate emergency departments. Of 634 potential participants, 163 responses were received, representing physicians, nurses, PAs, NPs, and clinical support staff. Participants indicated if they had experienced a period of increased tension in the emergency department, and chose which techniques they used to de-escalate this tension. For each technique selected, participants rated perceived effectiveness at de-escalating tension on a personal level and among their healthcare team, ranging from completely effective (5) to not at all effective (1). ANOVA was used to analyze for significant differences between technique effectiveness.

Results: Of 163 participants, 152 participants (93.3%) reported experiencing a period of increased tension while working in the ED and these responses were further analyzed for techniques used in response to tension. “Withdrawing or becoming silent” in response to tension was shown to be significantly less effective than the other techniques at reducing tension on both a personal and team level ($p < 0.001$). There were no significant differences in the perceived effectiveness of other techniques used. Humor was the most commonly reported technique (84.2% reported) while motivational speech was the least commonly reported (13.82%).

Conclusions: Withdrawing oneself from the situation was shown to be least effective at de-escalating tension. Therefore, a proactive approach to resolving tension in the ED was shown to be more efficacious, regardless of which proactive technique was used. This data, along with the relative levels of technique effectiveness, can inform an approach to resolving tension that can be utilized by medical staff in emergency departments across the country.

References (Optional):

Funding: n/a

Friday, September 8, 2023

Session Time: 09:45 - 11:15

Presentation Time: 09:45 - 09:57

Elafos B

Track: Oral Abstracts

(O-D1) Simulation-based Assessment for the Emergency Medicine Milestones

Oral Presenter / Primary Author: Afrah A. Ali, MBBS FAAEM - University of Maryland School of Medicine

Co-Author: Ashley Crimmins, MD - University of Maryland School of Medicine

Principal Investigator: Danya Khoujah, MBBS FAAEM - USCAS

Objectives: The purpose of this study is to identify the ACGME milestones that are the most difficult to assess using traditional methodology and the most suitable milestones to be assessed using simulation.

Background: The Accreditation Council for Graduate Medical Education (ACGME) has recently revised the educational milestones for all accredited residencies programs. The Emergency Medicine (EM) Milestones 2.0 contains an updated specialty -specific, competency -based behavioral anchors for the assessment of residents. Most programs use their current assessment methods to fulfill data points for these milestones subcompetencies rather than devise new tools. This has resulted in subcompetencies that are difficult to assess using traditional methods. Simulation based medical education (SBME) measures outcomes based on observational rating, while providing opportunities for formative and summative feedback which can be used as an alternative solution.

Methods: This is a survey-based study that was targeted toward emergency medicine residency programs with simulation fellowship affiliation. The web-based survey contained 12 key questions, which focused on demographics of the program, the educational role of the respondents, frequency and type of simulation used in the program, the most difficult to assess education milestones using traditional assessment methods and most suitable milestones for using simulation – based assessment. The survey was conducted using SurveyMonkey and was sent weekly for 6 weeks to the Program director, associate and assistant program director, and simulation fellowship director that were listed on the program's website. Descriptive statistics were used to analyze the data for demographic data as well as the total number of votes for each of the 22 EM milestones subcompetencies for each question. The outcome variables for each subcompetency included the number of votes for "most difficult to assess using traditional methodologies" and "best assessed using simulation." These were counted from both simulation experts and program directors, for a total of 5 non-ranked votes per category.

Results: Thirty eight of 115 respondents completed the survey (33% response rate). The milestone that was ranked most difficult to assess using traditional methodologies was Systems- based practice: Quality Improvement. The milestone identified by most respondents as most suitable for assessment using simulation was Patient care: Emergency Stabilization. There was no overlap between the two categories of milestone subcompetencies.

Conclusions: System-based practice and reflective practice and commitment to personal growth are difficult to assess using traditional methods. Non-traditional assessment methods as

well as innovative use of simulation may be helpful in assessing these subcompetencies.

References (Optional):

Funding: This research received biostatician support via the University of Maryland School of Medicine. We acknowledge the support of the University of Maryland, Baltimore, Institute for Clinical & Translational Research (ICTR) and the National Center for Advancing Translational Sciences (NCATS) Clinical Translational Science Award (CTSA) grant number 1UL1TR003098.

Friday, September 8, 2023

Session Time: 09:45 - 11:15

Presentation Time: 09:57 - 10:09

Elafos B

Track: Oral Abstracts

(O-D2) Needs Assessment Tool for Global Emergency Medicine Residency Curriculum Modification

Oral Presenter / Primary Author: Sean M. Boaglio, DO, MAS, DTMH - Vanderbilt University School of Medicine

Co-Author: Zelda Luke-Blyden, MD - Georgetown Public Hospital Corporation - Georgetown, Guyana

Co-Author: Kristen Dettorre, MD, DTMH - Vanderbilt University School of Medicine - Nashville, TN

Co-Author: Charles Lei, MD - Vanderbilt University School of Medicine - Nashville, TN

Objectives: The purpose of this study is to design a curriculum modification needs assessment tool for global Emergency Medicine training programs. We sought to quantify program-wide confidence in the residents' ability to manage core clinical scenarios and perform key procedures to identify opportunities for improvement and innovation within the residency curriculum.

Background: In 2010, the Vanderbilt Department of Emergency Medicine (EM) established the first EM residency program in Guyana at Georgetown Public Hospital Corporation (GPHC). The program has since graduated 18 trainees and transformed emergency care in Guyana. Our goal was to conduct a needs assessment to identify opportunities for improvement and innovation in the GPHC EM residency curriculum. We sought to evaluate perceived instructional needs and quantify program-wide confidence in the residents' ability to manage core clinical scenarios and perform key procedures.

Methods: We developed a curricular needs assessment survey based on the 2019 American Board of Emergency Medicine Model of the Clinical Practice of EM. Participants anonymously rated their confidence in GPHC residents managing 62 clinical scenarios and performing 29 procedures on a 5-point Likert scale. Mean Likert scores were compared between resident and faculty cohorts to identify clinical scenarios and procedures showing agreement in low confidence or disagreement in the level of confidence in the residents' ability.

Results: A total of 35 participants completed the assessment (9 GPHC residents, 15 GPHC faculty, and 11 Vanderbilt faculty) for a 97% response rate. Clinical scenarios with agreement of low confidence were: shoulder dystocia, breech delivery, and adrenal insufficiency. Procedures with agreement of low confidence were: cricothyrotomy, lateral canthotomy, and resuscitative hysterotomy. Clinical scenarios with disagreement in confidence were: aortic dissection, postpartum hemorrhage, and trauma in pregnancy. Procedures with disagreement in confidence were: neonatal resuscitation, pediatric resuscitation, and pediatric endotracheal intubation.

Conclusions: Our needs assessment identified areas of emphasis for curriculum development in the GPHC EM residency. Future directions include determining the optimal educational strategies for addressing the clinical scenarios and procedures identified as deserving particular

attention. This needs assessment tool holds promise for curriculum evaluation for other global EM training programs.

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Funding: not applicable

Friday, September 8, 2023

Session Time: 09:45 - 11:15

Presentation Time: 10:09 - 10:21

Elafos B

Track: Oral Abstracts

(O-D3) Handoff Simulation: Fake It Until I-PASS It!

Oral Presenter / Primary Author: Amritpal Saini, MD - Jacobi/Montefiore Emergency Medicine Residency

Co-Author: Nora McNulty, MD - Montefiore/Jacobi Medical Center

Co-Author: Noah Trump, MD - Jacobi/Montefiore

Co-Author: Sandeep K. Dhillon, MD - Jacobi Medical Center

Faculty Advisor: Maninder Singh, MD - Jacobi

Faculty Advisor: Andrew Restivo, MD - Montefiore Medical Center

Objectives: Using simulation to assess medical student competency of the AAMC Core Entrustable Professional Activity (EPA) 8: giving and receiving a patient handover, using the I-PASS handoff template (sub-competencies ICS2 ICS3 PC8).

Background: EPAs are the standards by which medical students are assessed to determine their readiness for residency and ultimately their eligibility to graduate and become physicians. EPA 8 is one of the communication based competencies and primarily deals with the ability of a medical student to give a patient handover. There is a paucity of studies on how to evaluate medical student competency, especially with regards to EPA 8. This study evaluates the utility of high fidelity simulation as an assessment tool for EPA 8 and as a vehicle to tailor individualized debriefing to improve patient handover.

Methods: 62 fourth-year medical students participated in a simulated case of a medically unstable teenager with a ruptured ectopic pregnancy. Prior to participating in the case, the students were introduced to the I-PASS template in a lecture format. In groups, students participated in the simulated case, each working independently with the patient and then handing-off the patient to their peers. An evaluator observed for performance of critical actions, such as relay of information via the I-PASS handoff tool, maintaining patient privacy and confidentiality (sub-competency P3).

Results: Upon review, when handing off, participants addressed 57.5% of the components I-PASS. After a debrief and simulation, 74.2% of participants felt comfortable using iPASS.

Conclusions: Our experience showed that high fidelity simulation is an effective tool to measure a student's ability to perform patient handoffs within the EPA 8 framework while allowing us to tailor our debrief, in real time, to target areas that are deficient and increase student comfort when using iPASS. This has high relevance to Emergency Medicine residency programs, given that handoffs are a frequent and critical aspect within the field and high quality sign-outs are essential in preserving patient safety and reducing medical errors.

References (Optional):

Funding: No funding

Friday, September 8, 2023
Session Time: 09:45 - 11:15
Presentation Time: 10:21 - 10:33
Elafos B
Track: Oral Abstracts

(O-D4) Impact of an Electronic Format on the Completion of Evaluations of Medical Students in the Emergency Department

Oral Presenter / Primary Author: Joshua Easter, MD, MSc - University of Virginia

Objectives: To assess the effect of a novel electronic format on the frequency of evaluations completed by faculty and residents for medical students in the emergency department (ED).

Background: Faculty and residents' assessments of medical students working in the ED play an integral role in helping students improve and in providing input for students' grades and standardized letters of evaluation for their residency applications. Despite the importance of these evaluations, students and clerkship directors often report that they do not receive a sufficient evaluations to provide meaningful assessments. The aim of this study was to determine if an electronic evaluation system would improve the frequency of submitted evaluations and the quantity of information submitted.

Methods: This was a prospective observational study at a single academic ED from 2019-2022 with an advanced clerkship elective for senior medical students in emergency medicine and an advanced elective in pediatric emergency medicine. Evaluations were performed utilizing a modified version of the National Clinical Assessment Tool for Medical Students in the Emergency Department. Prior to the intervention, residents and faculty were asked to complete paper evaluations on students after every shift in the ED and submit them to a locked box in the ED. In the beginning of academic year 2020, a new electronic evaluation format for the evaluation was provided as a Google Form. It was accessible by a hyperlink or QR code that was given to all students and posted in the ED. Descriptive and comparative statistics were calculated. A sensitivity analysis was performed to assess the impact of Covid on results.

Results: Over the three-year period, 172 students rotated in the ED, and 718 evaluations were submitted. Students worked approximately 2,924 shifts and received submitted evaluations from 22% of these shifts. With the paper format students received a mean of 2.8 (sd=2.1) evaluations for their month-long rotation compared to 5.7 (sd=3.9) evaluations with the electronic format ($p< 0.001$). Resident evaluations increased more than attending evaluations following the implementation of an electronic format; a mean of 2.1 resident evaluations per student utilizing the paper form at and 4.1 evaluations using the electronic format ($p< 0.05$). Most electronic evaluations were accessed by the hyperlink (70%), followed by QR code (27%) and direct email (3%). The mean number of discrete comments included via free text on each evaluation increased from a median of 1 (IQR: 0-2) with the paper format to a median of 4 (IQR: 3-5) with the electronic format. A sensitivity analysis with exclusion of data from the 12 months at the height of the Covid pandemic did not reveal any significant changes in the reported associations between the format of the evaluation and the frequency of submission.

Conclusions: An electronic format was associated with more frequent submission of ED shift evaluations of medical students and also more content in the evaluations. As an observational study there are potentially unmeasured confounders that may have impacted the results. In addition, while the number of evaluations increased, the quality of the evaluations was not

assessed.

References (Optional):

Funding: N/A

Friday, September 8, 2023

Session Time: 09:45 - 11:15

Presentation Time: 10:33 - 10:45

Elafos B

Track: Oral Abstracts

(O-D5) The Stanford Emergency Medicine Partnership Program: A Novel Approach to Streamlining the Evaluation and Implementation of Emerging Health Technologies Through Academic-private Partnerships

Oral Presenter / Primary Author: John R. Dayton, MD, FAAEM, FACEP - Stanford Department of Emergency Medicine

Co-Author: Maame Yaa A. B. Yiadom, MD, MPH, MSCI - Stanford Department of Emergency Medicine

Co-Author: Sam Shen, MD, MBA - Stanford Department of Emergency Medicine

Co-Author: Matthew Strehlow, MD - Stanford Department of Emergency Medicine

Co-Author: Christian Rose, MD - Stanford Department of Emergency Medicine

Co-Author: Gabrielle Bunney, MD, MBA - Stanford Department of Emergency Medicine

Co-Author: Ryan Ribeira, MD, MPH - Stanford Department of Emergency Medicine

Objectives: We describe a novel, step-wise approach to rapidly screening opportunities to create emergency medicine research partnerships with private companies developing innovative medical devices, digital health tools, and artificial intelligence algorithms. The Stanford Emergency Medicine Partnership Program (STEPP) applies best practices from venture capital, including both a funnel and evaluation practices, to centralize and streamline the evaluation and execution of innovative partnerships. Over a 1.5-year period, STEPP evaluated 68 potential partners and initiated partnerships or collaborations with 10 of them; engaged 64 faculty, fellows, residents, and students; and produced nine peer-reviewed articles and conference presentations. STEPP has provided operational benefits, increased faculty and learner development, and improved engagement with industry to innovate in the emergency medicine space. Our model could be adapted and applied to other healthcare departments seeking to promote innovation and improve operations to enhance patient care.

Methods: STEPP was developed in response to the realization that our department struggled with a few different issues: 1. We did not have an easy way for innovative companies to interface with our department if they were interested in a partnership. 2. We found that we did not have a standardized way of evaluating these companies when approached, and in fact, a number of our faculty ended up pursuing partnerships that were ill-advised or not worth the time. 3. As the complexity of the healthcare system increased, we found that our faculty needed help with the numerous hurdles that needed to be navigated in order to take a partnership from concept to execution. Department leadership, including representatives from research, strategy, operations, digital health, and education, designed a new program that would address these issues and improve our ability to execute innovative partnerships. As there are limited models for industry partnership evaluation in healthcare, we examined best practices in business. Based on the parallels related to the evaluation of new ideas, we ultimately patterned STEPP after the process used by venture capital firms to evaluate companies for investment. Specifically, we incorporated and applied two best practices used in the venture capital industry—the pipeline funnel and company evaluation. While there is no standardized approach to evaluate and determine what to invest in, most venture capital firms follow a general process

that resembles a funnel (Figure 1). This process involves several stages through which a large number of potential investments are evaluated and gradually narrowed down to a few select opportunities (typically <0.1%). After sourcing potential opportunities through active searching and accepting unsolicited pitches from entrepreneurs, the first step is the initial screening. Here, each opportunity is assessed based on various factors, including the problem space, product approach, go-to-market strategy, and the team. For those opportunities that pass the initial screening, venture capital firms will conduct more in-depth research and analysis, for example, assessing the technology or intellectual property and verifying claims made. Venture capital firms may also seek input from industry experts or consult third-party sources to validate the potential for impact and return on investment. The next step is to decide whether to invest in the opportunity or not, which is often done collectively by the firm's investment committee, which weighs the potential risks and rewards. If the venture capital firm decides to invest, they will negotiate the terms of the investment, and the deal is closed. They will also contribute to the company's success as advisors, as board members, and with strategic introductions. Ultimately, they will report on the company's progress to their investors. (Figure 1)

Results: Between July 1, 2021, and December 1, 2022, the STEPP team screened 68 companies that sought partnership through the STEPP website or networking events (Figure 2). Almost half of these companies (n=32) moved on to evaluation in an SME meeting. Of those, 12 were recommended for further evaluation in a partner specification meeting. Of these 12 potential partners, eight were found to have a potential impact on clinical operations or involved EHR integration and were evaluated by IPEC. Collaborations were pursued with the other four companies, and these projects are in various stages of completion. Of the eight companies that gave IPEC presentations, six were cleared and are in various stages of implementation. The six partnerships and four collaborations that emerged from the STEPP funnel include efforts to pair AI and blood banking to identify new diagnostic biomarkers, develop monitoring devices that can identify intracranial hemorrhage without advanced imaging, a device that uses computer vision to focus room-cleaning and improve patient turnover, and a bedside test that diagnoses and quantifies concussions, among others. Of the original 68 companies seeking partnerships, 58 did not move on to either SME evaluation (n=36) or Partner Specification meetings (n=20), and two were not cleared by IPEC. Of these 58 companies, 43 continue to be actively tracked for future potential opportunities while 15 have been rejected from the STEPP process. (Figure 2) A total of 44 faculty members were engaged at various steps of the STEPP funnel to evaluate potential partners and their projects, participating as STEPP team members, SMEs, or IPEC members (Supplemental Table). In addition to faculty, 20 fellows, residents, and medical students were members of the STEPP team, participated in SME calls and IPEC meetings, or engaged with STEPP during an elective rotation. The STEPP process resulted in three publications. In addition, eight abstracts were submitted for presentation, of which six have been accepted and will be featured as talks and poster presentations.

Conclusions: Four specific lessons were learned from the implementation of STEPP: 1. Leveraging industry concepts: The successful application of sales funnels and venture capital evaluation methods within an academic department context underscores their utility in providing a structured framework for evaluating and implementing innovative partnerships. 2. Centralizing processes: By centralizing the evaluation and execution of partnerships, we achieved operational benefits that streamline our department's ability to tackle the complex, yet essential, aspects of remaining a forward-thinking and innovative institution. 3. Promoting faculty engagement: Contrary to concerns that centralization might limit faculty stakeholder participation, faculty participated in various aspects of STEPP, including serving as STEPP team members, SMEs, and research partnership evaluation committee members, and authoring scholarly publications. 4. Early partnership implementation: STEPP projects had the most success when stakeholders from research and digital health were involved early. Involving

these experts helped accelerate the evaluation of each company and its technology, address project financing, and ensure appropriate technology capabilities and approval. Early engagement of industry partners with key stakeholders can also help reduce friction and anticipate needs early in the process to improve implementation. Our findings build upon existing research that establishes the relevance of business concepts, such as lean principles and throughput analytics, for enhancing ED operations. Additionally, our contribution showcases the successful implementation of industry and innovation within the medical field.

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Friday, September 8, 2023

Session Time: 09:45 - 11:15

Presentation Time: 10:45 - 10:57

Elafos B

Track: Oral Abstracts

(O-D6) CP-"R" You Ready for Residency

Oral Presenter / Primary Author: Amritpal Saini, MD - Jacobi/Montefiore Emergency Medicine Residency

Co-Author: Nora McNulty, MD - Montefiore/Jacobi Medical Center

Co-Author: Noah Trump, MD - Jacobi/Montefiore

Co-Author: Sandeep K. Dhillon, MD - Jacobi Medical Center

Faculty Advisor: Maninder Singh, MD - Jacobi

Faculty Advisor: Andrew Restivo, MD - Montefiore Medical Center

Objectives: The use of simulation to assess medical student competency of the AAMC Core Entrustable Professional Activity (EPA) 12: demonstrating competency in performing core procedures in providing basic patient care.

Background: EPAs are standards established by the AAMC, with the goal to identify competencies that medical students have to meet prior to their initiation into residency. EPA 12 involves the demonstration of competencies in key patient care procedures, including CPR and bag and valve mask ventilation. There is a paucity of studies on how to evaluate medical student competencies,, especially in regards to EPA 12. This project evaluates the utility of high fidelity simulation as a standardizable assessment tool for EPA 12 in medical student education via its use within a transition to residency program.

Methods: 62 fourth-year medical students received a lecture on ACLS and then participated in a simulated case of a patient with multiple comorbidities who initially presented with chest pain, was found to have a ST-elevation myocardial infarction which deteriorated into ventricular fibrillation requiring advanced cardiac life support management. Evaluators observed groups of students for performance of critical actions, such as performing the technical skills of CPR and bag-mask ventilation (PC1) and communication with the patient’s family (PC7, ICS6, P6, PPD7, PPD1). A post transition to residency course survey was conducted to assess student confidence.

Results: Upon review of the date, 69.6% of the participants performed CPR technical skills adequately after a standardized lecture. After a debrief and individualized procedural teaching, 82.8% of the participants felt comfortable performing CPR.

Conclusions: High fidelity simulation is an effective tool to measure a student's ability within the EPA 12 framework. By utilizing checklists with critical actions, we were able to effectively quantify team performance during a resuscitation. By interpreting the results of this checklist in real time, we were able to tailor the procedural stations portion of the course to match the students' needs. This has a high relevance to transition to residency courses that are typically run prior to students starting their emergency medicine residencies. Future studies can be conducted to further evaluate learner readiness for residency using this modality.

References (Optional):

Funding: No funding

Friday, September 8, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P01) Monster in the Belly- ruptured Abdominal Aortic Aneurysm Diagnosed Through Bedside Point-of-care Ultrasound

Poster Presenter / Primary Author: Ryan Abraham, PGY-1 - Jacobi/Montefiore Emergency Medicine Residency

Co-Author: Nora McNulty, MD - Montefiore/Jacobi Medical Center

Faculty Advisor: Alexander Petrie, MD - Jacobi Medical Center

Chief Complaint : Pt presents from NH due to evaluation of abdominal pain and lethargy.

History of Present Illness : 86-year-old F with PMH of CVA, HTN, CAD, COPD presented to the ED from NH due to sudden, non-radiating, sharp left-sided abdominal pain that started yesterday afternoon. SHe was resting when the pain started and she has never had this pain before. Endorses one episode of NBNB emesis. Denies alcohol, cigarettes, recreational drugs. Denies, fevers, chills, dysuria, hematuria, numbness, tingling, loss of sensation. Pt is A&Ox3, verbalizing pain to her trunk. Pt received pain control. A curvilinear probe was placed on the patient's abdomen and flank to assess for nephrolithiasis, biliary pathology, and vascular competence when a pulsating enlarged Abdominal Aortic Aneurysm (AAA) concerning for rupture was identified. Vascular surgery was urgently consulted. Patient was hemodynamically stable and therefore CTA was performed. It was remarkable for 7.1 cm AAA with associated rupture. Patient was taken for emergent EVAR for ruptured AAA with exclusion of right kidney.

Pertinent Physical Exam: Vital signs were unremarkable with BP of 113/78, afebrile, heart rate of 82, respiratory rate of 17 and saturating at 97% on room air. Patient was lying on a stretcher with no acute distress, appearing fatigued on exam, and pointing to her abdomen when asked to localize pain. Tenderness to palpation of the LUQ and LLQ. Otherwise unremarkable physical exam.

Pertinent Laboratory Data: EKG: sinus tachycardia with RBBB in leads V1/V2 and non-specific ST-T wave changes. Labs: WBCs (21.6) and Lactate (2.6). Labs otherwise unremarkable. Radiographs: POCUS remarkable for AAA with false and triple lumen, clot present within the false lumen. CTA remarkable for ruptured infra-renal 7.1 cm AAA. No free fluid in RUQ

Case Discussion: Abdominal pain is a common complaint in the emergency department. Differential includes (but is not limited to) small bowel obstruction, gallstones, pancreatitis, peptic ulcer disease, myocardial infarction, nephrolithiasis, etc. Initial workup of abdominal pain usually includes H&P, EKG, and labs including BMP, CBC, Lipase, and Urinalysis. Patients with a ruptured abdominal aortic aneurysm (AAA) usually present with abdominal, back or flank pain, pulsatile abdominal mass, and hypotension (1). Most of them rupture into the retroperitoneal cavity. Several predisposing factors such as older age, male gender, hypertension, history of smoking, and first degree relatives with history of AAA have all been identified as increasing the likelihood of aneurysm formation. (2). CTA is the preferred diagnostic modality of choice for ruptured AAA, however point-of-care ultrasound is more readily available in most EDs. ED ultrasound screening for ruptured AAA has been found to

reduce the time to diagnosis and improve patient outcomes (3). ED point-of-care ultrasound has a sensitivity of 99% and specificity of 98% for the detection of AAA, however it is much less useful in identifying rupture. Almost 88% of AAAs rupture into the retroperitoneal space, where ultrasound is limited (2). Catalona et al. described 8 sonographic findings of AAA in 29 patients(4). The four findings in our patient are marked in Figure 1. When AAA rupture is confirmed, early consultation with a vascular surgeon can help facilitate disposition to the operating room. Two large bore peripheral IV catheters, continuous hemodynamic monitoring, and labs to assess baseline hemoglobin, renal function, and coagulation status should be obtained. Along with the patient being cross-matched for infusion of packed red blood cells, as well as fresh frozen plasma and platelets in anticipation of the potential need for massive transfusion (5).

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Friday, September 8, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Case Reports

(P02) Emphysematous Cholecystitis in an Immunocompromised Patient

Poster Presenter / Primary Author: Solomon o. Ajasin, MD - Montefiore Medical Center
Co-Author: Nora McNulty, MD - Montefiore/Jacobi Medical Center
Faculty Advisor: Michael Halperin, MD, MPH - Jacobi Medical Center

Chief Complaint : Abdominal pain and nausea

History of Present Illness : 41-year-old male with past medical history of sarcoidosis (on daily methotrexate and steroids) presenting for right upper quadrant (RUQ) pain and vomiting x 2 months, increasing in severity x 1 day. Patient states that he has been having pain “every time” he eats, but that his pain improves without intervention within minutes. He presented to the ER today because he had an episode of this similar pain, but increased in severity in comparison to previous episodes. Episode has now been unrelenting and has been associated with nausea and multiple episodes of nonbilious, nonbloody vomiting. Of note, he has been told he should receive a right upper quadrant ultrasound to evaluate, but he has been unable to see them due to scheduling issues.

Pertinent Physical Exam: Patient speaking in full sentences, without respiratory distress. Patient uncomfortable appearing, lying in stretcher. Epigastric tenderness and RUQ tenderness present with palpation, positive Murphy’s sign. No CVA tenderness. No overlying skin changes to the abdomen or back.

Pertinent Laboratory Data: No leukocytosis, no anemia. ALT increased to 80U/L, AST increased to 157U/L. Alk Phos increased to 203U/L. Total bilirubin increased to 1.8mg/dL, direct to 0.8mg/dL. Lipase within normal limits.

Case Discussion: Acute cholecystitis is defined as inflammation of the gallbladder, oftentimes due to cystic duct obstruction by gallstones (acute calculous cholecystitis). Less predominantly, patients may also present with acalculous cholecystitis, although this is more likely in critically ill patients. Characteristic clinical features of cholecystitis include RUQ pain, positive Murphy sign, and fever. The preferred modality of imaging is a RUQ ultrasound, which is superior to CT in its ability to accurately demonstrate gallbladder distension, edema and pericholecystic fluid, although CT is better at investigating adjacent organ systems that may be impacted by the inflammation. Complications of acute cholecystitis include gangrenous cholecystitis, emphysematous cholecystitis, gallstone ileus, gallbladder perforation, biliary-enteric fistula and pyogenic liver abscess. Of particular concern is the development of emphysematous cholecystitis, which although rare, is a life-threatening form of acute cholecystitis characterized by the presence of air within the gallbladder wall caused by gas forming bacteria (i.e. E. coli and Clostridium) Emphysematous cholecystitis is preceded by vascular compromise in the gallbladder wall, usually due to occlusion of the cystic artery as a result of increased pressure within the gallbladder environment, oftentimes in the setting of external compression or heavy cholelith burden. The vascular compromise rapidly progresses to ischemia of the gallbladder wall, followed by necrosis that weakens the structural integrity of the wall and limits immune surveillance, thereby allowing for the proliferation of gas forming bacteria within the gallbladder.

Risk factors include vascular compromise, (i.e. prolonged hyperglycemia (Diabetes) or vascular disease), immunosuppression, recent abdominal procedures or trauma. The patient in question has an autoimmune inflammatory disorder (sarcoidosis) and is on immunosuppressants (daily steroids and methotrexate), raising his risk for developing emphysematous cholecystitis. He received broad spectrum antibiotics and within 48 hours, had undergone a laparoscopic cholecystectomy, which is the treatment modality for patients who are good surgical candidates.

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(P03) "But It's Just a Kidney Stone!" - An Atypical Case of Necrotizing Pancreatitis

Poster Presenter / Primary Author: Younus M. Aqeel, MD - St. John's Riverside Hospital
Faculty Advisor: Adrian A. Cotarelo, MD, MHS - St. John's Riverside Hospital

Chief Complaint : A 36-year-old man presents with acute onset unilateral flank pain, nausea, and vomiting.

History of Present Illness : A 36-year-old man with no significant past medical history presented to the ED with sudden onset left sided flank pain. He denied any prior similar events, but reported a strong family history of urolithiases. He endorsed radiation of the pain to his back and groin, alongside associated chills, nausea, and multiple episodes of non-bloody, non-bilious vomiting. He described stabbing pain, strongest at the left flank. He reports moderate alcohol intake the previous day, but denies any drug, medication, or supplement use. He denied any prior surgical history, or any dysuria, hematuria, measured fevers, chest pain, or shortness of breath.

Pertinent Physical Exam: Upon initial examination, while generally well-appearing, he was noted to be hypertensive to 234/128, as well as tachycardic to 120. He denied any prior history of hypertension. Abdominal exam was notable for diffuse abdominal tenderness with guarding, alongside pronounced left sided costovertebral angle tenderness. Genitourinary exam was unremarkable with intact bilateral cremasteric reflexes.

Pertinent Laboratory Data: Laboratory results were notable for a significant leukocytosis to 29.6 with 86% neutrophils, alongside a lactic acidosis that increased from 9.4 to 10.8 after three liters of fluids. His initial serum glucose was 174, with a creatinine of 1.2 and blood urea nitrogen of 6.4. Urinalysis was negative for blood or casts. Liver enzymes were AST of 61, with ALT 118, alkaline phosphatase of 98, and triglycerides of 165. A serum lipase level resulted in 6763. CT imaging revealed a severe pancreatitis with areas of necrosis within the pancreatic body and tail.

Case Discussion: This case represents a subtle, atypical presentation of a severe acute necrotizing pancreatitis which initially mimicked an uncomplicated urolithiasis. The patient, while appearing mildly uncomfortable, was in minimal distress despite his vital sign derangements. Further, he was a young, generally healthy patient primarily complaining of unilateral flank pain, nausea, and vomiting, with a strong family history - the classic presentation of a typical urolithiasis. Emergency physicians must remain vigilant in identifying those signs which may indicate more dangerous pathology, such as his unexplained, severe hypertension and radiation of the pain towards his back. After ruling out a testicular torsion, a CT Angiography was performed to rule out an aortic dissection, which ultimately revealed the areas of pancreatic necrosis. Abdominal ultrasound did not show signs of gallstones, an MRCP during his hospital course was negative. While he endorsed some alcohol intake the prior evening, he denied any excessive or chronic intake. He was ultimately admitted to the ICU for further management of severe necrotizing pancreatitis. He remained there for 5 days before being downgraded to the floors, where he ultimately signed out against medical advice after symptoms improved. While this young, healthy patient complaining of flank pain may have

appeared initially to represent an uncomplicated urolithiasis, a broader review of his presentation included consideration for testicular torsion, pancreatitis, and aortic dissection. This case highlights the importance of maintaining a broad differential, even when faced with cases demonstrating a variety of typical features for less dangerous pathology.

References and Acknowledgements (Optional): N/A

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(P04) Wellen's Syndrome: More Than Meets the Eye

Poster Presenter / Primary Author: Benjamin Araki, DO - Albert Eistein School of Medicine, Jacobi/Montefiore Emergency Medicine Program

Principal Investigator: Benjamin Araki, DO - Albert Eistein School of Medicine, Jacobi/Montefiore Emergency Medicine Program

Co-Author: Lisa Cabral

Chief Complaint : Chest pain

History of Present Illness : A 38-year-old male with a past medical history of hyperlipidemia presented to the ED with left-sided sharp chest pain with radiation towards the left arm with numbness that began gradually while he was changing the home appliances about 4 hours prior to arrival. He reported shortness of breath, nausea, and one non-bloody non-biliary emesis in the ED, followed by a resolution of chest pain. He denied a previous history of similar pain. No recent fever, chills, cough, traveling, surgery, or lower extremity swelling. No family history of sudden cardiac deaths.

Pertinent Physical Exam: On physical exam, the patient appeared comfortable in his seat and in no acute distress. He was seen helping translate a neighboring patient who only spoke Spanish, as he could speak both languages. Cardiac auscultation with regular rate and rhythm with S1 and S2. No chest wall or rib pain to palpation. Pulmonary auscultation without wheezing, rales, or rhonchi.

Pertinent Laboratory Data: ED vitals: BP 158/95, HR 75, Temperature 98.1 F, RR 17, O2 saturation 98% on room air ECG#1 (8:21pm): Normal sinus rhythm, rate of 73 bpm, normal axis, normal intervals, with nonspecific ST changes. Labs (8:31pm): Troponin I 0.97, Creatine kinase 524 Labs (2:40 am): Troponin I 2.99 ECG#2 (2:24am): Normal sinus rhythm, rate of 63 bpm, normal axis, normal intervals, with biphasic T waves in V2-V4 and flattening of T wave in aVL Labs (6:06am): Troponin I 5.22

Case Discussion: Wellen’s syndrome, also known as anterior descending T-wave syndrome, is defined with an abnormal electrocardiogram pattern: biphasic or deeply inverted T waves in lead V2 and V3.1 Often patients with Wellens are pain-free and with normal or slightly elevated serum markers.2 This patient was a male of relatively young age with hyperlipidemia, which although a known risk factor, would be deemed low suspicion for possible ACS according to validated risk stratification tools, such as the HEART score.3 However, he presented with a moderately concerning chest pain story and was found to have significant troponinemia and dynamic electrocardiogram (ECG) changes over the course of hours while he sat calmly on the chair. At the time of the encounter, the patient was pain-free and with only mild elevation in troponin. It was critical that the repeat ECG was obtained, which demonstrated the dynamic changes suggestive of Type A Wellen’s syndrome, highly concerning for left anterior descending artery occlusion.4 He was subsequently admitted for NSTEMI to the cardiology service. The following morning, the patient was transferred to the catheterization laboratory and received a left heart catheterization that demonstrated a 100% acute thrombotic occlusion of

mid-LAD and 50% stenosis of mid-RCA. During the procedure, he received the intravenous ultrasound-guided percutaneous coronary intervention of the mid-LAD with a 3.0 x 48 Synergy DES. He was discharged home the following day.

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(P05) My Back Hurts. but I am Too Young for Back Problems

Poster Presenter / Primary Author: Jibril Ashiru-Balogun (he/him/his), MD, MS - RWJBH - Community medical center

Co-Author: Mahmud Shah, DO - Touro College of Osteopathic Medicine - Harlem

Co-Author: Tiana Jayanathan, DO - RWJBH - Community Medical Center

Faculty Advisor: Nicole Maguire, DO, FACEP - Rutgers Health Sponsoring Institution - -

Faculty Advisor: chris delmaestro, DO - RWJBH - Community Medical Center

Chief Complaint : Left lower back pain that radiated to his left groin and knee.

History of Present Illness : The patient is a 35-year-old male with no significant past medical history who presents with left lower back pain, that radiates to the left groin and knee, he states the pain commenced approximately three weeks before his presentation, and there was no inciting event that contributed to his pain. He described it as sharp, 10 out of 10 in severity, radiating, progressively worsening, exacerbated by sitting, and had never occurred previously, he adds that the pain is associated with nausea, vomiting, and melena, which he admits has been sporadic. He also reported an unintentional 7kg weight loss over six months, he however denied fever, chills, hematochezia, changes in bowel habits, or palpable masses. The patient also denies any associated saddle anesthesia, numbness, tingling, weakness, or any focal neuromusculoskeletal deficits.

Pertinent Physical Exam: GENERALIZED APPEARANCE: Patient is awake and oriented, in moderate discomfort VITAL SIGNS: Tachypnea is most likely due to pain EYES: (-) conjunctival pallor, (-) scleral icterus ABDOMEN: Soft, non-distended, non-tender, (-) guarding, (-) organomegaly, (-) rebound tenderness CHEST AND RESPIRATORY: (-) rales, (-) rhonchi, (-) wheezes; breath sounds equal bilaterally HEART AND CARDIOVASCULAR: (-) irregularity; (-) murmur, (-) gallop VASCULAR: (+) distal pulses, (+) symmetric

Pertinent Laboratory Data: Lab work was notable for a white blood cell count of 13,700 (normal range: 5000 – 10,000/ uL) and elevated alkaline phosphatase levels of 2,005 IU/L (normal range: 44-147 IU/L).

Case Discussion: Intussusception is rare in the adult population, and it has been noted that the major cause in this population is a lead point that is either caused but abdominal adhesions or intraabdominal malignancy. In our patient it was also noted on the Contrast-enhanced computed tomography of the abdomen and pelvis, was remarkable for a 48.9 mm long segment of the ileoileal intussusception in the left upper quadrant, enlarged retroperitoneal lymph nodes, intraperitoneal fat stranding, and evidence of diffuse osseous metastatic disease. The patient was admitted for surgical evaluation, serial abdominal examinations, and further oncologic workup. The patient was evaluated by the surgical team the following day who recommended repeat CT imaging and conservative therapy. Repeat imaging revealed complete resolution of the intussusception 48 hours later. During the admission, the patient’s pain was managed by a pain management consultant. In addition, elevated tumor markers required a gastroenterology consult, and subsequent esophagogastroduodenoscopy (EGD) was performed to collect a

distal esophageal biopsy and survey for abnormalities in the upper gastrointestinal tract. CT findings of lymphadenopathy also required a cardiothoracic consult for supraclavicular lymph node biopsy and robotic video-assisted thoracic surgery (VATS) mediastinoscopy. Following the procedures, the surgical pathology results indicated poorly differentiated adenocarcinoma with mucinous and signet ring-type pathognomonic features, along with lymphoproliferative changes that suggest an upper gastrointestinal origin of malignancy. Upon completion of the procedures, the patient was later discharged from the hospital and advised outpatient follow-up with hematology/oncology, pain management, and palliative care.

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(P06) Hyperemesis Cannabis Syndrome Gone Wrong

Poster Presenter / Primary Author: Alyssa Auerbach, DO - St. John's RIverside Hospital
Co-Author: Jaison M. Medayil, DO - St. John's Riverside Hospital
Faculty Advisor: Elizabeth Fernandez, MD - St. John's RIverside Hospital

Chief Complaint : 19-year-old female presents to the ER for nausea and vomiting.

History of Present Illness : The patient is a 19-year-old female with no significant past medical history who presents to the emergency department for evaluation of nausea and daily emesis for the past month. Patient reports that on the day her symptoms began, she went to a different emergency room for evaluation, and subsequently followed up at that hospital's clinic and was prescribed trimethoprim-sulfamethoxazole, metoclopramide, and famotidine without alleviation of symptoms. She was diagnosed with cannabinoid hyperemesis syndrome (CHS) and was told to stop her daily marijuana use, which she complied with. Since then, she had been unable to tolerate her medication due to emesis. Additionally she endorsed experiencing decreased frequency of urination, 15-20 lbs weight loss, increased fatigue, and intermittent chills. She did have transient symptom improvement after hot showers. She denied current abdominal pain, diarrhea, constipation, dizziness, fever, cough, chest pain, shortness of breath, vision changes, and headaches.

Pertinent Physical Exam: Patient is tachycardic to 120 beats per minute lying in a stretcher, with body mass index of 15.4kg/m2. She appears dehydrated, cachectic and malnourished. She has normoactive bowel sounds and a soft, non-tender abdomen. Patient has no murmurs, rubs or gallops. Patient has no other apparent relevant physical exam findings.

Pertinent Laboratory Data: Pt has no gross abnormalities on labs. The patient received a CAT scan of the abdomen and pelvis to rule out mass, which indicated distention of the stomach with dilatation of the duodenum and narrow zone of transition at the ligament of Treitz, interpreted by reading radiologist to represent underlying superior mesenteric artery (SMA) syndrome. During hospital admission, the patient had CTA which showed an SMA-aortic angle of 10 degrees with proximal dilation, consistent with SMA syndrome.

Case Discussion: SMA syndrome is a rare condition characterized by compression of the third portion of the duodenum between the SMA and the aorta, leading to upper gastrointestinal obstruction. The incidence of SMA syndrome is estimated to be 0.013%-0.3% based on autopsy studies, and it has been reported more commonly in females (aged 10-39) and young adults. Symptoms include nausea, vomiting, and postprandial epigastric abdominal pain, often with associated weight loss. The etiology of SMA syndrome is multifactorial, and several predisposing factors have been identified, such as rapid weight loss, scoliosis, lordosis, and traumatic injuries. The diagnosis of SMA syndrome can be challenging due to the non-specific nature of the symptoms. The most significant risk factor is severe weight loss.Any etiology that decreases the angle between the SMA and the aorta can be causative, including rapid loss of mesenteric and retroperitoneal fat, congenital or postoperative anatomic abnormalities, and local pathology. In this case, the most likely contributing factor to weight loss was CHS, which

likely depleted the mesenteric fat and subsequently became a self-perpetuating cycle. The challenge here specifically was that SMA syndrome is a rare diagnosis, and the patient already had a known diagnosis of CHS that explained her symptoms. The patient had a soft abdomen and was non toxic appearing. CHS is increasing in incidence with the expanded marijuana legality in the United States, which may lead to increased prevalence of SMA syndrome in the future. In the emergency department, the key is to correct electrolytes and suspect SMA syndrome if high risk, such as status post scoliosis surgery or rapid weight loss, as treatment is often conservative. Our patient was treated conservatively in the hospital and was tolerating liquid at time of discharge and was told to follow up with surgery in two weeks.

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(P07) Use of Whole Blood at a Level II Trauma Center in Patients Presenting in Hemorrhagic Shock: Reducing Hospital Length of Stay

Poster Presenter / Co-Author: Algis Baliunas, MD FAAEM - Beacon Health System

Primary Author: Lee Erdman - Memorial Hospital

Co-Author: Madhura Vachon, PhD - CDC

Principal Investigator: Rajalakshmy Sundararajan, MD - South Bend Emergency Physicians

Co-Author: Scott Thomas, MD - Beacon Health System

Objectives: The present study is a prospective observational study investigating the effect of emergent resuscitation with whole blood on hospital length of stay. We hypothesized that using whole blood in the initial resuscitation of trauma patients in hemorrhagic shock would result in decreased hospital length of stay.

Background: Hospital length of stay is a widely accepted healthcare quality metric (1). When the demand for hospital beds exceeds the supply, the effects are felt throughout the hospital, including the ED, resulting in ED overcrowding and boarding (2). Over the last few years and through the post-COVID era, ED boarding has become the norm and not the exception (3,4). Therefore, any interventions that have the potential to reduce hospital length of stay will likely impact ED wait times, and ideally reduce ED boarding. Several studies have indicated that ED crowding and boarding are associated with worse clinical outcomes (5-10).

Methods: Study Setting: Memorial Hospital is a verified level 2 Trauma Center in South Bend, Indiana, serving the communities of Northern Indiana and Southern Michigan. Patient population: Patients 18 years of age and older who met trauma activation criteria presenting in hemorrhagic shock with evidence of active bleeding requiring emergent blood product transfusion were included in the study. Design: This is a single center prospective cohort study in which whole blood, pRBCs, fresh frozen plasma, liquid plasma, platelets, and/or cryoprecipitate were used early in the resuscitation of injured patients presenting with evidence of hemorrhagic shock and predicted to require and receive a large volume infusion of blood products. This study was not a blinded trial. Patients were not randomized. Outcome Measure: A descriptive summary was prepared using counts and proportions for categorical variables and mean and standard deviations for continuous variables. The primary outcome of interest was the length of hospital stay. Multiple linear regression was used to determine the association between receipt of whole blood on hospital duration of stay after adjusting for injury severity score and earliest calculated shock index.

Results: Study period was 08/30/2021 through 11/13/2022. During that time period, 159 patients meeting trauma activation criteria were eligible to be enrolled. These patients had a 911 or 912 activation and received emergency release blood products. 119 patients survived initial resuscitation and subsequent hospitalization and were discharged after treatment. They were included in our final analysis. Of these, 50 (42.0%) received whole blood. Average patient age was 43. The majority of patients were male (72.3%). The injury mechanism for most patients was motor vehicle crash (48.7%) (Table 1). Hospital duration of stay was 5.31 days shorter among patients who received whole blood compared to patients who did not receive

whole blood (Table 2). After removing one high valued outlier, duration of stay was 3.09 days shorter among patients who received whole blood compared to patients who did not receive whole blood (Table 3). Although this association was not statistically significant, the strength of the effect we present is notable. Injury severity score was significantly associated with hospital length of stay in our sample ($p < 0.0001$).

Conclusions: This study provides evidence of a potential relationship between initial resuscitation with whole blood and length of stay. This finding is of importance in the wake of the COVID-19 pandemic, where resource constraints have become more salient (4). Overcrowding is a barrier impacting patient care, both hospital-wide and in the ED (3). ED boarding has known negative consequences. Decreasing length of stay can decrease healthcare costs, improve satisfaction for both patients and healthcare workers, and potentially reduce the number of hospital-acquired patient complications. This study was limited by a smaller sample size; enrolling additional patients would improve precision of estimates.

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(P08) Wellens' Syndrome Case Report

Poster Presenter / Primary Author: Matthew Berger, MD, FAAEM - Capital Health
Co-Author: Zain Siddiqi, MD - Capital Health
Co-Author: Matthew Tripod, MD - Capital Health
Co-Author: Marco Anshien, MD, FAAEM - Capital Health
Co-Author: Rakan Al-Ahmad, OMS-III - Touro college of osteopathic medicine

Chief Complaint : Chest Pain

History of Present Illness : A 66 year old male with a past medical history of hypertension presented to the emergency department with a chief complaint of chest pain. The patient reported that the chest pain was intermittent, began 3 days ago and was substernal. He denied any worsening or improving factors, any radiation of the pain or any other associated symptoms. The patient reported that he had the chest pain this morning, which prompted him to come to the ED, but it had since resolved and he was currently pain free.

Pertinent Physical Exam: The patient was not in distress, had normal work of breathing and was not diaphoretic or in any apparent discomfort No murmurs, gallops or rubs. No reproducible chest pain. Bilateral vesicular breath sounds present bilaterally, no wheezes or crackles appreciated.

Pertinent Laboratory Data: Initial ECG showed somewhat biphasic and deeply inverted T waves in leads V2 and V3 Initial serum troponin was mildly elevated at 0.169 Bedside ultrasound was performed which showed signs of septal wall motion abnormality

Case Discussion: The case describes a presentation of Wellens' syndrome in which the patient was pain free on arrival to the ED with reports of waxing and waning chest pain during the days prior. The ECG showed biphasic and inverted T waves in V2 and V3 concerning for Wellens' syndrome, however the patient remained very well appearing. The addition of a bedside ultrasound showed clear signs of anterior/septal wall motion abnormality which assisted greatly in making the diagnosis and expediting the patient's transfer to the cath lab. As mentioned above, the ECG changes in Wellens' syndrome indicate critical LAD stenosis. It is considered a pre-infarction state as there is typically a ruptured atherosclerotic plaque with subsequent disruption of the occlusion before complete myocardial infarction can take place. This continued ischemia and reperfusion is thought to lead to the characteristic T wave changes seen in Wellens' syndrome. There can even be "pseudonormalization" of the T waves during periods of re-occlusion7. In the absence of chest pain and with normal cardiac biomarkers, as is often the case with Wellens', this can be a difficult diagnosis. Furthermore, even within Wellens' syndrome, there are varying presentations which can make the diagnosis even more complicated. As demonstrated in our case, bedside ultrasound can be an invaluable tool in clinching the diagnosis when it comes to ACS, especially with a presentation as varied as Wellens' syndrome. Our patient was very well appearing and had no complaints initially in the ED. Although his ECG was concerning, the addition of a septal wall motion abnormality seen on bedside ultrasound was key for making the diagnosis.

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Friday, September 8, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Research Abstracts

(P09) An Expanded Data Review of an Alternative Training Program for Rural Emergency Medicine

Poster Presenter / Co-Author: Aricia M. Byrd, MD - Texas Tech University of the Permian Basin

Primary Author: Jeff M. Pinnow, MD, FAAEM, FACEP - Texas Tech University Health Sciences Center

Objectives: To determine if this Emergency Medicine fellowship program meets, exceeds, or falls short of the critical procedural numbers required by the ACGME for accredited 3-and-4-year Emergency Medicine residency programs, and to determine if it successfully trains competent emergency physicians to practice in rural settings.

Background: To determine if Emergency Medicine fellowships produce competent and well-trained emergency physicians to practice in the rural setting. This study is done in comparison in a previous study which was completed and submitted to MEMC in 2019.

Methods: In 2019 a data review was conducted to evaluate if this fellowship met, exceeded or fell short of the procedural numbers required by the ACGME for accredited 3-and-4-year Emergency Medicine residency programs. At that time, it was found that our fellows either met or exceeded procedure minimums in all but two categories: cardiac pacing and pericardiocentesis. Now that we are nearing the end of our seventh year of fellowship, a systematic review was again performed to re-evaluate the trend of our procedural encounters. What became apparent, is that the amount of critical emergency procedures being performed by each fellow over the course of the 12-month program continues to meet or exceed the minimums required by the ACGME for accredited 3- & 4-year EM residencies.

Results: Completion of the FP/EM fellowship at our institution exposes the trainees to enough pathology and volume to meet the ACGME 3-year minimums in all but 2 procedural categories.

Conclusions: This fellowship program continues to prove that it is a viable and exemplary alternative for training competent emergency physicians to serve rural communities and should be replicated in areas needing rural EM doctors.

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Friday, September 8, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Research Abstracts

(P10) Association of Antithrombotic and Anticoagulant Medications and Outcomes in Elderly Patients with Minor Trauma

Poster Presenter / Primary Author: Marcin Ciesla, MD - Stony Brook Medicine

Principal Investigator: Rolando G. Valenzuela, MD - Stony Brook University Hospital

Faculty Advisor: Adam J. Singer (he/him/his), MD - Stony Brook University Hospital

Co-Author: Henry Thode, Ph.D - Stony Brook University Hospital

Objectives: This study will try to identify high risk geriatric ED patients who may not meet criteria for trauma activation but will benefit from faster head CT imaging due to concern for TICH.

Background: Traumatic brain injury (TBI) is a common and serious presentation to the emergency department (ED). Geriatric patients have higher mortality and poorer outcomes compared to younger patients with TBI1. Most concerning is the increasing use of anticoagulation (AC) or antiplatelet medications (AP) which can increase the risk of traumatic intracranial hemorrhage (TICH) and worsen prognosis2. Current literature is heterogenous on whether these medications increase the risk of TICH making it difficult to risk stratify these patients and no studies have been identified that evaluated for high-risk features in geriatric trauma patients who did not meet the threshold for trauma activation.

Methods: A retrospective structured chart review of 1,000 geriatric ED patients presenting to a large academic ED from January 2021 through July 2022 with acute minor trauma. Trained investigators extracted demographic, clinical, laboratory and imaging data from the electronic health records. Inclusion criteria included patients who were 65yrs and older and required a head CT. Exclusion criteria included if patients were trauma activations upon triage as defined by the American College of Surgeons, were transferred from an outside facility, presented to the ED with a diagnosis of TICH on outside imaging, had a Glasgow Coma Scale (GCS) less than 14, or had trauma more than 24hrs since ED visit. Primary outcome measured rates of TICH while secondary outcomes included mortality, admission, neurosurgical intervention within 24hrs. Patients using AC and/or AP medications were grouped into none, DOAC only, warfarin only, aspirin only, P2Y12 inhibitor only, AC+AP agent, or dual antiplatelet agent. Univariate and multivariate analyses were conducted to explore the associations and outcomes.

Results: Mean (SD) age was 82 (9), and 60% were females. Mechanisms of injury include falls (92%) and MVCs (7%). Use of AC or AT agents includes aspirin (24%), NOAC (18%), Warfarin (4%), P2Y12 inhibitor (2%), Dual antiplatelet agents (6%), combined AC and AT agents (7%), none (40%). There were 29 instances of TICH (3%). Rates of TICH by exposure as shown in table 1: none (3%, 1.7-5.2), DOAC (1%, 0.2-4.4), Warfarin (3%, 0.1-15.4), ASA (3%, 1.6-6.8), P2Y12 (0%, 0-22.9) dual antiplatelets (7%, 2.2-17.3), and AC+AT (3%, 0.5-11.3). Only 4 patients (0.3%) required neurosurgical intervention within 24 hours and there were 5 total deaths. Only trauma above clavicles was found to increase risk of TICH (5% vs 1%) as shown in table 2. Of patients with TICH, 19 (66%) were admitted to the ICU compared to 10 (34%) who were admitted to intermediate level of care. Only patients with subdural hemorrhages

(93%) were found to be statistically more likely to be admitted to the ICU compared to patients with subarachnoid (46%) or intracerebral hemorrhages (50%) as seen in table 3. No AC or AP agent, symptom, physical exam finding, or demographic was associated with a higher likelihood of ICU admission.

Conclusions: No combination of AC or AP agents or other characteristics were able to be identified to have a TICH incidence high enough to warrant faster CT imaging. These results suggest that geriatric patients who present to the ED with minor trauma had low rates of TICH and low mortality rates. Even if a TICH was identified on imaging, a low percentage required urgent neurosurgical intervention. Our results suggest that these patients can be safely evaluated in the ED without the need for rapid imaging and the trauma activation protocol was sufficient.

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Funding: none

Friday, September 8, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P11) Images in Emergency Medicine Case: A Woman Presenting for Bug Bites

Poster Presenter / Co-Author: Joseph S. Colla, MD, MBA - Department of Emergency Medicine, University of Illinois Hospital and Health Science System, Chicago, IL

Primary Author: Lauren E. Lamparter, MD - Department of Emergency Medicine, University of Illinois Hospital and Health Science System, Chicago, IL

Faculty Advisor: P.Charles Inboriboon, MD - University of Illinois Hospital and Health Science System, Chicago, IL

Co-Author: Yurissa Flores-Sanchez, n/a - Western University of Health Sciences of the Pacific Northwest

Co-Author: Christopher W. Parker, DO - OSF Little Company of Mary Medical Center

Chief Complaint : painful bug bites.

History of Present Illness : A 22-year-old female presented to the emergency department (ED) with painful bug bites. Patient noticed two small bumps on her right arm four days ago after spending the evening outside with friends. The following day, her pain had worsened, and she noticed small blisters in the area.

Pertinent Physical Exam: Exam of her right upper arm revealed a cluster of white vesicles on an erythematous base that were tender to palpation (Figures 1 and 2). There were no oral, genital or other lesions. Workup included HSV 1/2 and Varicella Zoster PCR/culture of the lesions.

Pertinent Laboratory Data:

Case Discussion: DIAGNOSIS: Herpes simplex virus 2 (HSV2) cutaneous infection. HSV2 most commonly presents as a sexually transmitted, genital infection, occurring from direct viral contact with mucosal or nonintact skin.1,2 The classic presentation is a prodrome of localized pain, followed by the eruption of vesicles on an erythematous base.2 While HSV2 is most often localized to the genitals, it has been reported on thighs, buttocks, and perineum of both sexes.2 Alternatively, HSV1, has been described in alternate cutaneous locations such as the extremities, but usually secondary to contact sports (i.e. herpes gladitorum) allowing for easy viral spread from saliva.3 However, presentation of HSV2 to an extremitiy, in immunocompetent individuals outside the context of contact sports, as in this case, has not commonly been reported. This case illustrates the importance of considering HSV infection when evaluating vesicular skin lesions in immunocompetent patients whether or not they have history of HSV exposure.

References and Acknowledgements (Optional): Gupta R, Warren T, Wald A. Genital herpes. Lancet. 2007 Dec 22;370(9605):2127-37. doi: 10.1016/S0140-6736(07)61908-4. PMID: 18156035. Tintinalli's EM Comprehensive Study Guide – Ch 153: Sexually Transmitted Infections Selling B, Kibrick S: An outbreak of herpes simplex among wrestlers (herpes Gladiatorum). N Engl J Med 1964; 270: 979–82.

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Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Research Abstracts

(P12) Teaching Principles of Medical Innovation and Entrepreneurship Through Hackathons: Case Study and Qualitative Analysis

Poster Presenter / Co-Author: John R. Dayton, MD, FAAEM, FACEP - Stanford Department of Emergency Medicine

Primary Author: Carl Preiksaitis, MD - Stanford Department of Emergency Medicine

Co-Author: Rana Kabeer, MD, MPH - Stanford Department of Emergency Medicine

Co-Author: Gabrielle Bunney, MD, MBA - Stanford Department of Emergency Medicine

Faculty Advisor: Milana Trounce, MD, MBA - Stanford Department of Emergency Medicine

Objectives: Complex healthcare problems require innovative solutions, yet emergency physicians do not often receive any experience or training in healthcare innovation and entrepreneurship. In order to meet this need, we developed the first emergency medicine hackathon, HackED.

Background: Hackathons are competitions where small groups craft creative solutions to difficult problems over a short time period. Our goal was to increase emergency physician engagement and offer an opportunity to work with tech industry leaders to solve complex problems affecting the current healthcare landscape. The three cases the groups addressed were: • Wearable health data: how can we incorporate data from patients' wearables into their emergency care? • Hospital at Home: how can EM physicians improve the care of patients receiving home-based care? • Health Care Surveillance: Can we identify critical and evolving patterns of disease to improve patient care?

Methods: To design HackED, we drew on the experiences of previous hackathons outside of healthcare and coordinated efforts with leaders from the American College of Emergency Physicians (ACEP) and the Stanford Byers Center for Biodesign. We developed the structure of the event, the challenge prompts, a recruitment plan of participants, and a general schedule for the competition. We advertised the event through registration for the conference as well as on the ACEP website. Participants completed an online registration form and we matched teams with coaches with previous experience in healthcare innovation or biodesign. To further equip participants with the skills necessary to address their designated problems, we recruited a diverse group of speakers to give short presentations on healthcare innovation topics over the course of the hackathon. We planned a pitch competition for the final day of the event and recruited a group of judges in leadership positions in EM and healthcare innovation. The winning team was provided with free consultation with the Stanford Emergency Medicine Partnership Program (STEPP), an academic-startup pilot program focused on research and product validation. To assess our innovation, we completed direct observation in the field as well as had participants complete a qualitative questionnaire.

Results: This event took place during the 2022 ACEP Scientific Assembly (Oct 1-3) in San Francisco, CA. 37 physician registrants were divided into 3 teams. Participants included physicians, engineers, entrepreneurs, and user experience designers. Each team developed an innovative solution: The wearable healthcare data team developed "Happiness Rx", a lifestyle tracking application designed to combat physician burnout. The Hospital at Home team

developed “Dorothy.ai”, an app that helped screen patients for safety of discharge and coordinated expected resources needed at home. The Surveillance team developed “ForecastER”, a subscription-based service for hospitals to get real-time maps of disease patterns in order to help emergency departments and hospitals prepare their staff and resources for potential patient surges. The majority of participants were extremely satisfied with the experience and would recommend it to others. Qualitative analysis of our observations and survey data revealed several perceived benefits including increased experience with interdisciplinary collaboration, discovery of design thinking methods and their application, and a clearer understanding of the diversity of stakeholders that must be considered during implementation. The event had a perceived effect on how participants would approach problems in the future, and inspired participants to become more involved in healthcare innovation in the future.

Conclusions: Despite its computing and coding origins, hackathons have become a staple across multiple fields as a way to inspire innovative minds to creatively develop solutions to complex problems in a time-efficient manner. Here we described our experience with HackED, a healthcare innovation hackathon for emergency physicians. This experience offered valuable training for all involved, inspired many to become more involved in healthcare innovation, and led to several innovative solutions for challenges facing emergency medicine and hospitals as a whole.

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Friday, September 8, 2023
Session Time: 12:30 - 13:30
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Track: Posters - Case Reports

(P13) Shock Following Remote LVAD Removal

Poster Presenter / Primary Author: Joshua Easter, MD, MSc - University of Virginia
Co-Author: Juan Santiago

Chief Complaint : 59 year old male presented to the ED with left sided chest pain for one day.

History of Present Illness : The patient had a history of non-ischemic cardiomyopathy and underwent insertion of a left ventricular assist device (LVAD) in 2018. He subsequently had recurrent infections at the operative site leading to sepsis. In late 2020, the LVAD was explanted. He continued to have recurrent infections and modest hemorrhage from the chest wall wound, requiring four hospital admissions between 2020-22. The patient's most recent admission was two months prior to presentation when he developed an infection of the LVAD pump pocket. He underwent wound debridement and was discharged with a wound vac in place. On the day of presentation, the patient's rehabilitation facility changed his wound vac and noted bleeding from the chest wall wound. The patient was tachycardic and normotensive. EMS controlled the bleeding with pressure. On arrival the patient reported severe throbbing chest pain at the wound site and chronic bleeding from the wound.

Pertinent Physical Exam: He was afebrile with a heart of 116, blood pressure of 103/57 mm Hg, respiratory rate of 27, and oxygen saturation of 95% on room air. He was overall well appearing and alert. After removal of the pressure dressing, scant hemorrhage with clots was noted from the wound on his chest wall (see attached image). His heart exam was notable tachycardic but regular rhythm without murmurs, rubs, or gallops. His lungs were clear to auscultation. His capillary refill was 2 seconds, and his skin was warm and well perfused.

Pertinent Laboratory Data: His electrocardiogram revealed a paced rhythm. His white blood cell count was 21 k/uL, and his hemoglobin was 8 g/dL. His chest radiograph showed no consolidation or pneumothorax.

Case Discussion: Given the prior infections and leukocytosis, there was concern for a recurrent infection or hematoma formation. The patient was taken for CT, and while there his bleeding worsened significantly. He returned to the ED and was hypotensive with a blood pressure of 84/42. He bled through a pressure dressing, and his FAST exam did not demonstrate any free fluid in the abdomen. The patient's chest CT scan (see attached images) revealed perforation of the apex of the left ventricle filling a pseudoaneurysm with a fistula tract to the chest wall. Tranexamic acid was administered, and cardiothoracic surgery was consulted emergently. The patient was emergently transfused with blood products and taken to the operating room for repair. He suffered a cardiac arrest during the operation and was placed on extracorporeal membrane oxygenation life support. At the behest of the patient's family, this was withdrawn after several days, and the patient died. Bleeding is a common complication following LVAD insertion, occurring in approximately 20% of patients. However, it is typically in the immediate post-operative period or later from the GI tract. To our knowledge, this is the first case report of profound hemorrhage following explantation of a LVAD. The recurrent infections at the post-operative site potentially allowed for the pseudoaneurysm to form When the fistula formed to the chest wall this led to exsanguination and death.

References and Acknowledgements (Optional): N/A

Friday, September 8, 2023
Session Time: 12:30 - 13:30
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Track: Posters - Case Reports

(P14) Bidirectional Ventricular Tachycardia in Digoxin Overdose

Poster Presenter / Primary Author: Gayle Galletta (she/her/hers), MD - University of Massachusetts
Co-Author: Christopher Ditullio

Chief Complaint: Nausea and vomiting

History of Present Illness: A 75-year-old male with a history of paroxysmal atrial fibrillation, on apixaban and digoxin, type 2 diabetes, on dapagliflozin, congestive heart failure (CHF), nonischemic cardiomyopathy with an ejection fraction of 25%, automatic implantable cardiac defibrillator (AICD), and cirrhosis was brought in by ambulance from home to a community emergency department (ED) for one day history of nausea, vomiting, and fatigue. The patient later admitted to intentionally overdosing on his apixaban, digoxin, and dapagliflozin over 24 hours prior to his presentation.

Pertinent Physical Exam: Afebrile. Blood pressure 103/59 mmHg, heart rate 107, respiratory rate of 12 and oxygen saturation of 98% on room air. The patient was elderly and frail appearing. He was awake but confused and a poor historian. Pupils 4 millimeters, equal, round, and reactive to light. Mucosa moist. Sclera were icteric. Heart was tachycardic and regular rhythm without murmurs, rubs or gallops. Lungs were clear to auscultation. Abdomen was soft and non-tender. No ascites. Skin was jaundiced and legs were edematous with chronic wounds. Neurological exam revealed generalized weakness but was non-focal. No clonus.
Pertinent Laboratory Data
Labs were significant for a sodium of 128 mmol/L (normal range 136-145 mmol/L), potassium of 3.3 mEq/L (normal range 3.7-5.2 mEq/L), and chloride of 79 mEq/L (normal range 96-106 mEq/L). Creatinine was normal at 0.87 mg/dL. Glucose was normal at 77 mg/dL. Total bilirubin 11 mg/dL (normal range 0.1-1.2 mg/dL). Digoxin level was 7.2 ng/ml (therapeutic range 0.8-2.0 ng/mL). INR was elevated at 4.9. Salicylate and acetaminophen levels and urine toxicologic screen were normal.

Case Discussion: An electrocardiogram (EKG) was obtained which demonstrated a rare example of bidirectional ventricular tachycardia (BiVT) which was first described by Carl Schwensen in 1922 (1). It is most commonly seen with digoxin toxicity, but has also been described to be caused by Catecholamine Polymorphic VT (a genetic dysrhythmia induced by exercise, physical, or emotional stress), acute myocardial ischemia, ischemic cardiomyopathy, myocarditis, and cardiac sarcoidosis (2).

Our community hospital does not have point of care laboratory testing, so the patient was treated with calcium chloride for possible hyperkalemia while awaiting lab results. He received one liter of normal saline. His cardiac monitor revealed wide fluctuations in his rate and rhythm. Digoxin toxicity was strongly suspected. Since digoxin immune fab was not available in our ED, toxicology was consulted and the patient was transferred to a tertiary care hospital where he was treated with two doses of digoxin immune fab with improvement in his symptoms.

Pearls:
• Digoxin is derived from the foxglove plant. Its positive inotropic effects are used to improve systolic function in patients with CHF, and its atrioventricular nodal blocking effect is used to control atrial tachydysrhythmias (3).
• Digoxin has a narrow therapeutic window and is renally excreted.
• Signs and symptoms of digoxin toxicity include confusion, decreased appetite, nausea, vomiting, diarrhea, and visual changes (rare).
• Bidirectional ventricular tachycardia is a rare finding, but highly suggestive of digoxin toxicity.
• Administration of calcium in hyperkalemic patients with digoxin toxicity had once been thought to put patients at risk for “stone heart” (irreversible global myocardial contraction), but this has been debunked (3).

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Friday, September 8, 2023

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Track: Posters - Case Reports

(P15) A Case for Early ED POCUS for Undifferentiated Dyspnea

Poster Presenter / Primary Author: Nicole A. Guerrero (she/her/hers), MD - Jacobi Medical Center/Montefiore Medical Center

Co-Author: Ashley Aiken, MD - Jacobi/Montefiore Medical Centers

Chief Complaint : Shortness of Breath

History of Present Illness : 88-year old male with a past medical history of ESRD, ICM(EF of 55%), CAD, atrial fibrillation on apixaban, and gastric malignancy s/p billroth II surgery, and a recent admission one week ago for pneumonia now presenting with progressively worsening shortness of breath over one week. Since discharge from the hospital, he reports dyspnea on exertion and decreased exercise tolerance, which is now limited to walking one block. Now he reports significant impairment to daily activities, stating he cannot even bathe himself or get dressed without feeling winded and needing to stop and rest. Reports mid-sternal chest tightness, 4/10 that was not worse with exercise, inspiration, and not relieved with over the counter medications. Denies fevers, chills, coughing, GU or GI symptoms.

Pertinent Physical Exam: Patient presented in acute respiratory distress. Vital signs notable for hypoxia with SpO2 88% on RA, tachypnea (RR 26-30). He was subsequently placed on BiPAP with oxygen improvement to 100%. Otherwise, the patient was afebrile, not tachycardic (HR 64), and initially normotensive (BP 138/75). Remaining exam notable for JVD and no pedal edema. Cardiac POCUS performed, revealing a massive septated pericardial effusion, some views concerning for tamponade physiology including RV diastolic collapse and plethoric IVC. The patient became hypotensive with MAP 50-60. Given concerns for obstructive shock and tamponade physiology, Levophed was started and cardiology was called emergently.

Pertinent Laboratory Data: Labs: INR 2.0, Cr 10.8 (but on HD), Trop 0.04, Lactate 2.7, Hgb 7.4 (down from a baseline of 9.0 7 days ago), BNP 1268 Consults: CCM and CT Surgery consulted for respiratory distress and POCUS showing large Pericardial effusion with RV collapse. Recommended IV fluids and emergent pericardiocentesis. He went to the cath lab where 750 cc of sanguineous fluid was drained with 3900 WBC, >3 million RBC and normal glucose, LDH and protein. Medications: Levophed was started for tamponade physiology. Given vitamin K and K centra to reverse coagulopathy

Case Discussion: Pericardial effusion is considered to be present when the fluid within the pericardium exceeds the small amount that is usually present. Pericardial effusions can occur as a component of almost any pericardial disease including infectious, idiopathic, autoimmune, malignancy, trauma, pericardial injury syndromes, metabolic, and aortic diseases. The management of a pericardial effusions is dependent on the classification and hemodynamic impact of the effusion. Cardiac tamponade occurs when the intrapericardial pressure exceeds the intracardiac pressures. Classically, the clinical manifestations of tamponade in the acute setting are hypotension, elevated systemic venous pressure, and muffled heart sounds. In the sub-acute setting hypotension may not always be present. Other signs and symptoms of cardiac tamponade include dyspnea, tachycardia, and pulsus paradoxus. Point of care ultrasound (POCUS) provides a great adjunct tool for the diagnosis of tamponade. The major

ultrasonographic findings of tamponade include pericardial effusion, systolic right atrial collapse, diastolic right ventricular collapse, and IVC dilation with < 50% reduction in diameter with respiratory phases. Early cardiac POCUS prior to the onset of hypotension in this case was essential to the diagnosis and timely management of this patient. Unique to this patient was the presence of a septated/loculated pericardial effusion compressing the RA/RV. RV diastolic collapse was noted as a concern given the compressed appearance of the RV but it was questionable. The clinicians correctly recognized that the POCUS findings given the patient's whole clinical presentation warranted emergent pericardiocentesis. Formal echocardiogram done prior to pericardiocentesis in the cath lab reported no presence of RV diastolic collapse. A learning point of this case is that septated/loculated effusions can lead to regional tamponade in which only selected chambers are compressed. As a result the echocardiographic signs and hemodynamics of regional cardiac tamponade may differ from standard circumferential pericardial effusions.

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Track: Posters - Case Reports

(P16) Crawling Sensation on the Scalp in a 60 Years Old Man

Poster Presenter / Primary Author: CHUN YEN HUANG, MD - Kaohsiung Municipal Siaogang Hospital, Kaohsiung Medical University, Kaohsiung Medical University Hospital
Co-Author: YI AN CHIEN, RN - Kaohsiung Medical University Chung-Ho Memorial Hospital

Chief Complaint : A 60-year-old man complained of something crawling on his head

History of Present Illness : A 60-year-old man with history of gout and chronic kidney disease, came to the emergency department with complaints of something crawling on his head and 3 worms were found on his pillow [figure 1A]. He underwent left craniectomy with abscess removal for left fronto-temporoparietal lobe epidural abscess 5 years ago. 4 months after craniectomy, he underwent cranioplasty utilizing three-dimensional titanium mesh for the skull defect. On clinical examination, he was conscious, afebrile with normal vital signs. Inspection of the head revealed titanium mesh exposure[figure 1B] with maggots crawling. Brain computed tomography showed encephalomalacia in the left temporoparietal lobe [figure 2] . Intraoperatively, titanium mesh was detached. Several maggots on the dura were removed and the epidural abscess was cleaned gently. The scalp defect was reconstructed by a plastic surgeon. Broad spectrum intravenous antibiotic was administered for 8 weeks. He became maggots free and discharged without neurologic sequelae.

Pertinent Physical Exam: On clinical examination, he was conscious, afebrile with normal vital signs. There were no apparent neurologic deficits. Inspection of the head revealed titanium mesh exposure with maggots crawling through the implant holes. There was no purulent discharge or cerebrospinal fluid leakage from the wound.

Pertinent Laboratory Data: Blood test revealed leukocytosis with neutrophil predominance.

Case Discussion: Maggots infestation of the brain is very rare in developed countries. There have been only 17 published cases since 1937 and the mortality rate is 35%.[3] All of the death cases were before 1980’s. Neglected skin tumors and poor wound care were the most common causes of cerebral myiasis.[3] The infestation location tended to be in the frontal region statistically. Myiasis can be clinically classified as primary or secondary.[4] In primary myiasis, larvae penetrate the skin and complete its life cycle inside the host. In secondary myiasis, female flies lay their eggs around the wounds and larvae feed on necrotic flesh. The exact species of larvae is not identified in our case. To our knowledge, this is the first cerebral myiasis case in Taiwan. Also, it is the first cerebral myiasis case associated with an artificial implant and cranioplasty flap. Treatment includes debridement of the necrotic tissue, reconstruction of the defect and broad spectrum antibiotics. Surprisingly, in most of the cases of brain myiasis including this case, there were no fatal meningitis or further central nervous system infection of the patient suggesting that maggots infestation of the wound may prevent secondary bacterial infection.[2,5] In conclusion, cerebral myiasis is an exceedingly rare neurosurgical event in developed countries. Meningitis is uncommon in patients with cerebral myiasis despite extensive dura invasion. Management of cerebral myiasis may involve multidisciplinary team including emergency physicians, neurosurgeons, infectious disease specialists and plastic surgeons. The outcome is usually good.

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Track: Posters - Case Reports

(P17) Head Whip

Poster Presenter / Primary Author: Shilpa Kolli, MD - Brown University
Co-Author: Boey Li, MD - Jacobi/Montefiore Medical Centers
Co-Author: Mallika Manyapu, MD MPH - George Washington University

Chief Complaint : A 33-year-old female with no past medical problems presents with headache and neck pain for 2 days.

History of Present Illness : She states she had a right sided headache that started 2 nights ago. The headache is worsening and is now predominantly on the left sided neck. She reports associated numbness to the face and lips as well feeling off balance. Denies fever, neck stiffness, visual changes, recent tick bites.

Pertinent Physical Exam: Vitals: BP 128/87 HR 76 RR 16 SpO2 100% Head: normocephalic, atraumatic. No hematoma. No tenderness to palpation. Eyes: pupils equal, round, and reactive to light. Neck: full range of motion, no bruit, no swelling, no tenderness to palpation. Cardiac: regular rate and rhythm, radial and dorsalis pedis pulses 2+. Lungs: clear to auscultation bilaterally. Neuro: right sided facial droop with forehead sparing. Decreased sensation to the left upper extremity as compared to right upper extremity. Strength 5/5 to bilateral upper and lower extremities. Unsteady gait.

Pertinent Laboratory Data:

Case Discussion: Initially this patient received Reglan and normal saline, which helped resolve the headache. Due to severe neck pain with neurologic deficits, the patient received a CT head as well as a CTA and MRA of the head and neck. Imaging showed a left vertebral artery intramural hematoma and dissection. The patient was treated with aspirin. It was found during the hospital course that the patient started zumba classes recently and this was likely the cause of the dissection. A vertebral artery dissection occurs due to compromise of the structural integrity of the arterial wall. Causes generally include minor trauma such as coughing, vomiting, or exercise. Damage to the arterial wall results in hematoma and clot formation, leading to stenosis and possibly stroke. Symptoms of a vertebral artery dissection include acute and severe unilateral neck pain and/or headache. Neurologic deficits are present in about 70% of patients. Extracranial dissections will usually have bruits and intracranial dissections may more often show subarachnoid hemorrhage. Imaging modality of choice is CTA or MRA of the head and neck to fully assess vasculature. Treatment is heparin or TPA if found within 4.5 hours of symptom onset and subsequently 6 months of anticoagulation. About 80% of patients have a full recovery.

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Friday, September 8, 2023
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Track: Posters - Case Reports

(P18) Hemoptysis

Poster Presenter / Primary Author: Shilpa Kolli, MD - Brown University
Co-Author: Boey Li, MD - Jacobi/Montefiore Medical Centers
Co-Author: Mallika Manyapu, MD MPH - George Washington University
Faculty Advisor: Anirudh Ramachandran, DO - University of Cincinnati

Chief Complaint : A 34-year-old female with no known past medical history presents with coughing up blood for 1 day.

History of Present Illness : She reports occasional hemoptysis over the past three months but consistent episodes today. Today, the patient estimates approximately 5-10 mL of frank bright red blood with each episode of hemoptysis and about 500 mL in total over the past 24 hours. She reports annual trips to Albania. During her most recent trip that was 3 months ago, she had dental implants placed. She denies fever, chest pain, shortness of breath, or trauma.

Pertinent Physical Exam: Vitals: BP 127/88 HR 86 temp 98.8 F RR 18 SpO2 99% RA
General: alert, answering questions appropriately, occasional cough with streaks of bright red blood produced. Mouth/throat: normal dentition, no lesions, no ulcers, no lacerations. Heart: S1 and S2 appreciated. Lungs: clear to auscultation. Abdomen: soft, nontender. Derm: no rashes.

Pertinent Laboratory Data: WBC: 16.7 Hgb: 13.6 Hct: 42.5 Plt: 304 BUN: 6

Case Discussion: The initial concern for this patient was airway stability. No immediate intervention was needed as she was only producing streaks of blood, speaking in full sentences, and had no increased work of breathing. However, the patient then began to produce approximately 10 mL of blood per cough with an estimated over 500 mL per 24 hours. The decision was made to obtain a CTA of the chest while the patient was stable. It showed a cavitary lesion in the left lower lobe with an endobronchial opacity concerning for blood. The patient was then intubated via a right mainstem intubation using a large endotracheal tube (size 8.0). Interventional pulmonology was then able to perform a rigid bronchoscopy to place an endobronchial blocker at the site of the lesion in the left lower lobe. She was started on broad spectrum antibiotics. Pathology reports from bronchoscopy showed active tuberculosis for which the patient was treated. Massive hemoptysis is life threatening hemoptysis with potential for death by asphyxiation. Quantitatively, it is over 50 mL per cough, over 100 mL per hour, or over 600 mL per day. Bleeds are usually from the high pressure bronchial arteries, pulmonary arteries, or aorta. Intubation technique should involve right mainstem intubation when applicable or place the patient in lateral decubitus position with lesion on the dependent side. If mainstem intubation is done, it is important to adjust the ventilator parameters to account for one lung ventilation. When an endobronchial blocker is placed, the patient will have to be re-paralyzed or deeply sedated to minimize movement of the blocker. Hemoptysis can be a life threatening chief complaint which can worsen quickly during a patient’s emergency department stay. Therefore these patients must be closely monitored and reassessed.

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(P19) A Case of Euglycemic DKA Associated with an SGLT2 Inhibitor and Exogenous Hormone Use

Poster Presenter / Primary Author: Nitin Kuppanda, MD - St. John's Riverside Hospital
Co-Author: Adrian A. Cotarelo, MD, MHS - St. John's Riverside Hospital
Co-Author: David Liu, MD - Valley Hospital
Faculty Advisor: Yomna Nassef, MD - St. John's Riverside Hospital

Chief Complaint : A 35-year-old woman presents for evaluation of two days of dyspnea on exertion, palpitations, and abdominal pain.

History of Present Illness : A 35-year-old woman with a history of type II diabetes mellitus and adenomyosis presented with progressive dyspnea on exertion, palpitations, and abdominal pain for two days. She was receiving long term treatment with insulin glargine 15 units once nightly, dapagliflozin propanedial 10 mg daily, dulaglutide 1.5 mg weekly as well as norethindrone. Two days prior to her presentation to the ED, her norethindrone dose was increased from 5 mg daily to 5mg twice daily due to worsening uterine bleeding. Over the last 48 hours, her blood glucose levels, typically between 150-200, had increased to the 300s. She reported strict compliance with her medication regimen and denied changes to her diet. She denied any recent alcohol use. The morning of her presentation to the emergency department, she took 10 extra units of insulin glargine given the elevated blood glucose readings.

Pertinent Physical Exam: Vitals: HR 130, BP 99/73, RR 24, Rectal Temperature 98.9, Oxygen Saturation 98% General: moderate acute distress, tachypneic HEENT: normocephalic, atraumatic, dry mucous membranes Pulmonary: Lungs CTAB Cardiac: tachycardic, regular rhythm, no murmurs, rubs, or gallops Abdomen: soft, nontender, nondistended Extremities: moving extremities freely, fully alert and oriented, no cyanosis, clubbing or edema on extremities, no calf tenderness bilaterally Neuro: no slurred speech, no facial droop, no gross weakness

Pertinent Laboratory Data: A bedside fingerstick was 138. EKG revealed sinus tachycardia at a rate of 128 and S1Q3T3 pattern. A stat CT angiogram of the chest was performed and pulmonary embolism was excluded. Laboratory results were remarkable for a venous pH of 7.1, bicarbonate of 10, glucose of 144, anion gap of 20, and 4+ urine ketones. Ethylene glycol and methanol levels were undetectable, and the lactic acid level was within normal limits. A beta-hydroxybutyrate level was >45. The remainder of her diagnostic work up revealed no evidence of infection such as pneumonia, urinary tract infection, bacteremia, or viral syndrome.

Case Discussion: We present the first case, to our knowledge, of euglycemic diabetic ketoacidosis triggered by exogenous hormone use in a patient on an SGLT2 inhibitor. Our patient was on long term norethindrone but had doubled her dose two days prior to her presentation. The increase in dosage likely caused a hyperglycemic state by reducing the efficacy of the dapagliflozin and led to a resultant ketoacidotic state. In this case, the fingerstick of 138 on presentation led to a delayed diagnosis of diabetic ketoacidosis. There have been several case reports and studies associating the use of SGLT2 inhibitors with euglycemic

DKA,2,, leading the FDA to add a warning label about the potential for euglycemic DKA. Careful attention should be paid to the metabolic panel in these patients, as derangements in the anion gap and bicarbonate levels may be the only initial clues to suggest an underlying ketoacidotic state in these patients. Oral contraceptives have been shown to cause increased insulin resistance and could potentially alter the rate of release of insulin from pancreatic beta cells. Furthermore, norethindrone specifically has been shown to possibly alter the peripheral action of insulin causing a decrease in glucose utilization. There are important lessons gleaned by this case of euglycemic DKA triggered by exogenous hormone use, in a diabetic patient on an SGLT2 inhibitor. Drug interactions are common and can be easily missed. In the Emergency Department setting, it is important to thoroughly investigate diabetic patients with elevated anion gap metabolic acidosis or DKA signs and symptoms regardless of the blood glucose levels. Patients prescribed SGLT2 inhibitors should be educated on the potential adverse effects of the medication and drug interactions including the possibility of DKA, as well as the signs and symptoms to be on the lookout for.

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Session Time: 12:30 - 13:30

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Track: Posters - Research Abstracts

(P20) Evaluation of Emergency Room Reattendance and Re-hospitalisation Reductions with Our Hospital to Home Programme

Poster Presenter / Primary Author: Jean MH Lee (she/her/hers), MD, FRCSAE - Singheath Pte Ltd

Co-Author: chong Yau Ong, MBBS, MMED Family Medicine - Sengkang General Hospital

Co-Author: Jieru Lai, MBBS - Sengkang General Hospital

Objectives: Many patients get readmitted post hospital discharge due to multiple factors. Home visits through Hospital-to-Home(H2) programs are targeted at these at-risk patients with complex co-morbidities and high social care needs. We aimed to review the outcome of a hospital-to-home program with regards to reducing emergency department visits and readmissions.

Background: Upon discharge from inpatient wards, patients with high risk of re-hospitailsation are followed up by a heath care team at home visits, with the purpose to identify patient care needs which range from medical to social needs, and intervene so as to prevent an avoidable readmission back to the emergency department or hospital. We also to optimise the well-being of the patient with our multi-disciplinary team approach.

Methods: A retrospective review of patients cared under the program in a tertiary hospital in Singapore from September 2020 to August 2021 was conducted. We studied the demographics of patients 3 months prior to enrolment into the H2H program and followed up with them for the period of enrolment. The enrolment consisted of 2 home visits to the patient which could be conducted virtually if deemed suitable. Thereafter the cohort was tracked for 3 more months after the last home visit and the visits to ED and hospital admissions documented for them. During the home visits, other than following up on the medical issues, we would perform medical reconciliation, conduct Advance Care Planning conversations and attend to social/financial needs by referring them to social workers or community partners where necessary.

Results: 284 patients have complete data and were included in the analysis. 90% of the patients were above the age 60. The median length of enrolment to the program was 5 months (0 to 7 months). Compared to three-months pre-enrolment period, there was a 47.5% reduction in ED re-attendances during the enrolment of the program. The after-effect was also observed whereby there was a further 18% reduction in ED re-attendances three-months post-discharge from the program. Compared to pre-enrolment period, enrolment in H2H studied 3 months later resulted in the highest number of ED re-attendance reductions among the groups with 3 ED visits (8 patients down from 46) and 4 and above ED visits (6 down from 30).

Conclusions: Home visits through hospital-to-home program can reduce the number ED re-attendances and the benefit can still be observed after three-months post-discharge from the program.

References (Optional):

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(P21) Worming It's Way In

Poster Presenter / Primary Author: Mallika Manyapu, MD MPH - George Washington University
Co-Author: Boey Li, MD - Jacobi/Montefiore Medical Centers
Co-Author: Maninder Singh, MD - Jacobi

Chief Complaint : A 67-year-old male with a history of bilateral inguinal hernias presented complaining of worsening pain and swelling over the right inguinal area for 3 days.

History of Present Illness : A 67-year-old male with a history of COPD, atrial fibrillation, and bilateral inguinal hernias presented complaining of worsening pain and swelling over the right inguinal area for 3 days. The patient stated he had bilateral inguinal hernias for the past 4 years. He reported the right side has progressively enlarged and became intermittently painful over the past 3 months. The pain acutely worsened and has been more persistent since 3 days ago. Patient denied fever, abdominal distension, nausea, or vomiting. Patient reported his last bowel movement was the day prior to presentation. Patient has no prior abdominal surgeries.

Pertinent Physical Exam: General: middle aged male in no acute distress, but appeared uncomfortable. Cardiovascular: regular rate and rhythm. Normal S1 and S2. No murmurs, rubs, gallops. Respiratory: Lungs clear to auscultation bilaterally. No wheezes, rales, or rhonchi. Gastrointestinal: Abdomen soft, non-distended, non-tender, no guarding or rebound tenderness. Genitourinary: Large bilateral scrotum. Soft large left inguinal mass palpated. Firm large right scrotal mass that is tender to palpation. Fullness to the right inguinal canal that is tender to palpation. No overlying skin changes to the scrotum. Extremities: moving all extremities. No pitting edema. Neurological: Alert and oriented to person, place, and time.

Pertinent Laboratory Data: His vital signs, white blood cell count, and lactate were within normal limits.

Case Discussion: Amyland's hernia is when the appendix, whether or not it is inflamed, is found within the inguinal hernia sac. It is a rare finding and occurs in about 0.5% of inguinal hernias. It is typically mistaken as an incarcerated or strangulated hernia and is difficult to diagnose clinically. The presenting symptoms can be varied, from mild abdominal pain to signs of bowel obstruction. The diagnosis is traditionally made intraoperatively, but ultrasound and computed tomography (CT) imaging have been helpful modalities for preoperative diagnosis. In the CT imaging of our patient, there was no evidence of appendicitis or bowel obstruction. Of note, our patient also has a left inguinal hernia containing the sigmoid colon. Treatment depends on whether or not there is evidence of appendicitis. If the appendix is not inflamed, bedside hernia reduction should be performed. If reduction is unsuccessful, treatment is hernioplasty with or without appendectomy. If there is evidence of appendicitis, treatment is hernioplasty with appendectomy. In our case, general surgery evaluated the patient in the emergency department and was able to reduce bilateral inguinal hernias at bedside. There was no indication for urgent surgical repair and he had an outpatient follow up general surgery appointment scheduled.

References and Acknowledgements (Optional): 1. Michalinos A, Moris D, Vernadakis S. Amyand's hernia: a review. Am J Surg. 2014 Jun; 207(6):989-95. 2. Ash L, Hatem S, Ramirez GA, Veniero J. Amyand's hernia: a case report of prospective ct diagnosis in the emergency department. Emerg Radiol. 2005 Jun;11(4):231-2. 3. Keskin S, Simşek C, Keskin Z. The Amyand's Hernia: A Rare Clinical Entity Diagnosed by Computed Tomography. Case Rep Radiol. 2013;2013:638270.

Friday, September 8, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Case Reports

(P22) Under Pressure: The Unique Danger of Tension Pneumomediastinum

Poster Presenter / Primary Author: Joseph O'Keefe, MD - St. John's Riverside Hospital
Faculty Advisor: Adrian A. Cotarelo, MD, MHS - St. John's Riverside Hospital

Chief Complaint : Nausea, vomiting, and epigastric pain.

History of Present Illness : A twenty-year-old female with a past medical history of asthma presented to the ED with nausea, vomiting, and epigastric pain that radiated upwards towards the chest. Symptoms began with gradual onset after awakening earlier that morning and progressively worsened over the course of the day. She has had approximately ten episodes of non-bloody emesis prior to arrival in the ED. She denied a history of similar symptoms or prior surgery, but reported endoscopy two days prior to symptom onset. She denied any associated fevers, chills, shortness of breath, or changes in bowel or bladder habits.

Pertinent Physical Exam: Vital signs within normal limits on arrival. BMI 21.3 kg/m2. On initial assessment, the patient appeared uncomfortable, and began to repeatedly dry heave, holding a bag of bilious emesis. She was noted to have slight right-sided facial fullness. Heart rate is regular with normal heart sounds. Lungs are clear to auscultation bilaterally. Abdominal exam reveals epigastric tenderness, but her abdomen is soft and without distension, normoactive bowel sounds, no palpable masses. Also noted to have mild right-sided facial swelling without overlying skin changes.

Pertinent Laboratory Data: WBC 16.5k, total bilirubin 1.4, LFTs within normal limits. 20:41 Abdominal ultrasound without evidence of hepatobiliary disease. 22:30 Further imaging obtained due to worsening dyspnea and facial swelling. Chest x-ray reveals air accumulation within soft tissues along bilateral mid and upper chest extending to lower neck, possible small left apical pneumothorax. 23:29 Head and soft tissue CT shows extensive soft tissue emphysema in the neck, traveling superiorly to the skull base and inferiorly to the chest wall and axilla.

Case Discussion: The above patient is a young, healthy female who presented with nausea, vomiting, and epigastric pain, a frequent chief complaint that rarely underlies emergent pathology. Initial workup was unrevealing save for leukocytosis, and her condition rapidly worsened during her ED course, with the patient rapidly developing marked facial swelling, respiratory distress, and extensive subcutaneous emphysema not appreciated on initial assessment. Given her acutely worsening condition, her care team obtained a plain film of the chest, revealing extensive pneumomediastinum and a small left apical pneumothorax. The patient suffered cardiac arrest while in CT imaging, limiting further radiographic evaluation. CPR was initiated and the on-call surgeon was contacted, who recommended left-sided needle decompression due to concerns for tension pneumothorax, and, ultimately, bilateral chest tubes were placed. The surgeon was also concerned for abdominal compartment syndrome given CT findings. Abdominal cut-down was performed by the emergency department attending physician while the surgical on-call was en route to the hospital. Surgery then extended the cut-down into thoracotomy, and cardiac massage was performed. Operative report noted a large hole at the greater curvature at the junction of the fundus and the body. After approximately one

hour of resuscitation without return of cardiac activity, time of death was then declared. This case highlights the unfortunate possibility of emergent pathology arising from typically benign complaints in an otherwise healthy patient population. Pneumomediastinum is typically a self-limiting process, but tension pneumomediastinum can occur, where intrathoracic structures are compressed, cardiac output is compromised, and cardiac arrest can occur. Patient with a predisposing condition such as those in acute asthma exacerbation may be at higher risk. Tension pneumomediastinum requires mediastinotomy to facilitate air drainage and relieve intrathoracic pressures. Emergency providers must remain vigilant in the vomiting or asthmatic patient with a sudden decline in respiratory status.

References and Acknowledgements (Optional): McMahon DJ. Spontaneous pneumomediastinum. Am J Surg. 1976 May;131(5):550-1. doi: 10.1016/0002-9610(76)90008-8. PMID: 1275141.

Friday, September 8, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Research Abstracts

(P23) Determining Appropriate Clinical Skills

Poster Presenter / Primary Author: Thomas J. Papadimos, MD - The University of Toledo College of Medicine and Life Sciences

Co-Author: Shaza Aouthmany, MD - The University of Toledo Colelge of Medicine and Life Sciences

Co-Author: Scott Pappada, Ph.D. - The University of Toledo College of Life Sciences

Objectives: There is a critical need for a capability to determine if the appropriate skills have been acquired and maintained. The purpose of this study was to evaluate the impact of the adoption and use of a novel learning management system (LMS) platform on emergency residents' education.

Background: Clinical skill maintenance/acquisition can be supported by supplemental simulation-based training.1 Training or refresher requirements are variable among healthcare providers. The current standard is to offer training/refresher training at some predefined frequency. Our work involves the development of a novel LMS platform providing standardized multimodal measurement and assessment of knowledge/skill acquisition and performance of providers as they train and advance in their careers. In the future, these standard performance measures can be incorporated into a machine learning-based models to personalize education/training of healthcare providers to increase the potential that providers operate at peak performance in their clinical arena.

Methods: This effort involves leveraging a pre-existing learning management system platform called PREPARE to evaluate emergency medicine resident's performance subjectively and objectively via observer-based and physiological monitoring respectively.1 Proficiency and clinical performance are generally measured at discrete time points. PREPARE offers the addition of wearable neurophysiological monitors that collect continuous performance measures in addition to observer-based and other subjective assessments that are routinely recorded during simulation-based education. One of the novel aspects of PREPARE is that all data and measures are standardized and applicable across a diverse set of disciplines. This is critical as the use of this platform will result in the creation of a comprehensive database that is necessary to train and develop system intelligence with robust machine learning algorithms. This will allow classification of expertise and predict knowledge/skill acquisition in guiding future training needs. This database includes relevant background variables (age, gender, role, years of practice/training, frequency of completing relevant procedures, etc.), self-report measures (task load, engagement, stress, etc.), cognitive and behavioral measures, and neurophysiological data (EEG, galvanic skin response [GSR], heart rate, etc.) and derived neurophysiological metrics that indicate states such as cognitive workload, stress, and fatigue.

Results: Figures 1 and 2 demonstrate the performance measures rated by expert clinical faculty using the platform for a simulation scenario involving treatment of a Hemophilia A patient. Each "event" in Figures 1 and 2 was evaluated by faculty with the platform via a color-coded red to green scale which translates to a quantitative 0-100 performance measurement. Events are organized in a standardized hierarchy as cognitive, behavioral, and psychomotor

skills. Figure 3 shows the galvanic skin response (GSR) of each resident collected during the scenario. The 2nd year resident's GSR is approximately 7.5 times greater in magnitude than that of the 3rd year resident. Average performance of the 2nd year resident was 55, 62, and 79 for behavioral, psychomotor, and cognitive skills. For the third-year resident average performance was 91, 100, and 81 for behavioral, psychomotor, and cognitive skills. A significance difference in faculty-documented performance and physiological response was observed across the residents. This indicates that the level of comfortability or stress responses potentially translates to better performance consistent with more experience and years in training. This is consistent with our prior findings when comparing performance and physiological responses of residents independent of years in training.

Conclusions: We have created and established PREPARE at the University of Toledo and have made it available to all specialties. It has been specifically and considerably used by Emergency Medicine, Anesthesiology, and Surgery. Its use as a supplement to clinical experience and training will enhance clinician performance by allowing training in a safe, simulation environment. Ultimately, this platform and the data collected and generated by it will be useful in personalizing training and education of current and future healthcare providers to ensure that they achieve peak performance in their clinical setting.

References (Optional): 1. Pappada S, Owais MH, Aouthmany S, Schneiderman J, Toy S, Schiavi A, Miller C, Guris RD, Papadimos T, Rega P. International Journal of Healthcare Simulation 2022 DOI: 10.54531/mngy8113

Funding: none

Friday, September 8, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P24) Gastrocardiac Syndrome: A Rare Emergency Department Presentation

Poster Presenter / Primary Author: Thomas J. Papadimos, MD - The University of Toledo College of Medicine and Life Sciences

Co-Author: Tahla Saif, MD - The University of Toledo College of Medicine and Life Sciences

Chief Complaint : A 66-year-old white male physician presented to the emergency department with a complaint of multiple episodes of near-syncope upon swallowing food.

History of Present Illness : The patient had a history of right bundle branch block and bradycardia that were asymptomatic, migraine headaches for which he took rizatriptan and Excedrin, acid reflux, and a small hiatal hernia. During his evaluation he also reported that he was a heavy coffee drinker and an avid consumer of citrus fruits. He was physically active for his age and had lost 10 kg through exercise over 4 months. He had gone to a restaurant for dinner and upon swallowing his first mouth full of food he noticed his heart rate became rapid and he had near syncope. This occurred several times during the meal and every meal thereafter for seven days. He reported his heart rate as 150 beats per minute during the episodes, which lasted very briefly—only until the food bolus passed into the stomach. Liquids did not cause symptoms. He underwent cardiac and gastrointestinal work-ups.

Pertinent Physical Exam: This 80 kg, 69 cm male, had a BP of 145/90 mmHg, pulse 55/min with a regular rhythm (he had a RBBB and bradycardia since age 17). There were no murmurs appreciated. Lungs were clear to auscultation, and had a respiratory rate of 12 breaths per minute. All other systems were unremarkable.

Pertinent Laboratory Data: His basic metabolic panel showed no abnormalities and his CXR was normal. ECG revealed a RBBB and bradycardia of 50. Transthoracic echocardiography revealed an ejection fraction of 65%, mild aortic regurgitation, and no wall motion abnormalities. Cardiac catheterization revealed a 50% obstruction in the left anterior descending, circumflex, right, and OM1 arteries. A thirty-day Holter monitor demonstrated multiple episodes of wide complex supraventricular tachycardia, none more than 12 beats. Endoscopy demonstrated multiple areas of inflammation in the fundus of the stomach—and a wide complex tachycardia occurred with endoscope insertion. He was not tested for Helicobacter pylori.

Case Discussion: Gastrocardiac syndrome was first reported by Ludwig von Roemfeld who first described the associated cardiac symptomatology with gastric pathology in 1913. He was able to instigate arrythmias with esophageal stimulation. Gastrocardiac syndrome can result in bradycardia or premature ventricular contractions (PVCs), rapid rates such as wide complex supraventricular tachycardias or atrial fibrillation. Wide complex supraventricular tachycardias may be difficult to distinguish form ventricular tachycardia (figure 1). This syndrome, whose origin has not been definitively determined, is related to gastroesophageal reflux (GERD), hiatal hernia, gastric and/or intestinal distension. In some individuals, obesity, obstructive sleep apnea, and inflammatory bowel disease have been postulated as sources. GERD is associated with autonomic imbalance from increased vagal tone causing arrhythmogenicity (figure 2). Large hiatal hernias can cause compression of the left atrium and posterior ventricular wall, as well as pulmonary vein compression leading to dyspnea. GERD can also cause a reduction in

coronary blood flow from esophageal acid stimulation which can lead to ischemia that generates PVCs. Beta-blockers, PPIs, and anti-foaming agents can be used as treatment, but, at times, a cardiac catheter ablation is required. This syndrome is essentially a rare, yet forgotten entity. This patient had several of the aforementioned risk factors. He was treated with a change of diet (decreased citrus and no coffee), metoprolol XL 25 mg daily, and a proton pump inhibitor (PPI). He had resolution of symptoms at 45 days. At 6 months the metoprolol and PPI were discontinued with no recurrence of symptoms.

References and Acknowledgements (Optional): Roemfeld L. Der gastro-kardiale symptomenkomplex, eine besondere form sog. Herzneurose Fortschr Med, 1913;3:57. Hofmann R, Bäck M. Gastro-cardiology: A novel perspective for the gastrocardiac syndrome. Front Cardiovasc Med 2021. 8:764478. doi: 10.3389/fcvm.2021.764478. Mehta A, Bath A, Ahmed UM, Kalavakuna JK. Rare and unusual presentation of the gastrocardiac syndrome. BMJ Case Rep, Dec 17 2022;13(12): e236910. doi: 10.1136/bcr-2020-236910. Saeed M, Bhandohal JS, Visco F, Pekler G, Mushiyev S. Gastrocardiac syndrome: A forgotten entity. Am J Emerg Med 2018; 36: 1525.e5-1525.e7. Qureshi K, Naeem N, Saleem S, Chaudhry MS, Pasha F. Recurrent episodes of paroxysmal supraventricular tachycardia triggered by dyspepsia: A rare case of gastrocardiac syndrome. Cureus 2021, Oct 18;13(10):e18857. doi: 10.7759/cureus_18857.ecollection 2021.

Friday, September 8, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Research Abstracts

(P25) Stop! Collaborate and Evaluate: How a Stop Light Timer Impacts Evaluation Completion Rates in Emergency Medicine Didactic Sessions

Poster Presenter / Primary Author: Daniel Peters, MD - University of Vermont Medical Center
Faculty Advisor: Tabitha Ford, MD - University of Vermont Medical Center

Objectives: The purpose of this study was to evaluate the impact of a stop light timer on the quantity and length of evaluations completed by Emergency Medicine team members attending an academic residency's didactic sessions.

Background: Emergency medicine residents require a deep understanding of medical concepts and the ability to apply them in high-pressure situations. Didactic sessions are crucial in providing the necessary knowledge and skills, and their evaluation is essential to assess teaching effectiveness, identify areas for improvement, and enhance the learning experience. Evaluating content, delivery, and learner engagement helps educators adjust their teaching methods and improve education quality. Effective evaluation benefits both learners and educators, so emergency medicine residency programs should prioritize it to ensure residents receive the best education and are prepared for real emergencies.

Methods: In an effort to ensure adequate time for evaluation and cognitive rest between lectures, emergency medicine residents, faculty, nurses, and technicians participated in an intervention involving the implementation of a stoplight timer during didactic sessions. The timer ensured an adequate break before the next session by showing a yellow light after 43 minutes, a red light at 50 minutes, followed by a verbal cutoff at 53 minutes. The intervention aimed to address the common issue of didactic sessions going over their time limit. Attendees used Airtable, a data collection platform, to record evaluations of lectures before and after the 13-week intervention, allowing measurement of the average length of response. Data analysis involved a t-test to compare the average number of evaluations per session and the length of responses before and after the intervention, to determine if there was a significant difference. This intervention was implemented to improve evaluation participation and quality, and data analysis aimed to determine if the stop light timer was effective in achieving this goal.

Results: The results of the study suggest that the implementation of a stoplight timer during didactic sessions has had an impact on evaluation completion rates and the content of the evaluations. Specifically, the number of evaluations completed per session decreased from 16.8 to 14.1 ($p=0.02$), indicating that fewer attendees completed evaluations after the intervention. The word count per evaluation also decreased from 13.1 to 11.5, although the p-value for this finding was only borderline significant at $p=0.06$. The type of attendees and the content of the didactic lectures were not recorded or analyzed. Occasionally didactic days had fewer or additional sessions, and in total there were 43 sessions that were evaluated during the first 13 weeks and 42 total sessions during the second 13 weeks.

Conclusions: Implementation of a stoplight during didactic sessions was not associated with increased evaluation rates or length of evaluations. There are numerous factors that could contribute to the general downward trend in evaluations over the course of the academic year despite the introduction of a stoplight to provide increased evaluation time between didactic

sessions. Important limitations include the following: The population studied had a significant capacity to change as only the residents were required to be present at didactics. The time of year may have influenced participation and response count. Providing a stoplight timer may have increased cognitive offload and socialization too much, detracting from completing evaluations. Further analysis on the impact of learner satisfaction is warranted.

References (Optional):

Funding: No monies have funded this research

Friday, September 8, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P26) A Rare Case of Black Yeast Prosthetic Endocarditis

Poster Presenter / Primary Author: Xavier Quezada (he/him/his), MD - St. John's Riverside Hospital

Co-Author: Heather Schlaman, MD - St. John's Riverside Hospital

Chief Complaint : Shortness of breath on exertion and left-sided chest tightness

History of Present Illness : 60 year old male with past medical history of HFrEF (EF 25%, s/p AICD), CAD s/p CABG, bioprosthetic mitral valve repair, presenting with dyspnea on exertion and chest tightness that acutely worsened over 2 days. He describes constant left-sided moderate chest tightness, with no radiation, associated with subjective fevers beginning today. He otherwise denies new complaints. He reports progressive fatigue over the last month to the point where he can only walk a few steps before getting tired. He was told by his primary care doctor last month that his blood pressure was lower than usual and kidney function is worsening. Over the last few days he did not take his home diuretics due to concerns for over-diuresis.

Pertinent Physical Exam: Vitals: T 100.5, HR 105, RR 20, BP: 94/56, O2 sat 98% RA General: Ill-appearing male, warm to touch HEENT: jugular venous distension Heart: Rapid rate, regular rhythm, systolic murmur on apex Lungs: mild bibasilar crackles Abdomen: soft, non-tender, distended Extremities: no lower extremity edema

Pertinent Laboratory Data: WBC 12.3, Hb 8.3 Cr 1.75 BUN 29 Electrolytes wnl LFTs wnl Troponin wnl ESR: 114, CRP: 9.3 UA and UC negative Blood Cultures: positive for black yeast (Exophiala dermatitidis) in 3 cultures EKG: sinus tachycardia, no twi, no st changes CXR: mild pulmonary congestion Last TTE: moderate mitral prosthesis stenosis. TTE today: severe mitral prosthesis stenosis. The leaflets appear to be thicker with restricted mobility. There is new anterior leaflet high frequency motion mass on the ventricle side consistent with vegetation.

Case Discussion: Fungal endocarditis accounts for 2-4% of all cases of infective endocarditis, with an exceptionally high mortality rate of 30-50%. It is most commonly seen in patients with prosthetic heart valves, as in this patient. Diagnosis typically involves blood cultures displaying persistent fungemia with vegetations on echocardiography, however, blood cultures can be negative in up to 50% of cases despite vegetations present on echocardiography. For this reason diagnosis of fungal infection is often difficult. Due to its high mortality rate, current management recommendations involve early valve surgery and often lifelong suppressive anti-fungal therapy. Several studies have shown lower mortality rates with early surgical intervention, with relapse occurring 40% of the time despite surgical resection. This patient was found to have Exophiala dermatitidis prosthetic valve endocarditis and underwent redo sternotomy with a mitral valve replacement with valve cultures growing this fungus. Current literature on post-surgical treatment of this organism is limited, warranting further investigation. This patient will likely require 6 weeks of dual anti-fungal therapy followed by life-long triazole therapy depending on final culture susceptibilities. Although a diagnosis of fungal endocarditis is rare, as Emergency Medicine physicians it is important for us to consider this in our differential diagnosis of patients presenting with vague symptoms of endocarditis. Early

Infectious Disease consultation is also beneficial, particularly in those patients with negative bacterial cultures where a clear cut diagnosis has yet to be made.

References and Acknowledgements (Optional): Ammannaya GKK, Sripad N. Fungal endocarditis: what do we know in 2019? Kardiol Pol. 2019 Aug 23;77(7-8):670-673. doi: 10.33963/KP.14869. Epub 2019 Jun 19. PMID: 31215523. Butt K, Kumar R, D'Souza J, Limback J, Shah R, Burt J. Catastrophic Prosthetic Valve Endocarditis Caused by Rare Black Fungi. Case Rep Cardiol. 2018 Sep 30;2018:1758539. doi: 10.1155/2018/1758539. PMID: 30364065; PMCID: PMC6186373. Donal E, Abgueguen P, Coisne D, Gouello JP, McFadden EP, Allal J, Corbi P. Echocardiographic features of Candida species endocarditis: 12 cases and a review of published reports. Heart. 2001 Aug;86(2):179-82. doi: 10.1136/heart.86.2.179. PMID: 11454836; PMCID: PMC1729846. Mamtani S, Aljanabi NM, Gupta Rauniyar RP, Acharya A, Malik BH. Candida Endocarditis: A Review of the Pathogenesis, Morphology, Risk Factors, and Management of an Emerging and Serious Condition. Cureus. 2020 Jan 18;12(1):e6695. doi: 10.7759/cureus.6695. PMID: 32104631; PMCID: PMC7026878. Ojha N, Dhamoon AS. Fungal Endocarditis. [Updated 2022 Jul 29]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Samuel Seitler, Charo Bruce, Ulrich Rosendahl, Elena Cruceresc u, Darryl Shore, Justyna Rybicka, Thomas Semple, Wei Li, Michael A. Gatzoulis, Nada Al-Sakini, Don’t Stop Beleafing: A Unique Case of Fungal Infective Endocarditis, JACC: Case Reports, Volume 3, Issue 4, 2021, Pages 672-677, ISSN 2666-0849. UpToDate

Friday, September 8, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Case Reports

(P27) A Curious Case of Chest Pain

Poster Presenter / Primary Author: Ilana Rosner, DO - St. John's Riverside Hospital
Co-Author: Maria Tran (she/her/hers), DO - St. John's Riverside Hospital

Chief Complaint : Chest Pain

History of Present Illness : This is a 49-year-old male with HTN, type 2 DM (with neuropathy), ESRD (HD T Th Sa, last today), HIV (unsure of compliance), foot infections, and PVD with amputations of R 1st-3rd toes sent into the ED after an echocardiogram performed at Montefiore on showed possible stent entanglement in his tricuspid valve. The patient is working with the Montefiore transplant team (kidney) and as part of his workup had an outpatient transesophageal echocardiogram. They called him today and advised him to come to the ED. The patient states that he began having r. sided chest "pressure" since finding out he needed to come to the hospital. The pressure is non-radiating and not accompanied by shortness of breath, nausea, vomiting, or diaphoresis.

Pertinent Physical Exam: GENERAL: Awake, alert, and fully oriented, no acute distress. HEENT: Normocephalic, atraumatic. PERRLA, EOMI. No conjunctival pallor. Moist mucous membranes. NECK: Normal ROM and supple. No lymphadenopathy, JVD, or masses. CARDIOVASCULAR: Regular rate and rhythm, normal S1 and S2. Fistula in LUE, palpable thrill PULMONARY: No respiratory distress. Breath sounds equal, and clear to auscultation bilaterally. ABDOMEN: Soft, non-tender. EXTREMITIES: Normal range of motion, no edema or erythema, no calf tenderness. NEUROLOGICAL: Cranial nerves II through XII are grossly intact. Normal speech, normal gait SKIN: Warm, Dry, normal turgor, no rashes or lesions noted. Normal capillary refill. PSYCHIATRIC: Appropriate affect.

Pertinent Laboratory Data: Troponin <.02 EKG: Sinus rhythm, rate of 162. Possible R. atrial enlargement. Echocardiogram A tubular echogenic structure with a foreign body is noted entangled to the tricuspid valve and protruding into the right ventricle. This likely represents an embolized foreign body such as a venous stent. Cardiac CT w/ contrast There is a fractured stent in the right ventricle. The medial fragment measures 10mm with struts attached to the basal septal ventricular septum at the tricuspid septal leaflet hinge point and attached to the anterior tricuspid leaflet. The lateral fragment measures 18mm attached to the free lateral wall.

Case Discussion: The possible consequences of endovascular stent placement include stenosis, infection, fracture, and migration. In general, migration occurs at the time of stent placement, however, it can also be delayed. Fractures can occur when the stents are in areas exposed to crushing and bending. In addition, renal access grafts are a high-flow system, and the resulting central vein dilation promotes the risk of migration. It is likely that this patient's stent migrated at the time of placement, or shortly after, as the stent can be seen on chest X-rays as far back as 2018. The patient was evaluated by cardiothoracic surgery as well as interventional radiology. The risks were considered to be higher than the benefits and both recommended no further intervention at this time. Although this is a rare case of stent migration, consider a foreign body as a cause of patients presenting with chest pain. Additionally, this stent was only seen on lateral chest X-rays. Whenever possible opt for a

PA/lateral chest X-ray rather than a portable image.

References and Acknowledgements (Optional): Bani-Hani S, Showkat A, Wall BM, Das P, Huang L, Al-Absi AI. Endovascular stent migration to the right ventricle causing myocardial injury. Semin Dial. 2012 Sep-Oct;25(5):562-4. doi: 10.1111/j.1525-139X.2011.01039.x. Epub 2012 Feb 20. PMID: 22348654. Blais JM, Letourneau M, Hinojos A, Sandy R, Gray T, Miller T. I'll Stay a While: An Unusual Case of a Chronic Migrated Upper Extremity Endovascular Stent. CASE (Phila). 2019 Apr 26;3(3):100-102. doi: 10.1016/j.case.2019.02.006. PMID: 31286087; PMCID: PMC6588836. Cohen MH, Kyriazis DK. Wallstent migration into the right ventricle causing severe tricuspid regurgitation and right ventricular perforation. Tex Heart Inst J. 2012;39(2):271-2. PMID: 22740751; PMCID: PMC3384044.

Friday, September 8, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P28) Hemichorea Hemiballismus Due to Diabetic Straitopathy: A Rare Complication of Diabetes

Poster Presenter / Primary Author: Shana EN Ross (she/her/hers), DO, MSc, FAAEM, FACEP - University Of Illinois

Co-Author: Evan Jackson, DO - Mount Sinai

Chief Complaint : Involuntary Arm Movements

History of Present Illness : 70 yo male with a history of ischemic stroke x2 with no residual neurological deficits, CAD, and diabetes presented for evaluation of 3 weeks of involuntary movements to his left side. He had been noticing generalized weakness over the last three weeks as well but denied any numbness, tingling, slurred speech. Of note, he stated hat he does not take his home diabetes medications, and that his blood sugar readings at home have been “high”. Denies any recent falls or injuries.

Pertinent Physical Exam: Alert & Oriented x4, normal clear speech, no facial asymmetry, Involuntary rapid movements of the Left Upper and lower extremity and left side of face, unable to complete finger to nose on the left side due to involuntary movements, staggers to the left with ambulation, sensation to light touch equal throughout

Pertinent Laboratory Data: Labs: WBC 7.0 Hb 13.2 Plt 237 HsTrop 2 Na 128 K 4.2 Cl 96 Cr 0.9 Anion gap 9.0 Glucose 513 Beta-hydroxy 0.2

Case Discussion: The patient had a non contrast CT scan revealing a hyperdense right basal ganglia consistent with Non-Ketotic Hyperglycemia Hemichorea (NHH), also known as diabetic striatopathy (DS). he patient was then started on insulin and admitted for glucose control. Hemichorea hemiballismus is most often caused by basal ganglia infarction, and presents with unilateral involuntary jerking movements. In DS, patients will have eversible striatal abnormalities in neuroimaging, choreiform movements as well as significantly elevated blood glucose levels. While the pathophysiology of DS is not yet understood, the hyperdensity seen on CT imaging and hyperintensities on MRI are indicative of focal microhemorrhages. DS is usually associated with non-ketotic hyperglycemia and poor diabetes control, however it has also been reported in ketotic hyperglycemia as well. The treatment for DS is blood glucose control which will reverse symptoms in the majority of cases. Long-term poor glucose control can result in irreversible symptoms, so prompt diagnosis and treatment is key to prevent caudate atrophy.

References and Acknowledgements (Optional): Markowska, K., Koziorowska-Gawron, E., Papier, P., Koszewicz, M., Budrewicz, S., Bladowska, J., et al. (2021). Easily missed or misinterpreted: diabetic striatopathy in the course of ketotic hyperglycaemia. Postgrad. Med. J. 97, 539–540. doi: 10.1136/postgradmedj-2020-139499 Lucassen, E. B., Delfyett, W. T., and Stahl, M. C. (2017). Persistent hemichorea and caudate atrophy in untreated diabetic striatopathy: a case report. Case Rep. Neurol. 9, 299–303. doi: 10.1159/000484201

Friday, September 8, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Case Reports

(P29) A Sour Surprise: A Case of Benign Ingestion

Poster Presenter / Primary Author: Stephanie Serrato, MD - Jacobi/Montefiore Medical Center
Co-Author: Nora McNulty, MD - Montefiore/Jacobi Medical Center
Co-Author: Michelle Montenegro, MD - Jacobi Medical Center/North Central Bronx Hospital

Chief Complaint : Chest pain and syncope

History of Present Illness : A 38-year-old male with a past medical history of opioid use disorder on methadone as well as unprovoked subsegmental pulmonary embolism (PE) on Eliquis presenting with chest pain, and shortness of breath x 3 days. He described the pain as a substernal stabbing/squeezing that is 7/10, constant, non-exertional, and non-pleuritic. He presents to the emergency department today after a witnessed syncopal event associated with nausea, 2 episodes of non-bloody, non-bilious emesis, and shortness of breath. The patient endorsed smoking 3 cigarettes daily. He denied alcohol or other illicit drug use.

Pertinent Physical Exam: General: Well appearing and in no acute distress. Eating candy during the interview. Breathing comfortably on room air. HEENT: Moist mucous membranes with poor dentition. Cardiovascular: Regular rate and rhythm. Normal S1 and S2 with no murmurs, rubs, or gallops. Distal pulses 2+ and symmetric on upper and lower extremities. Pulmonary: Chest clear to auscultation bilaterally. No wheezes, rales, or rhonchi. Abdominal: Soft, non-tender, and non-distended. Normal bowel sounds. MSK: No pitting edema. Skin: Warm and dry, well perfused.

Pertinent Laboratory Data: ECG showed normal sinus rhythm (NSR). No ST changes or T wave inversions suggestive of ischemia. VBG: pH 7.34, CO2 67, lactate 1.3 CBC: WBC 10.40, H&H 12.6/36.4, PLT 236 CMP: BUN 17, Cr 1.1, ALT 21, AST 34, Alk Phos 113 PTT 38.6, PT 11.7 , INR 1.0 Troponin < 0.010 x 2 Pro-BNP 200.8

Case Discussion: On arrival, the patient denied having active chest pain, however, given the history of unprovoked pulmonary embolism and symptoms of chest pain, shortness of breath, and syncope, concern for pulmonary embolism was high. As a result, CT PE and acute coronary syndrome work-up were pursued. EKG showed NSR with no ST segment elevations or depressions as well as no signs of ischemia, and initial troponin was within normal limits. CT PE study was negative for PE; however, the study did demonstrate numerous cylindrical densities within the stomach, suggestive of pills or other foreign bodies. At this time, the patient was taken aside and questioned about possible ingestions. He reported only taking medications given to him at his rehab facility, demonstrated immediate concern, and adamantly denied any intentional ingestion of pills or other foreign objects. He also denied suicidal or homicidal ideation. When asked what he had eaten today, he listed having a blueberry donut, and various candies spread throughout the course of the day and while in the ER. The patient agreed to CT abdomen pelvis for further evaluation. CT Abdomen Pelvis without contrast conducted hours after the initial CT PE demonstrated multiple new tubular, hollowed-out foreign bodies in the stomach along with the previously described short, hyperattenuating bodies concerning for interval ingestion. Radiology emergently contacted the ED team over concern that the patient

was potentially ingesting medical supplies such as catheters or IV tubing. ED providers immediately went to the patient's bedside for reassessment and noticed an empty wrapper of sour straw candies. Upon further evaluation of CT images, the sour straw candies seemed similar to the tubular structures reported. Radiology was immediately notified; they measured the foreign bodies and confirmed that the length and appearance of the sour straws were consistent with CT findings.

References and Acknowledgements (Optional): N/a

Friday, September 8, 2023
Session Time: 12:30 - 13:30
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Track: Posters - Case Reports

(P30) I Thought It Was COPD: A Case of Unanticipated Difficult Airway

Poster Presenter / Primary Author: Stephanie Serrato, MD - Jacobi/Montefiore Medical Center
Co-Author: Sandeep K. Dhillon, MD - Jacobi Medical Center
Co-Author: Vincent Costa, MD - Jack D. Weiler Hospital

Chief Complaint : Shortness of breath/COPD exacerbation

History of Present Illness : A 77-year-old female with a past medical history of hypertension, chronic back pain, and questionable chronic obstructive pulmonary disease (COPD) was brought in by EMS from home for respiratory distress. Per EMS, the family stated that the patient had a history of COPD, so she was given nebulized albuterol and ipratropium along with dexamethasone en route to the hospital. On arrival to the ED, the patient was receiving a nebulized treatment, had significant respiratory distress with tachypnea, suprasternal and subcostal retractions, and most notably had a muffled voice with audible stridor. She was unable to contribute to history. Per chart review, she is an active tobacco smoker with 51 pack year history.

Pertinent Physical Exam: General: Elderly obese female, anxious appearing, in acute respiratory distress. HEENT: Normocephalic and atraumatic. Mass at the posterior oropharynx with an area of questionable necrosis with almost complete airway occlusion. Patient with muffled voice and stridor. Cardiovascular: Tachycardia, regular rhythm with normal S1 and S2. No murmurs, rubs, or gallops. Distal pulses 2+ and symmetric on upper and lower extremities. Pulmonary: Tachypnea, subcostal and suprasternal retractions, diffusely decreased breath sounds without wheezes, rales, or rhonchi. Extremities: Warm, well-perfused, no pitting edema.

Pertinent Laboratory Data: VBG: pH 7.23, CO2 76.3, O2 107, lactate 1.0 BNP 103 Troponin 0.01 CBC: WBCs 14.7, H&H 13.6/42.1, PLTs 342

Case Discussion: Upon arrival to the ED, the patient was triaged as a COPD exacerbation and was initially treated with nebulized albuterol and ipratropium. The patient was primarily Spanish-speaking and was wearing a nebulizer mask making it difficult to understand her. The provider auscultated her chest and noticed decreased breath sounds without obvious wheezing and removed the patient’s mask to reveal a muffled voice and audible inspiratory stridor. On inspection, the patient had a soft tissue mass with darkened central area in the posterior oropharynx with uvular effacement prompting concern for airway obstruction. The patient was given an additional round of nebulized albuterol and ipratropium, nebulized racemic epinephrine, Toradol, intravenous fluids, and broad-spectrum antibiotics for concern over possible infectious etiology. Shortly after, the patient was noted to be hypoxic and with increasing respiratory distress, so she was placed on high-flow nasal cannula and non-rebreather mask and had an oxygen saturation of 89%. ENT emergently scope the patient, which revealed pooling of secretions in the nasopharynx and a right-sided bulging mass that was partially obstructing the oropharyngeal passage. She required emergent airway management and had a difficult bedside intubation. A soft tissue neck CT obtained shortly after showed a large enhancing soft tissue mass involving the right palatine tonsil that was

completely effacing the oropharyngeal airway. The mass abutted the right medial pterygoid muscle, soft palate, tongue base and longus coli and capitis muscles with encroachment on the right retromolar trigone. CT also demonstrated bilateral metastatic adenopathy.

References and Acknowledgements (Optional): N/a

Friday, September 8, 2023

Session Time: 12:30 - 13:30

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Track: Posters - Case Reports

(P31) A Case of Diffuse Alveolar Hemorrhage

Poster Presenter / Primary Author: Caitlin G. Sershon (she/her/hers), MD - Jacobi Medical Center and Montefiore Medical Center

Faculty Advisor: Elissa Bookner, MD - Jack D Weiler Hospital

Co-Author: Luis A. Aguilar Montalvan, MD - Jacobi Medical Center and Montefiore Medical Center

Chief Complaint : Hemotypsis, cough, shortness of breath

History of Present Illness : 42 year old female with past medical history of Takayasu arteritis status post (s/p) ascending aortic aneurysm repair and mechanical aortic valve replacement on warfarin, coronary artery aneurysms s/p percutaneous intervention (PCI) and coiling of right coronary artery (RCA) aneurysms on aspirin and clopidogrel, left hip avascular necrosis s/p left hip replacement presents with hemoptysis since yesterday. Symptoms started three days ago with cough and rhinorrhea. Developed small amount of hemoptysis yesterday and worsening this morning. Associated with shortness of breath. Denies fever, chills, sick contacts, sore throat, chest pain, nausea, vomiting, diarrhea, abdominal pain, lightheadedness, syncope. Denies lower leg swelling. Of note, patient had recent admission and was discharged 2 weeks before presentation. During admission, noted to have coronary artery aneurysms. Underwent PCI with placement of two drug eluting stents and coiling of mid RCA aneurysms. Patient was discharged on warfarin, aspirin, and clopidogrel.

Pertinent Physical Exam: Vital signs: BP- 165/90, Temp- 98.9 F, Pulse -84, RR- 20, SpO2- 94% on 2L nasal cannula General: not in acute distress, well developed, not-ill appearing Cardiovascular: regular rate and rhythm, no murmurs appreciated Pulmonary: not in respiratory distress, mildly tachypneic, rales present throughout the lung fields, no wheezing noted, no decreased breath sounds Abdominal: no pain to palpation, abdomen is soft Musculoskeletal: no lower leg edema Neurological: alert and oriented x 3 Point of care ultrasound: B-lines bilaterally, dilated IVC, mildly decreased ejection fraction

Pertinent Laboratory Data: Hemoglobin: 8.0 (1 week prior, 9.8) Hematocrit: 26.8 (1 week prior, 32.0) INR: 3.4 PTT: 32.9 Platelets: 239 Troponin: 0.57 BNP: 2,114 (2 weeks prior, 981) pH 7.34/pCO2 55.80/HCO3 26/lactate 3.0 WBC: 11.2

Case Discussion: Diffuse alveolar hemorrhage (DAH) is a life-threatening condition and must be recognized early in evaluation as patients may quickly decompensate. Cases requiring hospitalization have a hospital mortality rate of 25% and delay in treatment worsens prognosis. DAH may be a complication of systemic lupus erythematosus, antiphospholipid syndrome, systemic vasculitis (e.g. Takayasu arteritis, granulomatosis with polyangiitis, microscopic polyangiitis), systemic sclerosis, and coagulopathies. Patients will normally present with acute shortness of breath and cough. The classical triad is hemoptysis, pulmonary infiltrates on chest radiograph, and a decrease in hemoglobin. Diagnosis is confirmed typically with bronchoalveolar lavage (BAL). Although, this is usually completed after admission so suspicion must be high to begin treatment in the emergency room. Treatment of DAH depends on the

underlying cause but typically includes high dose steroids, correction of any coagulopathy, and nebulized tranexamic acid (TXA). Many of these patients require intubation. In our case, patient presented mildly tachypneic and required 2 liters of oxygen via nasal cannula initially. Within 3 hours of presentation, patient required non-invasive ventilation. Patient continued to decompensate and 3.5 hours from presentation required intubation. BAL was completed post-intubation which confirmed the diagnosis of DAH. Patient was admitted to the ICU and started on high dose steroids and nebulized TXA. Warfarin, plavix, and aspirin were held for a day. Patient required 2 units of fresh frozen plasma and 2 units of packed red blood cells. Given high risk of stent thrombosis and history of mechanical valve replacement, On day 2, patient was started on heparin drip and plavix. Patient was extubated on day 5 and respiratory status continued to improve. Our patient's cause of DAH was multifactorial given history of Takayasu arteritis and recent stent and valve replacement requiring triple therapy. This case highlights the importance of early diagnosis as patients may quickly decompensate.

References and Acknowledgements (Optional): 1. Tintinalli JE, Stapczynski JS, Ma OJ, Yealy DM, Meckler GD, Cline D. Tintinalli's Emergency Medicine : a Comprehensive Study Guide, 9e. 9th ed. McGraw-Hill Education LLC; 2017.

Friday, September 8, 2023
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Track: Posters - Case Reports

(P32) Strangulated Umbilical Hernia with Point-of-care Ultrasound Confirmation Presenting as Recurrent Ascites

Poster Presenter / Primary Author: Andrew W. Shannon, MD, MPH, FAAEM - NOVA Southeastern University K Patel College of Osteopathic Medicine

Chief Complaint : A 37 year-old male with a history of alcohol abuse and ascites presents complaining of "I need to have my fluid tapped again."

History of Present Illness : The patient has a history of chronic alcohol abuse and was recently diagnosed with cirrhosis and ascites in the Emergency Department, but has not obtained follow-up due to lack of insurance. He has presented three times previously with abdominal pain and distention, and has had ED-performed paracentesis each time. He currently complains of abdominal fullness, pain, and umbilical protrusion which he believes is due to his recurrent ascites. This ED stay he also complains of skin changes and redness to his umbilicus which is "worsening," and he requests paracentesis.

Pertinent Physical Exam: The patients is a well-appearing male, slightly older-appearing than his stated age with mild hyperpigmentation and a grossly distended abdomen. His vital signs are within normal limits. His abdomen is tense with diffuse tenderness to palpation, but no rebound. His umbilicus is herniated with significant erythema, focal tenderness on palpation, and a distal eschar. The remainder of his exam is within normal limits.

Pertinent Laboratory Data: Laboratory evaluation showed normal chemistry with preserved renal function. Leukocytosis was noted at 19.5 x 10^3 / mL, with normal hemoglobin and platelets. INR was normal at 1.3. Hepatic panel showed elevated AST (SGOT) at 1032 and ALT (SGPT) at 528 U/L, respectively.

Case Discussion: The patient underwent therapeutic paracentesis in the ED with the initial removal of 2 liters of fluid, and antibiotics were given empirically to cover for SBP. However, on re-evaluation, concern was raised for strangulated umbilical hernia. Given a several hour delay for CT, an ultrasound was performed at the point-of-care. The POCUS revealed incarcerated bowel without peristalsis and suspected pneumatosis of the bowel wall. Fluid in the hernia sac could not be attributed to bowel necrosis necessarily given the signficant ascites, and bowel wall thickening can be seen in healthy bowel if chronic ascites is present, thus these findings in this context were nonspecific. Given the clinical concern, the patient was taken to the OR where necrotic bowel was confirmed inside the hernia sac. This was then resected and repaired primarily, with likewise a primary re-anastamosis of healthy bowel. The patient did well post-operatively, with the complication of an anterior abdominal wall seroma that was managed at the bedside. This case demonstrates the danger of "anchoring" too early on the patient's-- not incorrect, but incomplete-- stated diagnosis, and failing to consider alternatives in the differential diagnosis. Further, this patient was called for CT approximately 5 minutes after skin incision in the OR for his necrotic bowel, demonstrating the need for widespread adoption and competence in point-of-care ultrasound in the acute care setting as a time (and bowel!) saving measure.

References and Acknowledgements (Optional): I gratefully acknowledge the residents and faculty of the University of Florida - Jacksonville Departments of Emergency Medicine and General Surgery for their input into this case and collegiality during my tenure there.

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Track: Posters - Case Reports

(P33) Thromboembolism vs Vegetation: A Case of a Curious Clot

Poster Presenter / Co-Author: Jason R. Siebert, MD, PhD - Jacobi Medical Center/Montefiore Medical Center/Albert Einstein

Primary Author: Amritpal Saini, MD - Jacobi/Montefiore Emergency Medicine Residency

Co-Author: Phillip O'Donnell, MD - Jacobi Medical Center

Faculty Advisor: Maninder Singh, MD - Jacobi

Chief Complaint : Patient states that she was in a normal state of health prior to experiencing the lightheadedness.

History of Present Illness : 41-year-old female with a past medical history of hypertension, type 2 diabetes, peripheral vascular disease complicated by osteomyelitis and right foot total metatarsal amputation, end-stage renal disease on dialysis via permacath presents to the emergency department for 2 days of worsening lightheadedness.

Pertinent Physical Exam: Upon arrival to the emergency department patient vitals were remarkable for a blood pressure of 89/53. Remainder of vitals were unremarkable: Heart rate 86 bpm, respiratory rate 16 bpm, oxygen saturation 99% on room air, temperature of 98.7 °F. Upon reassessment, blood pressure decreased to 71/43.

Pertinent Laboratory Data:

Case Discussion: 41-year-old female with a past medical history of hypertension, type 2 diabetes, peripheral vascular disease complicated by osteomyelitis and right foot total metatarsal amputation, end-stage renal disease on dialysis via permacath presents to the emergency department for 2 days of worsening lightheadedness. Transthoracic echocardiogram (TTE) revealed a hyperechoic structure noted in the right atrium periodically extending into the right ventricle, suggestive of an acute pulmonary embolism in transit versus vegetation secondary to infective endocarditis. A pulmonary CT angio demonstrated a segmental pulmonary embolism in the right lower lobe. A comprehensive TTE demonstrated a dilated right atrium with a 3.8 x 0.6 cm mass originating in the right atrium which prolapses into the right ventricle suggestive of a thrombus in transit or vegetation. Considering the uncertainty of the hyperechoic structure, the patient was started on vancomycin and piperacillin/tazobactam, later transitioned to vancomycin and cefepime, as well as a heparin drip. A right cardiac catheterization was performed with serial thrombectomies room moving extensive thrombus from the tricuspid valve and from the hemodialysis catheter. It was noted that a small fibrotic clot remained attached to the hemodialysis port which was later removed and exchanged by interventional radiology. Overall, this case represents another example of the essential role of POCUS in diagnosing and treating life-threatening causes of hypotension and shock in the ED. This unique case also demonstrates that prompt identification can help prompt early diagnostic and treatment modalities that may not have been pursued in a timely manner in the past.

References and Acknowledgements (Optional): Keikha M, Salehi-Marzijarani M, Soldoozi

Nejat R, Sheikh Motahar Vahedi H, Mirrezaie SM. Diagnostic Accuracy of Rapid Ultrasound in Shock (RUSH) Exam; A Systematic Review and Meta-analysis. Bull Emerg Trauma. 2018 Oct;6(4):271-278. doi: 10.29252/beat-060402. PMID: 30402514; PMCID: PMC6215077. Bagheri-Hariri S, Yekesadat M, Farahmand S, Arbab M, Sedaghat M, Shahlafar N, Takzare A, Seyedhossieni-Davarani S, Nejati A. The impact of using RUSH protocol for diagnosing the type of unknown shock in the emergency department. Emerg Radiol. 2015 Oct;22(5):517-20. doi: 10.1007/s10140-015-1311-z. Epub 2015 Mar 21. PMID: 25794785. Hu W, Wang X, Su G. Infective endocarditis complicated by embolic events: Pathogenesis and predictors. Clin Cardiol. 2021 Mar;44(3):307-315. doi: 10.1002/clc.23554. Epub 2021 Feb 1. PMID: 33527443; PMCID: PMC7943911.

Friday, September 8, 2023
Session Time: 12:30 - 13:30
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Track: Posters - Research Abstracts

(P34) Investigation of the Protective Effect of Dexpanthenol on Experimental Liver Ischemia Reperfusion Injury in Rats

Poster Presenter / Primary Author: Altan Sipahi, MD - TURKISH SURGICAL ASSOCIATION
Co-Author: Adnan Sahin, MD - TURKISH SURGICAL SOCIETY
Co-Author: Nilufer Erkasap, MD - Eskisehir Osmangazi University Medical Faculty

Objectives: The aim of this study is to investigate the protective effect of dexpanthenol applied before and during ischemia on ischemia and reperfusion injury in the rats.

Background: Ischemia Reperfusion (I / R) damage can happen after hypovolemic shock, chronic liver disease, major tumor resections, surgical intervention to hepatic trauma, vascular reconstructions, and dextro-transplantation. Dexpanthenol is an alcohol derivative of pantothenic acid. It turns into D- pantothenic acid in the liver.

Methods: The study aims to determine ischemia effects and reperfusion effect of dexpanthenol agent by forming 3 groups of 30 Wistar Albino type male 200-250 gr rats. In group 1, liver tissue sample was planned collected without ischemia. In the second group, 45 minutes of ischemia was planned, 30 minutes before ischemia and just before reperfusion, intraperitoneal serum physiologic application was planned. In Group 3, it was planned to administer 500mg / kg dexpanthenol intraperitoneally 30 minutes before ischemia and just before reperfusion. Serum and tissue samples were planned to be collected in the 45th minute following reperfusion in groups 2 and 3. Following the procedure, sacrification was planned with cervical dislocation.

Results: AST and ALT compared to the control group in the sham group ($p < 0.05$), p value for AST and ALT compared to the sham group in the experimental group was significantky decreased ($p < 0.01$) There was no significant difference in 3 groups for p value for ALP ($p < 0.01$). Plasma TNF-a IL-1 and IL-6 levels of the dexpantenol group were found to be statistically significantly lower than the levels of the sham group ($p < 0.01$). As a result, liver dysfunction in the liver ischemia reperfusion model and liver function tests after dexpanthenol treatment (IL-1, IL-6 and TNF-a) has been observed that partial improvement and decreases in oxidative stress parameters, but larger studies are required to determine its effectiveness in primary I / R damage.

Conclusions:

References (Optional):

Funding: Eskisehir Osmangazi University Faculty of Medicine

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Track: Posters - Case Reports

(P35) Hiccups as an Ominous Sign of Pulmonary Embolus

Poster Presenter / Co-Author: Maria Tran (she/her/hers), DO - St. John's Riverside Hospital
Primary Author: Thomas G. Weiss, MD - St. John's Riverside Hospital
Faculty Advisor: Ellen Kurkowski, DO - St. John's Riverside Hospital
Faculty Advisor: Angela Cirilli, MD - St. John's Riverside Hospital

Chief Complaint : Shortness of breath and hiccups.

History of Present Illness : A 53-year-old male with a past medical history of stage IV metastatic pancreatic tail adenocarcinoma with liver metastasis presenting to the emergency department for shortness of breath and progressively worsening hiccups starting four days prior. The patient reports his symptoms have been constant He has tried home remedies to alleviate his hiccups without success. He denies fevers, lightheadedness, chest pain (pleuritic or exertional), palpitations, nausea, or a prior history of blood clots.

Pertinent Physical Exam: The patient is on 2 liters nasal cannula, jaundiced with scleral icterus, but otherwise well-appearing. He is is tachycardic to 133 beats per minute. Respiratory effort is non-labored, with equal and clear breath sounds bilaterally. The patient is able to speak full sentences only interrupted by hiccupping. Pulse oximetry was 97% on room air but he reports feeling more comfortable with nasal cannula oxygen.

Pertinent Laboratory Data: WBC 14.4, Hgb 9.5, Troponin negative, Total bilirubin 9.4 CT angiogram of the chest reveals bilateral pulmonary emboli, present in the right upper lobe anterior and posterior segmental pulmonary arteries, left lower lobe pulmonary artery, left lower lobe medial basal and anterobasal segment pulmonary arteries, and right lower lobe distal postero-basal segmental artery, without evidence of right heart strain.

Case Discussion: The patient presents with shortness of breath and hiccups in the setting of stage IV cancer that was refractory to Chlorpromazine. The patient is not hypoxic when arriving to the emergency department. A CTA chest shows bilateral pulmonary emboli. The patient is started on heparin and admitted to the hospital for two days, and subsequently discharged home on Eliquis. On follow up with the patient, he reports that his hiccups subsided one week following the initiation of heparin. This patient likely had pulmonary emboli secondary to his cancer diagnosis as he had no other risk factors, however his presentation of hiccups is unique. Since symptoms of pulmonary emboli are highly variable among patient populations, a high index of suspicion is always necessary. Only a few cases of hiccups attributed to pulmonary emboli are documented in the literature. It is hypothesized in these reports that pulmonary emboli irritate the hiccup reflex arc resulting in presenting symptoms of our patient, however the exact mechanism is not well known.

References and Acknowledgements (Optional): Hassen, G. W., Singh, M. M., Kalantari, H., Yemane-Merriwether, S., Ferrante, S., & Shaw, R. (2012, December). Persistent hiccups as a rare presenting symptom of pulmonary embolism. The western journal of emergency medicine. Retrieved March 22, 2023, from

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3555588/#:~:text=Pulmonary%20embolism%20may%20cause%20irritation,embolism%20presenting%20as%20persistent%20hiccups Thind, M., & Cohen, D. A. (2017, September 8). Pulmonary embolism presenting as persistent hiccups. The American Journal of Medicine. Retrieved March 22, 2023, from https://www.amjmed.com/article/S0002-9343(17)30908-7/fulltext Sansom, S., & Khorfan, O. (2015, October 27). Intractable hiccups: A benign nuisance or bad omen? - chest. Chest Journal. Retrieved March 22, 2023, from https://journal.chestnet.org/article/S0012-3692(16)36890-8/fulltext

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Session Time: 12:30 - 13:30
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Track: Posters - Case Reports

(P36) An Unusual Cause of Pediatric Sudden Cardiac Arrest

Poster Presenter / Primary Author: Peter Vajda (he/him/his), MD - HFHS
Co-Author: Howard A. Klausner, MD - Henry Ford Health System

Chief Complaint : CC – 4 year old male presented by private vehicle to the ED with chief complaint of sudden cardiac arrest.

History of Present Illness : HPI – He was at the playground, nearby hospital when he suddenly passed out while being verbally disciplined by his father. The child started crying and quickly lost consciousness. CPR was promptly started and the boy was transported to our ED by private car. Time of transport was less than 5 minutes. CPR was continued in our ED, while he was put on the monitor. The initial rhythm was ventricular fibrillation.Definitive airway and IV was established. Resuscitation was conducted according to PALS protocol. Patient weight according to Broslow tape was 20 kg. He was given 2 doses of IV epinephrine and was defibrillated with 50J. ROSC was obtained after total of 5 minutes. Epinephrine drip was started secondary to hypotension. IV Magnesium and Amiodarone were administered for suspected Torsades des Pointes. Patient was transported by advanced pediatric transport to the local Children's Hospital.

Pertinent Physical Exam: INITIAL PE - GENERAL – patient unresponsive, Vital Signs: Temperature 36.2C, HR 0/ 100 with CPR, RR 20 bagged, BP – no pulse HEAD – atraumatic, ENT pupils 3 mm, symmetric, sluggishly reactive, no blood in oropharynx, no hemo-tympanum. CARDIO – no pulse, RESPIRATORY – symmetric breath sounds while bagged, ABDOMEN – soft, no bruising, MSK – no signs of trauma, EXTREMITIES – cool with sluggish >3 seconds capillary refill, SKIN – no rash or bruising, NEURO – unresponsive

Pertinent Laboratory Data: LABORATORY - CBG – pCO2=70/pH=6.9, HCO3=15, Lytes – Na 137, K 4.9, Cl 101, HCO3 17, BUN 16, Cr 0.59 Glucose 163, AG 19, Mg 2.9

Case Discussion: DISCUSSION - DIFFERENTIAL DIAGNOSIS of pediatric arrests – the most common causes are primary RESPIRATORY cause; Inborn cardiac defects, Rhythm disturbances, Metabolic, Sepsis, Ingestion, Accidental and Non-Accidental Trauma. HOSPITAL COURSE - While in the PICU, Epinephrine drip was weaned off and patient was extubated 16 hours after admission. Patient was diagnosed with Familial Catecholaminergic Polymorphic Ventricular Tachycardia. 2D Echo was performed which showed normal anatomy with no shunts and normal EF and PA pressures. He underwent placement of AICD. Discharge EKG showed NSR with rate of 93 and normal ST segments, and normal T waves. Patient was discharged with normal neurologic exam. Factors which positively affected the patient outcome were 1;CPR in the field 2; quick transport 3; following PALS protocol 4; optimized management after ROSC Familial Catecholaminergic Polymorphic Ventricular Tachycardia (FCPVT) occurs in the absence of structural heart disease and typically begins in childhood or adolescence. There may be FH of juvenile sudden death or stress induced syncope. There have been 2 genes identified: the cardiac ryanodine (AD) and calsequestrin 2 (AR). Both mutations appear to act by inducing diastolic Ca++ release from sarcoplasmic reticulum. The resulting intracellular Ca++ overload leads to delayed afterdepolarizations and triggered activity, which

can induce VT or VF. Clinical presentation – patients typically presents with syncope or cardiac arrest due to VT/VF or asymptomatic as a part of familial screening. Diagnosis – CPVT is diagnosed by an exercise stress test that shows increased frequency of non-sustained VT during exercise or recovery. Acute Management – during VT/VT recommended treatment is according to PALS electrical cardio-version/defibrillation. Propranolol is used for acute suppression of recurrent polymorphic VT. AICD should be considered in severe cases. Genetic Testing – Our patient underwent genetic testing which confirmed MONO-ALLELIC MUTATION OF RYR2 GENE!!

References and Acknowledgements (Optional): Up to Date

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Track: Posters - Research Abstracts

(P37) Increasing Emergency Department Boarding Times and Length of stay:covid-19 or a New Normal?

Poster Presenter / Principal Investigator: Peter Vajda (he/him/his), MD - HFHS

Primary Author: Brittany A. Betham, MD - HFHS

Co-Author: Nicole Wanis, Research Associate - HFHS

Co-Author: Ronald Goubert, MD - HFHS

Co-Author: Howard A. Klausner, MD - Henry Ford Health System

Objectives: Retrospective study evaluating Emergency Department (ED) length of stay (LOS), patient boarding, door to doctor time, and percent of patients left without completing service (LWCS) to evaluate if there is any correlation among these metrics.

Background: There was a dramatic loss of ED volume during the early phase of the pandemic (March 2020 – September 2020).ED visit volumes remain below pre-pandemic levels yet, our ED is struggling with increased overcrowding and patient boarding. We looked at these metrics to see if they correlate with each other. We believe objective data showing increased LOS and boarding serves as a justification for requests to hospital administration for more resources (physicians, nurses, technicians) despite reduced annual ED visit volume. The data also suggest that there may be lost revenue from patients who leave without completing service.

Methods: Data was collected prospectively from Electronic Medical Records (EPIC) from January 2019 to December 2022. There is an Inflow Statistics Board Function in EMR which was used to obtain desired numbers during this period. We examined the following metrics – average Emergency Department Length of Stay (ED LOS), average Inpatient and Observation Boarding time, average Door to Doctor time – (in minutes), and LWCS as percentage of ED volume. This study was evaluated by our hospital's IRB and deemed exempt and not human subject research.

Results: The total annual number of patients seen in our ED is slowly increasing from the pre-intra-pandemic numbers. In 2019, pre-pandemic ED volume averaged 8285 patients per month. ED volume declined to 4200 patients per month in the early pandemic (April and May 2020). Overall volume for 2020 was 6568 patients per month. Monthly ED volume was 7137 and 6577 in 2021 and 2022, respectively. Inpatient and Observation Boarding numbers more than doubled from 419 minutes in 2019 to950 minutes in summer of 2021. Average ED LOS increased from 430 minutes in 2019 to 576 minutes in 2021, and to 676 minutes in 2022. Patient percentage of LWCS was closely correlated to LOS and Boarding time in minutes. The higher the LOS, the higher the percent of LWCS. LWCS in 2019, 2020, 2021, and 2022 was 6.47%, 5.70%, 11.82%, and 16.12%, respectively. Average boarding times from 2019 to 2022 were 419, 328, 617, and 742 minutes. The same correlation was found between LOS and Boarding time and Door to Doctor time – the longer LOS meant also increased time of Door to Doctor from approximately 60 minutesin 2019, 2020 to average of 180 minutes in late 2021 and 2022.

Conclusions: There is a direct correlation between an increase in LOS and Boarding time and

the increase in percent of patients who LWCS, as well as Door to Doc time. These statistics can be used by ED leadership to inform hospital administration of the increased need for more resources in the form of hiring additional medical staff. Increased Door to Doctor time also directly correlates with % of LWCS. Decreasing Boarding/LOS should decrease % of LWCS patients and thus will assist in capturing lost revenue. This extra revenue may offset the investments used for hiring additional staff.

References (Optional):

Funding: None

Friday, September 8, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Case Reports

(P38) Idiopathic Thrombocytopenic Purpura in a Pediatric Patient

Poster Presenter / Primary Author: Megan A. Varghese, MD - New York Presbyterian - Queens
Faculty Advisor: Kallie Desomd-Combs, DO - New York Presbyterian - Queens

Chief Complaint : Referral for low platelet count

History of Present Illness : Pt is a 24 month old female born full term with no PMH history, vaccinations up to date, presenting as a referral from her PMDs office for a platelet count of 17,000. Patient went to her Pediatrician the same day for her 2 year old well visit. Blood work noted a Platelet count of 17,000 with no other cell line abnormality. Parents state that for the past week they have noted bruising across the patient's body and yesterday started noting “red marks” on her left upper extremity. This has never happened before, no recent trauma to her body, no recent falls, fevers, cough, cold, congestion, other rashes, diarrhea, or vomiting. They state that she is unable to speak yet, but has been scratching at her left ear. She’s been eating and drinking, has had normal urine output. Denies history of family bleeding disorders, no gross blood per urine or mucosa.

Pertinent Physical Exam: Vital signs are unremarkable with a heart rate of 102, respiratory rate of 26, afebrile through rectal temp, saturating at 100% on RA. Blood pressure not measured Pt was playing on the stretcher, is well-developed, well-hydrated. Cerumen impacted in b/l ears, unable to visualize TMs b/l. Scattered faint nontender ecchymosis noted on the upper and lower extremities and on the trunk, 2-3 over each extremity and on trunk. Minimal petechiae noted on the right upper extremity over antecubital fossa. No mucosal lesions. No swollen joints, no edema, no cyanosis. No swollen lymph nodes. Alert, normal gait, moving all extremities normally.

Pertinent Laboratory Data: Labs: CBC: Platelet count: 23,000. Reticulocytes: 0.11 Immature reticulocytes: 6.8% BIcarbonate: 20 BUN/Cr: 43 Manual differential: Segmented Neutrophils: 25% Lymphocytes: 65% Anisocytosis: slight . All other cell lines were WNL. RPP: (+) for Adenovirus (+) Human Rhinovirus/Enterovirus

Case Discussion: Consulted Pediatric Hematology/Oncology Service. Per ASH guidelines, observation was recommended as an outpatient follow for a platelet count of >20k since pt has no bleeding. Spoke to pt’s PMD who would see her in the office in 4 days for repeat blood work, specifically platelet count. In one week the hematology clinic would see her for follow up. Patient’s working diagnosis is Idiopathic Thrombocytopenic Purpura secondary to viral upper respiratory infections. Parents were given strict precautions with the patient including being cautious of falls, trauma to the body, and return precautions such as increased bruising/active bleeding/decrease in activity level. The expected outcome was slow increase of platelet count with resolution of concomitant adenovirus and human rhinovirus/enterovirus. At her follow up appointment, parents report that the patient has been well. Her bruising was almost fully resolved. She had no falls, no trauma to the body, mucosal bleeding. She has had normal oral intake and urine output. On a physical exam, upper extremity ecchymosis and petechiae had resolved. Repeat blood work revealed a platelet count of 61,000. Blood smear was reviewed with normal looking platelets consistent with an immune mediated destructive process. The

patient did not need treatment, and parents were counseled about results, with follow up in one month for repeat blood work. The diagnosis of ITP in the pediatric population is one of exclusion. Treatment can be inpatient or outpatient, and depends on platelet count +/- evidence of bleeding. Options include: corticosteroids, intravenous immunoglobulin, and anti-d immunoglobulin. If the patient does not have active bleeding and plt count is >20,000, the patient can be managed outpatient without treatment. If a patient has platelet count >20,00 with bleeding present, especially mucosal involvement, the patient should be treated. A platelet count of < 10,000 necessitates treatment with or without the presence of bleeding.

References and Acknowledgements (Optional): “[Diagnosis and Therapy of Immune thrombocytopenia].” PubMed, 30 July 2018, https://pubmed.ncbi.nlm.nih.gov/30060276/. Accessed 30 March 2023. “ITP-Immune Thrombocytopenic Purpura - StatPearls.” NCBI, https://www.ncbi.nlm.nih.gov/books/NBK537240/. Accessed 30 March 2023. “Childhood immune thrombocytopenia: Clinical presentation and management.” NCBI, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4949815/. Accessed 31 March 2023. Rice, Damien, and Matt Galbraith. “.,.” ., - YouTube, 16 November 2008, https://ashpublications.org/bloodadvances/article/3/23/3829/429213/American-Society-of-Hematology-2019-guidelines-for. Accessed 31 March 2023.

Friday, September 8, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P39) A Headache out of This World

Poster Presenter / Co-Author: Maia Winkel, MD - Jacobi Medical Center and Montefiore Medical Center

Primary Author: Boey Li, MD - Jacobi/Montefiore Medical Centers

Co-Author: Steven Abrams, MD - Montefiore Medical Center

Faculty Advisor: Mallika Manyapu, MD MPH - George Washington University

Chief Complaint : A 55 year-old Bengali female with a history of hypertension presented to the Adult Emergency Department with a headache and fever for 2 days.

History of Present Illness : On translator-assisted interview, the patient reports that the headache is biparietal and radiates to her neck. It is different from her well-established, prior headache episodes. She denies associated nausea, vomiting, visual changes or photophobia, neck stiffness, or altered mental status. She took acetaminophen without improvement of symptoms. She is in otherwise good health, but reports undervaccination against COVID-19.

Pertinent Physical Exam: On presentation, her vitals were: temperature 103.2 F, blood pressure 139/72, heart rate 121, respiratory rate 18, oxygen saturation 97% on room air. She was able to range her neck but reported pain with such movement that was consistently reproducible. Although ill-appearing and diaphoretic, she was alert, attentive, moving all extremities without difficulty through a full range of motion, and ambulating well. The remainder of the neurologic exam was unremarkable.

Pertinent Laboratory Data: Her blood work revealed leukocytosis of 15.1 and normal electrolytes. Chest x-ray was clear. Urinalysis was negative. Tests for covid, influenza, and respiratory syncytial virus were negative. Noncontrast head CT head was negative. A lumbar puncture was done and cerebrospinal fluid results revealed normal glucose, elevated protein, white blood cell 95. The CSF culture was positive for GBS.

Case Discussion: Group B Streptococcus (group B strep, GBS; alternatively, S. agalactiae) typically affects neonates and is an important cause of neonatal meningitis, pneumonia, and sepsis. In adults, GBS infection is rare but has been increasing in prevalence in recent years. It is estimated that GBS meningitis represents from 0.3% to 4.3% of all cases of adult bacterial meningitis. Adult GBS meningitis is usually found in puerperal patients or patients with immunocompromise, CSF leakage, or endocarditis. It cannot be distinguished on clinical grounds from any other infection causing meningitis. Since GBS meningitis in an otherwise healthy adult is unusual, it is important to assess the patient for potential causes. We present a case of GBS meningitis in an adult who presented to the Emergency Department. Following admission, further blood tests were unhelpful. An echocardiogram was negative for endocarditis. As the meticulous search for predisposing conditions evolved, further imaging of the sinuses with both CT and MRI revealed an encephalocele extending from the intracranial fossa to the ethmoid air cells. Her CNS infection was eradicated without complication, and her headache resolved. Operative resection of the encephalocele was subsequently performed. The risk factor for GBS meningitis in this patient was an encephalocele, which is brain tissue

that herniates through a defect in the skull. This herniation, which is most commonly in the ethmoid sinus, exposes brain tissue to the external environment, greatly increasing the risk of infection. Most encephaloceles are congenital and may remain undetected until complications arise such as CSF leakage or, as in this case, meningitis. Treatment for acute GBS meningitis requires empiric antibiotic combinations and often first-dose corticosteroid administered prior to a definitive antibiogram or other microbiologic study. Following resolution of infection, surgery is indicated to repair the defect.

References and Acknowledgements (Optional): Muzulu SI, Meigh R, Nanda BS. Streptococcus agalactiae meningitis in a previously healthy adult. J Infect. 1993 Sep;27(2):210-1. doi: 10.1016/0163-4453(93)95052-k. Go K, Ge J, Abdelattif M, Zaw M. Recurrent Meningitis in the Context of an Encephalocele. Cureus. 2022 Sep 26;14(9):e29594. doi: 10.7759/cureus.29594. Khan FY. Streptococcus agalactiae Meningitis in Adult Patient: A Case Report and Literature Review. Case Rep Infect Dis. 2016;2016:6183602. doi: 10.1155/2016/6183602.

Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 14:45 - 14:57

Elafos A

Track: Oral Abstracts

(O-E1) Food Insecurity and Housing Instability Screening and Follow-up in a Pediatric Emergency Department

Oral Presenter / Primary Author: Victor M. Cisneros (he/him/his), MD, MPH, CPH - Eisenhower Health

Co-Author: Kellie Bacon, MPH - CHOC

Co-Author: Shelby K. Shelton, MPH, CCRC - CHOC

Co-Author: Soheil Saadat, MD PhD - University of California, Irvine

Faculty Advisor: Bharath Chakravarthy, MD, MPH - University of California, Irvine

Co-Author: Jason Douglas, PhD - Department of Health Sciences, Chapman University

Co-Author: Theodore Heyming, MD - CHOC

Co-Author: Rammy Assaf, MD - CHOC

Objectives: This pilot study examines the impact of Food Insecurity and Housing Instability screening and referral systems in a PED serving a large community.

Background: Food Insecurity (FI) and Housing Instability (HI) disproportionally impact children within underserved communities. Pediatric Emergency Departments (PEDs) are uniquely positioned to address FI and HI in communities with inequitable access to food and housing resources. This study examines the impact of FI and HI screening and referral systems in a PED serving a large community.

Methods: From March 2021 to February 2022, 1,981 PED patients participated in a 16-question cross-sectional survey addressing FI and HI and child/caregiver health status. All participants received passive referrals to food and housing resources. Research assistants contacted participants who screened positive for FI/HI at three and six weeks to readminister the survey. Summary statistics describe FI and HI outcomes.

Results: Of 218 patients (11.0% surveyed) who screened positive for FI/HI, 149 (68.3%) were contacted at three- and six-weeks. Of these 149, 60.5% were food insecure, and 77.2% were housing insecure at the index ED visit. After administration of passive referrals, 50.7% and 45.3% of baseline-positive patients reported FI at three and six-weeks, respectively. Additionally, 47.3% and 42.7% reported HI at three and six-weeks, respectively. Participants who self-reported good health had a lower rate of FI compared to those who reported poor health status.

Conclusions: While we observed encouraging FI reductions among PED patients, no significant change was noted in HI, and both generally persisted. FI was associated with lower overall health status compared to HI. EDs are ideal environments for detecting FI and HI, however, additional research is necessary to examine resource uptake among FI and HI patients

References (Optional):

Funding: n/a

Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 14:57 - 15:09

Elafos A

Track: Oral Abstracts

(O-E2) Buprenorphine Initiation for Opioid Use Disorder in the Emergency Department: Impact on Patient Outcomes in at a Community Hospital

Oral Presenter / Primary Author: Hrant Gevorgian, MD, MPH - Rutger's Health- Community Medical Center

Principal Investigator: Nicole Maguire, DO, FACEP - Rutgers Health Sponsoring Institution - -

Co-Author: Nileena Johnkutty, DO - Rutgers Health Sponsoring Institution - -

Co-Author: Nikitha Ashok, DO - Rutgers Health Sponsoring Institution - -

Co-Author: Jibril Ahiru balogun, MD - Rutgers Health Sponsoring Institution - -

Co-Author: Eric Stander, MD - Rutgers Health Sponsoring Institution - -

Co-Author: Greg Neyman, MD - Rutgers Health Sponsoring Institution - -

Co-Author: Danielle Biggs, MD - Rutgers Health Sponsoring Institution - -

Objectives: To investigate the impact of emergency department-initiated buprenorphine in comparison to current standard of care on various patient outcomes. The current standard of care will constitute the retrospective variable of the study while the emergency department-initiated buprenorphine protocol will constitute the prospective variable.

Background: Buprenorphine has been shown to be safe and effective in preventing withdrawal symptoms of Opioid Used Disorder (OUD) and subsequent relapse into uncontrolled substance use. No standardized protocol currently exists for the treatment of OUD in the ED, and management has traditionally been at the discretion of the physician. This study examines the initiation of a department-based protocol based on documented Clinical Opiate Withdrawal Scale (COWS) score of prescribing buprenorphine in the eligible population, and following patient outcomes over a short-term interval (30 days from enrollment).

Methods: This is a single center, cohort study set up with two phases. A retrospective phase which consisted of review of standard of care patients from October 2020 to January 2021, and a prospective phase where an Emergency Department Initiated buprenorphine protocol was implemented from October 2021 to January 2022. The inclusion criteria for the buprenorphine protocol included the following: patients 18 years of age and older who meet DSM-5 criteria for OUD, patients seeking outpatient detoxification treatment with buprenorphine, and patients who were offered Peer Recovery Program (PRP) services. Exclusion criteria included: medical or psychiatric conditions requiring hospitalization, patients actively participating in methadone maintenance program, history of allergic reactions to buprenorphine. The primary outcome evaluated was readmission to the ED for OUD within 30 days of initial discharge. The secondary outcomes included: admission to an Outpatient Treatment Program through the facilitation of PRP, readmission to the ED for opioid-involved overdoses requiring naloxone administration, readmission to the ED for any reason, acceptance of PRP Recovery Specialist services, acceptance of PRP Patient Navigator Services, and follow-up with the PRP.

Results: There were 85 total patients enrolled in this study of similar race, gender, age and

drug of abuse. The primary outcome of readmission to the ED for OUD within 30 days of initial discharge, was 15% in the retrospective phase and 5% in the prospective phase with a p-value of 0.17. In the secondary outcomes, 9% of patients had admission to an Outpatient Treatment Program vs. 17% in the prospective phase with a p-value of 0.32. In the retrospective group 98% of patients accepted PRP services compared to 90%, with a p-value of 0.17. In the retrospective group, 25% of patients accepted PRP Patient Navigator Services vs. 44% with a p-value of 0.11. The retrospective group included 13% of patients involved in an overdose requiring naloxone administration vs 0% with a p-value of 0.03. The retrospective group had 35% of patients with readmission to the ED for any reason vs. 13% of patients with a p-value of 0.18. Additionally, 41% of patients in the retrospective group followed up with the PRP vs. 44% in the prospective group with a p-value of 1.00.

Conclusions: The ED-initiated buprenorphine protocol led to a reduction in readmissions for any reason, readmission for OUD, and overdoses requiring naloxone. There was an increase in admissions to an Outpatient Treatment Program through PRP facilitation, and acceptance of PRP Services. Limitations and low adherence rate may influence results. The next steps include continued enrollment, re-education on protocol and monitoring long term outcomes.

References (Optional):

Funding: N/A

Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 15:09 - 15:21

Elafos A

Track: Oral Abstracts

(O-E3) Response Rate of Motorcyclist On-call Volunteer First Responders During Routine Times versus a Pandemic: A Retrospective Comparative Study

Oral Presenter / Primary Author: Evan Avraham Alpert (he/him/his), MD - Hadassah Medical Center- Ein Kerem

Co-Author: Aaron Adler, BS - Hebrew University School of Medicine

Co-Author: Tali Bdolah-Abram, MSc - Hebrew University School of Medicine

Co-Author: Daniel Elyashiv, MD - Hebrew University School of Medicine

Principal Investigator: Eli Jaffe, PhD - Magen David Adom

Objectives: To determine if the response rate of the MOCVFR will be affected by the pandemic resulting in a decreased rate of response, especially for calls that have a higher probability of being Covid-19 related (respiratory calls).

Background: Israel's National Prehospital Emergency Medicine Services' (known as Magen David Adom-MDA) motorcyclist on-call volunteer first responders (MOCVFR) play a vital role in pre-hospital response. These are trained volunteers, mostly emergency medical technicians with some paramedics, who respond by motorcycles mounted with lights and sirens and are equipped for all types of emergencies whether trauma or medical. Their response is critical for time-sensitive diagnoses such as cardiac arrest, respiratory arrest, and multi-trauma. The Covid-19 pandemic introduced a new kind of risk for all medical crews, including the MOCVFR.

Methods: This is a retrospective comparative study of data collected from the command-and-control database of the MDA National Call Center, comparing January 1, 2019, through December 31, 2019 (pre-COVID-19) to January 1, 2020, through December 31, 2020 (COVID-19). All data were entered automatically into an Excel spreadsheet and analyzed by SPSS. A weighted analysis was performed to determine individual contributions.

Results: The study included 1,328,553 overall calls- 655,127 in 2019 and 673,426 in 2020. There was a decrease of 6.44% ($P < 0.001$) in the overall response rate, with a specific decrease of 22.16% ($P < 0.01$) for respiratory-related calls. The response rate for cardiac arrest calls also showed a decrease of 6.87% ($P < 0.01$). However, other life-threatening emergencies that are less likely to be Covid-19 related showed an increase in response rate- severe trauma with an increase of 2.6% ($P < 0.01$) and loss of consciousness with an increase of 2.62% ($P < 0.01$).

Conclusions: Covid-19 had a major impact on MOCVFR response rate during the first year of the pandemic. The significant drop in response to respiratory calls may point to a fear of the MOCVFR to exposure to the then unknown disease. When planning the response to future wide-scale emergencies or pandemics, the impact on the pre-hospital volunteers needs to be considered and managed accordingly.

References (Optional):

Funding: None

Friday, September 8, 2023
Session Time: 14:45 - 16:15
Presentation Time: 15:21 - 15:33
Elafos A
Track: Oral Abstracts

(O-E4) Prevalence of Emergency Department-based Treatment for Sexually Transmitted Infections by Test Results and Gender: Systematic Review and Meta-analysis

Oral Presenter / Primary Author: Rachel E. Solnick, MD, MSc - Icahn School of Medicine at Mount Sinai
Co-Author: Rahi Patel, n/a - Northeast Ohio Medical University
Co-Author: Ethan Chang, n/a - University of Michigan
Co-Author: Carmen Vargas-Torress, MA - Icahn School of Medicine at Mount Sinai
Co-Author: Maaz Munawar, n/a - University of Michigan
Co-Author: Judith Smith, MS - University of Michigan
Co-Author: Ethan Cowan, MD, MS - Icahn School of Medicine at Mount Sinai
Co-Author: Keith Kocher, MD,MPH - University of Michigan
Co-Author: Roland Clay Merchant, MD, MPH ScD - Ichan School of Medicine at Mount Sinai

OBJECTIVE: In US emergency departments (EDs), antibiotic treatment for gonorrhea (GC) and chlamydia (CT) typically is empiric because test results usually are not available during the ED visit. Because males more often than females have and report symptoms from and show signs of an infection from GC or CT, females might be less likely than males to receive GC and CT empiric antibiotic treatment in the ED. In this investigation, we investigated gender differences in ED empiric antibiotic treatment of GC and CT as compared to subsequent laboratory-confirmed test results for these infections. METHODS: We conducted a systematic review and meta-analysis of US ED studies that reported GC and CT testing and empiric antibiotic treatment. We searched seven databases (Medline, Cochrane, Embrace, Scopus, Web of Science, CINAHL, and PsychInfo) for relevant studies from 1/2010 to 2/2021. Study selection, quality assessment, and data extraction were performed by two reviewers, and disagreement was resolved by a third. JBI Research Institute critical appraisal tools were used to assess study quality. The principal data point extracted was empiric testing proportions by gender according to laboratory-confirmed test results. For studies did not provide gender-specific results, data were classified in a “combined sex” category. We conducted a random-effects meta-analysis to calculate pooled estimates of GC/CT empiric treatment. The study was pre-registered (Prospero #241429), followed PRISMA reporting guidelines, and used STATA 16.0 for meta-analytic calculations. RESULTS: Of 1644 deduplicated articles considered, 16 met inclusion criteria, and represented 33,734 ED patients, primarily from the Midwestern US. Across these 16 studies, GC/CT test positivity was 13% (95%CI, 11%-16%); 11% (95%CI, 8%-14%) for females, and 23% (95%CI, 17%-30%) for males. GC/CT ED empiric antibiotic treatment among those tested was 44% (95%CI, 33%-55%); 33% (95%CI, 23%-42%) for females, 71% (95%CI, 68%-74%) for males. Among those without a laboratory-confirmed GC/CT infection, ED empiric treatment was 44% (95%CI, 33%-54%); 35% (95%CI, 25%-45%) for females, 64% (95%CI, 55%-73%) for males. Among those with a laboratory-confirmed GC/CT infection, no empiric antibiotic treatment was provided for 40% (95%CI, 30%-50%); 52% (95%CI, 46%-59%) for females, 13% (95%CI, 10%-16%) for males. CONCLUSION: ED empiric antibiotic treatment for GC/CT is often discrepant with final laboratory test results. Females

were two-fold less likely than males to receive ED empiric antibiotic treatment. Among those with a laboratory-confirmed infection, females were four-fold more likely than males to have not been provided ED empiric antibiotics. These results indicate gender disparities in GC/CT ED empiric antibiotic treatment and the critical need for accurate rapid GC/CT point-of-care testing.

Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 15:33 - 15:45

Elafos A

Track: Oral Abstracts

(O-E5) A Needs Assessment of Point-of-care Ultrasound in the Resource-limited Setting of Iquitos, Peru

Oral Presenter / Primary Author: Melissa A. Villa (she/her/hers), DO - Penn Medicine

Co-Author: Nova Panebianco, MD - Penn Medicine

Co-Author: Gwen Baraniecki-Zwil, Research Coordinator - Penn Medicine

Co-Author: Francer Shofer, PhD - Penn Medicine

Co-Author: Jodi Flanders, DO - Michigan State University

Co-Author: James Deering, DO - Michigan State University/West Virginia School of Osteopathic Medicine

Co-Author: Jeffrey Kramer, MD - Penn Medicine

Objectives: There has been literature describing the use of point-of-care ultrasound (POCUS) in international settings. However little studies exist on the need for POCUS in Peru, specifically the resource-limited Amazon River city of Iquitos. This is an observational study and needs assessment for POCUS in Iquitos.

Background: The city is accessible only by air or river limiting medical access. Patients who require care that cannot be provided within Iquitos require transportation to Lima, Peru. A direct flight to Lima is approximately 1.5 hours. In resource-limited communities, diagnostic imaging modalities are often confined to x-ray. But nearly 70% of x-ray machines in resource-limited settings are defective or lack the personnel to operate them. With the evolution of ultra-portable ultrasound technology, devices can be easily carried across the globe to boost diagnostic capacity. The health care and diagnostic imaging needs of a community are unique and cannot be assumed.

Methods: The study took place between August 4th through August 7th, 2022, at two clinics in Iquitos, Peru. The clinics were held at the San Martin Church and San Juan Clinic. At the San Martin Church, there was an ultrasound device on site, but it was not being used as there was no one trained to operate and interpret the images. Point-of-care ultrasounds were performed by a radiologist, emergency medicine ultrasound fellow and medical students. Students were supervised by either the radiologist or ultrasound fellow. Curvilinear and linear probes were attached to tablets and images were obtained using the ultrasound application on the device. A variety of physician specialties including family medicine, emergency medicine, OB-GYN, urology, pediatrics, etc. were on this medical service trip and were independently seeing patients at the clinic. The radiologist and ultrasound fellow created a consensus list of studies they felt were within the scope of their practice and provided this list to the physicians at the clinics. In addition, clinic physicians were provided an ultrasound order form. These were given to patients who would deliver them to the ultrasound team. Physicians would indicate which study they wanted the ultrasound team to perform and the clinical indication.

Results: 72 POCUS studies were performed on 62 patients. The mean age was 41 with a range of 1 to 82 years. 54% of the patients were female and 46% male. 33 renal/bladder

studies were performed (45.8% of the total studies performed). 26 renal/bladder studies were normal, and 7 had a sonographic finding. 11 right upper quadrant (RUQ) studies were performed (15.3%). 8 RUQ studies were normal, and 3 had a sonographic finding. 9 prostate studies were performed (12.5%). 5 prostate studies were normal, and 4 had a sonographic finding. 8 OB-GYN studies were performed (11.1%). 2 OB-GYN studies were normal, and 6 had a sonographic finding. 4 scrotal studies were performed (5.6%). 1 study was normal, and 3 had a sonographic finding. 3 focused assessment for free fluid (FAFF) studies were performed (4.2%). 2 FAFF studies were normal, and 1 had a sonographic finding. 2 soft tissue studies were performed (2.8%). 1 soft tissue study was normal, and 1 had a sonographic finding. 2 thyroid studies were performed (2.8%). 1 thyroid study was normal, and 1 had a sonographic finding. Follow up due to POCUS included 3 emergent ED transfers, 1 flight to Lima, 2 patients with expedited follow up.

Conclusions: The use of point-of-care ultrasound in resource-limited settings across the globe has the potential to expand diagnostic imaging capacity and increase access to previously unobtainable medical care. In this observational study, the use of point-of-care was useful in triaging patients to higher level of care, and improved diagnostic accuracy. The relationship with this community is on-going and this needs assessment has provided valuable evidence onto the disease burden and how to best focus resources on future encounters. Future plans include teaching local physicians how to use ultrasound for longitudinal sustainability.

References (Optional): Ali FS, Harrington SG, Kennedy SB, Sarwat H. Diagnostic radiology in Liberia: A country report. J Glob Radiol 2015;1:1020. Dean AJ, Ku BS, Zeserson EM. The utility of handheld ultrasound in an austere medical setting in Guatemala after a natural disaster. Am J Disaster Med 2007;2:249–256. Epstein D, Petersiel N, Klein E, Marcusohn E, Aviran E, Harel R, Azzam ZS, Neuberger A, Fuchs L. Pocket-size point-of-care ultrasound in rural Uganda—A unique opportunity "to see" where no imaging facilities are available. Travel Med Infect Dis 2018;23:87–93. Henwood PC, Mackenzie DC, Liteplo AS, Rempell JS, Murray AF, Leo MM, Dukundane D, Dean AJ, Rulisa S, Noble VE. Point-of- care ultrasound use, accuracy, and impact on clinical decision making in Rwanda hospitals. J Ultrasound Med 2017;36:1189–1194. Kimberly HH, Murray A, Mennicke M, Liteplo A, Lew J, Bohan JS, Tyer-Viola L, Ahn R, Burke T, Noble VE. Focused maternal ultrasound by midwives in rural Zambia. Ultrasound Med Biol 2010;36:1267–1272. Maru DS, Schwarz R, Jason A, Basu S, Sharma A, Moore C. Turning a blind eye: The mobilization of radiology services in resource-poor regions. Glob Health 2010;6:18. Shorter M, Macias DJ. Portable handheld ultrasound in austere environments: Use in the Haiti disaster. Prehosp Disaster Med 2012;27:172–177.

Funding: None

Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 15:45 - 15:57

Elafos A

Track: Oral Abstracts

(O-E6) Active Threat: Evaluating a Borderland's Emergency Department Staff's Preparedness

Oral Presenter / Primary Author: Neha Sehgal (she/her/hers), DO - Texas Tech Health Sciences Center El Paso

Co-Author: Jessica Vanschuyver, MS-IV - Texas Tech Health Sciences Center, El Paso

Co-Author: Erica Guerrero, PA - Texas Tech Health Sciences Center, El Paso

Objectives: The purpose of the study was to determine the fundamental knowledge of the current active threat policy and the effectiveness of training provided to the ED personnel at an urban borderland Level 1 Trauma Center in El Paso, Texas, over the course of one year.

Background: The Department of Homeland Security defines an active shooter as "an individual actively engaged in killing or attempting to kill people in a confined and populated area; active shooters use firearms with no pattern or method to their victim selection". In 2012 Annals of Emergency Medicine published a study highlighting 154 hospital related shootings from 2000 to 2011 in the United States. Furthermore, Texas was cited as one of five states that accounted for more than a third of the hospital related shooting, with 53% of shooting events occurring in hospitals that had between 100 and 399 beds.

Methods: This study took place at the University Medical Center (UMC) in El Paso, Texas. UMC is an urban Level 1 Trauma Center that sees 70,000 patients annually in a 45-bed emergency department. A total of 193 surveys were collected from ED personnel, which included resident physicians, faculty physicians, advanced practice providers, bedside nurses, technicians, paramedics, and nursing management. The purpose of the study was to determine their knowledge of the current active threat policy and the effectiveness of the training provided. We initially collected pre-test surveys, then provided didactic training, and immediately collected post-test surveys. The didactic training took place in the form of a standardized PowerPoint lecture given at resident conference and staff meetings over three months. We then used t-tests and ANOVA to compare across pre and post-test survey results. Seven months post education an Active Threat tabletop simulation was conducted to gauge ED personnel's retention during a simulated high pressure scenario. Participants were informed that participation in the survey was anonymous and voluntary, all answers were kept confidential, and their participation in the survey had no bearing on their current and/or future employment.

Results: The following survey questions were statistically significance when comparing pre and post survey results. "In the event of an active threat, the current policy at UMC calls for you to take 1 of 3 actions in a specific order. What are those actions in the correct order?" 16% answered incorrectly on the pre-survey, while no one got it wrong on the post-survey, $p < 0.001$. "In the ED, where would you go to secure yourself if there was an active threat?" 36% answered incorrectly on the pre-survey, while 19% answered it incorrectly on the post-survey, p 0.034. "If you see a situation that has the potential to be an active threat do you call 911 or UMC security?" 62% chose the incorrect answer on the pre-survey, while 22% chose the incorrect answer on the post survey, $p < 0.001$. "On a ten point scale, please rate how confident

you are that you would know how to protect yourself and your patients in the event of an active threat, with 0 being not confident at all and 10 being completely confident". The mean pre-survey score was 5.32, while the post-survey score was 7.33, $p < 0.001$.

Conclusions: Our aim was to determine the fundamental knowledge of the current active threat policy and the effectiveness of training provided to the ED personnel at a urban borderland Level 1 Trauma Center in El Paso, Texas. Training included a didactic presentation and an Active Threat tabletop simulation seven months post education to gauge ED personnel's retention. Four survey questions indicated a statistically significant change suggesting that even a brief didactic training can be effective. Responding to an active threat does not come naturally to most healthcare workers, which is why ED personnel warrant structured education and training.

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Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 15:57 - 16:09

Elafos A

Track: Oral Abstracts

(O-E7) COVID-19 Knowledge Among Healthcare Personnel and Patients in an Emergency Department

Oral Presenter / Primary Author: Stacey Rhodes, MD, MS - Louisiana State University Health Science Center School of Medicine

Co-Author: Leon S. Sanders, III, MS - Louisiana State University Health Science Center School of Medicine New Orleans

Co-Author: Austin Jones, MD, PhD - Denver Health Medical Center, Department of Emergency Medicine

Co-Author: Darian Harris, MPH - Louisiana State University Health Science Center New Orleans School of Public Health

Principal Investigator: Lisa A. Moreno-Walton, MD, MS - Brody School of Medicine at East Carolina University

Objectives: The objective of this study was to understand difference in COVID-19 knowledge among hospital patrons and personnel.

Background: Since the initial outbreak of COVID-19, governments and healthcare professionals have worked to contain and prevent its spread. A variety of prevention methods were adopted including self-isolation; country-wide quarantines; bans on public gatherings; closing of educational institutions and borders; and city-wide lockdowns. The effectiveness of these measures require public adherence which is often related to knowledge, attitudes, and practices. Beliefs regarding COVID-19 are shaped by the source and accuracy of the information which has a direct effect on viral spread. To date, no such investigation has assessed knowledge of COVID-19 among hospital patrons and healthcare professionals in the United States.

Methods: A cross-sectional survey was administered to patients and healthcare professionals at the Louisiana State University Health Sciences Center in New Orleans, Louisiana from April 17, 2020 to November 5, 2020. Demographics and sources of COVID-19 information were collected then stratified by hospital affiliation. Outcome measures included 20 true or false questions. Kruskal-Wallis one-way analysis of variance (ANOVA) was used to compare COVID-19 knowledge score for categorical predictor variables.

Results: Health professionals demonstrated higher COVID-19 knowledge compared to ancillary staff. Ancillary staff demonstrated higher knowledge compared to patients. Those who primarily accessed scientific literature performed the best in overall COVID-19 knowledge. Significant racial differences existed among primary information source for COVID-19.

Conclusions: Patients tended to access family and friends as sources of information. Healthcare professionals relied more often on colleagues, the internet, and scientific literature. The differences in COVID-19 knowledge overall scores by primary news source among healthcare professionals versus ancillary staff versus patients suggest differences in the quality of information. Racial differences in overall COVID-19 knowledge scores and subcategory

knowledge may be associated with the primary source of information.

References (Optional):

Funding: Not applicable

Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 14:45 - 14:57

Elafos B

Track: Oral Abstracts

(O-F1) Remote Learner as Team Leader: A High-fidelity Telesimulation Experience for Global Emergency Medicine Trainees

Oral Presenter / Primary Author: Sean M. Boaglio, DO, MAS, DTMH - Vanderbilt University School of Medicine

Co-Author: Katelyn Latuska, MD - Vanderbilt University School of Medicine - Nashville, TN

Co-Author: Rayal Jhagru, MD - Georgetown Public Hospital Corporation - Georgetown, Guyana

Co-Author: Kristen Dettorre, MD, DTMH - Vanderbilt University School of Medicine - Nashville, TN

Co-Author: Charles Lei, MD - Vanderbilt University School of Medicine - Nashville, TN

Objectives: Telesimulation is a feasible and effective education tool capable of connecting resource-limited training programs with experienced educators and high-fidelity simulators for remote simulation-based education to hone team leadership, communication, and clinical reasoning skills.

Background: Global medical training programs can face significant barriers to simulation-based education (SBE), including high learner-to-instructor ratios and limited access to simulation equipment and available space. Telesimulation uses communication technology to connect distanced learners with simulation instructors for SBE. We developed a novel telesimulation modality that enables a remote learner to practice team leadership and communication skills through a high-fidelity mannequin-based simulation experience.

Methods: Using six Zoom-enabled devices, a team of Vanderbilt educators facilitated a telesimulation experience for ten Guyanese emergency medicine resident learners [figure 1]. Each participant individually led the resuscitation of a critically ill simulated patient with aortic dissection. Over Zoom, learners could visualize three real-time audiovisual inputs: foot-of-bed patient view, clinical data, and vital sign monitor [figure 2]. Participants completed anonymous surveys rating aspects of the simulation experience on a five-point Likert scale.

Results: Participants rated the clinical scenario and simulated environment as highly realistic (mean=4.2, SD=0.63; mean=4.2, SD=0.79), finding the virtual format comparable to an in-person simulation (mean=3.8, SD=1.03). The teleconferencing platform was easy to use (mean=4.3, SD=0.67) and did not detract from their experience (mean=4.2, SD=0.79). Learners reported greater confidence in resuscitating critically ill patients (mean=4.2, SD=0.63) and managing aortic dissections (mean=4.7, SD=0.48). Learners wished to participate in more telesimulation sessions (mean=4.6, SD=0.52), describing telesimulation as a valuable educational experience (mean=4.5, SD=0.53) that will improve their team leadership and communication skills (mean=4.6, SD=0.52; mean=4.6, SD=0.52) as well as their performance in an actual clinical environment (mean=4.7, SD=0.48) [figure 3].

Conclusions: Our novel telesimulation modality is a feasible and effective educational tool. Participants found the virtual platform comparable to in-person simulation, providing a realistic environment for training team leadership, communication, and clinical reasoning skills.

Telesimulation may be broadly applicable to the global medical education community, connecting resource-limited training programs with experienced educators and simulators for remote SBE.

References (Optional):

Funding: Not applicable

Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 14:57 - 15:09

Elafos B

Track: Oral Abstracts

(O-F2) Did a Chatbot Write This Abstract? artificial Intelligence in Academic Emergency Medicine

Oral Presenter / Primary Author: Stephen c. Morris, MD, MPH - University of Washington

Objectives: This work provides an overview of AI use in the academic emergency medicine with a focus on content creation as demonstrated by the use of chatbot technology.

Background: Artificial intelligence (AI) refers to the use of computers to preform intellectual tasks such as interpretation of data to solve problems. AI use in healthcare includes interpretation of radiology studies, predictive analytics, personalized healthcare using genetics and medical data analysis. Use of AI in education already exists in the form of adaptive learning platforms, automated assessments, learning analytics and more recently content creation. Chatbots are a form of AI that uses conversational language, search engines and analytics to produce content simulating that produced by humans. Content creation is a major role of academic emergency medicine clinicians.

Methods: Using a publicly available chatbot https://chat.openai.com/ (March 23, 2023 version) the authors built content simulating an academic work surrounding the interplay of AI's role in emergency medicine and possible use of AI in the future of emergency medicine. Using plain language, the chatbot was tasked with finding supporting literature, writing a conference abstract, a research paper and developing a lesson plans, case studies and a curriculum. The chatbot was then asked to critique its own work, analyzing the weaknesses of the content it produced.

Results: The chatbot created content consistent with the tasks asked of it, written at a level appropriate for the audience (physicians). The created content contained detailed information, but it is unclear the pathway of how it obtained that information, thus not allowing judgment (or bias) regarding the veracity of that information. The content also contained fabrications such as reporting a literature search when none was conducted nor is the chatbot capable of conducting one. The chatbot created content with ingenuity, such as a case studies of fictitious emergency departments, incorporating an understanding of emergency department processes (nursing triage and patient flow), current challenges (delayed care and ED crowding), and other nuanced and detailed narrative prose. The chatbot was 'aware' of its own weaknesses stating 'I don't have the capability to perform an actual search on databases' and 'implementation of AI must be done carefully, taking into consideration the benefits and limitations'. The overall results would be indistinguishable from content created by academic emergency clinicians.

Conclusions: AI in emergency medicine is dynamic. Content created by chatbot technology creates products that appear to satisfy the academic needs requested of it. However, not unlike a math problem in which the answer is provided without demonstrating how that answer was obtained, the created content lacks veracity and depth. To quote the chatbot "Overall, AI has the potential to transform emergency medicine education by providing new and innovative ways to teach and learn. However, it's important to ensure that AI is integrated into emergency

medicine education in a way that complements traditional teaching methods and does not replace them entirely."

References (Optional):

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Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 15:09 - 15:21

Elafos B

Track: Oral Abstracts

(O-F3) Quality Improvement Collaboration: Virtual Learning Platforms Enhance Effective Information and Knowledge Sharing Between Teams to Improve Patient Care

Oral Presenter / Primary Author: Timothy P. Mossad, MBBS DipABRSM PGCertMedEd FRCEM RCPathME MBA - Mid Yorkshire Teaching NHS Trust

Objectives: This prospective, applied mono-method convenience survey (7%MOE, 95%CIs) aimed to identify gaps in staff perceptions across an NHS trust (three DGHs) on the adjunct use of virtual learning platforms to share quality improvement successes across organisational boundaries.

Background: The Covid-19 pandemic posed challenges. Logistical best-fit practice compartmentalisation of healthcare quality improvement (QI) communication dissemination resulted in potential knowledge sharing losses between teams and organisations. Failure to achieve collective utilisation of appropriate, relevant and timely clinical governance systems negatively affects patient care and experience.

Methods: Open to all staff, 215 colleagues (145 females, 68 males, 2 unidentified sex) participated in online MSForms questionnaire completion over a designated two-week period following ethical and governance approval. Demographic data was collated on age, sex, job role and work speciality. Likert scale referenced statements on perceived utility, functionality, confidence in and availability of VLPs were transcribed into metric data for analysis (1-strongly disagree,2-partially disagree,3-neither agree or disagree,4-partially agree,5-strongly agree).

Results: Survey participants reflected workforce spectra. Respondents believed VLPs are useful, enhance empowered collaborative knowledge sharing capabilities, supporting improvement change and opportunity (4.09-4.64,$p< 0.001$). Collectively acknowledging face-to-face preferences (4.01,$p< 0.01$), VLP improvement hub aspirations (4.04,$p< 0.01$) directed sustainable, digitally-capable independent inter-speciality successes (3.96–4.53,$p< 0.001$). Written feedback evidenced enhanced team-working with progressive VLP utilisation, standardising under supportive organisational cultural shifts. Subgroup analysis demonstrated EM colleagues believed online availability facilitated collaborative potentials under supportive digital QI approaches (3.93–4.52, $p< 0.001$). Senior EM nurses collectively expressed confidence in joining wider ED and organisational teams to improve patient care ($p=0.03$). Qualitative collective junior doctor feedback evidenced strategic QI planning facilitates curriculum progression ($p< 0.01$).

Conclusions: Overall, themes regarding VLPs as adjunct tools to organising sustainable QI information sharing potentials were positive. This survey adds to current emerging evidence, providing a valid, transferable platform for exploring balanced VLP usage as part of sustainable QI systems considering their ‘new era’ use more broadly in Healthcare.

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Crawford, A., Mulsant, B. and Sockalingam, S., 2020. Using Rapid Design Thinking to Overcome COVID-19 Challenges in Medical Education. Academic Medicine, 96(1), pp.56-61.

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Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 15:21 - 15:33

Elafos B

Track: Oral Abstracts

(O-F4) Who You Gonna Call?

Oral Presenter / Primary Author: Amritpal Saini, MD - Jacobi/Montefiore Emergency Medicine Residency

Co-Author: Nora McNulty, MD - Montefiore/Jacobi Medical Center

Co-Author: Noah Trump, MD - Jacobi/Montefiore

Co-Author: Sandeep K. Dhillon, MD - Jacobi Medical Center

Faculty Advisor: Andrew Restivo, MD - Montefiore Medical Center

Faculty Advisor: Maninder Singh, MD - Jacobi

Objectives: Using simulation to assess medical student competency of the AAMC Core Entrustable Professional Activity (EPA) 10: recognizing a patient requiring urgent or emergent care and initiate evaluation and management.

Background: EPAs are the standards established by the AAMC,by which medical students are assessed to determine their readiness for residency. EPA 10 involves the recognition of a patient that requires urgent care and initial evaluation and management. There is a paucity of studies on evaluation of medical student competencies, such as EPA 10. Simulation is a standardized and reproducible educational method that allows for the practice of a variety of clinical scenarios and procedures while maintaining the learner's psychological safety. This study evaluates the utility of a high fidelity simulation as an assessment tool for EPA 10.

Methods: 62-fourth-year medical-students participated in a simulated case of a patient with multiple comorbidities, including heart failure, who is admitted to surgery floors for an upper gastrointestinal bleed. He received two units of packed red blood cells, precipitating pulmonary edema. This requires the patient to receive immediate intervention and activation of a rapid response team. Evaluators observed groups of students for performance of critical actions, such as recognizing abnormal vital signs and potential etiologies of the patient's decompensation, recognizing severity of patient's illness and initiating interventions and management, and initiating a code response and providing basic and advanced life support.

Results: Upon review of the data, while 100% of participants recognize the need for additional oxygen support, only 12.5% of participants appropriately applied supplemental oxygen to the patient. After a debrief and individualized procedural station teaching, 82.8% of participants felt comfortable escalating oxygen therapy.

Conclusions: Our experience showed that high fidelity simulation is an effective tool to measure a student's ability to perform core competencies identified in EPA 10. Through this experience graduating students learned to assess a rapidly deteriorating patient, and to call for additional resources, an experience difficult to teach within lectures. Medical students benefit from this hands-on experience, and medical educators benefit from the ability to identify skill deficiencies prior to graduation. This has high applicability to transition to residency courses for senior medical students . Future studies can be conducted to evaluate learner readiness for

residency.

References (Optional):

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Friday, September 8, 2023

Session Time: 14:45 - 16:15

Presentation Time: 15:33 - 15:45

Elafos B

Track: Oral Abstracts

(O-F5) Development of a Low-cost Realistic Resuscitative Hysterotomy Trainer for in Situ Simulation of Prehospital Care Physicians

Oral Presenter / Primary Author: Matthew D. Sztajnkrycer (he/him/his), MD, PhD, NRP - Mayo Clinic

Co-Author: Rosanna Chorro, MD - Mayo Clinic

Co-Author: Andres Climent, RN - International University of Valencia

Co-Author: Donnell Lazaro-Paulina, MD - Mayo Clinic

Objectives: The purpose of this project was to develop an affordable, portable, realistic trainer enabling in situ training of resuscitative hysterotomy (RH) by prehospital care physicians performing critical care ground and air response.

Background: RH is a high risk/low frequency procedure in emergency medicine [1-3]. After a near-miss event in the prehospital setting, a RH curriculum was developed for prehospital care faculty, EMS fellows, and EM residents. This curriculum, which included initial didactics followed by procedural skills in a crawl-walk-run paradigm, was very well received by participants. However, the course was limited by the cost of the RH manikin and the inability to perform in situ simulations in real-world EMS environments.

Methods: 3D models of the abdominal wall obtained from a plastic fashion pregnant manikin were used as molds for casting. To create the abdominal wall, we utilized a slicing technique using platinum silicone with colorant. Silicone base for individual slices were modified to adjust the texture and hardness for realism. Between select slices, reservoirs of simulated blood were placed to simulated surgical blood loss. An inexpensive premade silicone baby was used, and the umbilical cord was created from silicone. Two 4mm and one 8mm latex tubes, filled with red and blue liquids, were used to create the umbilical arteries and vein for simulated umbilical vein canulation. The placenta was created using a silicone mold. A semi-opaque plastic bag was used to simulate the amniotic sac; the placenta-baby complex was placed within the bag, which was filled with clear liquid and sealed. The amniotic sac was covered with a 7mm thickness red-brown silicone to reproduce the uterine wall. The uterus was placed within the multi-layered abdominal wall model and closed with a back layer of silicone. The completed obstetrical abdomen was attached to a silicone abdominal binder, which in turn was fastened to a low-cost female CPR mannequin.

Results: The commercial RH manikin used in the initial training curriculum costs approximately US$65000.00 [4]. In contrast, by using a silicone slicing technique, our manikin cost less than US$500.00, making it both affordable even in low resource environments and available for in situ field use for realistic EMS scenarios. Unique texturing of the skin, subcutaneous tissues and muscle layers mimic with high fidelity an actual 34-week gestation abdomen, while the use of blood reservoirs between slices adds difficulty and permits a more realistic surgical dissection technique. Different silicone colors permit trainees to identify the appropriate anatomical structures. The use of silicone permits easy repair of all anatomic structures, with the exception of the umbilical cord. The use of latex tubes in the umbilical cord makes repair

difficult, although replacement is inexpensive and easy to accomplish.

Conclusions: This study demonstrates the feasibility of creation of an inexpensive, reusable, realistic abdomen for RH training to practice both surgical skills and team dynamics/communications. Although the project was developed for prehospital care physicians, this model is also well suited for the emergency department setting. The use of silicone and inexpensive manikins permits high quality training even in resource-constrained environments. Although designed to be placed on a CPR manikin, the RH simulator can also be worn by actors, further increasing the realism and stress of scenario-based simulation training.

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Presentation Time: 15:45 - 15:57

Elafos B

Track: Oral Abstracts

(O-F6) A Mixed-methods Study of Barriers and Facilitators to Point-of-care Ultrasound Implementation for Emergency Department Providers at the Durham Veterans Affairs Healthcare System

Oral Presenter / Primary Author: Rebecca G. Theophanous, MD, MHSc, FACEP, FAAEM - Duke University Health System

Co-Author: Anna Tupetz, DPT, MScGH - Duke University, Global Health Institute

Co-Author: Luna Ragsdale, MD, MPH - Duke University Hospital, Durham VA Healthcare System

Co-Author: Padmaja Krishnan, MS-II - Campbell University School of Medicine, Lillington, NC, 27546

Co-Author: Raelynn Vigue, PGY-1 - Duke University Health System

Co-Author: Carson E. Herman, n/a - Duke University

Co-Author: Jaran White, n/a - Duke University

Co-Author: Erica Peethumnongsin, MD, PhD - Duke University Hospital

Co-Author: Catherine A. Staton, MD MSc - Duke University Hospital - Durham, NC

Co-Author: Alexander Gordee, MA - Duke University, Dpt of Biostatistics & Bioinformatics

Co-Author: Maragatha Kuchibhatla, PhD - Duke University, Dpt of Biostatistics & Bioinformatics, Dpt of Psychiatry & Behavioral Sciences

Co-Author: Stephanie Eucker, MD, PhD - Duke University Hospital

Objectives: Our primary objective was to identify the facilitators and barriers to optimize our program implementation using the consolidated framework for implementation research (CFIR) and test for impact at a single local ED.

Background: Emergency ultrasound program leaders nationwide recognize that point-of-care ultrasound (POCUS) knowledge retention and utilization are difficult to achieve. Prior studies have identified a lack of provider training with a gap in POCUS knowledge and skills, lack of credentialed ultrasound users, and lack of quality assurance image review as significant barriers to POCUS use. A standardized approach to identifying and addressing barriers to sustainable POCUS implementation is needed to increase POCUS use, reduce radiology ultrasound, and potentially improve emergency department (ED) flow.

Methods: Our mixed-methods study implemented a co-designed multifaceted intervention at the Durham Veterans Affairs ED from November 2021 to October 2022 (12 months) to enhance POCUS usability and sustainability, including education, equipment knowledge, quality review process, and image archiving in the health record. Furthermore, 20/25 (80%) full-time ED providers participated in small or large-group hands-on educational POCUS training sessions between February-May 2022. We conducted 14 semi-structured interviews to identify emergent themes and codes on ED POCUS use and performed team-based coding using inductive then deductive analysis using NVivo. For our impact evaluation, we assessed POCUS program

acceptability, effectiveness, and feasibility via provider pre/post-course questionnaires, interviews, and health record data (ED POCUS, radiology ultrasound orders, and ED LOS).

Results: Five POCUS themes emerged: convenience and efficiency, ED environment (space and place), perceptions of high clinical and educational utility of ED POCUS, and peer influences, feedback, and teaching. POCUS facilitators include machine availability, resident teaching, ED procedural POCUS, hands-on group training, colleagues' contagiousness and enthusiasm, and ultrasound faculty support and guidance. Additionally, ED and hospital leadership support and hospital-wide POCUS collaboration were cited as essential for success. POCUS barriers were time constraints, alternative radiology imaging availability, POCUS knowledge and skills comfort, and eliminating unnecessary and cumbersome steps for image acquisition and documentation/storage. Additional identified needs (image review, faculty credentialing, and an archiving system), require development locally to strengthen provider skills and reduce duplicated radiology studies. For feasibility and effectiveness, we found no significant change in ED LOS (6.7□7.5 hours, p=0.0849) and radiology ultrasounds ordered (355□361, p=0.417) but a significant increase in ED POCUS (72□267 scans, p<0.001), in the six months pre/post-intervention. The most frequently performed POCUS scans were cardiac, DVT, soft tissue, MSK, and biliary, and radiology studies were DVT, biliary, and scrotal US. From pre/post-intervention survey data, overall comfort with performing and teaching diagnostic and procedural POCUS changed minimally. All respondents agreed that POCUS is a useful clinical tool and that residents should learn POCUS, supporting acceptability.

Conclusions: We identified the barriers and facilitators to sustained POCUS training and implementation using the CFIR framework. Our POCUS program is acceptable, effective, and feasible based on survey responses, interviews, and health record data. Future work should address POCUS barriers and incorporate facilitators by tailoring POCUS education and clinical use toward individual providers at each site, using momentum from positive peer feedback, selecting an "ED clinical champion", and integrating ED and hospital leadership support, with the goal to extend our implementation evaluation into a standardized national scale intervention.

References (Optional): 1. American College of Emergency Physicians. ACEP guidelines Policy Statement. Ultrasound guidelines: Emergency, Point-of-care, and clinical ultrasound guidelines in medicine. Revised June 2016. https://www.acep.org/patient-care/policy-statements/ultrasound-guidelines-emergency-point-of--care-andclinical-ultrasound-guidelines-in-medicine/ 2. Moore CL, Molina AA, Lin H. Ultrasonography in community emergency departments in the United States: access to ultrasonography performed by consultants and status of emergency physician-performed ultrasonography. Ann Emerg Med. 2006 Feb;47(2):147-53. 3. Feng W, Ye X, Lv H, et al. Current use and training needs of point-of-care ultrasound in emergency departments: a national survey of VA hospitals. AJEM. 2019;1784-1805. 4. Stein JC, River G, Kalika I, et al. A survey of bedside ultrasound use by emergency physicians in California. J Ultrasound Med. 2009 Jun;28(6):757-63. 5. Mosier JM, Malo J, Stolz LA, et al. Critical care ultrasound training: A survey of US fellowship directors. Journal of Critical Care. August 2014;29(4):645-649. 6. Schnikkte N, Damewood S. Identifying and Overcoming Barriers to Resident Use of Point-of-Care Ultrasound. West J Emerg Med. 2019 Oct 14;20(6):918-925. 7. IFEM. Point-of-care-ultrasound curriculum guidelines. March 2014. https://www.emssa.org.za/wp-content/uploads/2014/10/IFEM-Point-of-Care-Ultrasound-Curriculum-Guidelines.pdf 8. Schott CK, LoPresti CM, Boyd JS, et al. Retention of Point-of-Care Ultrasound Skills Among Practicing Physicians: Findings of the VA National POCUS Training Program. Am J Med. 2021 Mar;134(3):391399.e8. 9. Warner G. Applying the consolidated framework for implementation research to identify barriers affecting implementation of an online frailty tool into primary health care: a qualitative study. BMC Health

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Friday, September 8, 2023
Session Time: 14:45 - 16:15
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Elafos B
Track: Oral Abstracts

(O-F7) Augmented Reality for Empathy Training: Stepping into the Patient's Shoes

Oral Presenter / Primary Author: Alisa Wray, MD, MAEd - University of California Irvine
Co-Author: Aaron Frank, MS-3 - University of California Irvine SOM
Co-Author: Melissa Allison, MS-3 - University of California Irvine SOM
Co-Author: Clara Riggle, MS-3 - University of California Irvine SOM
Co-Author: Ronnie Rivera, MD - University of California Irvine SOM
Co-Author: Ariana Nelson, MD - University of California Irvine SOM

Objectives: The patient-physician relationship and satisfaction are highly reliant on effective physician communication.1, 2 We proposed that by utilizing the Microsoft HoloLens augmented reality to record and watch medical student standardized patient (SP) encounters students would be more empathetic and imagine what it is like to be "in the patient's shoes."

Background: Although virtual reality has been widely adopted for training practical skills, virtual and augmented reality are minimally utilized to improve MSs' empathy skills.3 MS have limited options of reviewing their SP encounters and typically can only view footage from one camera angle. This limited point of view (POV) does not give a representation of eye contact, body language, or communication directly from the patient's POV. We initiated a pilot project utilizing Microsoft HoloLens augmented reality to give MSs an opportunity to view themselves from the patient's POV. The figurative "putting yourself in the patient's shoes" became lliteral with digital education.

Methods: To analyze the efficacy of augmented reality video, we designed a pilot study that evaluated students' self perception of their performance immediately before and after watchback sessions. 20 MS1s and MS2s were randomly assigned into two groups, those which would review their video footage captured on the HoloLens, and those which would review their video footage captured from a standard camera. Students completed a 5 minute SP encounter, with all SPs wearing the HoloLens during the encounter. Students then completed the Consultation and Relational Empathy (CARE) validated survey, and additional questions evaluating body language, eye contact, and facial expressions. Students assigned to the HoloLens group then had the opportunity to wear the device and experience themselves delivering their 5 minute patient interview in an immersive augmented reality experience, from the patient's POV. The other group of students watched the third-person POV of their encounter. After completing the watchback sessions, students repeated the CARE survey and additional questions, and provided feedback on the experience. Changes in CARE survey scores, evaluation of body language, eye contact, and facial expressions. Each group then reviewed the alternative video and completed a final survey on their overall thoughts comparing HoloLens to the third-person POV camera.

Results: Each participant was able to view their encounter from the augmented reality and third-person perspective and completed a final survey--84% (16/19) marked the HoloLens footage as "more informative" versus the third-person camera. Many of the students' reviews of

the experience included descriptions of evaluating body language and facial expression with patients, and seeing their mannerisms from a new perspective. 15/19 participants noted in their free response that the HoloLens was better than the third-party perspective for facial expressions, eye contact, and seeing from the patient's perspective. The third-person perspective was better for overall body language. One student stated that "It was great to see myself from the patient's perspective (HoloLens) and see the importance of body language and facial expressions". Other notable quotes regarding the HoloLens included "HoloLens helped me empathize better with the patient." "The HoloLens footage gave me a more detailed look into my facial expressions and how I was translating empathy through small acts of non-verbal communication (eyebrow raise, eye contact)." All 20 students stated that they felt the experience was valuable to their clinical practice, that they would participate in a study like this again and would recommend the session to a colleague.

Conclusions: This pilot study provided strong beneficial evidence to using augmented reality in medical communication training. The overwhelmingly positive reviews suggest that using augmented reality video feedback during SP encounters is an important supplement to traditional education and allows MSs to experience what it is like to be in a patient's shoes.

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Friday, September 8, 2023
Session Time: 16:30 - 18:00
Presentation Time: 16:30 - 16:42
Elafos A
Track: Oral Abstracts

(O-G1) Trends in Emergency Department Visits for Alcohol Abuse Following the Arrival of COVID-19

Oral Presenter / Primary Author: John R. Allegra, MD, PhD - Morristown Medical Center
Principal Investigator: David McNamara, DO - Morristown Medical Center
Co-Author: Barnet Eskin (he/him/his), MD, PhD - Morristown Medical Center

Objectives: Our goal was to determine whether there was a change in the proportion of ED visits for alcohol abuse following the arrival of COVID-19

Background: In March 2020, COVID-19 arrived in the NY Metropolitan area. Total ED visits decreased markedly, likely because of fear of exposure to the virus as well as social isolation mandates. Isolation from peers, job disruptions and quarantining within families led to increased anxiety in the population and this may have led to increased alcohol abuse. A CDC study showed that despite decreased total ED visits, compared to 2019, the proportion of ED mental health-related visits in 2020 increased.

Methods: Design: Retrospective cohort. Setting: Emergency Departments of 8 hospitals within 150 miles of New York City. Hospitals were teaching and non-teaching in rural, suburban, and urban areas. Total annual ED volumes in 2019 were 30,000 to 120,000. Population: Consecutive patients seen by ED healthcare providers between March 1 and November 30 in 2019 – 2022, as COVID arrived in March 2020. Data analysis: We identified patients with alcohol abuse using International Classification of Disease codes (ICD, version 10). We tallied the number of ED visits for ICD alcohol diagnoses with at least 100 visits over the four years. We calculated the proportion of these visits to total ED visits in 2019 - 2022. We report the changes in these proportions from the baseline of 2019 to 2020 - 2022, along with 95% confidence intervals (CIs).

Results: The database contained 1,542,684 visits, 485,826, 335,613, 343,152 and 378,093 in 2019, 2020, 2021 and 2022, respectively, of which 25,618 (1.7%) had the diagnosis of alcohol abuse (8718, 7112, 5154 and 4634, respectively, in each of the years). The median ages for each of these years were 46, 46, 45 and 45 years, respectively and the percent female were 27%, 25%, 24% and 24%, respectively. The changes in the proportion of ED Visits for alcohol abuse in each of 2020, 2021 and 2022, compared to the baseline of 2019, were +18% (95% CI: +14, +22%), -21% (95% CI: -24, -19%), and -34% (95% CI: -36, -31%), respectively.

Conclusions: The proportion of ED visits for alcohol abuse increased in 2020 following the arrival of COVID-19, but then decreased in 2021 and 2022. The initial rise may reflect increases in anxiety in the general population, but we do not have an explanation for the decreases in 2021 and 2022.

References (Optional):

Funding: none

Friday, September 8, 2023

Session Time: 16:30 - 18:00

Presentation Time: 16:42 - 16:54

Elafos A

Track: Oral Abstracts

(O-G2) Laboratory Testing Is Indicated for Older but Not Younger Emergency Department Psychiatric Patients

Oral Presenter / Primary Author: Barnet Eskin (he/him/his), MD, PhD - Morristown Medical Center

Co-Author: John R. Allegra, MD, PhD - Morristown Medical Center

Co-Author: Marielle Daclan, MD - Morristown Medical Center

Objectives: To assess the value of laboratory testing for emergency department psychiatric patients of different ages by examining the fraction of those patients admitted medically instead of psychiatrically.

Background: Previous studies have shown that routine laboratory testing has low yield for identifying unsuspected medical conditions for most emergency department (ED) patients who present for psychiatric problems. About 20% of ED psychiatric patients are over 65 years old and these patients are more likely to have chronic medical conditions than younger patients. These conditions may worsen during exacerbations of psychiatric illnesses and, in fact, may contribute to these exacerbations. We hypothesize that a larger proportion of elderly than younger patients presenting for psychiatric problems require medical admission, and that the reasons for such admission are exacerbations of chronic medical conditions.

Methods: Design: Retrospective cohort. Population: Consecutive ED patients presenting with psychiatric conditions in the years 2019-2021. Setting: Suburban ED with an annual ED volume of 90,000 patients, an ED residency, and a separate area for psychiatric patients. This area has specialized psychiatric personnel, including psychiatric social workers and psychiatrists. ED healthcare providers initially evaluate the patients and then request psychiatric consultation. Protocol: A database of ED psychiatric patients is maintained by the hospital. We tallied the number of psychiatric visits and the number of these patients admitted for medical conditions. We calculated and plotted the percent admitted medically by decade of life. We also tallied admissions for specific conditions, namely drug-related diagnoses (including alcohol abuse) and dementia.

Results: The database contained 8018 patients. The median age was 30 years (interquartile range: 19-51); 51% were female. Of these, 175 (2.2%) were admitted for medical conditions. The percent admitted medically varied markedly by decade of life, ranging from an average of < 1% in the first four decades of life to 15% in the tenth decade (See Figure). Drug-related diagnoses were found in patients admitted medically in the 3rd through 8th decades of life, and accounted for 46% of the medical admissions in the 4th-6th decades of life. Of medical admissions in the 8-10th decades of life, 30% were for dementia.

Conclusions: We found a higher admission rate for medical conditions in elderly than younger psychiatric ED patients. The most frequent chronic medical condition in elderly patients that was identified as the reason for medical admission was dementia. Our results confirm that the routine requirement for laboratory testing in younger psychiatric ED patients is unlikely to be

useful.

References (Optional):

Funding: None.

Friday, September 8, 2023

Session Time: 16:30 - 18:00

Presentation Time: 16:54 - 17:06

Elafos A

Track: Oral Abstracts

(O-G3) Emergency Department Management of Acute Agitation in Pregnancy

Oral Presenter / Primary Author: Ariella Gartenberg (she/her/hers), MD - Montefiore Medical Center, Jacobi Medical Center

Co-Author: Kayla Levine

Co-Author: Alexander Petrie, MD - Jacobi Medical Center

Objectives: The purpose of this article is to explore the pathophysiology and etiology of acute agitation in order to better understand the adverse effects of pharmacological management. This review article highlights the adverse effects and preferred treatment algorithms specifically for acute agitation in pregnancy in the emergency department (ED).

Background: Agitation is an increasingly common presentation within EDs, psychiatry units, and long-term care facilities. The prevalence of agitation within the ED compromises around 2.6% of total patient encounters. Acute agitation during pregnancy is increasingly common and should be treated as an obstetric emergency as the distress may jeopardize both the patient and the fetus. The safety of psychotropic medications in pregnancy has not been well established in human models.

Methods: A literature review was conducted to explore the pathophysiology and etiology of acute agitation in order to better understand the adverse effects of typical pharmacological management. An overview of drug interactions, side effects, and benefits was conducted, specifically pertaining to psychotropic medication use in pregnancy related agitation. A preferred treatment algorithm was discussed regarding management of acute agitation in pregnancy in the ED.

Results: While verbal and nonpharmacological management is preferred for the treatment of agitation in the ED, 3-20 per 1000 ED visits for agitation require medical management. The medications administered voluntarily or involuntarily should differ based on the etiology of the agitation, the patient's age, gender, and comorbidities, and the clinical setting in order to avoid major adverse effects. Adverse reactions include hypoxia, hypotension, bradycardia, QTc prolongation, and airway obstruction. Adverse effects are more common in pregnant females. For mild to moderate agitation in pregnancy, diphenhydramine is an effective sedating agent with minimal short and long-term side-effects. In moderate to severe agitation, high potency typical antipsychotics are preferred due to their neutral effects on hemodynamics. Haloperidol has become the most frequently utilized antipsychotic for such agitation in pregnancy. Second generation antipsychotics are often utilized as second line therapy, including risperidone. Other sedating agents, including benzodiazepines and ketamine have demonstrated adverse fetal outcome in animal models.

Conclusions: All psychotropic medications readily cross the placenta, are present in amniotic fluid, and can enter breast milk in varying degrees. While randomized control studies cannot be ethically conducted on pregnant patients requiring acute sedation, animal models and epidemiologic studies have demonstrated the effects of psychotropic medications on

transmission to baby. As the fetal risk associated with multiple doses of psychotropic medications remains unknown, weighing the risks and benefits of each agent, while utilizing the lowest effective dose of a single agent remains critical in the treatment of acute agitation in pregnancy within the emergency department.

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complications with risperidone treatment before and throughout pregnancy and during the nursing period. Am J Psychiatry. 2002;63(1):76–7. [23] Gilboa SM, Strickland MJ, Olshan AF, Werler MM, Correa A; National Birth Defects Prevention Study. Use of antihistamine medications during early pregnancy and isolated major malformations. Birth Defects Res A Clin Mol Teratol. 2009 Feb;85(2):137-50. doi: 10.1002/bdra.20513. [24] So M, Bozzo P, Inoue M, Einarson A. Safety of antihistamines during pregnancy and lactation. Can Fam Physician. 2010 May;56(5):427-9. [25] Noh Y, Lee H, Choi A, Kwon JS, Choe SA, Chae J, Kim DS, Shin JY. First-trimester exposure to benzodiazepines and risk of congenital malformations in offspring: A population-based cohort study in South Korea. PLoS Med. 2022 Mar 2;19(3):e1003945. doi: 10.1371/journal.pmed.1003945. [26] https://www.accessdata.fda.gov/drugsatfda_docs/label/2016/017794s044lbl.pdf [27] Enato E, Moretti M, Koren G. The fetal safety of benzodiazepines: an updated meta-analysis. J Obstet Gynaecol Can. 2011 Jan;33(1):46-48. doi: 10.1016/S1701-2163(16)34772-7. [28] Ellingson, A., Haram, K., and Solheim, E. (1977). Transplacental passage of ketamine after intravenous administration. Acta Anaesthesiologica Scandinavica, 21(1), 41-44. [29] Dong, C., Rovnaghi, C.R., & Anand, K.J. (2016). Ketamine exposure during embryogenesis inhibits cellular proliferation in rat fetal cortical neurogenic regions. Acta Anaesthesiologica Scandinavica, 60(5), 579–587 [30] Li X, Guo C, Li Y, Li L, Wang Y, Zhang Y, Li Y, Chen Y, Liu W, Gao L. Ketamine administered pregnant rats impair learning and memory in offspring via the CREB pathway. Oncotarget. 2017 May 16;8(20):32433-32449. doi: 10.18632/oncotarget.15405 [31] Zhao T, Li Y, Wei W, Savage S, Zhou L, Ma D. Ketamine administered to pregnant rats in the second trimester causes long-lasting behavioral disorders in offspring. Neurobiol Dis. 2014 Aug;68:145-55. doi: 10.1016/j.nbd.2014.02.009. [32] Zhao T, Li C, Wei W, Zhang H, Ma D, Song X, Zhou L. Prenatal ketamine exposure causes abnormal development of prefrontal cortex in rat. Sci Rep. 2016 May 26;6:26865. doi: 10.1038/srep26865. [33] Brambrink AM, Evers AS, Avidan MS, Farber NB, Smith DJ, Martin LD, Dissen GA, Creeley CE, Olney JW. Ketamine-induced neuroapoptosis in the fetal and neonatal rhesus macaque brain. Anesthesiology. 2012 Feb;116(2):372-84. doi: 10.1097/ALN.0b013e318242b2cd. [34] Ladavac AS, Dubin WR, Ning A, Stuckeman PA. Emergency management of agitation in pregnancy. Gen Hosp Psychiatry. 2007 Jan-Feb;29(1):39-41. doi: 10.1016/j.genhosppsych.2006.09.003.) [35] Nobay F, Simon BC, Levitt MA, Dresden GM. A prospective, double-blind, randomized trial of midazolam versus haloperidol versus lorazepam in the chemical restraint of violent and severely agitated patients. Acad Emerg Med. 2004 Jul;11(7):744-9. doi: 10.1197/j.aem.2003.06.015. PMID: 15231461.

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Friday, September 8, 2023

Session Time: 16:30 - 18:00

Presentation Time: 17:06 - 17:18

Elafos A

Track: Oral Abstracts

(O-G4) Emergency Department (ED) Patients' Perspectives on Offering Pre-exposure Prophylaxis (PrEP) in the ED

Oral Presenter / Co-Author: Rachel E. Solnick, MD, MSc - Icahn School of Medicine at Mount Sinai

Primary Author: Ethan Cowan, MD, MS - Icahn School of Medicine at Mount Sinai

Co-Author: Tatiana Argoti-Gonzalez, BS - Albert Einstein College of Medicine

Co-Author: Laurie Bauman, PhD - Albert Einstein College of Medicine

Co-Author: Christine Rael, PhD - University of Colorado College of Nursing

Co-Author: Joanne E. Mantell, MSPH, PhD - New York State Psychiatric Institute and Columbia University

Co-Author: Yvette C. Calderon, MD,MS - Mount Sinai Beth Israel

Co-Author: Susie Hoffman, DrPH - New York State Psychiatric Institute and Columbia University

Objectives: To understand ED patients' perspectives on approaches to offering PrEP in the ED.

Background: HIV pre-exposure prophylaxis (PrEP) remains underutilized in the United States. Emergency Departments (EDs) can be strategic locations for identifying PrEP-eligible individuals and initiating PrEP because they serve people who often lack a regular source of healthcare and are at disproportionate risk for HIV infection due to intersecting social-structural vulnerabilities. However, no successful models of ED PREP have been identified. We qualitatively examined ED patients' preferences regarding options for organizing PrEP services in the ED.

Methods: From a large, urban (NYC) ED, 15 non-acute patients who met PrEP sexual- or injection-risk behavior criteria were recruited for semi-structured interviews. Audio or video-assisted interviews were conducted at a convenient time after the ED visit. Participants discussed their overall response to being offered PrEP services in the ED, and their preferences for specific components (Figure 1, e.g., PrEP information given to all vs. targeted to higher risk individuals; Who presents the information/conducts screening; Timing in the ED visit for information/screening; Education via video, pamphlets or in-person; Immediate initiation of PrEP vs. referral; Location of follow-up). Interviews were audio-recorded and transcribed. Content coding was conducted within each topic.

Results: Of 175 patients screened, 57 were eligible, 52 agreed to and 15 completed interviews. Most participants (9 of 15) were < 40 years old; 11 identified as male; all had medical insurance, and 8 reported 1 ED visit in the past 6 months. Most (12/15) were willing to learn about PrEP in the ED if it did not disrupt their visit and they were not in distress or pain. Benefits of universal PrEP education included reducing stigma and reaching people less likely to know about PrEP, whereas targeted education would identify people most likely to respond favorably. Preference for a person (vs. video or pamphlet) to explain PrEP was high (11/15).

Preferred timing was after the patient's main concern was addressed. The importance of privacy during screening/education emerged as a priority, as did being able to speak with a PrEP expert (either clinical and non-clinical). Six opted for PrEP initiation in the ED, 4 preferred a script to be sent to their pharmacy, and 6 preferred initiation at a follow-up site.

Conclusions: Patients are willing to hear about PrEP in the ED. Benefits identified included reaching people without other access and "laying the groundwork" for PrEP. Key concerns were whether people would be able to focus on PrEP in an emergency setting, not delaying care, and not stigmatizing individuals. Offering PrEP in the ED has the potential to expand access. ED-PrEP models need to be designed and tested.

References (Optional):

Funding: N/A

Friday, September 8, 2023
Session Time: 16:30 - 18:00
Presentation Time: 17:18 - 17:30
Elafos A
Track: Oral Abstracts

(O-G5) Effect of the COVID-19 Pandemic on Adult Emergency Department (ED) Visits for Depression and Suicidal Ideation

Oral Presenter / Primary Author: John R. Allegra, MD, PhD - Morristown Medical Center
Co-Author: Bryan Luu, DO - Morristown Medical Center
Co-Author: Barnet Eskin (he/him/his), MD, PhD - Morristown Medical Center

Objectives: We hypothesized that the changes following COVID-19 would cause an increase in ED visits for depression and suicidal ideation/self-harm (DS).

Background: In March 2020, the COVID-19 pandemic reached the New York tri-state area, which, at the time, was one of the regions in the United States that the virus most severely affected. Social isolation increased due to mandates and fear of exposure to the virus. Quarantining at home, fear of becoming sick, and job disruptions caused the level of stress in the population to increase. We hypothesized this would cause an increase in ED visits for depression and suicidal ideation/self-harm (DS). Our goal was to determine whether the ED visits for DS in adult patients changed after the arrival of COVID-19.

Methods: Design: Retrospective cohort. Setting: EDs of 8 hospitals within 150 miles of New York City. Hospitals were teaching and non-teaching in rural, suburban and urban areas. Total annual ED volumes ranged from 30,000 to 120,000. Population: Consecutive ED patients > 21 years old from March 1 to November 30 in 2019 through 2022. (March 2020 was the start of the pandemic and our database ended on November 30th for each year.) Data analysis: We tallied the number of patients in each year with DS, identified using International Classification of Disease codes (version 10). We calculated the proportion of these visits to total ED visits for patients ages > 21 years in 2019 through 2022 to account for the marked decrease in total ED visits after the start of the pandemic. We report the changes in these proportions from 2019 to 2020, 2021 and 2022, along with 95% confidence intervals (CIs).

Results: Total adult ED visits for patients > 21 years old from Mar-Nov of each year were: 374,965, 279,977, 271,126 and 284,113 in the years 2019 – 2022, respectively. The numbers of DS from Mar-Nov of each year were: 3531, 2825, 2175, and 1935 in the years 2019 – 2022, respectively. The percent changes in the proportions of visits for DS from 2019 (with 95% CIs) were: 2020: +7% (2% to 13%), 2021: -15% (-10% to -19%), and 2022: -28% (-24% to -32%).

Conclusions: Consistent with our hypothesis, the proportion of ED visits for depression and self-harm/suicidal ideation, increased in the year following the arrival of COVID-19, but unexpectedly decreased in 2021 and 2022. The reasons for these decreases are unclear.

References (Optional):

Funding: None.

Friday, September 8, 2023

Session Time: 16:30 - 18:00

Presentation Time: 16:30 - 16:42

Elafos B

Track: Oral Abstracts

(O-H1) The Role of Antiplatelet Agents and Anticoagulants in the Prognosis of Mild Traumatic Brain Injury: A Prospective Observational Study

Oral Presenter / Co-Author: Walter Vincenzo Maccarrone (he/him/his), MD - Università Cattolica del Sacro Cuore

Primary Author: Stefania Gemma, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Principal Investigator: Marcello Candelli, MD. PhD - Fondazione Policlinico Universitario A. Gemelli- IRCCS of Rome, Italy

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Co-Author: Ilaria Balsamo, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

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Co-Author: Michela Novelli, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

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Co-Author: Veronica Ojetti, MD - Università Cattolica del Sacro Cuore, facoltà di medicina

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Objectives: The aim of this study was to determine the incidence of intracranial haemorrhage in CT scans performed in the emergency department immediately after trauma and after 24 hours and to evaluate the role of antiplatelet agents and anticoagulants in the short-term (within 24 hours) prognosis of mild traumatic brain injury.

Background: Mild traumatic brain injury is one of the most common causes of admission to the emergency department. In the literature, the incidence of intracranial haemorrhage in patients with mild traumatic brain injury is reported to be 5-6%. It is still controversial how this percentage changes in patients taking antiplatelet agents and anticoagulants. Unlike anticoagulants, antiplatelet agents have not been considered a major risk factor for intracranial haemorrhage. Furthermore, it is not clear whether there is a significant difference between vitamin K antagonists and direct oral anticoagulants in the incidence of immediate or early (24-

hour) intracranial haemorrhage.

Methods: In this single-centre prospective observational study, we enrolled 820 patients (≥ 18 years old) with mild traumatic brain injury (GCS > 13) who visited our emergency department between September 2019 and May 2021 and received a cerebral CT examination within 6 hours of trauma. 200 of them were receiving antiplatelet therapy at home and 135 were anticoagulated. We recorded some medical history information, laboratory test data, and the results of the first CT examination (within 6 hours after the event) and the second CT examination (after 24 hours) with the electronic medical record of our hospital. We compared the incidence of cerebral haemorrhage in patients who were taking antiplatelet drugs and/or anticoagulants with patients who were not taking these drugs.

Results: 119 patients (14.5%) had intracranial haemorrhage at the first examination CT. In 257 patients, a 24-hour follow-up examination CT was performed and 15% of them experienced a new cerebral haemorrhage or an exacerbation of a pre-existing haemorrhage. Our statistical analysis showed that neither antiplatelet drugs (15.76% of patients assuming antiplatelet drugs had intracranial haemorrhage versus 14.37% without treatment, p=0.74) nor anticoagulants (14.13% versus 14.37%, p=0.76) were associated with an increased risk of immediate haemorrhage. No statistically significant differences in the percentage of bleeding were observed among the three anticoagulant classes (vitamin K antagonists, direct oral anticoagulants, and low molecular weight heparin). From the comparison between patients with first and second (24-hour) persistently negative CT and patients with exacerbation, or new onset of bleeding on the second CT , it appears that anticoagulants are associated with a greater risk of worsening of a preexisting hematoma, even after correction for other risk factors associated with bleeding (OR: 5.181, IC95%: 2.358-11.364; p < 0.0001). This risk was associated with both vitamin K antagonists (OR =5.464; IC95%: 1.345-16.129; p=0.002) and direct anticoagulants (OR: 4.329; IC95%: 1.299-11.494; p=0.003). No patients required surgical intervention. The symptom most strongly associated with immediat haemorrhage was post-traumatic amnesia (p=0.02).

Conclusions: Our study found that antiplatelet agents and anticoagulants were not associated with an increased risk of immediate intracranial haemorrhage after mild traumatic brain injury. Anticoagulants are associated with the risk of exacerbation of a preexisting hematoma after 24 hours but not with the occurrence of a new hematoma. Posttraumatic amnesia was the symptom that best predicted cerebral haemorrhage after mild traumatic brain injury.

References (Optional):

Funding: no funding

Friday, September 8, 2023

Session Time: 16:30 - 18:00

Presentation Time: 16:42 - 16:54

Elafos B

Track: Oral Abstracts

(O-H2) Understanding the Effect of Recreational Drug Use on Bone Health and Musculoskeletal Disease in Establishment of Pain Regimens

Oral Presenter / Primary Author: Ariella Gartenberg (she/her/hers), MD - Montefiore Medical Center, Jacobi Medical Center

Co-Author: Jamila Jamal, MD - Jacobi-Montefiore

Co-Author: Winston Yen, MD - Touro College of Osteopathic Medicine

Objectives: To review the pathophysiology and deleterious effects of recreational drug use on bone health and musculoskeletal disease in order to establish appropriate screening and pain management regimens.

Background: In the past decade, recreational drug use has become rampant within the United States. The widespread use of recreational drugs raises significant concern regarding their effects on various organ systems. In addition, the use of cannabis and opioids in chronic pain management increases the prevalence of these substances among patients with musculoskeletal conditions whose bone health may already be compromised.

Methods: A literature review was conducted on the epidemiology, pathophysiology, and side effects of recreational drug use on musculoskeletal disease and bone health. Such information was utilized in the establishment of pain regimens and screening protocols for recreational drug users with chronic pain presenting to outpatient clinic and emergency departments.

Results: Cannabis, stimulants, opioids, hallucinogens, and inhalants are the most frequently used drugs in the U.S, especially among the adolescent population. [table 1]. Illicit substance use is particularly prevalent among individuals with chronic musculoskeletal ailments due to the analgesic effects of such substances. Despite their analgesic effects, cannabis, stimulants, opioids, and inhalants impact bone maintenance, specifically osteoblast and osteoclast activity, as well as impede hormone production. [table 2] Such substances therefore lead to inhibition of bone remodeling and development, manifesting as lower bone mineral density and increased fracture risk in chronic users. Consideration of their overall lower bone mineral density and increased fracture risk is crucial in establishment of acute and chronic pain regimens for such patients.

Conclusions: Although current literature suggests a deleterious effect of recreational drugs on bone health and musculoskeletal disease, further research is warranted to evaluate the clinical effects of long-term substance use. Evaluation of such effects will aid in establishing appropriate pain management regimens, as well as appropriate screening and treatment plans for recreational drug users within outpatient clinics and emergency department visits.

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Funding: None

Friday, September 8, 2023

Session Time: 16:30 - 18:00

Presentation Time: 16:54 - 17:06

Elafos B

Track: Oral Abstracts

(O-H3) Supraclavicular Brachial Plexus Block for Anterior Shoulder Dislocation

Oral Presenter / Primary Author: Michael Shalaby (he/him/his), MD - Mount Sinai Medical Center Miami Beach

Objectives: To determine whether utilization of the supraclavicular brachial plexus block for anterior shoulder dislocation would achieve adequate anesthesia and muscle paralysis to aid in reduction.

Background: Anterior shoulder dislocation is very painful for patients and its reduction can pose a significant challenge for emergency physicians, even with procedural sedation. While the interscalene nerve block has proven helpful for the reduction of anterior shoulder dislocation, we believe that the supraclavicular brachial plexus is a more straightforward target and would provide complete anesthesia of the shoulder and necessary muscle paralysis.

Methods: In this case series of three patients with anterior shoulder dislocation, we employed the supraclavicular brachial plexus block for reduction. Two of the three patients had been signed out at change of shift with failed attempts at reduction with procedural sedation. In each patient, we used 15 ml lidocaine 2% with epinephrine, which was well under the maximal dose for ideal body weight.

Results: All three patients experienced a prompt and painless reduction of their shoulder joints. There were no complications of regional anesthesia.

Conclusions: While it appears that the supraclavicular brachial plexus block is useful for anterior shoulder dislocation, perhaps a larger case series should be performed, or even a non-inferiority trial with the interscalene to determine which method clinicians may prefer.

References (Optional):

Funding: None

Friday, September 8, 2023

Session Time: 16:30 - 18:00

Presentation Time: 17:06 - 17:18

Elafos B

Track: Oral Abstracts

(O-H4) Ultrasound vs Landmark Guided Small and Medium Joint Arthrocentesis: A Randomized Control Trial

Oral Presenter / Co-Author: Megan Daniels, MD - Lewis Katz School of Medicine at Temple University

Primary Author: Ryan C. Gibbons, MD, FAAEM, FAIUM - Lewis Katz School of Medicine at Temple University

Co-Author: Jessica Patterson, MD, FAAEM - Lewis Katz School of Medicine at Temple University

Co-Author: Allison Zanaboni, MD, FAAEM - Washington University School of Medicine in St Louis

Co-Author: Thomas G. Costantino, MD, FAAEM - Lewis Katz School of Medicine at Temple University

Objectives: The objective of this study is to compare ultrasound guided (USG) and landmark guided (LMG) medium joint arthrocentesis by emergency medicine residents with respect to success rate and attempts.

Background: Arthrocentesis is a basic emergency medicine skill, but it is not without complications. Presently, there is a paucity of data assessing the utility of ultrasound guided medium joint arthrocentesis. A few small cadaveric studies suggest it improves the rate of success and time to successful aspiration, while reducing number of attempts.

Methods: This was a single-center, prospective, randomized clinical trial (NCT03327584) of a convenience sample of adult patients who presented to an urban, university hospital with > 105,000 visits annually. Patients with a suspected medium-sized joint effusion (defined as elbow, wrist, or ankle) undergoing arthrocentesis were randomized into LMG or USG using the GE Logiq e linear transducer (4–10 MHz). The following patients were excluded: on anticoagulation, with soft tissue infection overlying the joint, or involving an artificial joint. The sample size calculation of 28 was based on a power of 80% with an estimated difference of successful aspiration of 45% between techniques based on previous literature. Statistical analyses included the Fisher exact, Mann-Whitney U-test, and t-test.

Results: Overall, 44 patients were enrolled with 23 patients randomized into the LMG group and 21 patients into the USG arm. USG was significantly better than LMG with an overall success of 94.1% versus 60% for LMG (difference = 34.1%, 95% confidence interval [CI] = 4.90 to 58.83). USG first-pass success was 82.4% versus 46.7% for LMG (difference = 35.7%, 95% CI = 2.76 to 60.37) and a mean of 1.35 attempts versus 2.00 for LMG (difference = 0.65, 95% CI = 0.005 to 1.296). Of the 14 LMG failures, eight had no effusion present on USG crossover. Four patients in the USG group had no effusion present.

Conclusions: Ultrasound guidance improved first-pass and overall successful arthrocentesis of medium-sized joint effusions.

References (Optional):

Funding: none

Friday, September 8, 2023
Session Time: 16:30 - 18:00
Presentation Time: 17:18 - 17:30
Elafos B
Track: Oral Abstracts

(O-H5) Survey of Current State and Response in Crowd Crush Injury

Oral Presenter / Primary Author: Soon-Joo Wang, MD - Hallym University
Co-Author: Phil Seung Yang, PhD - MAILab

Objectives: The objective of this study is to identify the characteristics and appropriate response of the crowd crush disaster.

Background: On October 29, 2022, a crowd gathered for a spontaneous Halloween event in the Itaewon area of Seoul, South Korea, where a crowd crush accident occurred. At least 158 people were killed and at least 196 people were injured. The victims were mostly young adults. The victims were mostly young adults. In this study, the authors tried to learn a lesson by investigating the worldwide crowd crush disaster and analyzing the differences and results.

Methods: First, the current crowd crush disasters were investigated and summarized through literature and internet searches. Based on this, we secondarily conducted a survey of experts to derive the prevention, management, emergency medical response of crowd crush disasters and the research contents needed in the future.

Results: Our research shows that crowd crush disasters have occurred in both developed and developing countries since the 1800s. Common characteristics include high crowd density due to crowds being concentrated in a specific location, a crowd collapse occurring at a certain point after a sustained period of crowd movement, a narrow section of the crowd that becomes a bottleneck, or a large number of people suddenly converging in a certain space. The largest loss of life occurred in 2015 during the Hajj pilgrimage in Mecca, Saudi Arabia, but the events varied from concerts, sporting events to funerals. It is important for organizers to ensure that crowd density does not exceed certain limits, and that efforts are made to maintain order and prevent accidents. While it is important to adhere to the principles of disaster medicine, such as rapid and dispersed transportation, crowd management may be more important due to the difficulty of accessing patients during a crowd crush. In the future, crowd management guidelines and a real-time crowd density monitoring system using CCTV or drones can be established.

Conclusions: Crowd crush disasters can occur in any type of crowd gathering where crowd density increases, and should be prevented through crowd management and managed through real-time crowd density monitoring.

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Friday, September 8, 2023

Session Time: 16:30 - 18:00

Presentation Time: 17:30 - 17:42

Elafos B

Track: Oral Abstracts

(O-H6) Healthcare Provider Safety Incidents, Measures, and Outcomes in the Emergency Departments in Puerto Rico

Oral Presenter / Primary Author: Stephanie Rivera-Rivera, MD - Ponce Health Sciences University, Saint Lukes Episcopal Hospital, Ponce PR

Principal Investigator: Carlos Garcia-Gubern, MD, FAAEM, FACS - Ponce Health Sciences University, Saint Lukes Episcopal Hospital, Ponce PR

Objectives: Study the frequency and type of events that threaten healthcare providers' safety in the emergency departments in Puerto Rico, evaluate measures taken in these events, the outcomes as well as evaluate the perception of safety of our physicians working in the emergency departments.

Background: As stated by Dr. Karen N. Kuehl in the 24th AAEM Annual Scientific Assembly, being a healthcare worker is one of the most dangerous jobs, being #2 in the list of fatal occupational injuries from 2015-2016 following transportation accidents. Security breaches and health provider assaults are an issue that we, as healthcare workers face in a daily basis and yet it is not a topic discussed frequently in Puerto Rico. There are no previous reports demonstrating the incidence of security breaches and healthcare worker assaults in the island, nor the measures taken or the resulting outcomes.

Methods: This investigation consists of a cross-sectional study with independent variables being the number of events and types of events of assault that the healthcare workers interviewed had experienced. Dependent variables consist of the type of outcomes obtained from the measures that were employed in these assaults. Positive outcomes are defined as no acute physical injuries and no long-term physical or emotional consequences, and the negative outcome is described as any type of physical injury to a healthcare worker or physical structure as well as any long-term physical or emotional consequences. We will be using a web-based survey questionnaire that will be distributed among emergency departments across the island by contacting emergency room directors. The survey mainly focuses on obtaining information of whether these healthcare workers have had assault experiences and the security measures available at their hospitals. Also asks about how they currently feel toward their safety while at work. The instrument used in the investigation will be a survey sent by email using the RedCap platform. All three aims will be tabulated and will perform simple descriptive statistics to obtain percentages and statistical correlation studies. The response rate will be calculated to evaluate the quality of the study.

Results: The study remains in data collection phase by RedCap surveys being taken into different hospitals in Puerto Rico. Once we obtain the results from the surveys, results will be charted in spreadsheets and analyzed with simple statistical calculations to estimate the incidence of these events. Also, the results from an independent survey investigating the perception of their security among the physicians working in the different emergency departments will be analyzed. We hypothesize that the results obtained will demonstrate that the emergency departments of the hospitals in Puerto Rico are not well prepared to manage

individuals that pose a threat to the healthcare professionals in terms of infrastructure as well as personal preparedness. We also believe that the measures taken upon these occurrences lie mostly on a reactive pattern rather than a preventive one, leading to deleterious outcomes of varying severity, daunting our staff with workplace insecurity. For this reason, we hypothesize also that the gross majority of healthcare professionals feel unsafe in their work environment especially when these individuals are present.

Conclusions: By demonstrating our hypothesized high incidence of these cases in our EDs, we will expose the lack of adequate security measures employed to avoid these incidents and ED directors and administrators can be more aware of this situation in Puerto Rico. EDs administrators and medical directors can then focus resources in more efficient measures to assure healthcare worker job security. A potential problem is recall bias, in which the participant may not remember past events. In that instance, we would need to be aware of the recall bias that is inherent to this study and consider it on our analysis.

References (Optional):

Funding: N/A

Saturday, September 9, 2023
Session Time: 08:00 - 09:30
Presentation Time: 08:00 - 08:12
Elafos A
Track: Oral Abstracts

(O-I1) Factors Associated with Contrast-induced Acute Kidney Injury in a Tertiary Care Center Emergency Department: An Observational Cohort Study

Oral Presenter / Primary Author: Moustafa Al Hariri (he/him/his), PhD - Qatar Universiity
Co-Author: Sally Al Hassan, MD - American Univeristy of Beirut Medical Center
Co-Author: Malak Khalifeh, PhD - Stoney Brooks
Co-Author: Imad El Majzoub, MD - Mayo Clinic Abu Dhabi
Principal Investigator: Tharwat El Zahran, MD - American University of Beirut Medical Center

Objectives: The study aimed to identify the factors associated with the development of CI-AKI in patients presenting to an emergency department (ED) in a low-middle-income country.

Background: Contrast-induced acute kidney injury (CI-AKI) is the third leading cause of hospital-acquired AKI. Assessing serum creatinine levels is routinely used to evaluate kidney function before contrast administration, which might increase ED length of stay and delay patient care.

Methods: This was a retrospective, observational cohort study conducted at the ED of the largest tertiary care center in a low-middle-income country, between November 2018 and December 2019. We included ED patients who have received Computed Tomography (CT) with contrast. The Kidney Disease Improving Global Outcomes (KDIGO) definition for AKI was used as an outcome. Descriptive, bivariate, and logistic regression analyses were used to compare the characteristics of the AKI patients to those who did not develop AKI.

Results: A total of 1832 patients were included in the study, among which 10.4% of patients had developed CI-AKI (n=190). Patients older than 65 were about 1.6 times more associated with CI-AKI (aOR=1.55, p=0.014, 95%CI: 1.09-2.2). Moreover, patients with high blood pressure (≥140 mmHg), high respiratory rate (≥ 22), and chronic kidney disease were significantly more associated with CI-AKI. Additionally, loop diuretic use (aOR=2.21, p< 0.001, 95%CI: 1.49-3.28), beta-lactams use (aOR=4.11, p< 0.001, 95%CI: 2.63-6.42), and allopurinol use (aOR=2.74, p=0.002, 95%CI: 1.43-5.25) were significantly associated with developing CI-AKI.

Conclusions: In an emergency setting assessing factors associated with CI-AKI, such as age, comorbidities, and home medications, can help identify patients with low risk for developing CI-AKI.

References (Optional): Fähling M, Seeliger E, Patzak A, Persson PB. Understanding and preventing contrast-induced acute kidney injury. Nat Rev Nephrol. 2017;13(3):169-80. https://doi.org/10.1038/nrneph.2016.196. Solomon R, Dauerman HL. Acute Kidney Injury: Culprits, Cures, and Consequences. Circ Cardiovasc Interv. 2017;10(1):e004742. https://doi.org/10.1161/circinterventions.116.004742. Thomsen HS, Morcos SK. In which patients should serum creatinine be measured before iodinated contrast medium administration? Eur Radiol. 2005;15(4):749-54. https://doi.org/10.1007/s00330-004-2591-y.

Thomsen HS, Morcos SK. In which patients should serum creatinine be measured before iodinated contrast medium administration? European radiology. 2005;15(4):749-54. Basile JN. Systolic blood pressure. BMJ. 2002;325(7370):917-8. https://doi.org/10.1136/bmj.325.7370.917. Avram R, Tison GH, Aschbacher K, Kuhar P, Vittinghoff E, Butzner M, et al. Real-world heart rate norms in the Health eHeart study. NPJ Digit Med. 2019;2:58-. https://doi.org/10.1038/s41746-019-0134-9. Okawa R, Yokono T, Koyama Y, Uchiyama M, Oono N. Clinical Sign-Based Rapid Response Team Call Criteria for Identifying Patients Requiring Intensive Care Management in Japan. Medicina (Kaunas). 2021;57(11):1194. https://doi.org/10.3390/medicina57111194. Thomas ME, Blaine C, Dawnay A, Devonald MA, Ftouh S, Laing C, et al. The definition of acute kidney injury and its use in practice. Kidney Int. 2015;87(1):62-73. https://doi.org/10.1038/ki.2014.328. Singbartl K, Kellum JA. AKI in the ICU: definition, epidemiology, risk stratification, and outcomes. Kidney international. 2012;81(9):819-25.

Funding: This study did not acquire any funding.

Saturday, September 9, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:12 - 08:24

Elafos A

Track: Oral Abstracts

(O-I2) Changes in Emergency Department Pediatric Psychiatric Visits Following the Arrival of COVID

Oral Presenter / Primary Author: John R. Allegra, MD, PhD - Morristown Medical Center

Principal Investigator: Veronica O'Neal, DO - Morristown Medical Center

Co-Author: Barnet Eskin (he/him/his), MD, PhD - Morristown Medical Center

Objectives: The goal of our study was to determine whether there was a change in the proportion of pediatric ED visits for depression and/or suicidal ideation or attempts (DS) and anxiety following the arrival of COVID.

Background: In March of 2020, COVID arrived in the New York Metropolitan area. Total ED visits decreased markedly, likely because of fear of exposure to the virus as well as social isolation mandates. School closings, isolation from peers, quarantining within families and job disruptions triggered mental health struggles. A CDC study showed that compared to 2019, the proportion of ED mental health related visits for children increased in 2020 by 44%.

Methods: Design: Retrospective cohort. Setting: EDs of 8 hospitals within 150 miles of New York City, with total ED volumes in 2019 of 30,000 to 120,000. Hospitals were teaching and non-teaching, in rural, suburban and urban areas. Population: Consecutive patients ages 5-21 years between March 1 and November 30 in 2019-2022, as COVID arrived in March 2020. Data analysis: We identified patients with DS and anxiety using International Classification of Disease codes (version 10), choosing those with at least 25 visits over the four years. We tallied the number of DS and anxiety ED visits in 2019 - 2022. We calculated the proportion of these visits to total ED visits in this age group in 2019 - 2022. We report the changes in these proportions from the base year of 2019 to 2020-2022, along with 95% confidence intervals (CIs).

Results: The database contained 1,542,684 total ED visits, of which 251,993 were for patients age 5-21 years (72,872, 39,037, 46,103 and 93,981 in 2019-2022, respectively), The mean ages were 13, 14, 14 and 9 years; females comprised 49%, 50%, 51% and 47% of patients in 2019-2022, respectively. In 2019-2022, the numbers diagnosed with DS were 2033, 1379, 1453 and 1206, and, with anxiety, 955, 667, 856 and 971, respectively. The changes in the proportions of DS in 2020, 2021 and 2022, compared to the baseline of 2019, were +27% (95% CI: +18%, 35%), +13% (95% CI: +6%, 21%) and -54% (95% CI: -57%, -51%); and for anxiety, +30% (95% CI: +18%, 44%), +42% (95% CI: +29%, 55%) and -21% (95% CI: - 28%, -14%), respectively.

Conclusions: Following the arrival of COVID, the proportion of pediatric ED visits for depression and/or suicidal ideation or attempts and anxiety increased in 2020 - 2021 but decreased in 2022. These changes may reflect changing concerns about COVID over time.

References (Optional):

Funding: None

Saturday, September 9, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:24 - 08:36

Elafos A

Track: Oral Abstracts

(O-I3) Gender Differences in ED Presentations and Outcomes Among Patients with Intentional Poisoning at a Tertiary Care Center in Lebanon

Oral Presenter / Principal Investigator: Tharwat El Zahran, MD - American University of Beirut Medical Center

Primary Author: Lina Hammoud, MD - American University of Beirut

Co-Author: Rana Laure Salam, PhD - American University of Beirut

Co-Author: Youssef Salam, MD - American university of beirut

Co-Author: Hani Tamim, PhD - American University of Beirut

Faculty Advisor: Ziad N. Kazzi, MD - Emory University

Faculty Advisor: Eveline A. Hitti, MD - American University of Beirut

Objectives: Our study aims to evaluate the gender differences in toxicological exposures related to patient characteristics, history of psychiatric illness, reason/route of exposure, exposure agent, ED management, ED outcomes, and disposition.

Background: Mental health disorders and psychiatric emergencies are common in Lebanon. Based on recently published reports in 2020, the majority of patients presenting with acute toxicological exposure were related to intentional poisoning (51.6%), mostly due to suspected suicide (37.7%). Though it is known that depression and suicide attempts by poisoning are higher in women than men, there is a lack of descriptive data on the gender differences in characteristics, presentations to the Emergency Department (ED), and outcomes of intentional poisoning in Lebanon.

Methods: This is a retrospective chart review of an existing toxicological database at a tertiary care center during the period between 1st, March 2015 and 1st, March 2023. Patients presenting with acute overdose and those above 6 years of age were included. Extracted variables included patient demographics, exposure agent, reason and route of exposure, ED management, ED medical outcome, and disposition. The past psychiatric illness variable was classified into 8 categories according to the ICD10. Frequencies and percentages were conducted for categorical variables. Means, standard deviations, ranges, and percentiles were used for continuous variables. Bivariate analysis was performed using Chi-square or Fisher's Exact Test where appropriate. P-value < 0.05 will be considered to indicate statistical significance.

Results: A total of 444 intentional poisoning cases were analyzed, out of which 142 (31%) were men, and 302 (68%) were women. The most common age group was 20-59 years old, with an average of 30 years. The most common past psychiatric illness was mood disorder. Men were more likely to have mental and behavioral disorders due to psychoactive substance abuse and behavioral/emotional disorders with childhood/adolescent onset. On the other hand, females were more likely to have mood disorders. Suspected suicide was the most common reason for intentional poisoning among both genders (78.8%), significantly more common in women. Ingestion was the most common route of exposure, with a higher prevalence in women. Men

(6.3%) were more likely to use a nasal exposure route than females (0.3%). Sedatives/hypnotics/antipsychotics, antihistamines, and Melitracen/Flupentixol were significantly more common in women compared to men. Ethanol, stimulant, and street drugs were significantly more common in men (18.3%) versus women (2.6%), where cocaine followed by cannabinoids topped the list. Opioids were also significantly more prevalent in men (11.3%) versus women (3%), where codeine was the most common opioid substance. In terms of the ED outcome and disposition, no significant difference was found between genders.

Conclusions: Our study highlights significant gender differences in toxicological exposures among patients with intentional poisoning in Lebanon. Women were more likely to present with sedative/hypnotic/antipsychotic, antihistamine, and melitracen/flupentixol than men. Men were more likely to present with intoxication related to stimulant drugs, ethanol, and opioids.

References (Optional):

Funding: none

Saturday, September 9, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:36 - 08:48

Elafos A

Track: Oral Abstracts

(O-I4) Changes in Pediatric Emergency Department Visits After Arrival of COVID-19

Oral Presenter / Primary Author: Barnet Eskin (he/him/his), MD, PhD - Morristown Medical Center

Co-Author: Neena Joy, DO - Morristown Medical Center

Co-Author: John R. Allegra, MD, PhD - Morristown Medical Center

Objectives: Our goal was to examine the changes in pediatric ED visits after the arrival of COVID-19.

Background: COVID-19 arrived in the New York metropolitan area in early March 2020. Shortly thereafter total ED visits markedly decreased likely due to public health mandates and fear of contracting COVID-19. Our goal was to examine the changes in pediatric ED visits after the arrival of COVID-19.

Methods: Design: retrospective cohort. Setting: EDs of 8 hospitals within 150 miles of New York City. Hospitals were teaching and non-teaching in rural, suburban and urban settings. Annual ED volumes ranged from 30,000 to 122,000. Population: Consecutive ED visits for patients ages 0-21 years, for the time period from March 1 through November 30 in 2019 - 2022, as COVID-19 arrived in early March 2020. Protocol: We tallied total pediatric ED visits for the time periods in each year. We calculated the percent changes from the base year, 2019, for each of the years 2020-2022 along with 95% confidence intervals (CIs).

Results: The database contained a total of 332,504 visits: 110,210 in 2019, 55,270 in 2020, 71,570 in 2021, and 93,512 in 2022. Average age by year ranged from a low of 8.8 years in 2022 to a high of 10.5 years in 2020. The percent of female patients ranged from a low of 47% in 2022 to a high of 49% in 2020. The percent changes in visits from 2019 were: -49.9% (95% CI, -49.6, -50.2%); -35.1% (-34.8, -35.3%); and -15.2% (-14.9, -15.4%), for the years 2020, 2021 and 2022, respectively.

Conclusions: The number of pediatric ED visits changed after arrival of COVID-19. There was a marked decrease in 2020. This decrease was partially reversed in 2021 and 2022, although the visits did not reach their pre-pandemic levels. Since public health mandates have been relaxed, we speculate that failure to return to the pre-pandemic number of visits is likely due to preferential use of other sources of care, including doctor’s offices, urgent care centers and telemedicine.

References (Optional):

Funding: None

Saturday, September 9, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:48 - 09:00

Elafos A

Track: Oral Abstracts

(O-I5) Factors Associated with Conversion to In-person Visit Among Patients Presenting for Pediatric Telehealth Encounters

Oral Presenter / Primary Author: C. Anthoney Lim (he/him/his), MD MS - Mount Sinai Health System, Icahn School of Medicine at Mount Sinai

Co-Author: Kirk Tomlinson, MD - St. Joseph's University Medical Center

Co-Author: Guillaume Stoffels, MA MS - Icahn School of Medicine

Co-Author: Yvette C. Calderon, MD,MS - Mount Sinai Beth Israel

Objectives: To identify patient and illness related factors associated with conversion to in-person visits among children presenting for pediatric telehealth encounters.

Background: Increases in telehealth utilization during the COVID-19 pandemic have been driven by limited availability of office visits due to infection prevention guidelines, parental hesitancy to enter healthcare facilities, and parity in reimbursement for providers. Due to increased demand and limited number of telehealth providers, it is important to determine which children may benefit the most from these encounters.

Methods: In this retrospective case-control study, patients 0-21 years old presenting for a telehealth encounter were evaluated. Children who had an in-person visit within 7 days of the telehealth visit were identified as conversion cases and matched in a 1:3 ratio to controls by age in months up to 36 months and by year for those 4 and older. Patient demographics, past medical history, symptoms, and diagnoses were collected. A multivariable logistic regression model was developed including variables significantly associated with conversion on univariate analysis.

Results: From March to April 2020, there were 2,465 pediatric telehealth encounters. Of these, there were 67 (3%) conversions to in-person visits. 79% of these conversions originated from general pediatric telehealth encounters and the remaining from subspecialty telehealth visits. 69% of these conversions were to the ED and 31% in the clinic. Median days to in-person visit was 2 (1, 5). Median age was 25 months (1, 172), 66% were female, and 43% had a chronic medical condition. 55% were uninsured or on Medicaid and remaining were commercially insured. The most common symptoms reported included: 42% respiratory, 22% fever, 19% pain, 18% vomiting/diarrhea, and 18% rash. After matching with controls based on age, a multivariable logistic regression model revealed that a history of cancer (OR 15.8, 95% CI 1.3-195.0), emesis (OR 4.6, 95% CI 1.1-18.9), pain (OR 4.5, 95% CI 1.5-13.3), non-COVID related respiratory symptoms (OR 3.9, 95% CI 1.5-9.7), and telehealth visit with a specialist in Allergy, Endocrinology, Gastroenterology, or Pulmonary (OR 0.3, 95% CI 0.1-0.7) were associated with conversion, with an AUC of 0.82.

Conclusions: This introductory evaluation may suggest that certain patient and illness related factors are associated with telehealth conversion to in-person encounters. In order to appropriately allocate telehealth and ambulatory resources, further study will determine if some children will benefit if they are triaged directly to in-person visits.

References (Optional):

Funding: n/a

Saturday, September 9, 2023
Session Time: 08:00 - 09:30
Presentation Time: 09:00 - 09:12
Elafos A
Track: Oral Abstracts

(O-I6) Application of Anti-barotrauma System in Hyperbaric Oxygen Therapy for Patients Visiting Emergency Department

Oral Presenter / Primary Author: Soon-Joo Wang, MD - Hallym University
Co-Author: Seokho Yoon, CEO - IBEX Medical Systems

Objectives: Barotrauma is the most common complication during hyperbaric oxygen therapy(HBOT), and to prevent barotrauma during HBOT, authors developed a barotrauma early detection system (AntiBaroTrauma: ABT). The purpose of this study is to check whether early detection of barotrauma is possible when applying the ABT system to hyperbaric oxygen therapy.

Background: HBOT is required in many emergency situations such as fires, chemical accidents, CO intoxication and dysbarism. During HBOT, patients are usually required to perform pressure control efforts such as Valsalva maneuver periodically, and medical staff communicate with patients to check their condition, such as occurrence of ear pain to prevent barotrauma. However, if barotrauma causes ear pain, barotrauma has already progressed, so researchers have been looking for ways to detect barotrauma before symptoms occur. We developed a headset-type barotrauma early detection system and applied it to patients receiving hyperbaric oxygen therapy to identify its effectiveness, advantages and disadvantages.

Methods: The study was conducted in the form of a single-blinded prospective parallel randomized controlled study for two years from January 2021 to December 2022 in patients aged 18-65 years visiting one government-affiliated regional emergency center and receiving hyperbaric oxygen therapy. Pregnant women, pneumothorax, respiratory symptoms and diseases, high fever, history of thoracic/ear surgery, claustrophobia and other academic and clinical contraindications were excluded. Both test and control groups were pressurized to >2.4 atm during hyperbaric treatment, with ABT applied in the test group and regular questioning of patients by medical staff during pressurization in the control group to determine discomfort. Number of treatment interruptions/completions due to pressure damage, otoscopic findings (Edmond's Score Grade 0~5), ear pain scale, and satisfaction of patient based on questionnaire were evaluated,

Results: The test group utilizing ABT had a longer pressurization time than the control group. In video otoscopic findings, Edmond's Score Grade increased less in the test group, but there was no statistical difference between the two groups. The test group took more pressurization time and total treatment time than the control group.

Conclusions: ABT allows for early detection of barotrauma compared to traditional periodic patient checks, but may add to pressurization time and total treatment time, and can reduce provider effort to check on patients during pressurization.

References (Optional):

Funding: This work was supported by the Korea Medical Device Development Fund grant funded by the Korea government (the Ministry of Science and ICT, the Ministry of Trade, Industry and Energy, the Ministry of Health & Welfare, the Ministry of Food and Drug Safety) (Project Number: KMDF_PR_20200901_0000) (NTIS, KMDF-RnD 202014X24)

Saturday, September 9, 2023
Session Time: 08:00 - 09:30
Presentation Time: 09:12 - 09:24
Elafos A
Track: Oral Abstracts

(O-I7) Chemical Response Emergency Medical Information System in Chemical Disaster

Oral Presenter / Primary Author: Soon-Joo Wang, MD - Hallym University
Co-Author: Seongyong Yoon, MD - Sooncheonhyang University

Objectives: The study objective is to make the basis of chemical emergency medical information system.

Background: There are many dababase sets and websites which provide chemical information, but they don`t perform adequate role for emergency medical support in chemical disaster.

Methods: Authors reviewed the dababase sets, mobile applications and websites in the world which provide chemical database and emergency medical response from prehospital chemical accident or disaster site to hospitals. Also we examined chemical accident cases which developed to disasters. A chemical dababase set for emergency medical response was proposed and the algorithm for elicitation of chemicals suitable for each emergency medical response and information providing. We performed survey about chemical emergency medical information system to related personnel.

Results: By four steps of elicitation of chemicals, number of chemicals more than 100,000 was decreased to less than 1,000. The standard steps include accident preparedness, toxicity and circulating amount and expert consultation. Algorithm for elicitation of chemicals was made and 82.0% of related personnel wanted chemical emergency response algorithm. Emergency medical real-time consultation system for chemical disaster was made under control of call center.

Conclusions: When mass exposure by toxic chemical occurs, chemical emergency medical information system will be helpful for acute identification of chemical, protection of related personnel and emergency medical response. Also it can be possible to guide residence immediately in case of chemical disaster.

References (Optional):

Funding: This subject is supported by Korea Ministry of Environment(MOE) as "The Chemical Accident Prevention Technology Development Project."

Saturday, September 9, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:00 - 08:12

Elafos B

Track: Oral Abstracts

(O-J1) Medical Mistrust Amongst Donald Trump Supporters During the COVID-19 Pandemic

Oral Presenter / Primary Author: Natalie Jansen, MD, PhD - Harvard Affiliated Emergency Medicine Residency - Beth Israel Deaconess Medical Center

Co-Author: Tony Feldmann, PhD candidate - University of Kansas

Co-Author: Payton Cabrera, MS-2 - The University of Texas Health Science Center at Houston

Objectives: In this study, we use the lens of medical mistrust - distrust of medical personnel and organizations - to understand how far-right conservatives discuss and make sense of medical information in the context of the COVID-19 pandemic. Few studies have focused on the relationship between politics and medical mistrust.

Background: Medical mistrust is negatively associated with health behavior engagement including participating in routine checkups, cancer screening, donating organs, and treatment adherence. Indeed, medical mistrust profoundly impacts overall health and well-being as well as satisfaction with the medical system. Most literature examining medical mistrust focuses on communities of color and those belonging to sexual minority groups; a paucity of research examines the intersections of politics, conspiracy thinking, and medical mistrust. However, in the US, Republican and Republican-leaning individuals have lower baseline confidence that scientists will act in the public's best interest, which may have contributed to partisan COVID-19 mortality disparities.

Methods: We analyze content from a far-right conservative website called TheDonald.Win. TheDonald.Win was launched in 2019 in response to sanctions against the Reddit community (r/theDonald). For seven days preceding the start of data collection, we gathered usage data on the top 100 posts per 24 hours to establish cut-off criteria for high-visibility posts. We then combed the forum for posts whose title included one of 60 search terms related to COVID-19 and were posted within the date parameters. We included posts from the time of the site's rebranding and Biden's inauguration (January 20/21, 2021) to June 29, 2020 – the day TheDonald.Win's Reddit forum was permanently banned, sparking the migration to TheDonald.Win. We analyze a subset of the 101,060 original posts based on 21 search terms related to the health care system (e.g., ambulance, ventilator, intubation, doctor, nurse, quack, scientist). We take a semantic and inductive approach to thematic analysis, and we analyzed forum posts in reverse chronological order. Thematic analysis involved developing a broad coding scheme and coding the data, searching for and reviewing themes, and reevaluating and defining those themes.

Results: We found that (1) users experienced institutional mistrust in part founded in misperceptions of how a pandemic should look. Users repeatedly commented on the desolate outside appearance of hospitals and lack of ambulances with sirens running as evidence that the pandemic was being falsified. We also found that (2) perceived financial and political incentives were powerful mechanisms to undermine both institutional and physician-level trust. In particular, users propagated information about how doctors and hospitals were being

incentivized to falsify COVID-19 statistics in order to receive money from the government. Finally, we found that (3) trust in medical professionals was also heavily politicized with users highlighting the bravery of “whistleblowers” who were willing to speak out about the “inaccuracies” and “falsehoods” regarding COVID-19 while expressing mistrust in medical professionals and the scientific research and medical equipment they used to direct care. In particular, users identified intubation and ventilation as causes of death rather than treatments for advanced COVID-19. Users also expressed concerns regarding the complex financial relationship between the pharmaceutical industry, hospitals, and individual physicians, particularly with regard to preventative measures such as vaccinations.

Conclusions: In this first-of-its kind study of Trump supporters and COVID-19, we examine the dialog around medical mistrust and deaths during the COVID-19 pandemic on a far-right conservative webspace. Aligned with prior research examining medical mistrust, we demonstrate that mistrust is explored both at the interpersonal physician-patient level and at higher institutional levels, which conflicts with findings from other countries. We also show that COVID-19 uniquely drew attention to lesser explored topics of medical mistrust including proper utilization of medical equipment, grounds for authority and medical decision-making, and financial incentives for medical care.

References (Optional):

Funding: no disclosures

Saturday, September 9, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:12 - 08:24

Elafos B

Track: Oral Abstracts

(O-J2) Short Stay Units in the Treatment of Non-variceal Upper Gastrointestinal Bleeding

Oral Presenter / Co-Author: Martina Pala, MD - Università Cattolica del Sacro Cuore, facoltà di medicina

Primary Author: Maria Lumare, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Principal Investigator: Marcello Candelli, MD. PhD - Fondazione Policlinico Universitario A. Gemelli- IRCCS of Rome, Italy

Co-Author: Giulia Pignataro, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

Co-Author: Giacomo Spaziani, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Gianluca Tullo, MD - Emergency Medicine - Fondazione Policlinico A. Gemelli IRCCS, Università Cattolica del Sacro Cuore

Co-Author: Stefania Gemma, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Michela Novelli, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

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Co-Author: Ilaria Balsamo, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Andrea Piccioni, MD, PhD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Veronica Ojetti, MD - Università Cattolica del Sacro Cuore, facoltà di medicina

Co-Author: Francesco Franceschi, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

Co-Author: Marta Sacco Fernandez (she/her/hers), MD - Università Cattolica del Sacro Cuore, Facoltà di medicina, Rome, Italy

Objectives: Our study aims to evaluate the efficacy of SSU in reducing the need for hospitalization, LOS, hospital readmission, and mortality in patients with non-variceal upper gastrointestinal bleeding compared with admission to the regular ward.

Background: Emergency department overcrowding is a health, political, and economic problem of concern worldwide. Overcrowding has been associated with an increased risk of mortality. The establishment of a Short Stay Unit for conditions that cannot be treated at home but require treatment and hospitalization for up to 72 hours may be a solution. Short stay units can significantly reduce hospital length of stay for certain conditions but does not appear to be useful for other diseases. Currently, there are no studies addressing the efficacy of short stay units in the treatment of non-variceal upper gastrointestinal bleeding

Methods: This was a retrospective, single-center observational study. Medical records of patients presenting with non-variceal upper gastrointestinal bleeding to our emergency department between April 1, 2021, and September 30, 2022, were analyzed. We included patients aged > 18 years who presented to emergency department with acute upper

gastrointestinal tract blood loss. The test population was divided into two groups: Patients admitted to a normal inpatient ward (control) and patients treated at SSU (intervention). Clinical and medical history data were collected for both groups. The hospital length of stay was the primary outcome. Secondary outcomes were time to endoscopy, number of blood units transfused, readmission to the hospital at 30 days, and in-hospital mortality.

Results: Results: The analysis included 120 patients with a mean age of 70 years, 54% of whom were men. Sixty patients were admitted to short stay unit. Patients admitted to the medical ward had a higher mean age. The Glasgow-Blatchford score, used to assess bleeding risk, mortality, and hospital readmission were similar in the study groups. Multivariate analysis after adjustment for confounders found that the only factor independently associated with shorter hospital length of stay was admission to short stay unit ($p < 0.0001$). Admission to short stay unit was also independently and significantly associated with a shorter time to endoscopy ($p < 0.001$). The only other factor associated with a shorter time to endoscopy was creatinine level ($p=0.05$), while home treatment with proton pump inhibitors was associated with a longer time to endoscopy. Hospital length of stay, time to endoscopy, number of patients requiring transfusion, and number of units of blood transfused were significantly lower in patients admitted to short stay unit than in the control group

Conclusions: The results of the study show that treatment of non-variceal upper gastrointestinal bleeding in short stay unit can significantly reduce the time required for endoscopy, the hospital length of stay, and the number of transfused blood units without increasing mortality and hospital readmission. Treatment of on-variceal upper gastrointestinal bleeding in short stay unit may therefore help to reduce emergency department overcrowding but multicenter randomized controlled trials are needed to confirm these data.

References (Optional):

Funding: no funding

Saturday, September 9, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:24 - 08:36

Elafos B

Track: Oral Abstracts

(O-J3) Do Viral Variants and Vaccination Status Affect the Accuracy of Prognostic Tests in Patients with COVID -19?

Oral Presenter / Primary Author: Marta Sacco Fernandez (she/her/hers), MD - Università Cattolica del Sacro Cuore, Facoltà di medicina, Rome, Italy

Principal Investigator: Marcello Candelli, MD. PhD - Fondazione Policlinico Universitario A. Gemelli- IRCCS of Rome, Italy

Co-Author: Giulia Pignataro, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

Co-Author: Ilaria Balsamo, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Gloria Rozzi, MD - Università Cattolica del Sacro Cuore, Facoltà di medicina, Rome, Italy

Co-Author: Michela Novelli, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Giacomo Spaziani, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Gianluca Tullo, MD - Emergency Medicine - Fondazione Policlinico A. Gemelli IRCCS, Università Cattolica del Sacro Cuore

Co-Author: Martina Pala, MD - Università Cattolica del Sacro Cuore, facoltà di medicina

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Co-Author: Stefania Gemma, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Francesco Franceschi, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

Objectives: The aim of our study is to investigate whether the ANCOC score still correlates with patient prognosis when vaccination and new viral variants are taken into account.

Background: The COVID-19 pandemic is one of the greatest challenges facing medical research worldwide. The availability of a clinical score that can predict the outcome of the disease at the time of diagnosis and that can be used even if the characteristics of the population change and the virus mutates can be a very important tool for emergency physicians to make clinical decisions. In March 2020, during the first pandemic wave, we developed a score, the ANCOC score, based on clinical parameters (age, blood urea nitrogen, C-reactive protein, oxygen saturation, comorbidities) and associated with 60-day mortality.

Methods: We retrospectively enrolled 843 patients admitted to the emergency department (ED) of our hospital from July 2021 to September 2021 and in January 2022 who had a diagnosis of COVID -19 confirmed by polymerase chain reaction (PCR) on an oropharyngeal swab. Demographic data, comorbidities, immunization data, and various laboratory, radiographic, and blood gas parameters were collected from all patients to evaluate differences between the two waves. An ANCOC score was then calculated for each patient, ranging from -6 to +6.

Results: Patients infected with the Omicron variant were significantly older, had a greater number of comorbidities, and were more likely to have hypertension and COPD. Immunization was more common in Omicron patients than in Delta patients (56% vs. 34%, respectively). To assess the accuracy of the prediction of mortality a, we constructed a characteristic receiving curve (ROC). We found that the area under the ROC curve was mostly above 0.7 for both delta and omicron variants, suggesting that the ANCOC score is able to predict 60-day mortality risk for both patient groups.

Conclusions: In a population with increasingly high vaccination rates, several factors may be considered prognostic for the risk of ICU admission or even fatal outcome. This study suggests that the ANCOC score has very good accuracy in predicting death, regardless of vaccination status and the variant considered. By analyzing only 5 parameters, emergency physicians can accurately predict patients' prognosis and choose the right setting for their treatment.

References (Optional):

Funding: no funding

Saturday, September 9, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:36 - 08:48

Elafos B

Track: Oral Abstracts

(O-J4) The Impact of Viral Variants on covid-19-related Mortality

Oral Presenter / Co-Author: Marta Sacco Fernandez (she/her/hers), MD - Università Cattolica del Sacro Cuore, Facoltà di medicina, Rome, Italy

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Co-Author: Stefania Gemma, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

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Co-Author: Francesco Franceschi, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

Objectives: The aims of the study was to assess the impact of vaccinations and the differences among viral variants in Covid19 related mortality. The secondary outcome was to evaluate clinical, laboratory and demographic characteristics of individuals died with Sars-Cov2 infection.

Background: Mortality from SARS Cov_2 infection changed radically during the three years of the pandemic. This decline is probably multifactorial (more effective therapies, less pathogenic viral variants, dissemination of vaccines). However, a certain percentage of patients die not so much for reasons related to the infection, but because of pre-existing comorbidities. It would be interesting to investigate whether the percentage of patients positive for SARS-CoV-2 but without evidence of pulmonary disease has increased over time, particularly as a function of viral variant.

Methods: We performed a monocentric observational study from a retrospective cohort of 228 patients admitted to the emergency department of Policlinico Agostino Gemelli between March 2020 and July 2022 who died with a confirmed diagnosis of Sars Cov2 infection. Patients were divided into three different groups depending on which viral variant was prevalent at the time of admission: alpha-beta (2020), delta (July 2021-December 2021), and omicron (2022). We

collected demographic, laboratory, and clinical data from all included patients from the electronic medical database. We performed univariate and multivariate analyses to compare the groups.

Results: Of the 228 individuals (mean age 78 ± 12 years) who died during the recording period, 124 (54%) were men and 112 (49%) spent at least one day in an intensive care unit, 7% of them had no comorbidities, whereas 33% had more than 4 chronic conditions (diabetes mellitus, hypertension, ischemic heart disease, atrial fibrillation, cancer) Orotracheal intubation was required in 102 (48%) of them. Patients had high PCR (111 □ 86 mg/L), procalcitonin (4 □ 12 ng/ml)) and di-dimer (46979 □ 7256 ng/ml) levels. 190 patients suffered respiratory failure, multiorgan failure, or acute respiratory distress syndrome related to SARS-CoV-2, whereas 38 patients died from other causes such as cancer, myocardial infarction, intestinal obstruction and perforation, hemorrhagic or cardiogenic shock, cerebral haemorrhage, and hepatorenal syndrome. Patients who died during the Omicron wave were less likely to die from COVID19-related causes than patients who died during the other waves (75% vs 13%, $p < 0.05$)

Conclusions: With this study, we confirmed that the number of deceased COVID19-positive patients in the Omicron wave in which the cause of death was not due to viral infection was significantly higher than in previous waves. However, the number of deaths related to the virus remains high and affects public health

References (Optional):

Funding: no funding

Saturday, September 9, 2023

Session Time: 08:00 - 09:30

Presentation Time: 08:48 - 09:00

Elafos B

Track: Oral Abstracts

(O-J5) Sedative Dose for Rapid Sequence Intubation and Post-intubation Hypotension: Is There an Association?

Oral Presenter / Co-Author: Calvin A. Brown, III (he/him/his), MD - UMass and Lahey Hospital and Medical Center

Primary Author: Brian Driver, MD - Hennepin County Medical Center

Co-Author: Stacy Trent, MD MPH - Denver Health

Co-Author: Matthew Prekker, MD MPH - Hennepin County Medical Center

Co-Author: Robert Reardon, MD - Hennepin County Medical Center

Objectives: We sought to determine if an association existed between the weight-based dose of etomidate or ketamine and subsequent post-intubation hypotension.

Background: For patients with hemodynamic instability or shock undergoing rapid sequence intubation, experts recommend reducing the sedative medication dose to minimize the risk of further hemodynamic deterioration. There are little data to support this practice for etomidate and ketamine, the most used sedatives.

Methods: We analyzed data from the National Emergency Airway Registry from January 2016 to December 2018. Patients aged 14 years or older were included if the first intubation attempt was facilitated with etomidate or ketamine. We used multivariable modeling to determine whether drug dose in milligrams per kilogram of patient weight was independently associated with post-intubation hypotension (systolic blood pressure < 100 mm Hg).

Results: We analyzed 12,175 intubation encounters facilitated by etomidate and 1,849 facilitated by ketamine. The median drug doses were 0.28 mg/kg (interquartile range [IQR] 0.22 mg/kg to 0.32 mg/kg) for etomidate and 1.33 mg/kg (IQR 1 mg/kg to 1.8 mg/kg) for ketamine. Post-intubation hypotension occurred in 1,976 patients (16.2%) who received etomidate and in 537 patients (29.0%) who received ketamine. In multivariable models neither etomidate dose (adjusted odds ratio [aOR] 0.95, 95% CI 0.90–1.01) nor ketamine dose (aOR 0.97, 95% CI 0.81–1.17) were associated with post-intubation hypotension. Results were similar in sensitivity analyses excluding patients with pre-intubation hypotension and including only patients intubated for shock.

Conclusions: In this large registry of patients intubated after receiving either etomidate or ketamine, we observed no association between the weight-based sedative dose and post-intubation hypotension.

References (Optional):

Funding: Not applicable

Saturday, September 9, 2023

Session Time: 08:00 - 09:30

Presentation Time: 09:00 - 09:12

Elafos B

Track: Oral Abstracts

(O-J6) Effect of Iodinated Contrast Media Shortage on Utilization of Abdominal Computed Tomography in the Emergency Department

Oral Presenter / Primary Author: Gordon A. MacDougall, MD - Beth Israel Deaconess Medical Center

Co-Author: Bryan Stenson, MD - Beth Israel Deaconess Medical Center

Co-Author: Daniel L. Shaw, MD, MCSO - Beth Israel Deaconess Medical Center

Co-Author: Leon D. Sanchez, MD, MPH - Brigham and Women's Faulkner Hospital

Co-Author: Robin Levenson, MD - Beth Israel Deaconess Medical Center

Co-Author: David T. Chiu, MD, MPH - Beth Israel Deaconess Medical Center

Objectives: The purpose of this study is to describe trends in utilization and efficiency of abdominal computed tomography (CT) imaging obtained in the emergency department (ED) during an international iodinated contrast media (ICM) shortage in 2022. This study examines abdominal CT ordering frequency, ICM usage in abdominal CT, and CT time-to-performance.

Background: CT of the abdomen enhanced by ICM is frequently utilized in diagnosis and management of abdominal pathology in the ED. A worldwide ICM shortage in April 2022 prompted hospitals in the United States and abroad to ration their existing ICM supplies.

Methods: This is a retrospective observational cohort study of patients receiving abdominal CT imaging in an urban, tertiary medical center ED in the United States. The ICM shortage at the medical center was defined as April 30-June 3, 2022. Pre- and post-shortage control groups were defined as January 1-March 31, 2022 and July 1-October 31, 2022, respectively. Data was collected from the electronic medical record. Key operational metrics, including time from order to first CT, were determined. In addition, a random sample of charts was reviewed to assess for quality metrics. Descriptive statistics, including median and interquartile range (IQR) were determined. Hypothesis testing was performed using Chi-square, Wilcoxon Rank Sum Test, and T-test.

Results: During the ICM contrast shortage, CT imaging of the abdomen was obtained in 12.2% of total patients (607 of 4981), compared to 14.2% (1612 of 11378, $p< 0.001$) and 12.7% (2304 of 18176, $p=0.35$) in the pre- and post-shortage groups, respectively. ICM use decreased significantly during the study period, with only 31.1% (189 of 607) of abdominal CT studies utilizing contrast, compared to 86.7% (1397 of 1612) and 86.1% (1984 of 2304) in the pre- and post-shortage groups, respectively ($p < 0.001$). Median time from order to performance of CT decreased during the study period (shortage 75 min [IQR 44-127 min], pre-shortage 121 min [IQR 70-179 min, $p< 0.001$], post-shortage 132 min [IQR 77-199 min, $p< 0.001$]). This finding held true for both contrast-enhanced and non-contrast CT studies (though with smaller effect size for non-contrast imaging).

Conclusions: During the global ICM shortage, utilization of abdominal CT imaging decreased overall and the utilization of ICM for abdominal CT in particular decreased significantly at the

study site. Reduced use of ICM appears to be associated with significant operational improvements in time to abdominal CT in the ED, including reduced time from order to performance of CT. These findings are limited by single center observational and retrospective study design. Further study is required to assess the effect of these changes on diagnostic accuracy and patient safety.

References (Optional): Cavallo JJ, Pahade JK. Practice Management Strategies for Imaging Facilities Facing an Acute Iodinated Contrast Media Shortage. AJR Am J Roentgenol. 2022 Oct;219(4):666-670. doi: 10.2214/AJR.22.27969. Epub 2022 May 13. PMID: 35549445.

Funding: N/A

Saturday, September 9, 2023
Session Time: 09:45 - 11:15
Presentation Time: 09:45 - 09:57
Elafos A
Track: Oral Abstracts

(O-K1) Using Linear Probe Point-of-care Ultrasound to Identify Early Intrauterine Pregnancies in an Emergency Department

Oral Presenter / Co-Author: Soheil Saadat, MD PhD - University of California, Irvine
Primary Author: Megan E. Guy, MD - University of California, Irvine
Co-Author: Edmund Hsu, MD - University of California, Irvine
Co-Author: Albert Lee, MD - UC Irvine
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Co-Author: Nora Perez-Moreno, RDMS - University of California, Irvine
Principal Investigator: Shadi Lahham, MD, MS - Kaiser Permanente
Co-Author: Michelle Nguyen, BS - University of California, Irvine
Co-Author: Isabelle Nepomuceno, BS - University of California, Irvine
Co-Author: Erinna Thai, BS - University of California, Irvine
Co-Author: Andy Nguyen, MD - Desert Valley Hospital
Co-Author: Jonathan Rowland (he/him/his), MD - UT MD Anderson Cancer Center
Co-Author: Matthew Whited, MD - University of California, Irvine
Co-Author: Jessa Baker, MD - University of California, Irvine
Co-Author: Chanel Fischetti, MD - Harvard Medical School
Co-Author: Ami Kurzweil (he/him/his), MD - Eisenhower Health
Faculty Advisor: John Christian Fox, MD - University of California, Irvine

Objectives: The purpose of this study is to determine whether a linear probe alone can identify first trimester IUP.

Background: There are over 5 million Emergency Department visits annually for vaginal bleeding in early pregnancy. The current standard of care for visualizing first trimester pregnancy is with transabdominal ultrasound with a curvilinear probe or transvaginal ultrasound with an endovaginal probe. To date, no previous studies have evaluated the use of linear probe point-of-care ultrasound (LPUS) to assess intrauterine pregnancy (IUP) in first trimester patients presenting to the Emergency Department.

Methods: A team of undergraduate researchers from the Emergency MedicalResearch Associates Program (EMRAP) screened women in their first trimester of pregnancy with a BMI < 35. If a patient chooses to participate, they signed a HIPAA and Consent form. Forms come in both English and Spanish•A linear probe ultrasound was performed before obtaining a transvaginal ultrasound•An EM physician will perform the two ultrasounds and complete a collection sheet.

Results: With 95% confidence for the linear probe to detect an intrauterine

pregnancy:sensitivity is between 15.2%-64.6%. Due to low sensitivity, the study is not clinically useful to detect intrauterine pregnancies.

Conclusions: The distribution of BMI and gestational age was not uniform in our sample; therefore, we are not able to study the accuracy of LPUS according to BMI or gestational age. Further studies are required to identify whether LPUS is a reliable tool to rule out pregnancy in low BMIs. As a negative pilot study, this data is inconclusive. Considering a 95% confidence interval, we are 97.5% confident that the true sensitivity is below 67.7%, which is not clinically useful in detecting IUP. Our findings did not support the idea that LPUS can reliably detect an IUP during the first trimester.

References (Optional):

Funding: n/a

Saturday, September 9, 2023

Session Time: 09:45 - 11:15

Presentation Time: 09:57 - 10:09

Elafos A

Track: Oral Abstracts

(O-K2) The Role of the elctrocardiographic RS Interval in the Diagnosis of Pulmonary Embolism

Oral Presenter / Primary Author: Martina Pala, MD - Università Cattolica del Sacro Cuore, facoltà di medicina

Principal Investigator: Marcello Candelli, MD. PhD - Fondazione Policlinico Universitario A. Gemelli- IRCCS of Rome, Italy

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Co-Author: Maria Lumare, MD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Giulia Pignataro, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

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Co-Author: Andrea Piccioni, MD, PhD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

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Co-Author: Francesco Franceschi, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

Objectives: The aim of this study is to evaluate the clinical utility of the electrocardiographic RS interval in the diagnosis of pulmonary embolism in the emergency department

Background: Pulmonary embolism is one of the most common cardiovascular diseases. The majority of pulmonary embolisms result from the spread of deep vein thrombosis. After myocardial infarction and stroke, pulmonary embolism is the most common cause of vascular death and the most common cause of preventable death in patients admitted to the hospital. It can occur especially in patients who have cancer, cardiovascular disease, or an immobilization syndrome. A recent study found that the electrocardiographic interval RS was a useful tool for diagnosing pulmonary embolism in an emergency setting, but this study was never replicated.

Methods: We performed a retrospective case-control study in our emergency department at the Fondazione Policlinico Gemelli in Rome. We identified 254 patients presenting to the emergency department with suspected pulmonary embolism and performed ECG and CT pulmonary angiogram. In 127 patients, CT pulmonary angiogram was positive for pulmonary

embolism. We matched these with 127 controls with suspected pulmonary embolism whose CT was negative. The mean age was 65 years. For each patient, symptoms (chest pain, syncope), vital signs (oxygen saturation, heart rate, blood pressure), and biomarkers (d-dimer, troponin, NT -proBNP) were collected by an electronic medical record. We analyzed some ECG features such as the duration of the RS interval in all leads, the presence of a BBdx, S1Q3T3 pattern, pulmonary P, sinus tachycardia, right axis deviation, or T-wave change (inversion or flattening). We compare all these features in the two groups of patients to determine an association with pulmonary embolism.

Results: We enrolled 254 patients with a mean age of 66 ± 17 years, 51% were female, right bundle branch block was observed in 8%, S1Q3T3 pattern in 7%, and T-Vawe inversion in 38%. The RS interval values ranged from 57.1 ±15 msec in V6 to 61 ± 16 msec in D1 leads. Patients with pulmonary embolism had an increased risk of a history of cancer (38 vs. 21%; $p< 0.01$), a lower risk of heart disease (33 vs. 56%; $p< 0.01$), higher troponin and D-dimer levels. Among electrocardiological patterns, only the presence of S1Q3T3 (11 vs. 5%; $p=0.05$) and T-Vawe inversion (46 vs. 30%; $p< 0.01$) were associated with pulmonary embolism. The RS interval values were significantly reduced in patients with pulmonary embolism compared with patients without pulmonary embolism in leads D1, AVL, V3, V4, V5, and V6. The largest difference was observed in V4 (52 ±13 vs 59 ±14 msec, $p< 0.001$). However, the accuracy of diagnostic performance assessed with a ROC curve of the RS interval is low, and it was not possible to find a cutoff value with sufficient sensitivity or specificity for the diagnosis of pulmonary embolism.

Conclusions: Our study confirms that there are no electrocardiographic patterns that have high diagnostic accuracy in patients with pulmonary embolism. The RS interval is significantly shorter in patients with pulmonary embolism than in patients without it but it does not achieve acceptable diagnostic sensitivity and specificity. Further studies should be performed to eventually include the RS interval in a diagnostic score.

References (Optional):

Funding: no funding

Saturday, September 9, 2023
Session Time: 09:45 - 11:15
Presentation Time: 10:09 - 10:21
Elafos A
Track: Oral Abstracts

(O-K3) Associations Between Sex Steroid Hormones and Cardiac Arrest Outcomes

Oral Presenter / Primary Author: Pavitra Kotini-Shah, MD - University of Illinois at Chicago
Co-Author: Ruth Pobee, PhD - University of Illinois at Chicago
Faculty Advisor: Irina Buhimschi, MD - University of Illinois at Chicago
Faculty Advisor: Terry Vanden Hoek, MD - University of Illinois at Chicago
Faculty Advisor: Jing Li, MD - University of Illinois at Chicago

Objectives: To characterize the temporal trajectories in sex steroids (estrogens [estrone and estradiol], progesterone, and testosterone) in the post-return of spontaneous circulation (ROSC) phase and determine associations with survival and neurological outcomes. Background: Sudden cardiac arrest (SCA) is one of the leading causes of death in both males and females although females tend to have better outcomes. Despite previous work which has shown that biological sex dictates physiological and molecular processes in cardiovascular disease, there has been a paucity of research on understanding sex differences specifically in SCA. While sex steroids influence cardiovascular disease, and low level of testosterone and high level of estradiol in pre-clinical studies has been shown to be associated with the risk of SCA, little is known about their changes after a cardiac arrest, and their association to outcomes. Methods: Under an approved IRB protocol, patients greater than 18 years of age, with a witnessed cardiac arrest and sustained ROSC were eligible to participate in the study. Post-ROSC plasma samples from SCA patients were collected between May 2018-March 2020 at four serial time points (0, 6, 24, 48h). Quantitative sex hormone analysis was performed using Liquid Chromatography Mass Spectroscopy (LCMS). Demographics, cardiac arrest characteristics, clinical data in the pre-hospital care and during hospital course were also collected. Baseline and clinical characteristics were stratified by sex and presented using frequencies for categorical variables and means for continuous variables. Chi-square or fisher exact test was used to test differences for categorical variables while T-test was used for differences in continuous variables. Median and interquartile ranges were reported and differences between groups were determined using Wilcoxon rank sum test.Trends were examined for each sex hormone over the 48 hours and stratified by sex, survival, neurological recovery (cerebral performance category [CPC]), and rhythm type. A repeated measures analyses with Generalized Estimating Equation (GEE) models were used to determine the association between sex hormones and their ratios with outcomes, with $p< 0.05$ indicating significance. Results: A total of 65 patients were included in the analyses, 33 (51%) men and 32 (49%) women, with 62.7% of women categorized as menopausal. There were no differences in demographic and clinical characteristics between males and females. Plasma estrone continued to rise across the 48 hours, and estradiol remained fairly flat across time, whereas progesterone and testosterone peaked at 6 hours. Estradiol at 24 hours and testosterone at all time points were higher in males compared to females, while progesterone trended higher in females but not significantly different from males. Survivors had lower concentrations of estradiol at 1 and 24 hours relative to non-survivors. Testosterone concentrations were lower in patients with good neurological recovery (CPC 1-2) at 1, 6, and 24 hours compared with those with poor neurological recovery (CPC 3-5). Similarly at 1 hour, testosterone concentration was lower in non-shockable compared to shockable rhythms. There was a trend towards a lower

estradiol level predicting survival (β=-2.44, 95% CI= -5.09, 0.21, p=0.067) regardless of sex and after adjusting for sex, time, age (β=-13.80, 95% CI= -28.98, 1.38, p=0.075). Females were associated with better neurological recovery compared to males with or without adjusting for estrone (β= 1.67, 95% CI=0.12, 3.21), estradiol (β= 1.63, 95% CI=0.11, 3.15), or progesterone (β= 1.80, 95% CI=0.23, 3.38) but not testosterone (β= 1.19, 95% CI=-0.45, 2.82). An increase in T/E2 ratio was also associated with good neurological outcome in males (β= 0.03, 95% CI=0.002, 0.066) but not in females (β= -0.01, 95% CI= 0.03, -0.67). Conclusions: Our study reveals that lower level of hormones, especially estradiol, may indicate survival from OHCA. Sex differences may be more evident for estradiol and testosterone concentrations but not estrone and progesterone in the first 48 hours after ROSC. Females may have good neurological recovery over 48 hours compared to male irrespective of hormonal level. Funding: Primary author acknowledges support from the UIC Building Interdisciplinary Research Careers in Women's Health (BIRCWH) Grant K12HD101373 from the National Institutes of Health (NIH) Office of Research on Women’s Health (ORWH). Primary author also acknowledges funding from Zoll Foundation grant

Saturday, September 9, 2023

Session Time: 09:45 - 11:15

Presentation Time: 10:21 - 10:33

Elafos A

Track: Oral Abstracts

(O-K4) Two Year Results from a New Model Pain Coach Educator Program and Integrative Discharge Toolkit for Pain Management in an Urban U.S. Teaching Hospital and Emergency Department During COVID-19 Pandemic

Oral Presenter / Primary Author: Phyllis L. Hendry (she/her/hers), MD - University of Florida COM-Jacksonville

Co-Author: Sophia Sheikh, MD - University of Florida College of Medicine-Jacksonville

Co-Author: Katelyn Perl, BS - University of Florida College of Medicine-Jacksonville

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Objectives: To describe the two-year implementation pilot and descriptive analysis of a novel emergency department (ED) pain coach educator program including a customized integrative patient pain toolkit for use at home including patient demographics, pain characteristics, coaching and toolkit topics, implementation challenges, and one month patient feedback and toolkit utilization survey.

Background: Pain is the most common presenting ED complaint, yet most emergency professionals receive minimal education about nonpharmacologic, integrative pain management options. It is faster to administer or prescribe medications than to provide patient education and nonpharmacologic, nonopioid modalities. The US and others are dealing with opioid epidemics resulting in a renewed focus on pain education and integrative alternatives. The COVID-19 pandemic escalated pain management challenges. To address this, we developed a novel ED pain coach educator program providing individual, customized education sessions and integrative pain management toolkits for acute and chronic pain followed by a one-month feedback and utilization survey.

Methods: The project was implemented in an urban U.S safety-net, not-for-profit hospital system and registered with the affiliated university's Quality Improvement Project Registry. Data collection occurred from January 1, 2021 to December 31, 2022 with enrollment initially starting in EDs and trauma center followed by expansion to select inpatient services. Study inclusion criteria included patients ≥ 14 years with acute or chronic pain with preference given to high risk or high utilization patients. Patients were excluded if in extreme pain prior to initial assessment

and treatment, incarcerated, violent, suicidal, or critically ill. A training program and curriculum was developed for inaugural pain educators. Toolkits were customized based on type of pain and interest with a choice of 7 integrative options and 17 educational brochures. Patients were identified through Electronic Health Record (EHR) tracking systems, paging, rounding, shared service patient lists, or by healthcare professional verbal request. All data were stored and managed in REDCap. Beginning November 2021, patients completed a 30-day post-session phone survey which included questions about frequency of home toolkit use and session feedback. Descriptive statistics, Area Deprivation Index (ADI), medical and pain diagnoses, education and toolkit items provided, challenges, and follow-up survey data were collected and analyzed.

Results:There were 1492 sessions conducted over two years with 1,295 unique patients receiving pain coach education sessions and discharge toolkits. The average age was 47.8 years (SD=17.2). The majority were female (63.6%), Black (53.7%), and Non-Hispanic/Latino (96.6%). Most (43.6%) had a high level of socioeconomic disadvantage (ADI score >85, range 2-100). Sessions occurred in the ED (63.5%), in-patient (28.8%), out-patient (4.6%), and other (2.6%). Pain was reported as acute (55.3%), acute on chronic (28.1%), and chronic (16.6%), with patients often having multiple pain diagnoses (musculoskeletal, 73.4%; abdominal/pelvic pain, 13.8%; and low back pain, 12.8%). During customized educational sessions 89.7% of patients received 4 flat tires analogy stress ball, 87.9% hot/cold therapy, 86.9% aromatherapy inhaler/education, 56.6% pain journal with guided questions, 48.7%, virtual reality viewer, 33.4% therapeutic coloring, and 16.5% acupressure device. The top three challenges in conducting pain coaching sessions included medical condition such as nausea or lethargy, 14.5%; time constraints, 7.9%; or too much pain, 6.8% with 65.1% of sessions reporting no challenges. Of the 185 survey respondents, 169 remembered the session and were using toolkit items at home with 147 (86.9%) rating the session as helpful or very helpful and 135 (79.9%) using toolkit items daily or weekly. .

Conclusions: Results from this novel ED based pain coach education/toolkit program provide valuable insights and benefits for development of an international pain coach model. Most patients ranked the program as very helpful/helpful with continued use of integrative toolkit items at one month and qualitative statements of patient satisfaction and improved functionality. Appropriate timing of approach was a key issue. Multidisciplinary project champions and recognition were important to project success along with rounding. All program materials including an implementation guide are available online. Future plans include assessing program outcomes such as readmission and return ED rates, decrease in opioids, cost-effectiveness, and functionality.

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Saturday, September 9, 2023
Session Time: 09:45 - 11:15
Presentation Time: 10:33 - 10:45
Elafos A
Track: Oral Abstracts

(O-K5) The D-dimer to Troponin Ratio Is a Novel Marker for the Differential Diagnosis of Thoracic Acute Aortic Syndrome from Non-st Elevation Myocardial Infarction

Oral Presenter / Co-Author: Jeong Hyeon Im - Dongguk University Ilsan Hospital
Primary Author: Minsik Lee - Dongguk University Ilsan Hospital
Principal Investigator: Yong Won Kim, n/a - Dongguk University Ilsan Hospital
Co-Author: Han Ho Do
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Co-Author: Seung Chul Lee
Co-Author: Jeong Hun Lee, n/a - Dongguk University Ilsan Hospital
Co-Author: Sanghun Lee, n/a - Dongguk University Ilsan Hospital
Co-Author: Tae Youn Kim, n/a - Dongguk University Ilsan Hospital
Co-Author: Gyeong Min Lee

Objectives: Thoracic acute aortic syndrome (AAS) and non-ST-elevation myocardial infarction (NSTEMI) have similar clinical presentations, which make it difficult to differentiate between them. This study aimed to investigate useful biomarkers for the differential diagnosis of thoracic AAS and NSTEMI.

Background: As a biomarker, troponin is associated with acute myocardial infarction (AMI), whereas D-dimer is associated with ASS. Therefore, these biomarkers can be used to diagnose or exclude each disease. However, troponin, a cardiac-specific biomarker, gets elevated not only in AMI but also in other diseases, including AAS. Also, D-dimer gets elevated in various conditions (such as pulmonary embolism, AAS, and AMI) according to secondary fibrinolysis and the intravascular activation of the coagulation system. Therefore, it may not be useful to differentiate between AAS and NSTEMI by presenting positive levels of troponin or D-dimer.

Methods: We performed a retrospective observational study. Consecutive adult patients who visited the emergency department for acute chest pain between January 2015 and December 2021 were diagnosed with thoracic AAS or NSTEMI. Clinical variables, including D-dimer (μg/mL) and high-sensitivity troponin T (ng/ml, hs-TnT) were compared between the two groups.

Results: We enrolled 52 (30.1%) and 121 (69.9%) patients in the thoracic ASS and NSTEMI groups, respectively. A logistic regression analysis revealed that the D-dimer to hs-TnT (D/T) ratio (odds ratio [OR]:1.038; 95% confidence interval [CI]: 1.020–1.056; $p< 0.001$) was associated with thoracic AAS. The D/T ratio had an area under the receiver operating characteristic curve (AUC) of 0.973 (95% CI: 0.930–0.998), and the optimal cut-off value was 81.3 with 91.4% sensitivity and 96.2% specificity.

Conclusions: The D/T ratio may be a simple and useful parameter for differentiating thoracic AAS from NSTEMI.

References (Optional):

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Saturday, September 9, 2023

Session Time: 09:45 - 11:15

Presentation Time: 09:45 - 09:57

Elafos B

Track: Oral Abstracts

(O-L1) Substance Use Disorder and Overutilization of Emergency Departments

Oral Presenter / Primary Author: Shahram Lotfipour, MD MPH - EISENHOWER MEDICAL CENTER AND UCIMC

Co-Author: Jordan G. Shin, BA - University of California, Irvine

Co-Author: Soheil Saadat, MD PhD - University of California, Irvine

Objectives: This paper seeks to determine the association between substance use and excess emergency department visits, while examining characteristics of our sample population, such as: racial and age groups, insurance types, and mortality rates.

Background: In 2008, for the first time in more than three decades, the number of poisoning deaths surpassed the number of deaths due to motor vehicle accidents.1 From 2006 to 2011, the total number of emergency department (ED) visits increased by nearly five percent.2 This was the second largest increase and an important contributor to the skyrocketing cost of healthcare.2 With the Medicaid expansion under the Affordable Care Act, ED visits have increased even more, thus making it very important to understand the association between rising levels of ED visits and the healthcare costs of opioid use.3

Methods: We analyzed the California State Emergency Department Database (SEDD), Healthcare Cost and Utilization Project (HCUP), Agency for Healthcare Research and Quality, which contains discharge information on all outpatient ED visits.8 We included 2006-2009 and 2011 data which contained 46,132,211 ED visit records to find out the trend. Then analyzed 2011 data to find out the association of substance use and ED visits. Substance use and its subcategories were detected based on relevant International Classification of Diseases (ICD-9) codes. We utilized tabular and then multivariable analysis methods to find out the association between substance use and excess ED visit, controlling for demographic risk factors. In multivariable analysis, data was considered clustered at the level of patients and the standard errors estimation was adjusted accordingly. Prevalence ratios are presented as point estimates ± Standard Deviation, and mortality ratios as point estimates (95% Confidence Intervals). A p-value < 0.05 was considered statistically significant. Data was analyzed by using STATA 14.2 SE software (StataCorp LLC, College Station, TX).

Results: In the study period, the prevalence of substance use increased from 2006 to 2011 ($p < 0.001$) (Figure 1). The prevalence of opioid use was 28.51 ±23.15, and prevalence of non-opioid substance use was 59.61 ±53.76 per 1000 ED visits. Non-opioid substance use was more common than opioid use in patients aged up to 50 years ($p < 0.001$) (Figure 2). Mortality decreased from 2006 (2.05 per 1000 ED visits) to 2011 (1.62 per 1000 ED visits), while patients with opioid use had higher mortality ratio (2.02 per 1000 ED visits) as compared to those with no history (1.79 per 1000 ED visits) ($p = 0.047$). In 2011, opioid use was most common in Native Americans ($p < 0.001$), followed by Caucasians ($p < 0.001$). Opioid use was associated with increased emergency department visits ($p < 0.001$) (Table 1) after controlling for sex, age, race, type of insurance, and number of chronic diseases.

Conclusions: With the growing opioid epidemic, our study highlights the impact of opioid and non-opioid substance use on ED utilization. We found an increase in substance use prevalence and an increase in utilization of ED resources, especially for opioid users as compared to non-opioid substance users. As the ED is one of the main resources for substance users, it is important to find avenues to provide affordable and accessible healthcare for these patients. Lastly, it is crucial to implement harm reduction principles and establish outpatient care to ensure the patient's health, and ultimately, form durable solutions to address the opioid epidemic.

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Saturday, September 9, 2023

Session Time: 09:45 - 11:15

Presentation Time: 09:57 - 10:09

Elafos B

Track: Oral Abstracts

(O-L2) Does Hyperglycemia Predict Hypocalcemia in Critically Injured Trauma Patients?

Oral Presenter / Primary Author: Matthew D. Sztajnkrycer (he/him/his), MD, PhD, NRP - Mayo Clinic

Co-Author: Rosanna Chorro, MD - Mayo Clinic

Co-Author: Andres Climent, RN - International University of Valencia

Co-Author: Jeffrey Wood, PA-C - Mayo Clinic

Co-Author: Aidan Mullan, MA - Mayo Clinic

Objectives: The purpose of the current study is to evaluate if a relationship exists between glucose and ionized calcium (iCa) and whether specific glucose levels can determine a predictive threshold for identification of hypocalcemia (iCa < 4.40 mg/dL) and severe hypocalcemia (iCa < 3.60 mg/dL).

Background: Hypocalcemia is frequently encountered in severely injured trauma patients and is associated with increased mortality. Alongside acidosis, hypothermia, and coagulopathy, hypocalcemia forms a key component of the “lethal diamond” [1,2]. Hyperglycemia in critically ill trauma patients is also associated with increased morbidity and mortality, potentially reflecting a hypermetabolic stress response [3,4,5]. However, calcium is also important in insulin secretion [6]. Early identification of hypocalcemia is important in the management of critically ill trauma patients. Although point-of-care testing devices are available, these devices are not typically available on ground EMS (GEMS) units. However, almost every GEMS unit has a glucometer.

Methods: This study was an IRB-approved retrospective chart review of trauma patients presenting to the St Marys Hospital emergency department by GEMS and Helicopter EMS (HEMS) between 1/1/2011 – 12/31/2021. Inclusion criteria included age > 18, acute traumatic injury, primary transport from the scene, severe trauma (prehospital hypotension (SBP < 90 mm Hg) and shock index > 1), and trauma service evaluation. First recorded laboratory values upon arrival in the emergency department were abstracted into an Excel database.

Results: A total of 10,974 trauma patients were transported during the study period, of which 96 GEMS and 40 HEMS were included in the final cohort. One hundred and twenty two patients (89.7%) sustained blunt trauma. Overall mortality was 16.9%; no difference was noted HEMS vs GEMS (p = 0.54, Chi Square). Mean (SD) iCa was 4.32 (0.66) mg/dL; 4.44 (0.67) GEMS vs 4.11 (0.60) HEMS (p = 0.02, T test). Forty patients (29.4%) were hypocalcemic on arrival while 13 (9.6%) were severely hypocalcemic: HEMS patients were more likely to be hypocalcemic (p < 0.001, Chi Square) and severely hypocalcemic (p = 0.06, Chi Squared). Mean (SD) serum glucose was 185.77 (83.12) mg/dL; 157.15 (71.34) GEMS vs 219.69 (78.91) HEMS (p = 0.08, T test). The best fit line for iCa versus Glucose was [iCa] = -0.0036[Glc] + 4.9939. Using this best fit line, serum glucose of 200 mg/dL corresponds with iCa of 4.27 mg/dL (95% CI: 3.98 – 4.56). Glucose cut-offs for hypocalcemia and severe hypocalcemia are 166 mg/dL (95% CI: 118 - 276) and 387 mg/dL (95% CI: 276 - 648) respectively. Pearson’s correlation coefficient is -0.46.

Conclusions: Although this study utilized a small, regional, retrospective cohort of severe

trauma patients and analyzed laboratory values determined in the ED, the data suggest that use of a glucometer may permit early identification of hypocalcemia in these patients, thereby providing an opportunity to intervene in the prehospital environment. Further studies are required to validate the results of this study.

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Funding: No funding

Saturday, September 9, 2023

Session Time: 09:45 - 11:15

Presentation Time: 10:21 - 10:33

Elafos B

Track: Oral Abstracts

(O-L3) Multimarkers Approach in Acute Chest Pain in Emergency Department

Oral Presenter / Primary Author: Andrea Piccioni, MD, PhD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Silvia Baroni, MD - Policlinico Universitario A. Gemelli

Co-Author: Francesca Sarlo, MD - Policlinico Universitario A. Gemelli

Co-Author: Federica Manca, MD - Policlinico Universitario A. Gemelli

Co-Author: Federico Rosa, MD - Policlinico Universitario A. Gemelli

Co-Author: Gianluca Tullo, MD - Emergency Medicine - Fondazione Policlinico A. Gemelli IRCCS, Università Cattolica del Sacro Cuore

Co-Author: Marcello Candelli, MD. PhD - Fondazione Policlinico Universitario A. Gemelli-IRCCS of Rome, Italy

Co-Author: Marcello Covino, MD, PhD - Emergency Medicine - Fondazione Policlinico A. Gemelli IRCCS, Università Cattolica del Sacro Cuore

Co-Author: Francesco Franceschi, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

Objectives: The study sought to investigate the utility of a multimarker approach in which the use of sST2, IL-6 and suPAR was combined with hsTnI in the diagnostic workup and early risk stratification of patients with chest pain in the ED.

Background: Chest pain is one of the most common causes of access to the Emergency Room, and it can be a clinical manifestation of a broad spectrum of diseases including 'time dependent' conditions such as acute coronary syndrome. Diagnosis or exclusion of acute myocardial infarction with classic clinical criteria and ECG are insufficient to make a diagnosis. Recently, the importance of inflammatory processes and endothelial damage in cardiovascular disease has been highlighted; consequently, the focus has shifted on new markers, in a "multimarker" approach in which the strengths of each are combined to provide an optimal solution to a clinical problem

Methods: The study is a pilot, single-center observational, prospective study. Twenty-five hundred and eighty-eight patients were consecutively enrolled subsequently to their access to the ED with typical chest pain, after acquisition of informed consent. Biochemical marker assays (0-1h) such as sST2, IL-6, suPAR were performed for each patient in addition to routine tests that are performed in the emergency department, including hsTnI (0-1h) (TNIH kit Siemens). Each patient's data (history, home therapy, blood test results, ECG, etc.) were collected in an Excel® database and analysed with IBM SPSS Statistics 25® software. In addition, a 6-month follow-up was performed to observe the outcome and any adverse events.

Results: The group of patients with hsTnI levels above the cardiac ischemic cut-off and/or with hsTnI excursion greater than 20% deserve in-depth diagnostic and therapeutic investigations in a timely manner, as their conditions are likely cardio-ischemic in nature. In the group with

intermediate hsTnI (>6ng/mL < 47/57 ng/mL), also called the 'GREY ZONE,' with suPAR < 3 ng/mL, if sST2's and IL-6's values are normal, no difference is shown with a control group of healthy patients. The latter group is represented by patients who can be discharged from the ER safely. Follow-up confirms the absence of adverse events at 6 months. Patients with hsTnI < 6ng/L and suPAR < 3 ng/mL do not require continuation of the diagnostic procedure in the ER. The group of patients with intermediate hsTnI values, suPAR> 3ng/ml and sST2 > 28ng/mL, deserves hospitalization and further investigations, agreeing with the follow up where sST2 takes on a particular prognostic function, as all patients with sST2 values>110 ng/mL died. An additional group is represented by intermediate hsTnI and IL-6 >4.4 ng/L, where IL-6 increase suggests the presence of acute inflammation that may also involve an extra-cardiac cause.

Conclusions: Our data suggest that hsTnI remains the biomarker of choice for the heart, considering its peculiar cardio-specificity; on the other hand, it is known that numerous different pathophysiological elements can influence each other and associate, determining multiple clinical pictures in patients. sST2 may play a complementary role to troponin in the prognostic stratification of ischemic patients. When troponin is not indicative for diagnosis of ACS suPAR, as a marker of endothelial damage and involvement of different pathophysiological pathways, can guide the clinician where further diagnostic investigation is needed. IL-6, is quintessentially a marker of inflammation.

References (Optional):

Funding: no funding

Saturday, September 9, 2023

Session Time: 09:45 - 11:15

Presentation Time: 10:21 - 10:33

Elafos B

Track: Oral Abstracts

(O-L4) Is Simple Clinical Judgment Superior to the Most Used Early Warning Scores for the Prediction of Death and ICU Admission in the Emergency Department? A Retrospective Study on 225,369 Cases

Oral Presenter / Co-Author: Walter Vincenzo Maccarrone (he/him/his), MD - Università Cattolica del Sacro Cuore

Primary Author: Marcello Covino, MD, PhD - Emergency Medicine - Fondazione Policlinico A. Gemelli IRCCS, Università Cattolica del Sacro Cuore

Co-Author: Andrea Piccioni, MD, PhD - Università Cattolica del Sacro Cuore, Facoltà di Medicina

Co-Author: Claudio Sandroni, MD PhD - Intensive Care Medicine - Fondazione Policlinico A. Gemelli IRCCS, Università Cattolica del Sacro Cuore

Co-Author: Gianluca Tullo, MD - Emergency Medicine - Fondazione Policlinico A. Gemelli IRCCS, Università Cattolica del Sacro Cuore

Co-Author: Benedetta Simeoni, MD Phd - Emergency Medicine - Fondazione Policlinico A. Gemelli IRCCS, Università Cattolica del Sacro Cuore

Faculty Advisor: Antonio Gasbarrini, MD PhD - Internal Medicine - Fondazione Policlinico A. Gemelli IRCCS, Università Cattolica del Sacro Cuore

Faculty Advisor: Francesco Franceschi, MD, PhD - Fondazione Universitaria Policlinico Gemelli - IRCCS - Rome

Objectives: This study aimed to compare the accuracy of the most used Early Warning Scores (EWS) to find the most accurate in the general ED population, and to compare their added value compared to the sole clinical judgment.

Background: Early warning scores (EWS) are physiological scoring systems based on a rapid and quantitative assessment of changes in vital signs. EWSs were initially developed to identify and track hospitalized patients at risk of deterioration outside critical care areas . However, it is still unknown if the application of EWS could provide better patient stratification compared to triage nurse clinical judgment . To answer these questions, we conducted a study comparing the accuracy of the six most used EWS in a large ED patient dataset, evaluating the score's performance in addition to triage nurse clinical judgment.

Methods: This is a single-center, retrospective observational study. The digital records of all consecutive ED admissions ≥18 years from 2010 to 2019 were evaluated and six EWSs were calculated: NEWS, NEWS2, MEWS, RAPS, REMS, and SEWS. The discrimination performance of each EWS was calculated by ROC analysis. The primary endpoint was death/ICU admission within 24 hours. Secondary endpoints were the assessment of the added value of clinical judgment to each EWS, measured by the net reclassification improvement, and the evaluation of the relative weight of each EWS item on the prediction of the primary outcome, measured by neural network analysis.

Results: The study cohort consisted of 225,369 patients (median age was 49 [IQ range 35-68]

years 47% male. Overall 1941 (0.9%) patients were admitted to ICU or died within 24 hours. NEWS was the most accurate predictor, with an AUROC of 0.904 [95% CI 0.805-0.913] similar to NEWS2 (AUROC 0.901). The remaining EWS had a significantly lower accuracy. The NRI analysis confirmed that clinical judgment could add significant risk stratification to the baseline EWS. However, the discrimination increased by about 15/20% for NEWS and NEWS2, and just about 5% for REMS. NRI value was for NEWS 0.156 [0.14 – 0.17], NEWS2 0.178 [0.16 – 0.20], MEWS 0.116 [0.10 – 0.13], RAPS 0.085 [0.07 – 0.09], REMS 0.055 [0.04 – 0.07], and SEWS 0.109 [0.09 – 0.12]. Once divided into two groups by clinical judgment, the EWS accuracy in discriminating the events was different in nurse-alert patients, compared to non-alert ones (Figure).

Conclusions: All the EWS demonstrated good accuracy for the prediction of short-term poor outcomes, with the sole exception of RAPS. The NEWS had the better balance in discrimination and calibration both in patients selected by clinical judgment and in the general ED population. Although clinical judgment proved to be accurate for the prediction of adverse events, the EWS evaluation could improve risk stratification by up to 20%.

References (Optional): 1. Fu, L.H.; Schwartz, J.; Moy, A.; Knaplund, C.; Kang, M.J.; Schnock, K.O.; Garcia, J.P.; Jia, H.; Dykes, P.C.; Cato, K.; Albers, D.; Rossetti, S.C., Development and validation of early warning score system: A systematic literature review. Journal of biomedical informatics, 2020, 105, 103410. 2. Chapman, S.M.; Maconochie, I.K., Early warning scores in paediatrics: an overview. 2019, 104, (4), 395-399. 3. Mhyre, J.M.; D'Oria, R.; Hameed, A.B.; Lappen, J.R.; Holley, S.L.; Hunter, S.K.; Jones, R.L.; King, J.C.; D'Alton, M.E., The Maternal Early Warning Criteria: A Proposal from the National Partnership for Maternal Safety. Journal of Obstetric, Gynecologic & Neonatal Nursing, 2014, 43, (6), 771-779. 4. Nannan Panday, RS; Minderhoud, T.C.; Alam, N.; Nanayakkara, PWB, Prognostic value of early warning scores in the emergency department (ED) and acute medical unit (AMU): A narrative review. European journal of internal medicine, 2017, 45, 20-31. 5. Iversen AKS, Kristensen M, Østervig RM, Køber L, Sölétormos G, Lundager Forberg J, Eugen-Olsen J, Rasmussen LS, Schou M, Iversen KK. A simple clinical assessment is superior to systematic triage in prediction of mortality in the emergency department. Emerg Med J. 2019 Feb;36(2):66-71. doi: 10.1136/emermed-2016-206382. Epub 2018 Oct 16. PMID: 30327415. 6. Churpek, M.M.; Snyder, A.; Han, X.; Sokol, S.; Pettit, N.; Howell, M.D.; Edelson, D.P., Quick Sepsis-related Organ Failure Assessment, Systemic Inflammatory Response Syndrome, and Early Warning Scores for Detecting Clinical Deterioration in Infected Patients outside the Intensive Care Unit. American journal of respiratory and critical care medicine, 2017, 195, (7), 906-911. 7. Candel BGJ, de Groot B, Nissen SK, Thijssen WAMH, Lameijer H, Kellett J. The prediction of 24-h mortality by the respiratory rate and oxygenation index compared with National Early Warning Score in emergency department patients: an observational study. Eur J Emerg Med. 2022 Dec 5. doi: 10.1097/MEJ.0000000000000989. Epub ahead of print. PMID: 36729955. 8. Arévalo-Buitrago P, Morales-Cané I, Olivares Luque E, Godino-Rubio M, Rodríguez-Borrego MA, López-Soto PJ. Early detection of risk for clinical deterioration in emergency department patients: validation of a version of the National Early Warning Score 2 for use in Spain. Emergencias. 2022 Dec;34(6):452-457. English, Spanish. PMID: 36625695. 9. Covino, M.; Sandroni, C.; Santoro, M.; Sabia, L.; Simeoni, B.; Bocci, M.G.; Ojetti, V.; Candelli, M.; Antonelli, M.; Gasbarrini, A.; Franceschi, F., Predicting intensive care unit admission and death for COVID-19 patients in the emergency department using early warning scores. Resuscitation, 2020, 156, 84-91.

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Saturday, September 9, 2023
Session Time: 12:30 - 13:00
Presentation Time: 12:30 - 13:00
Track: Posters - Research Abstracts

(P48) Language Spoken and CT Utilization in the Emergency Department

Poster Presenter / Primary Author: Elise Clark, DO - Aventura Hospital and Medical Center

Objectives: This study aims to analyze the potential relationship between the utilization rates of CT scans in four common ED complaints (dizziness, headache, chest pain, abdominal pain) and the patient's primary language.

Background: Initial workup in the Emergency Department (ED) often includes computerized tomography (CT) as an imaging modality. However, rates of CT utilization may differ depending on the patient's primary language. In 2002, a literature review on overall quality of care in Latino patients, found language as a barrier to care in 86% of studies. Prior studies show that non English speaking patients were less satisfied with their ED care and were less likely to obtain follow up appointments after their visit. A study of pediatric patients with fractures revealed that non English speaking patients experienced delays in receiving pain medications.

Methods: The HCA Healthcare database contains visit specific information from all HCA Healthcare affiliated hospitals in South Florida. Information for visits in which the chief complaint was dizziness, chest pain, abdominal pain or headache, as well as primary language spoken by the patient. Included in the study are patients between 18 and 95 years of age who presented to HCA Healthcare EDs in South Florida. Patients under 18 and over 95 years of age were excluded. Charts where language spoken was not specified were also excluded. CT scan utilization rates for 4 non-specific generalized common ED chief complaints (dizziness, headache, chest pain, abdominal pain) were obtained. 46,636 patient visits were included in the study. All data was de-identified. Chi-square testing was used to determine the statistical significance in CT utilization rates among primarily English speaking and non-English speaking patients.The Chi-Square Test of Independence was used to determine whether the frequency of CT scans significantly differed in English and non-English patients.

Results: 57.5% of English speaking patients vs 60.5% of non English speaking patients had a CT ordered during their ED visit ($p< 0.001$). Analyzing language specific data, those who spoke Creole (69.4%) were most likely to have a CT as part of their workup, followed by Russian (65.2%), then Spanish (60.4%), and lastly English (57.0%) ($p< 0.001$). In this study, we found a significant difference in CT utilization for specific chief complaints in the ED between patients speaking Creole and English, Creole and Spanish, and English and Spanish. Russian speaking patients did not differ significantly in CT utilization rates. Creole and Spanish speaking patients who presented to the ED were 20% and 6%, respectively, more likely to receive advanced imaging than English speaking patients for the frequent ED chief complaints of dizziness, abdominal pain, chest pain and headache ($p< 0.001$). These findings suggest that there is a significant difference in CT scan utilization in the ED between patients based on language spoken.

Conclusions: This study demonstrates a relationship between CT utilization and preferred language in the ED. More specifically, language barriers resulted in increased frequency of CT imaging, with Creole speaking patients most likely to receive advanced imaging. Although a specific causation for this finding cannot be determined from this preliminary study, it indicates

that difficulty in history taking and miscommunication may lead to more resource utilization. Further studies will need to determine whether socio-economic factors, insurance status and patient follow up are confounding factors. Future studies should also be undertaken to determine if language spoken affects other aspects of emergency department care.

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Funding: HCA Database was used to gather data and an HCA hired statistician analyzed the data..

Saturday, September 9, 2023

Session Time: 12:30 - 13:00

Presentation Time: 12:30 - 13:00

Track: Posters - Research Abstracts

(P61) Artificial Intelligence to Prevent Falls

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Objectives: We developed a proof-of-concept artificial intelligence (AI) prototype algorithm which identifies patients with unsteady gaits from emergency department (ED) CCTV footage. The algorithm then alerts healthcare workers to these patients so that falls may be prevented. In this initial phase, we developed the algorithm and performed preliminary tests.

Background: Falls within hospitals are a major safety issue . 30-50% of falls result in injuries, contributing to an average increased hospitalization length of stay of 6.3 days and $14,000 additional medical costs per admission . In the elderly, falls often result in decreased mobility and loss of independence , thus burdening healthcare systems . Crowds, blind corners, and long corridors in the ED make it difficult to have direct line of sight to all patients. Using existing CCTV to keep an additional ‘eye’ on patients who may be unsteady and at risk of falling can improve safety.

Methods: We collaborated with engineers from Nanyang Polytechnic (NYP) in Singapore to develop this algorithm. Step 1 – Data collection and de-identification Skeletal data from 6 weeks of CCTV footage from Singapore General Hospital ED was extracted using OpenPose . OpenPose is a real-time AI system which detects key skeletal points on the body. The skeletal point data subsequently used for analysis. Step 2 – Dynamic Time Warping and Backpropagation Classifier Dynamic Time Warping (DTW) , which is a method of calculating the degree of synchronization between two temporal sequences, was used to compare a patient’s walking pattern to a standard steady walking pattern. In our study, we found that left and right ankle points were most useful for gait analysis and hence concentrated on these points in this initial study phase. The DTW scores of left ankle data points for unsteady gaits were much higher than the steady gaits [figure1]. These scores were then fed into a 3-layer backpropagation neural network model to determine the patient’s steadiness. The network was trained using 80 labelled data points. Figure 2 [figure2] shows a summary of the algorithm development process.

Results: Our prototype was able to achieve an accuracy of 93.2% on the training datasets. The algorithm was also tested using 38 datasets (19 steady gaits, 19 unsteady gaits) captured in a controlled environment within NYP. Out of these 38 datasets, 35 (92.1%) of them were correctly classified.

Conclusions: Our proof-of-concept AI algorithm shows promising gait analysis potential. While

it performs well in an controlled environment, for it to be realistically implemented in the ED, we will need to: 1. Improve accuracy by further training the algorithm with more numerous, diverse patient videos 2. Improve robustness by including the tracking the coordinates of other skeletal key points 3. Integrate with the existing CCTV system Our team has applied for further funding to expand this project and we aim to further refine our prototype for real-life deployment and to make waiting rooms a safer place for all patients.

References (Optional): 1. Serious Reportable Events in Healthcare–2006 Update [Internet]. National Quality Forum. National Quality Forum; 2007 [cited 2022 Dec 14]. Available from: https://www.qualityforum.org/Publications/2007/03/Serious_Reportable_Events_in_Healthcare%E2%80%932006_Update.aspx 2. Joint Commission. Preventing falls and fall-related injuries in health care facilities. Sentinel Event Alert. 2015Sep28;(55):1–5. 3. Ambrose AF, Paul G, Hausdorff JM. Risk factors for falls among older adults: A review of the literature. Maturitas. 2013;75(1):51–61. 4. Choi NG, Choi BY, DiNitto DM, Marti CN, Kunik ME. Fall-related emergency department visits and hospitalizations among community-dwelling older adults: Examination of health problems and injury characteristics. BMC Geriatrics. 2019;19(1). 5. Qiao S, Wang Y, Li J. Real-time human gesture grading based on openpose. 2017 10th International Congress on Image and Signal Processing, BioMedical Engineering and Informatics (CISP-BMEI). 2017; 6. Berndt DJ, Clifford J. Using dynamic time warping to find patterns in time series. AAAI Technical Report WS. 1994Apr26;94(03):359–70.

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Saturday, September 9, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P40) Detorsing a Hidden Small Bowel Obstruction

Poster Presenter / Primary Author: Erum Ahmed, DO, MS - Jacobi/ Montefiore Emergency Medicine

Faculty Advisor: Jessica Wang, MD - Jacobi Medical Center

Chief Complaint : Abdominal Pain, and nausea for 1 day

History of Present Illness : 33-year-old female G2P1011 (1 c-section, 1 surgical abortion) with PMH of fibroids presents with acute onset abdominal pain for 1 day. Last night, she went out with friends and had a couple of drinks. She was in her usual state of health. This morning, she started having cramping lower abdominal pain which started periumbilical and moved into her right pelvic region. Pain is episodic, with periods of mild pain in between minutes of more intense pain lasting for five to ten minutes each time. Pain was associated with nausea and urinary urgency, but without vomiting. Denies dysuria, hematuria, vaginal bleeding, or discharge. Her last bowel movement was this morning, normal in color and consistency. Last menstrual period was the month prior to presentation. Sexual history notable for being sexually active with one male partner without contraception. Of note, she has a remote history of chlamydia which was treated with antibiotics.

Pertinent Physical Exam: On initial assessment, vital signs were notable for BP 110/78 and heart rate of 95. Patient was afebrile with normal respiratory rate and oxygen saturation. Initial exam was notable for our patient with lower abdominal tenderness, appearing uncomfortable. Upon reassessment, patient was pale and had a blood pressure of 70/40 responsive to fluids. She now feels light-headed and appears diaphoretic. Patient now writhing in pain with guarding to the right lower quadrant. External genital exam was unremarkable. Speculum and bimanual exam were deferred secondary to patient's pain level. Urine pregnancy negative.

Pertinent Laboratory Data: FAST showed no free fluid in RUQ, LUQ. Suprapubic views were technically challenging. TVUS showed a large, irregularly-shaped anechoic structure surrounded by a hyperechoic border immediately adjacent to the left ovary (Figure 1 and 2). CT imaging showed questionable pelvic hematoma measuring 7.4 x 5.6 cm. Gynecology was consulted for ovarian torsion and our patient went to the OR for diagnostic laparoscopy. Intra-operatively, small bowel strangulation was noted due to a single adhesive band 2 centimeters away from the Terminal Ileum. The small bowel appeared hemorrhagic, without any signs of necrosis and was released without complication (Figure 3).

Case Discussion: One of the most common complaints in the emergency room is right lower abdominal pain, especially in young women. Upon initial assessment of our patient, our differential diagnosis included: ovarian torsion, ectopic pregnancy, tubo-ovarian abscess, appendicitis, UTI, pyelonephritis, and nephrolithiasis. Given how her pain acutely fluctuated throughout her ED course, ovarian torsion was the most concerning differential that required timely diagnosis and immediate intervention. In instances where young female patients are showing frank signs of serious intraabdominal pathology, having access to and being able to interpret transvaginal POCUS in the emergency department is vital to ruling out critical diagnoses in a timely manner. It may also be helpful in identifying pathology which is non-

emergent, but requires prompt gynecological follow-up such as malignancy, ovarian cysts, hydrosalpinx, and endometrioma (1). Small bowel obstruction, especially in young patients without significant surgical or cancer history, is not typically included in the ER differential for abdominal pain. The finding of a small bowel obstruction in a young female with only a surgical history of c-section is extremely rare (0.1%) (2). However, there have been case reports citing leiomyoma (3), endometriosis (4), and lupus (5) causing SBO as well. The presenting features of a small bowel obstruction vary, but typically involve prior abdominal surgery, constipation, and abdominal distension. Signs that are concerning for strangulation include fever, hypotension, diffuse abdominal pain, and peritonitis. Diagnosis is made with imaging such as computed tomography or ultrasound (6). However, in this case, neither was conclusive to make a diagnosis. This case emphasizes the importance of a high suspicion and prompt recognition of potentially detrimental pathology through frequent reassessments, especially with change in vital signs. Repeating the physical exam was key in identifying our patient's acute abdomen and need for further intervention.

References and Acknowledgements (Optional): 1. M. Stumpf, C. Tibbles. Pelvic ultrasonography in the emergency evaluation of nonpregnant patients with pelvic pain or vaginal bleeding. Annals of Emergency Medicine, Volume 44, Issue 4, Supplement, 2004, Page S113, ISSN 0196-0644. https://doi.org/10.1016/j.annemergmed.2004.07.368. 2. Di Buono G, Ricupati F, Maienza E, Gulotta L, Buscemi S, Agrusa A. Small bowel obstruction after caesarean section: Laparoscopic management. Two case reports. Int J Surg Case Rep. 2020;77S(Suppl):S96-S100. doi: 10.1016/j.ijscr.2020.09.059. Epub 2020 Sep 14. PMID: 32972893; PMCID: PMC7876740. 3. Hughes J, Lee A, Fong J, Vazquez M, Wright D, Bui A. Leiomyoma: a rare cause of small bowel obstruction. ANZ J Surg. 2020 Jun;90(6):1165-1168. doi: 10.1111/ans.15698. Epub 2020 Jan 17. PMID: 31951072. 4. Lam K, Lang E. Endometriosis as a rare cause of small bowel obstruction. ANZ J Surg. 2020 Nov;90(11):E137-E138. doi: 10.1111/ans.15916. Epub 2020 Apr 27. PMID: 32339367. 5. Yang Y, Bartsch AM, Fryer E, Hancu D. Lupus causing small bowel obstruction. BMJ Case Rep. 2018 Sep 27;2018:bcr2018225886. doi: 10.1136/bcr-2018-225886. PMID: 30262532; PMCID: PMC6169646. 6. Long B, Robertson J, Koyfman A. Emergency Medicine Evaluation and Management of Small Bowel Obstruction: Evidence-Based Recommendations. J Emerg Med. 2019 Feb;56(2):166-176. doi: 10.1016/j.jemermed.2018.10.024. Epub 2018 Dec 6. PMID: 30527563.

Saturday, September 9, 2023
Session Time: 12:30 - 13:30
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Track: Posters - Case Reports

(P41) Acquired Cerebral Achromatopsia Secondary to Occipital Stroke

Poster Presenter / Primary Author: Noura Alhosani, MD - Cleveland Clinic Abu Dhabi
Co-Author: Fatima AlKhyeli, MD - United Arab Emirates University
Faculty Advisor: Falak Sayed, MD - Cleveland Clinic Abu Dhabi

Chief Complaint : 1 week history of blurry vision, which was proceeded by a right-sided headache.

History of Present Illness : A 51-year-old female presented to the emergency department with a chief complaint of 1 week history of blurry vision, which was proceeded by a right-sided headache. She has a background of type II diabetes mellitus, hypertension, dyslipidemia and a history of breast cancer with cessation of treatment 10 years prior, and is currently in remission. In addition to the blurry vision, she complained of impaired color vision described as desaturation of color appearance in all visual fields. She denied any focal motor weakness, dysarthria, aphasia, gait disturbance, dizziness or sensory loss.

Pertinent Physical Exam: Upon presentation, her vital signs were within normal limits. A general examination was unremarkable. A neurological examination showed complete left homonymous hemianopia, otherwise normal neurological examination.

Pertinent Laboratory Data: Computerized tomography (CT) angiography of head and neck with intravenous (IV) contrast showed moderate narrowing of the right posterior cerebral artery and mild narrowing of the left carotid cavernous artery. Hyperacute MRI of the brain was done in the Emergency Department which revealed a subacute right occipital pole infarct.

Case Discussion: Patients with strokes in the posterior circulation artery often present with non-specific symptoms, which can lead to delayed diagnosis and treatment. Visual field defects are common in posterior cerebral artery (PCA) strokes, as the lower part of the optic radiation is supplied by this artery. Acquired cerebral achromatopsia, the inability to perceive color after acute brain injury, is a rare phenomenon associated with PCA stroke. A case discussion was presented that compared two cases of acquired cerebral achromatopsia following PCA stroke. The first case involved a 60-year-old female who presented with right hemiachromatopsia, while the second case involved a 74-year-old female who initially had preserved full-field color vision after a stroke on the left hemisphere, but later developed full-field achromatopsia after a stroke on the right hemisphere. The contrast between the two cases suggested that there may be individual differences in the hemispheric laterality of the color centers in the brain, with the right hemisphere potentially being responsible for full-field color processing. Our patient presented with a subacute occipital stroke on the right hemisphere, yet, developed bilateral achromatopsia. This case may support the hypothesis that the right hemisphere is responsible for full-field color processing. However, more research is needed to fully understand the mechanisms underlying acquired cerebral achromatopsia in PCA stroke. Overall, this discussion highlights the challenges in diagnosing and treating strokes in the posterior circulation artery and the need for further research to better understand the neurological processes involved.

References and Acknowledgements (Optional): 1. Kartika, A., & Dwijayanti, S. (2018, November 13). Different Visual Field Defects in Cerebral Infarction Patients. Perpustakaan Pusat Mata Nasional Rumah Sakit Mata Cicendo. 2. Kuybu, O., Prasanna Tadl, P., & Dossani, R. H. (2022, August). Posterior cerebral artery stroke - statpearls - NCBI bookshelf. Posterior Cerebral Artery Stroke. Retrieved from https://www.ncbi.nlm.nih.gov/books/NBK532296/ 3. Zobor, D., Zobor, G., & Kohl, S. (2015). Achromatopsia: on the doorstep of a possible therapy. Ophthalmic research, 54(2), 103–108. https://doi.org/10.1159/000435957 4. Harper, D. G., Arsura, E. L., Bobba, R. K., Reddy, C. M., & Sawh, A. K. (2005). Acquired color blindness in an elderly male patient from recurrent metastatic prostate cancer. Journal of the American Geriatrics Society, 53(7), 1265–1267. https://doi.org/10.1111/j.1532-5415.2005.53384_6.x 5. Shaygannejad, V., Golabchi, K., Dehghani, A., Ashtari, F., Haghighi, S., Mirzendehdel, M., & Ghasemi, M. (2012). Color blindness among multiple sclerosis patients in Isfahan. Journal of research in medical sciences : the official journal of Isfahan University of Medical Sciences, 17(3), 254–257. 6. Young, R. S., Fishman, G. A., & Chen, F. (1980). Traumatically acquired color vision defect. Investigative ophthalmology & visual science, 19(5), 545–549. 7. Bartolomeo, P., Bachoud-Lévi, A. C., & Thiebaut de Schotten, M. (2014). The anatomy of cerebral achromatopsia: a reappraisal and comparison of two case reports. Cortex; a journal devoted to the study of the nervous system and behavior, 56, 138–144. https://doi.org/10.1016/j.cortex.2013.01.013

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

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Track: Posters - Case Reports

(P42) Hey Doc, i'm Feeling Blue!

Poster Presenter / Primary Author: Jibril Ashiru-Balogun (he/him/his), MD, MS - RWJBH - Community medical center

Faculty Advisor: Lisa Armstrong, MD - RWJBH - Community Medical Center

Chief Complaint : Skin paleness and cyanosis of lips and fingertips

History of Present Illness : Patient is a 23-year-old female with a past medical history of myotonic dystrophy, presenting to the ED for evaluation of lightheadedness and near syncope, now with pallor and cyanosis of the lips and fingertips. She her wisdom tooth extracted earlier that afternoon. She took a nap after the procedure, woke up 3 hours later with these symptoms. She is unaware of what medications were used during the procedure. She denies any fever, chills, shortness of breath, chest pain, abdominal pain, syncope, headache, and vomiting. She has no history of previous similar symptoms.

Pertinent Physical Exam: GENERALIZED APPEARANCE: Patient is awake, alert, oriented x3, in mild distress VITAL SIGNS: BP – 147/89, P – 99bpm, R – 20brpm, SPO2 – 91% on 15L SKIN: (-) Diaphoresis, (+) Central, peripheral cyanosis, skin pale, cool, clammy. EYES: (-) conjunctival pallor, (-) scleral icterus ENMT: Pharynx: (-) erythema; airway patent: (-) stridor: mucous membrane moist. CHEST AND RESPIRATORY: (-) rales, (-) rhonchi, (-) wheezes; breath sounds equal bilaterally HEART AND CARDIOVASCULAR: (-) irregularity; (-) murmur, (-) gallop VASCULAR: (+) distal pulses, (+) symmetric NEURO: Mental status as above. Cranial nerves intact. No focal deficit. Speech is clear and fluid.

Pertinent Laboratory Data: ABG: pH – 7.43, pCO2 – 36mmHg, pO2 – 249mmHg, HCO3 – 24mmol/L, Base Excess -0.1mmol/L, HGB 13.5g/dL, O2 Hb – 73.8%, CO Hb – 0.0%, MetHb – 23.6%

Case Discussion: The patient presented with concern about pallor and cyanosis of the lips, fingertips, and skin which started after she had her wisdom teeth removed. She denied any chest pain or SOB, though did report lightheadedness earlier., While her initial triage showed an oxygen saturation of 94%, on room air, and subsequent vital signs, showed she was hypoxic to 89% on RA, and continued to be hypoxic even with increasing oxygen therapy, to a maximum saturation of 91% on 15L of O2. On the lab draw, the patient's blood was noted to be chocolate brown as well. Due to the patient's history of a dental procedure earlier in the day, suspicion for methemoglobinemia was raised, as she likely received lidocaine during her procedure, however, the patient was unable to recall what medications were used during it, and the surgeon was unavailable for a consult. A methemoglobin level was drawn, and it was noted to be >20%. Due to the patient having symptomatic and profound methemoglobinemia, methylene blue treatment was started, and she was admitted to the ICU.

References and Acknowledgements (Optional): N/A

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Track: Posters - Case Reports

(P43) The Percocet I Was Prescribed Are No Longer Working

Poster Presenter / Primary Author: Jibril Ashiru-Balogun (he/him/his), MD, MS - RWJBH - Community medical center

Co-Author: Chiamaka Eneh, MD - RWJBH - Community Medical Center

Faculty Advisor: chris delmaestro, DO - RWJBH - Community Medical Center

Chief Complaint : I Have been having back pain for weeks now.

History of Present Illness : The patient is a 59-year-old male with a past medical history of hypertension, and nephrolithiasis resulting in urosepsis, who presented to the emergency department for evaluation of upper back pain. He notes a history of back pain usually controlled by over-the-counter medications; however, over the last two to three weeks, he has found the pain difficult to control. He was discharged recently from the ICU after treatment for urosepsis. He denies fever, chills, shortness of breath, chest pain, abdominal pain, syncope, headache, and vomiting.

Pertinent Physical Exam: physical exam revealed patient is in significant distress, and unable to find a comfortable position. Vital signs were remarkable for BP of 143/101mmHg, and an HR of 123bpm, the rest of the patient's vital signs were remarkable Including, a RR of 20 breaths per minute, oxygen saturation of 95% on RA, and a temperature of 98.4. A cholecystostomy tube was present in the right upper quadrant. Diminished strength and reflexes in both lower extremities but preserved strength in the upper extremity and sensation in all four extremities, including pinpoint sensation. He also has a loss of rectal and bladder tone.

Pertinent Laboratory Data: Laboratory findings on the CBC, inflammatory markers, and urinalysis were noted as a WBC of 13200 per microliter (4800 – 10800 per microliter), a neutrophile count of 87% (36 -66%), additionally ESR and CRP were 48 millimeters per hour (0 – 20 millimeter per hour); 98 milligrams per liter (0 – 3 milligrams per liter) respectively. Alkaline phosphatase at 194 Units per liter (24 – 117 Units per liter). Urinalysis was remarkable for a WBC of 101 – 200/HPF and an RBC of 21 – 50/HPF. It also contained trace bacteria and a large amount of leukoesterase.

Case Discussion: The patient presented for concerns with continued back pain, progressive lower extremity weakness, and a fever with a Tmax of 101.3. He denied any history of spinal trauma or procedures, intravenous drug use, or diabetes mellitus. However, He admitted to a renal dysfunction history stemming from nephrolithiasis that needed nephrotomy tube placement approximately five weeks prior. He added a history of mild back pain which he noted was responsive to over-the-counter medication. On review of medical records, it was noted that he presented to the ED on three prior occasions with a back pain complaint testing and imaging were unremarkable. He was discharged home with opioid medication and a follow-up for pain management. He noted that the opioids did not control the pain. Due to the history obtained from the patient, physical exam, and laboratory findings, we had a high suspicion of a spinal epidural abscess and knew he need MRI imaging but due to pain wouldn't tolerate the exam, so he was intubated for airway protection before obtaining the MRI as not to risk aspiration while

being imagined. MRI confirmed the diagnosis of a posterior spinal epidural abscess at T5 through T8, with associated discitis and osteomyelitis at T6 and T7. The patient was transferred to a neurosurgical facility for definitive surgery.

References and Acknowledgements (Optional): N/A

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Track: Posters - Case Reports

(P44) Between a Hydatid and a Heart Place

Poster Presenter / Co-Author: Anjali Cherukuri, MD - Jacobi Medical Center

Primary Author: Luis A. Aguilar Montalvan, MD - Jacobi Medical Center and Montefiore Medical Center

Co-Author: Caitlin G. Sershon (she/her/hers), MD - Jacobi Medical Center and Montefiore Medical Center

62 y.o. Albanian-speaking male with a past medical history of HFrEF (LVEF 25%, ischemic CM), s/p PCI with 2 DES in 2014, DM, HLD, and HTN. He was brought in by EMS from home due to bilateral shoulder pain. He traveled to the US from Montenegro the day before presenting to the ED. Before leaving his home, he had one episode of sweating. In the airplane, he had bilateral shoulder pain and felt fatigued, symptoms had resolved by the time he arrived in the US. He had remained free of chest pain, shoulder pain, fatigue, diaphoresis, and lightheadedness in the interim. His daughter was concerned about a possible heart attack and thus called an ambulance. He endorsed good adherence to medications, is a nonsmoker, and had not experienced abdominal pain, nausea, vomiting, dyspnea on exertion, orthopnea, paroxysmal nocturnal dyspnea, or lower extremity swelling. VS wnl. EKG revealed STE in V1-4, I and aVL w/ q wave, ST depression in III. POCUS Cardiac revealed reduced LVEF, diffuse hypokinesis, apical dyskinesis w/ no apparent thrombus, and minimal MR/TR. Troponin T 1.260 ug/L uptrend to 1.350 ug/L 4 hrs later. Pro BNP 2091.0 pg/mL. CK 426 U/L downtrend to 293 U/L 4 hrs later. Cr 1.2 mg/dL. The patient was treated for ACS and admitted for further cardiac work-up. LHC showed 100% CTOs of L-sided circulation and 50% RCA with R to L collaterals. Cardiac MRI showed no myocardium viability of LAD territory. CABG was deferred and he was placed on GDMT with a plan for eventual ICD. The cardiac MRI incidentally found multiple liver/renal cysts. CT abdomen found a new 11x11x13 cm thick-walled multiseptated cystic hepatic lesion in contact with the IVC/hepatic veins. Further investigation revealed the patient had a history of cystic echinococcosis (CE - one of the four forms of Echinococcosis) and had undergone surgical right hepatic resection 13 years prior. (There is about 6.5% relapse rate after surgical intervention) A multidisciplinary team evaluated the case and deemed the patient was a moderate-risk candidate for a high-risk procedure such as liver cyst removal (there is a 2.2% postoperative death rate for CE surgical patients). The Infectious Disease (ID) specialist decided to hold treatment with albendazole due to the risk of rupture, specifically due to the large size of the cyst. ID followed in the outpatient clinic and the patient was eventually referred to a quaternary care center where he underwent open partial hepatectomy w/ fenestration and evacuation of cysts. The operative note confirmed the disease was isolated to the liver only and the pathology report was consistent with an echinococcal cyst. He was started on albendazole 400 mg BID. The patient eventually returned to Montenegro, where he had no access to Albendazole. ID specialist clinic was able to procure the medication and give him enough to complete the 6-month treatment. He continued to be in contact with the ID specialist in the US for routine laboratory work and monitoring. He is recovering well.

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Track: Posters - Case Reports

(P45) My Pancreas Broke! My Heart

Poster Presenter / Co-Author: Anjali Cherukuri, MD - Jacobi Medical Center

Primary Author: Luis A. Aguilar Montalvan, MD - Jacobi Medical Center and Montefiore Medical Center

Co-Author: Caitlin G. Sershon (she/her/hers), MD - Jacobi Medical Center and Montefiore Medical Center

48 y.o. male actively smoking - 4 to 5 cigarettes a day - with PMH of Hypertension, Cholelithiasis, and recent admission - 7 days total - for Acute Pancreatitis (AP) complicated by 30% gland necrosis as well as splenic vein thrombosis (discharged from outside hospital 10 days prior with Augmentin antibiotic treatment) presented to the ED with 2 hours of acute and constant non-exertional left-sided chest pain associated with left arm numbness, diaphoresis, SOB, and severe epigastric pain. He is a social drinker and has no significant cardiac history in the family. The abdominal pain felt exactly like when he was admitted for pancreatitis. At prior discharge, labs were remarkable for Hct 38.1, Hgb 13.3, and WBC 15.16 w/immature abs 0.89 (down trending), Platelet 246, Cr 0.7. EKG showed ST elevation in anterior/inferior/lateral leads, STEMI code was activated, and treatment was initiated for Acute Myocardial Infarction (AMI). At triage: BP 112/71 | Pulse 111 | Resp 17 | SpO2 97%. Alert, Awake, Oriented x 3. Patient appeared to be in acute distress. Lungs clear bilaterally on auscultation. Epigastric region with severe tenderness to palpation with guarding and distention. EKG showed sinus tachycardia with STE in lead I-III, aVF, V2-6, STD in aVR. Trop 2.51 ng/mL. CK 314 U/L. Lipase 127 U/L. Na 123. Cr 1.11 mg/dL (about 60% increase from baseline). WBC 20.0 k/uL w/immature abs 0.30. Hgb 16.6 g/dL. Hct 50.9 %. Platelet 518 k/uL. Triglycerides 138 mg/dL. He developed sinus tachycardia and was given 5 mg IV metoprolol. He later experienced 30 seconds of VT, for which he received Amiodarone 150 mg bolus. But in the Cath lab, VT recurred and he underwent cardioversion, which deteriorated to VFib arrest. ROSC achieved after the initial shock, and he was placed on an Amiodarone drip. LHC found a thrombotic lesion in mid-LM extending into ostial LAD, with no flow in distal LAD likely due to distal embolization. Received PCI of proximal to mid LAD. Dottering of the proximal and distal thrombosis, as well as aspiration thrombectomy, was performed but neither restored flow. Angiojet thrombectomy was considered but aborted due to concerns of embolization. Subsequently started on anticoagulation with UFH and Eptifibatide (GP2b/3a inhibitor) infusion. The extent of this CAD is unlikely to be due to his risk factors alone. AMI is a rare complication of AP, typically it occurs in 14% of cases of chronic pancreatitis, but limited data is available for AP. He had two episodes of coffee-ground emesis on the following night, and a CT AP showed near complete replacement of the pancreas by a large collection of complex fluid representing a hemorrhagic cyst. GI bleeding is a noted late complication of necrotizing pancreatitis, the latter of which occurs in about 20% of AP cases. After a multidisciplinary team discussion, the patient was continued on UFH - with Hgb/Hct monitoring - and transferred to the SICU of a quaternary care center, where he had to be placed on TPN, and underwent a second LHC - for recurrence of chest pain - showing new 50% occlusion in LM. The overall inpatient mortality for AMI due to AP is noted to be 10.5%, but available data is limited to case reports. He was subsequently discharged home and is recovering.

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Track: Posters - Case Reports

(P46) Trust Your Gut: A Case of Diaphragmatic Injury Secondary to Penetrating Trauma with Negative Imaging Results

Poster Presenter / Primary Author: Anjali Cherukuri, MD - Jacobi Medical Center

Co-Author: Ariella Gartenberg (she/her/hers), MD - Montefiore Medical Center, Jacobi Medical Center

Faculty Advisor: Trevor Dixon, MD - Jacobi Medical Center

Faculty Advisor: Maninder Singh, MD - Jacobi

Chief Complaint: Stab wound to the left chest

History of Present Illness: A 47-year-old female with a past medical history of asthma, arthritis, and bilateral total knee replacement is brought in as a Level 1 trauma after being stabbed in the left anterior chest with a kitchen knife. Patient reports pain in the area of the wound. She denies chest pain, shortness of breath, dizziness, or nausea/vomiting.

Pertinent Physical Exam: Initial vitals showed blood pressure 141/105, heart rate 64 beats per minute, respiratory rate 18, and oxygen saturation 95% on room air. On primary survey, patient was protecting airway; breath sounds were present bilaterally with equal chest rise; radial and distal pulses were equal and intact with no active hemorrhage; and patient had a Glasgow Coma Scale (GCS) of 15 and was moving all extremities. Upon exposure and secondary survey, the patient was noted to have three 1 cm lacerations to the inferior aspect of the left breast at the inframammary fold. No other injuries were seen on the exam.

Pertinent Laboratory Data: An Extended Focused Assessment with Sonography in Trauma (E-FAST) exam was negative for pneumothorax, pericardial effusion, or free fluid in the abdomen. Laboratory results showed hemoglobin 12.8 g/dL, hematocrit 41.4%, and platelets 246 /nL. Computed tomography (CT) of the chest, abdomen, and pelvis was read as a left pleural effusion with complex fluid, possibly representing a hemothorax. A diagnostic laparoscopy was done the next day, revealing a 5 cm defect to the left diaphragm, < 2 cm laceration to the left lobe of the liver, and a small serosal laceration to the lesser curve of the stomach.

Case Discussion: Diaphragmatic injuries occur in 0.8 to 15% of all thoracoabdominal traumas [1]. The risk of an occult diaphragmatic injury in an asymptomatic patient with an anterior or flank stab wound can be up to 7%. The sensitivity of CT for detecting a diaphragmatic injury is 77%, while the specificity is 91% [2]. Laparoscopy has been shown to miss fewer diaphragmatic injuries when compared to CT imaging, with a sensitivity of 87.5% and specificity approaching 100% [3]. As such, the Eastern Association for the Surgery of Trauma (EAST) guidelines for management of traumatic diaphragmatic injuries conditionally recommend diagnostic laparoscopy over CT imaging in patients who are hemodynamically stable and without peritonitis [2]. Diaphragm injuries are graded on the American Association for the Surgery of Trauma (AAST) diaphragm injury scale, which ranges from Grade I to Grade V. This patient had an AAST Grade III diaphragm injury (Table 1), which requires surgical repair of the defect [4]. All left-sided injuries require repair, and most right-sided injuries also require repair

[5]. Without immediate repair, diaphragmatic injuries can result in delayed complications, including herniation of abdominal viscera into the pleural cavity; this can lead to respiratory compromise, as well as obstruction, incarceration, and eventual rupture of the abdominal viscera into the pleural space [4,6]. Therefore, it is important to consider diaphragmatic injury in patients presenting to the Emergency Department with left-sided penetrating trauma, even in those with negative imaging. This patient underwent diagnostic laparoscopy with repair of the diaphragmatic defect and gastrorrhaphy, along with placement of a chest tube and Jackson-Pratt (JP) drain. The chest tube was removed on postoperative day 3 and the JP drain was removed on postoperative day 5. The patient remained stable throughout the course of the hospital stay and was ultimately discharged on hospital day 9.

References and Acknowledgements (Optional): [1] Thiam, Ousmane et al. “Traumatic diaphragmatic injuries: epidemiological, diagnostic and therapeutic aspects.” SpringerPlus vol. 5,1 1614. 20 Sep. 2016, doi:10.1186/s40064-016-3291-1. [2] McDonald, Amy A et al. Evaluation and management of traumatic diaphragmatic injuries: A Practice Management Guideline from the Eastern Association for the Surgery of Trauma. Journal of Trauma and Acute Care Surgery 85(1):p 198-207, July 2018. | DOI: 10.1097/TA.0000000000001924. [3] Friese, Randall S et al. “Laparoscopy is sufficient to exclude occult diaphragm injury after penetrating abdominal trauma.” The Journal of trauma vol. 58,4 (2005): 789-92. doi:10.1097/01.ta.0000158243.78299.b5. [4] Lee, Kenny et al. Diaphragm Injury. [Updated 2022 Jul 26]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK482207/. [5] Simon, Leslie V et al. Diaphragm Rupture. [Updated 2023 Feb 15]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK470214/. [6] Zhao, Luo et al. “Delayed traumatic diaphragmatic rupture: diagnosis and surgical treatment.” Journal of thoracic disease vol. 11,7 (2019): 2774-2777. doi:10.21037/jtd.2019.07.14.

Saturday, September 9, 2023
Session Time: 12:30 - 13:30
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(P47) Obstructive Shock Caused by Morgagni Hernia

Poster Presenter / Primary Author: Moon Soo Choi - Dongguk University Ilsan Hospital
Principal Investigator: Yong Won Kim, n/a - Dongguk University Ilsan Hospital
Co-Author: Gun Bea Kim, n/a - National Health Insurance Service Ilsan Hospital
Co-Author: Jeong Hyeon Im - Dongguk University Ilsan Hospital

Chief Complaint : syncope

History of Present Illness : A 77-year-old female with a history of hypertension visited to the emergency room after syncope for 1 minute accompanied by transient loss of consciousness while eating. It was first episode of syncope she had ever experienced. She had intermittent chest discomfort since a year ago.

Pertinent Physical Exam: The initial vital sign in the emergency room was 91/69mmHg-73/min-20/min-35.6’c. After 1 hour, blood pressure was elevated to 118/59 without any intervention. There was no significant drop in systolic and diastolic blood pressure on 3-position blood pressure test.

Pertinent Laboratory Data: The chest x-ray showed a large fatty mass in the right cardiophrenic angle area.Laboratory test results for glucose, electrolytes, hematocrit, BNP and troponin were within the normal reference range. The initial electrocardiogram presents as normal sinus rhythm without electrical change. On the bedside transthoracic echocardiography, normal left ventricular systolic function and collapse of right atrium (RA) in the late diastole due to mass like lesion from the outside of pericardium were observed. The chest computed tomography (CT) showed Morgagni hernia containing omental fat in the right cardiophrenic angle.

Case Discussion: The patient was admission for transthoracic surgery part and underwent elective laparoscopic operation by general surgery surgeon few days later. There was 5*2cm of omental hernia above the mediastinum, that underwent reduction and was applied by mesh repair. At one year follow-up of the patient, chest discomfort and syncope does not recur which were considered symptoms due to Morgagni hernia. The RA is at its lowest pressure in late diastole at the onset of atrial relaxation. During this period, RA is most susceptible to collapse from increased surrounding pressure. Late diastolic RA collapse is therefore the earliest echocardiographic sign of tamponade. As with tamponades, end-diastolic RA collapse was also observed by echocardiography in this case. However, the cause is presumed to be due to the omental hernia, not the pericardial effusion. Therefore, we hypothesized that Morgagni hernia may cause a mass effect in the adjacent heart, which may induce obstructive shock.

References and Acknowledgements (Optional): not applicable

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(P49) Rare Sensory Variant Guillain-barré Syndrome Secondary to sars-cov-2 Infection

Poster Presenter / Primary Author: Ryan L. Clark, DO, MSEd - UMASS Chan Medical School-Baystate

Chief Complaint : Ascending bilateral arm and leg paresthesias with difficulty ambulating

History of Present Illness : A 44 year-old male with past medical history of hypertension, hyperlipidemia and pre-diabetes presented to the Emergency Department with 3 weeks of paresthesias of the bilateral arms and legs along with increasing difficulty ambulating. The paresthesias began in the bilateral hands but spread symmetrically to his knees and elbows three days prior to presentation. He also reported gait instability secondary to feeling off-balance. No accompanying fever, chills, weakness, headache, rhinorrhea, congestion, cough, neck pain, blurred vision, double vision or difficulty swallowing. He works on a farm but denies any exposure to pesticide or chemical agents. No recent trauma. No recent illnesses. No recent foreign travel. No drug or alcohol use. He was seen 5 days prior with normal labs including CBC, CMP, B12, folate, urinalysis and syphilis testing. He was discharged with presumptive diagnosis of peripheral neuropathy.

Pertinent Physical Exam: Awake, alert and oriented. Skin warm, dry and intact without rashes or lesions. Visual fields full to confrontation. Extraocular motions intact. Pupils equal, reactive to light. No nystagmus or ocular clonus. Regular rate and rhythm. Lungs clear to auscultation. Abdomen soft, non-tender. Muscle strength 5/5 bilateral upper and lower extremities. No tremor, asterixis or myoclonus. Decreased sensation to light touch and pinprick bilaterally up to the knee and elbow. 2+ DTRs throughout except for absent bilateral ankle jerk. Positive Romberg. Normal finger-to-noses and heel-to-shin. Patient is able to stand at the bedside but takes wide-based, cautious steps.

Pertinent Laboratory Data: WBC- 9.4, Hgb-15.7, Hct-47.4, Plt-204, Na-139, K-4.9, Cl-104, HCO3- 24, Glu-93, BUN-21, Cr-0.8, TSH- 0.49 COVD 19-positive CSF studies: appearance-clear, WBC- 1, RBC- 82, Total Protein- 202, Glucose-46, Extended viral panel- negative, Culture- no growth

Case Discussion: Here, we present a rare case of sensory variant Guillain-Barre syndrome (GBS) thought to be secondary to asymptomatic COVID-19 infection. GBS is an immune-mediated polyradiculopathy that is often associated with a preceding illness. It typically manifests with ascending paralysis and sensory loss. However, many variants and subtypes exist. The pure sensory variant of GBS is an acute, monophasic illness with exclusive sensory signs and symptoms in the absence of systemic disorders that may cause an acute peripheral neuropathy. It is thought to be caused by acute demyelination of the peripheral sensory nerves. Although universal diagnostic criteria are lacking, the pure sensory variant makes up roughly one percent of GBS cases. The low number of case reports is thought to be partially due to the fact that most cases with predominant sensory symptoms manifest some weakness. Severe acute respiratory syndrome (SARS-CoV-2) has been shown to be associated with a variety of central and peripheral neurologic manifestations. GBS is one such complication documented in several case series. The associated mechanism is unclear but thought to be mediated by a

dysregulated inflammatory response. Neurologic symptoms are believed to manifest 2-4 weeks after viral infection. The patient in this case was started on intravenous immunoglobulin (IVIG) in the emergency department after cerebrospinal studies showed cytoalbuminologic dissociation consistent with GBS. He was admitted to the hospital under the supervision of neurology and discharged after receiving a 5 day course of IVIG with marked improvement in symptoms.

References and Acknowledgements (Optional): -Uncini A, Yuki N. Sensory Guillain-Barré syndrome and related disorders: an attempt at systematization. Muscle Nerve. 2012; 45 (4):464-470. -Raid K, Aldabbour B, Aljewazi M. A Rare Case with New Insights: Pure Sensory Guillain Barre Syndrome with Axonal Features. International Medical Case Reports Journal. 2020: 13; 543-549. -Luijten et al. Guillain-Barré syndrome after SARS-CoV-2 infection in an international prospective cohort study. Brain. 2021. 144: 3392-3404. -Khan F, et al. COVID-19 associated Guillain-Barré syndrome: post infectious alone or neuroinvasive too? J Med Virol. 2021. 93 (10): 6045-6049.

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(P50) An Inflated Sense of Self: Extensive Subcutaneous Emphysema Secondary to Intentional Subcutaneous Air Injection

Poster Presenter / Primary Author: Allyson F. Coopersmith, PGY-3 - SUNY Upstate Medical University

Co-Author: Vincent J. Calleo, MD - SUNY Upstate Medical University

Co-Author: William F. Paolo, MD - SUNY Upstate Medical University

Chief Complaint : A 40-year-old male presents with shortness of breath, chest pain, abdominal pain, and abdominal distention after intentionally injecting air into his abdomen.

History of Present Illness : A 40-year-old male presented to the emergency department (ED) with shortness of breath, pain in his chest and abdomen, and abdominal distention after he injected air into his umbilicus with an air compressor. The patient has a history of schizophrenia and bipolar disorder, and states he was having intrusive thoughts to fill his body up with air. He placed a needle into his umbilicus, turned on an air pump, and inflated his abdomen until he noted blood from his umbilicus and swelling in his lower face. Though he was unable to quantify how much air was injected, the patient subjectively states “a lot”. Shortly after cessation with the air pump, the patient developed significant chest discomfort and shortness of breath. He also noted diffuse swelling of his abdomen as well as his chest, neck, and lower face.

Pertinent Physical Exam: The patient was hemodynamically stable with vital signs all within normal ranges. His face had notable symmetric swelling. His airway was patent, trachea was midline, and voice was high-pitched. Heart sounds were slightly muffled, and anterior lung sounds were symmetrically muffled though posterior lung sounds were clear. Abdominal exam revealed a moderately distended and firm abdomen with no tenderness or signs of peritonitis. Dried blood was noted near the umbilicus with small puncture wounds also appreciated. Skin exam revealed diffuse crepitus in the abdomen, chest, neck, and face extending from the chin to the periorbital area.

Pertinent Laboratory Data: Blood work performed included a complete blood count with differential, comprehensive metabolic panel, lipase, and troponin. A white blood cell count of 14.3 was noted, and the remaining bloodwork was within normal limits. The EKG showed low voltage with no ischemic changes. Imaging included a CT soft tissue neck as well as CT scans of the thorax and abdomen/pelvis. The CT scans showed marked, diffuse subcutaneous emphysema extending from the pelvis up through the periorbital bones. Pneumopericardium and significant pneumomediastinum were also visualized. A small amount of free intraperitoneal air was also noted.

Case Discussion: Throughout the patient’s ED course, he remained hemodynamically stable. After the initial evaluation was complete and imaging obtained, consults were placed to thoracic, cardiothoracic, and general surgery given the multiple system findings. Given there was no sign of esophageal perforation, cardiac tamponade, or any other acute surgical process, no emergent surgical interventions were warranted. The patient was admitted for observation and started on supplemental oxygen and empiric antibiotics. The patient was

hospitalized for 4 days and remained stable; his symptoms improved, and he was discharged. Follow up imaging seven months later revealed marked interval resolution of subcutaneous and retroperitoneal air. This unique case highlights a mechanism for extensive subcutaneous emphysema that is rarely described in current medical literature. Cases of self-induced subcutaneous emphysema are sparsely reported, and we have not found any secondary to this mechanism within the literature. While some cases of subcutaneous emphysema do well with minimal interventions, the potential for significant morbidity and mortality does exist. Cases of subcutaneous air extravasation into the pericardium and mediastinum have been reported to cause life threatening sequelae. Subcutaneous emphysema may lead to pneumothorax, esophageal perforation, and pneumopericardium leading to cardiac tamponade. As such, cases of subcutaneous emphysema must be risk stratified and treated on an individual basis. Management for uncomplicated subcutaneous emphysema includes supportive care. There has been at least one case reported that suggests 100% oxygen administration accelerates the resolution of symptoms. Hyperbaric oxygen therapy has also been utilized in the treatment of subcutaneous emphysema. Antibiotic treatment should be considered if there is concern for infectious etiologies or skin/soft tissue injuries. Consultation with appropriate surgical services should be considered, especially given the potential for life-threatening complications.

References and Acknowledgements (Optional): 1-Goudarzi, Mahmoud, and Jafar Navabi. "Self-induced subcutaneous facial emphysema in a prisoner: Report of a case." Ear, Nose & Throat Journal 90.6 (2011): E5-E6. 2-GERSHWIN, M. ERIC, JAMES K. GUDE, and JOHN PETRALLI. "Factitious subcutaneous emphysema." Annals of internal medicine 75.4 (1971): 585-587. 3- Meron, Giora, Karin Tobler, and Istepan Kurkciyan. "Self-induced subcutaneous emphysema and pneumomediastinum." Chest 122.1 (2002): 386. 4- Trujillo, Maximo H., Carlos F. Fragachan, and Francisco Tortoledo. "Cardiac tamponade due to pneumopericardium." Cardiology 105.1 (2006): 34-36. 5-Cavuslu, Saban, et al. "A case of recurrent subcutaneous emphysema as a complication of endotracheal intubation." Ear, nose & throat journal 83.7 (2004): 485-488. 6- Patel, Anshul, Branko Kesler, and Robert A. Wise. "Persistent pneumomediastinum in interstitial fibrosis associated with rheumatoid arthritis." Chest 117.6 (2000): 1809-1813.

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(P51) Management of Severe Dysmenorrhea Using Esketamine

Poster Presenter / Primary Author: Điđi Delalić, MS-Y6 - University of Zagreb School of Medicine

Co-Author: Ingrid Prkačin, MD, PhD - Clinical Hospital Merkur

Chief Complaint : A 27-year-old female presented to the Emergency Department with a chief complaint of severe pelvic and abdominal pain

History of Present Illness : The patient had menarche at age 13. From menarche onwards, she had had severe pelvic and abdominal pain during the first five days of her menstrual cycle. She reported never being worked up for secondary causes of dysmenorrhea. The patient had a history of using a wide variety of oral over-the-counter anaglesic medications, including ibuprofen, paracetamol, ketoprofen and naproxen, often in doses above the recommended daily maximum. She described the pain as stabbing, localized in the right and left lower abdominal quadrants, radiating in a belt-like fashion, with a visual analog scale (VAS) score of 9/10. Previous episodes of dysmenorrhea sometimes presented with syncope, loss of control over anal sphincters, nausea and vomiting. A similar type of pain, accompanied by nausea and vomiting, was reported by the patient during the ovulation phase of her menstrual cycle, although such pain was of a significantly lower severity (estimated VAS 5/10).

Pertinent Physical Exam: The patient was afebrile, with a peripheral oxygen saturation of 99%. Cardiac action was rhythmic, with clearly audible heart sounds and without noticeable murmurs or bruits. Respiratory lung sounds were normal on auscultation. The abdomen was in the level of the sternum, without visible scars or deformities, tender on palpation in the left and right lower quadrants, without palpable organomegaly. The extremities were symmetrical, with no visible or palpable oedema and symmetrically palpable peripheral arterial pulses. Blood pressure was 100/60 mmHg, with a cardiac pulse of 105 beats per minute.

Pertinent Laboratory Data: A basic laboratory workup, consisting of a complete blood count, blood glucose level, hepatic transaminases, urea, creatinine, c-reactive protein, serum amylases and lipases was done. All of the measured parameters were within reference intervals adjusted for patient age and gender.

Case Discussion: As the patient was mildly hypotensive and reported limited oral intake in the three days leading up to her emergency department visit, a peripheral venous catheter was placed and parenteral rehydration was ordered, using 500mL of 0.9% sodium chloride infusion over 45 minutes. Another peripheral venous catheter was placed in the opposite arm to the first one and an infusion of 100mg of ketoprofen diluted in 500mL of 0.9% sodium chloride was started. Following the infusions, the patient reported no pain relief at all, with the estimated VAS still being 9/10. An infusion of 1g of paracetamol in 100mL of fluid was ordered, once again with no improvement in the VAS. Since the emergency department described in this abstract has no access to opioid analgesics due to hospital policy, esketamine was chosen as the next line agent. An infusion was prepared with 2.5mg of esketamine (0.05mg/kg) in 100mL of 0.9% sodium chloride and was administered over a period of 35 minutes. Following the infusion, the patient reported a significant decrease in VAS – from 9/10 to 4/10. Following the achievement

of pain relief, the patient was administered a 500mL infusion of a fixed combination of various B vitamins. Blood pressure was also increased to 125/80 following the administration of the aforementioned infusions. The patient was discharged home hemodinamically stable, with a recommendation of taking oral etoricoxib 120mg once daily for pain relief and contacting a gynecology clinic for the purpose of performing a workup for secondary causes of dysmenorrhea. Although there is sparse literature on the topic of using low-dose esketamine for analgesia in the emergency department, this case demonstrates its impressive efficacy in the absence of opioid analgesics.

References and Acknowledgements (Optional): We thank the patient for providing us with consent to present the diagnosis and management of her condition as a case report at the MEMC.

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(P52) Golly! Is That a Gallbladder? Biliary Rupture on Ultrasound

Poster Presenter / Primary Author: Sahrish Ekram, MD - University of Illinois at Chicago
Co-Author: ilyas Taraki, MS-III - University of Illinois at Chicago
Co-Author: Alimul Islam, PGY-3 - University of Illinois at Chicago
Faculty Advisor: Pavitra Kotini-Shah, MD - University of Illinois at Chicago

Chief Complaint : vomiting and diarrhea

History of Present Illness : A 16 month old full-term female, up-to-date on vaccinations and without significant past medical history, presented with her mother for 5 days of NBNB vomiting and nonbloody diarrhea. Initially, there were intermittent episodes of abdominal pain, but that seemed to subside when the diarrhea stopped; however, multiple episodes of vomiting continued to occur daily. She was seen one day prior at an outside ED and was given Zofran and discharged. However, soon after discharge she worsened again, experiencing several more episodes of emesis. After one episode, the patient appeared to lose consciousness, then awoke again and vomited, prompting mother to bring her to the ED. No seizures, difficulty breathing or cyanosis were noted. Patient's mother also denied fevers, sick contacts, or recent travel.

Pertinent Physical Exam: Vitals: T 37.3° C (99.1° F), HR 159, RR 44, BP 91/69, SpO2 100% on room air General: thin, weak, ill-appearing but nontoxic, listless but occasionally irritable Skin: warm, dry, no rashes or lesions HEENT: dry mucous membranes, sunken eyes Cardiovascular: tachycardic, regular rhythm, no murmur, bilateral radial pulse +2, capillary refill < 2 seconds Respiratory: lungs clear to auscultation, breath sounds equal, tachypnea without significant accessory muscle use Gastrointestinal: soft, nontender to palpation, non-distended

Pertinent Laboratory Data: BMP: Na 138, K 3.7, Cl 102, HCO3 21, Creatinine 0.32, BUN 10, glucose 291*, anion gap 15* CBC: WBC 20.0*, RBC 4.60, Hgb 12.4, HCT 37.6, MCV 81.8, Plt 377 Hepatic: ALT 157*, AST 173*, GGT 369*, total bilirubin 1.3*, direct bilirubin 0.6*, albumin 4.1, protein 5.9 Lactic acid 1.2 Hgb A1c 5.5

Case Discussion: Histologically, an edematous gallbladder wall resulting in a matrix like structure is a result of the mucosal, muscular, and serosal layers absorbing fluid when there is surrounding free fluid. A broad differential exists for an edematous gallbladder wall. Our patient suffered a spontaneous rupture of her hepatic duct. Surgical consultation, CT scan, HIDA scan, and diagnostic laparoscopy with intraoperative cholangiogram are necessary. It is a rare phenomena, but with bedside ultrasound evaluation and early surgical consultation, prognosis is generally good. Hospital course: The patient was found to have a large amount of free fluid in her peritoneal cavity associated with the contracted gallbladder and edematous gallbladder wall. Surgery was consulted, and a CT scan was done, which redemonstrated the ultrasound findings; however, no clear source of the free fluid was found. Thereafter, a HIDA scan was performed, which was concerning for bile leak, and the patient was taken to the OR for diagnostic laparoscopy. Intraoperative cholangiogram revealed a common hepatic duct rupture. Biliary drains were placed, and the patient was transferred to the PICU for further care; she was

discharged on hospital day 23. Discussion of etiology: Spontaneous rupture of the bile ducts is an exceedingly rare occurrence thought to be caused by a combination of factors, including erosion of the wall in the presence of a calculus, weakening of the wall in the setting of infection, and raised intraductal pressure due to stasis, which together may precipitate rupture. In this patient without evidence of mechanical obstruction, it is possible that acute illness contributed to ductal wall weakening, with biliary stasis thereafter causing rupture. It is possible also that abnormal anatomical variation played a contributing role, though intraoperative imaging did not definitively answer this question.

References and Acknowledgements (Optional): Jeanty, C., Derderian, S. C., Hirose, S., Lee, H., &; Padilla, B. E. (2015). Spontaneous biliary perforation in infancy: Management strategies and outcomes. Journal of Pediatric Surgery, 50(7), 1137–1141. https://doi.org/10.1016/j.jpedsurg.2014.07.012 Housset, C., Chrétien, Y., Debray, D., & Chignard, N. (2016). Functions of the gallbladder. Comprehensive Physiology, 1549–1577. https://doi.org/10.1002/cphy.c150050 Blanco, P., & Volpicelli, G. (2016). Common pitfalls in point-of-care ultrasound: A practical guide for emergency and critical care physicians. Critical Ultrasound Journal, 8(1). https://doi.org/10.1186/s13089-016-0052-x Gupta, A., Sunil, K., Verma, A. K., Singh, A. K., Kureel, S. N., & Pandey, A. (2018). Spontaneous common hepatic duct perforation in a child: A rare case report. African Journal of Paediatric Surgery, 15(1), 53. https://doi.org/10.4103/ajps.ajps_74_17

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(P53) A Dog Bite to Remember (Acute Limb Ischemia After a Dog Bite)

Poster Presenter / Primary Author: Shahzaib Elahi (he/him/his), DO - Capital Health System-New Jersey

Co-Author: Emmanuel Onyeyirim, MD - Capital Health Medical Center

Chief Complaint : I was attacked by my dog after he got startled while my boyfriend and I were having a fight. He bit me everywhere.

History of Present Illness : Patient is a 28-year-old female with no past medical history who presents to the emergency department after sustaining multiple bite wounds one hour ago. She states that her Pitbull is easily startled, about an hour ago while she was having a fight with her boyfriend, the dog became startled and proceeded to bite her on her right arm, left abdominal region, and mid-gluteal region. Per patient the dog is not vaccinated for rabies or other shots. The patient is not up to date on her tetanus vaccine/booster. She currently endorses significant pain in her right upper extremity with associated numbness and paresthesias in her right hand. The patient currently denies any foreign body sensation but also states that she “can’t feel much” on her right upper extremity. Otherwise not on any anticoagulation, no history of diabetes or immunocompromised state. No allergies to medications.

Pertinent Physical Exam: Skin: Elliptical 6 cm laceration on the flexor surface of the distal right upper arm with fat protrusion and visible underlying muscle belly. Other multiple superficial lacerations in the right antecubital/proximal forearm region. Superficial 0.5cm laceration on the palmar aspect of the 2nd right finger. Other superficial skin abrasions in the left upper quadrant and above the gluteal cleft. MSK/Extremities: Significantly diminished right radial pulse. Decreased sensation in the right first three digits distribution of the median nerve, with decreased range of motion and weakness in the right hand.

Pertinent Laboratory Data: CT Angiogram of the Right Upper extremity w/ and w/o contrast: Soft tissue wound of the right arm with soft tissue emphysema. Occlusion of the mid to distal Brachial Artery with reconstitution of flow at the origin of the radial and ulnar arteries.

Case Discussion: This patient presented to our emergency department after sustaining multiple dog bites, which is a somewhat common and low acuity chief complaint. This case emphasizes the importance of obtaining a good history and physical exam as well as always considering the most emergent scenarios even when it comes to chief complaints that seem lower acuity. With her complaints of severe pain and paresthesias in her upper extremity, acute limb ischemia was of high concern and the next step was to perform a neurovascular exam. When it was found that the patient had a significantly weak radial pulse and median nerve damage, vascular surgery was urgently consulted, and CT Angiogram was performed which demonstrated occlusion of the brachial artery. The patient was shortly after taken to the OR where a brachial-brachial artery bypass was successfully performed using the saphenous vein due to the extent of damage to the brachial artery. Fortunately, after intervention the patient had good neurovascular outcomes and almost complete functional recovery of her right upper extremity. This emphasizes the importance of recognizing early signs and symptoms of acute limb ischemia. Especially since odds of good functional outcomes and limb salvage significantly

decrease past the 6-hour mark. Most emergency departments have lower acuity areas, it is reasonable to foresee that a dog bite or presentation such as this may be triaged to such areas where it may go unnoticed for a longer period. It is thus important to raise awareness of the pertinent 6Ps of acute limb ischemia: Pain, Paresthesias, Pallor, Poikilothermia, Pulselessness, and Paralysis among all members of the department. Since pain and paresthesias are the earliest findings and pulselessness and paralysis are later findings indicating poor prognosis, I believe more awareness of these symptoms among ED staff will lead to better patient care and outcomes.

References and Acknowledgements (Optional): Dr. Emmanuel Onyeyirim

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(P54) From Minion to Smurf: A Case of Acquired Methemoglobinemia

Poster Presenter / Primary Author: Leeanne Fagan (she/her/hers), MD - Summa Health Emergency Medicine

Faculty Advisor: Seth Linakis, MD - Akron Children's Hospital

Faculty Advisor: Jonathan Oskvarek, MD - Summa Health

Faculty Advisor: Vishnu Mudrakola, DO

Chief Complaint : Severe Depression; Suicide Attempt by Ingestion

History of Present Illness : A 13-year-old female with a history of severe depression (on Zoloft as of four weeks before this visit), self-harm via cutting, previous suicide attempt, and blindness of left eye presented for a suicide attempt by ingestion of pyridium. She had multiple vomiting episodes with continued nausea and abdominal pain after ingestion. The patient denied alcohol use and endorsed THC use. A review of the systems was positive for abdominal pain, nausea, vomiting, and suicidal ideation. She denied shortness of breath, light-headedness, headaches, constipation, diarrhea, and color change.

Pertinent Physical Exam: Skin appeared yellow on soles of hands, feet, and around the mouth. Tachycardia was present.

Pertinent Laboratory Data: VBG, CBC, BMP, and lactic acid were within normal limits. The urine drug screen was negative for all substances except for THC. CK was 57. Methemoglobin level was 1.1. Repeat methemoglobin level was 25.2 (10 hours after ingestion).

Case Discussion: Few cases of methemoglobinemia caused by Pyridium, or phenazopyridine, have been reported over the past three decades (Murphy, 2018). Patients commonly present with clinical cyanosis despite a normal arterial pO2. Although severity can vary greatly, other symptoms can include pallor, fatigue, central nervous system depression, weakness, headache, metabolic acidosis, seizures, and coma (Murphy, 2018; Lolascon et al., 2021). In this case, the patient's history of pyridium ingestion and subsequent presentation with delayed-onset cyanosis prompted the evaluation of methemoglobinemia, which was confirmed by significantly elevated methemoglobin levels. The delayed onset of symptoms emphasizes the importance of monitoring patients for several hours after exposure to potentially causative agents, as methemoglobinemia can develop over time. Moreover, this case highlights the importance of interdisciplinary collaboration in managing patients with psychiatric comorbidities and suicidal ideation. The patient was initially evaluated and managed by the ED team, pharmacologic toxicology, and psychiatric response center, with subsequent transfer to the medical floor for further monitoring. The involvement of multiple specialties, including toxicology, psychiatry, and pediatrics, allowed for timely recognition and management of methemoglobinemia and ongoing management of the patient's psychiatric comorbidities. This case also demonstrates that methemoglobinemia can resolve without methylene blue administration, a standard treatment for methemoglobinemia given that the main morbidity risk is hypoxia. Supportive measures such as oxygen therapy and monitoring for the resolution of cyanosis can be sufficient, as seen in this case.

References and Acknowledgements (Optional): Iolascon, A, Bianchi, P, Andolfo, I, et al. Recommendations for diagnosis and treatment of methemoglobinemia. Am J Hematol. 2021; 96(12): 1666- 1678. doi:10.1002/ajh.26340

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(P55) Intentional Overdose on Liquid Clonazolam Reversed with Flumazenil

Poster Presenter / Primary Author: Gayle Galletta (she/her/hers), MD - University of Massachusetts

Chief Complaint: Mental status change

History of Present Illness: A 31-year-old male with a history of untreated depression and alcohol abuse was brought in by ambulance for somnolence after an intentional overdose on liquid Clonazolam that he had received from a friend. The patient had sent a suicidal text to his ex-girlfriend shortly before he ingested approximately half of a 3 ml bottle of liquid Clonazolam. When she arrived at his house, within approximately thirty minutes of his text, he appeared confused and intoxicated, so Emergency Medical Services (EMS) was called. Upon EMS arrival, the patient was somnolent. His fingerstick blood sugar was 108 mg/dL (normal range 70-100 mg/dL).

Pertinent Physical Exam: Afebrile, blood pressure 115/79 mm/Hg, heart rate 89, respiratory rate 22, and oxygen saturation of 94% on room air. The patient was somnolent and minimally following commands but was protecting his airway. Pupils were 4 mm, equal, round, and reactive to light. He was not diaphoretic. Lungs were clear and heart was regular rate and rhythm. Abdomen was soft and nontender. Bowel sounds were present. Patient had normal patellar reflexes without clonus. There were a few old, superficial abrasions to the left forearm. Glascow Coma Score was 12 (minus three for verbal response).

Pertinent Laboratory Data: Lab work was significant for a low normal bicarbonate of 22 mEq/L (normal range 22-29 mEq/L). The anion gap was normal. Potassium was slightly low at 3.2 mmol/L (normal range 3.6-5.2 mmol/L). Salicylate and acetaminophen levels were undetectable. Ethanol was 204 mg/dL. Urine drug screen (UDS) was positive for cocaine. It should be noted that benzodiazepines are not evaluated on our hospital's UDS. EKG was non-ischemic with normal intervals.

Case Discussion: Approximately one hour after arrival in the ED, the patient became somnolent with respiratory depression and oxygen saturations in the mid 80s. Flumazenil 0.2 mg intravenous (IV) was administered with immediate improvement in respiratory effort and oxygenation. One hour later, and additional 0.2 mg dose of IV flumazenil was again administered for respiratory depression and hypoxia. There were no Intensive Care Unit beds available, so the patient continued to board and be managed in the ED. Within six hours, his mental status normalized, and he was medically cleared for psychiatric evaluation.

Clonazolam (6-(2-chlorophenyl)-1-methyl-8-nitro 4H-triazolo[4,3-α] benzodiazepine is an analogue of clonazepam (1). It can be found in tablet, capsule, pellet, blotter, and liquid form, and can be purchased on the internet (2). Clonazolam is considered a designer benzodiazepine that has no medicinal indication. Since Clonazolam behaves similarly to benzodiazepines, it is likely safe to assume that it could be reversed by flumazenil, a benzodiazepine antagonist. Typical onset of action is one to two minutes with an 80% response rate within three minutes. Its peak effect is six to ten minutes with a duration of 19-50

minutes (3). There is currently a black box warning for flumazenil in the US as there has been a correlation with seizures, especially in patients on benzodiazepines long-term, and in those with severe tricyclic antidepressant overdose (4). Flumazenil is used more liberally in Europe.

Our patient ingested highly concentrated Clonazolam (approximately 7.5 mg) along with ethanol and cocaine. There is no regulated dose for Clonazolam, but profound sedation is thought to occur at doses of 0.5 mg (5). Cocaine may have counteracted some of the sedative effects of the Clonazolam. Reversal with flumazenil was chosen as opposed to intubation. This patient responded favorably to the flumazenil within the expected timeframe and had no resultant seizure activity.

References and Acknowledgements (Optional)

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Saturday, September 9, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P56) Esophageal Perforation: When Chest Pain Is Not Cardiac

Poster Presenter / Primary Author: Ariella Gartenberg (she/her/hers), MD - Montefiore Medical Center, Jacobi Medical Center

Co-Author: Jamila Jamal, MD - Jacobi-Montefiore

Co-Author: Robert Meyer, MD - Montefiore Medical Center

Co-Author: Kristen M. Schimmrich, MD - Montefiore Medical Center

Co-Author: Jason R. Siebert, MD, PhD - Jacobi Medical Center/Montefiore Medical Center/Albert Einstein

Chief Complaint : Chest pain, back pain, and non-exertional dyspnea

History of Present Illness : A 92 year old female with a past medical history of Hypertension, Diabetes Type 2 (HbA1C 10.9%), and Osteoporosis was brought in by her son to the ED for sudden onset chest pain radiating to the mid-back, dyspnea, and fatigue x 1 day. Per son, the patient had been lying in bed more often with decreased energy x 1 week. No history of nausea, vomiting, cough, hemoptysis, diaphoresis, leg pain or swelling. No similar symptoms in the past. No travel, trauma, sick contacts, recent illness.

Pertinent Physical Exam: Upon initial arrival to the emergency department, elderly female noted in no acute distress. Cardiovascular exam with regular rhythm and tachycardia. Mild increased work of breathing and subcostal retractions. Lungs clear to auscultation. Abdomen soft, nondistended, and nontender. No lower extremity edema or tenderness. VS with tachycardia to 120s, Afebrile, and blood pressure within normal limits. Oxygen saturation 89% on room air, with 97% on 2 liters of nasal cannula.

Pertinent Laboratory Data: Initial laboratory investigations with WBC 21K. Trop 0.01, and CK 47. UCx with >100,000 CFU/mL E Coli. VBG with pH 7.36/pCO251/LA 4.0. Repeat VBG with pH 7.23/pCO2 69.9/LA 7.5. Repeat ABG with pH 7.16/ pCO2 61/LA 8.6. BMP: Na 125, Cr 0.84, Glucose 332. Anion Gap 17, Repeat BMP with Na 123, Bicarb 13, Cr 1.4, Glucose 534, Gap 24.

Case Discussion: 92 year old female presenting with sudden onset atraumatic chest pain radiating to the back. The patient was hypoxic and tachycardic on arrival. Laboratory testing with leukocytosis and lactic acidosis. CT Chest with small right and moderate-to-large left pleural effusions, left lower and upper lobe atelectasis, posterior right lower lobe atelectasis, extensive pneumomediastinum and soft tissue air, small left pneumothorax. Cardiothoracic surgery was consulted. Repeat CT chest with oral contrast demonstrating mid-esophageal perforation with increased left hydropneumothorax. Upon return from CT, patient became hemodynamically unstable on 15L non-rebreather mask. Diffuse crepitus appreciated. Patient was intubated and central access was obtained. Norepinephrine started for blood pressure support and fentanyl started for post-intubation sedation. Antibiotics and antifungals were started for broad spectrum coverage. The patient was emergently taken to the operating room for EGD, right tube thoracostomy, left thoracotomy and esophageal perforation repair with intercostal muscle flap, total pulmonary decortication, intercostal cryoablation, and diaphragm

plication. No intra-operative complications were reported. The patient was transferred post-operatively to the cardiothoracic intensive care unit for further management. Esophageal perforation is a surgical emergency, as leakage of gastric contents into the mediastinum causes a necrotizing inflammatory process and can lead to sepsis, multiorgan failure and death. Esophageal perforations are rare, with an incidence of 3.1 per 1 million per year. Perforations result from increased intraluminal pressure at anatomical sites of esophageal narrowing, as well as sites narrowed by malignancy. Over 50% of esophageal perforations are iatrogenic. Other etiologies include spontaneous perforation (15%), foreign body ingestion (12%), trauma (9%), intraoperative injury (2%) and malignancy (1%). The condition typically presents with severe retrosternal chest pain following major vomiting. 25-45% of patients have no history of vomiting. Primary management includes prompt diagnosis, patient stabilization, antibiotics, and assessment for operative management. Patients are often promptly taken to the operating room.

References and Acknowledgements (Optional): N/A

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P57) An Usual Cause of Shock in a Trauma Patient with Hemodynamic Instability and Large Volume Intra-abdominal Free Fluid

Poster Presenter / Primary Author: Natalie Jansen, MD, PhD - Harvard Affiliated Emergency Medicine Residency - Beth Israel Deaconess Medical Center

Principal Investigator: Christie L. Fritz, MD, MS - Harvard Medical School, Beth Israel Deaconess Medical Center

Chief Complaint : Abdominal pain after fall on ice from standing height, transferred for hypotension and positive EFAST.

History of Present Illness : 18-year-old female without significant past medical history presented as a transfer from an outside hospital with hypotension and a positive EFAST exam after a fall. The patient was walking outside when she slipped on ice and fell. She had immediate abdominal and lower back pain after her fall. At the outside hospital, the patient was found to be tachycardic with a systolic blood pressure in the 60s. A bedside ultrasound was reportedly grossly positive for intraabdominal fluid. Two units of packed red blood cells were initiated and transferred for trauma surgery evaluation. The patient denied recent illnesses or influenza-like symptoms. She reported that she may have felt dizzy or lightheaded preceding the fall, but does not recall any preceding symptoms. She denied chest pain or shortness of breath. She denied having abdominal or back pain preceding her fall. Currently complaining of severe mid abdominal and low back pain.

Pertinent Physical Exam: Initial vitals showed a heart rate of 139, blood pressure (BP) of 113/65, respiratory rate of 25, and oxygen saturation of 100% on four liters by nasal canula. While undergoing evaluation she had systolic BPs consistently in the 60s-70s. She was alert, oriented and following commands. She was obviously in pain and appeared pale. Head atraumatic. Lungs were clear with equal bilateral breath sounds. She was tachycardic with a regular heart rhythm. On abdominal exam, she was obese, soft and diffusely tender to palpation with voluntary guarding. She had no midline spinal or paraspinal tenderness and ranged extremities without pain.

Pertinent Laboratory Data: Initial labs showed hyperemia (hemoglobin 18.6 (11.2-15.7) and hematocrit 61.7 (34-45)), normocytosis (WBC 8.0 (4.0-10.0)), and thrombocytopenia (platelets 50 (150-400)). Her coagulation panel showed a prolonged PT (21.4 (9.4-12.5)) and PTT (39.6 (25.0-36.5)) with an INR of 1.9 (0.9-1.1). Her basic metabolic panel was within normal limits. Her lactate was 5.0 (0.5-2.0). She had a metabolic acidosis with a pH of 7.19 (7.35-7.45), pO2 of 71 (85-105), and pCO2 of 38 (35-45). Her troponin and proBNP returned after initial management but were elevated at 0.22 (0-0.01) and 197 (0-178).

Case Discussion: 18-year-old female without significant medical history transferred for trauma surgery for intra-abdominal free fluid and hypotension after a ground level slip and fall. A trauma alert was called with emergency medicine and trauma surgery teams at bedside. On arrival, the patient had normal mentation but was hemodynamically unstable with tachycardia and hypotension. Ultrasound showed a grossly positive FAST exam with free fluid in the right upper quadrant and suprapubic views. Massive transfusion initiated in setting of large

intraabdominal free fluid with trauma and hemodynamic instability. In discussion with trauma surgery, planned to attempt to stabilize the patient, establish additional IV access and perform cross-sectional imaging. Able to stabilize vitals, so patient not brought directly to the OR for exploratory laparotomy, which would have been the usual practice. Initial labs showed a metabolic acidosis and elevated lactate concerning for hypoperfusion. On CT imaging, the abdominal fluid was surprisingly thought to be large volume simple fluid from a ruptured ovarian cyst. Unexpectedly, CT imaging showed bilateral pulmonary emboli with a large thrombus in the right main pulmonary artery with right heart strain. Given uncertainty about the origin of the abdominal fluid, deferred administering tPA (tissue plasminogen activator). A heparin drip was started, and the patient was admitted to the ICU in stable condition. After admission, the patient went to the catheterization lab for emergent aspiration thrombectomy with interventional radiology, which was unsuccessful, and a tPA catheter was placed. Her inpatient course was complicated by a groin hematoma and acute blood loss anemia requiring transfusion as well as post-PE pulmonary hypertension. She was discharged after an 18-day hospital stay on apixaban and sildenafil and had no thromboembolic provocation factors. She will undergo extended outpatient hypercoagulability workup and is back to her normal activities, unfortunately with persistent tachycardia and mild hypoxia with exertion.

References and Acknowledgements (Optional): N/A

Saturday, September 9, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Case Reports

(P58) Bedside Ultrasound Guidance of Thrombolysis in a Male Patient with Pulmonary Embolism and Cardiac Arrest in the Emergency Department

Poster Presenter / Primary Author: Eric Kalivoda, MD - HCA Healthcare-Brandon Hospital
Co-Author: Micaela B. Ramsey, DO - HCA Healthcare-Brandon Hospital
Co-Author: Gabriel Cabrera, MD - HCA Healthcare-Brandon Hospital
Co-Author: Ori Gat, MD - HCA Healthcare-Brandon Hospital
Co-Author: Vegas Brown, MD - HCA Healthcare-Brandon Hospital
Co-Author: Stanley Budzinski, DO - HCA Healthcare-Brandon Hospital
Co-Author: Harold Gomez, MD - HCA Healthcare-Brandon Hospital
Co-Author: Nushin Nataneli, DO - Syracuse University

Chief Complaint : We present the case of a 66-year-old male patient brought to the ED due to out-of-hospital cardiac arrest after complaining of sudden-onset dizziness at home.

History of Present Illness : A 66-year-old male with no past medical history of systemic illness was brought to the ED by EMS personnel in cardiac arrest. The patient's wife called EMS after the patient had a syncopal episode at home. Upon EMS arrival to the patient's home, the patient was awake complaining only of dizziness. After the patient was placed in a stretcher by EMS personnel, the patient became unresponsive and was found to be pulseless. Advanced Cardiac Life Support Protocol was initiated by EMS personnel. The patient underwent resuscitative efforts for 25 minutes prior to arrival to the ED. The patient arrived to the ED in cardiac arrest with cardiopulmonary resuscitation (CPR) in progress. Resuscitative measures following ACLS guidelines were continued by the emergency physicians. The patient underwent endotracheal intubation in the ED.

Pertinent Physical Exam: A limited physical examination revealed jugular venous distension and right lower extremity edema. Cardiac POCUS performed during pulse checks demonstrated an enlarged right ventricle. POCUS of the patient's right lower extremity was also performed during ongoing CPR, revealing an occlusive DVT extending from the common femoral-saphenous vein junction to the femoral vein. POCUS findings were considered by the Emergency Physicians to be indicative of a massive pulmonary embolism.

Pertinent Laboratory Data: Initial laboratory studies revealed a troponin level within normal limits. Computed Tomography Angiogram (CTA) of the chest performed after ROSC confirmed the presence of bilateral pulmonary emboli with evidence of right heart strain.

Case Discussion: POCUS findings were considered by the Emergency Physicians to be indicative of a massive pulmonary embolism. Guided by POCUS findings, an initial bolus of 50 mg of intravenous (IV) alteplase was administered as CPR continued. Approximately 12 minutes after the administration of alteplase and continuation of CPR, return of spontaenous circulation (ROSC) was achieved. A second dose of 50 mg IV alteplase was then administered. Computed tomography angiogram (CTA) of the chest performed after ROSC confirmed the presence of bilateral pulmonary emboli with evidence of right heart strain. The management of

cardiac arrest is a cornerstone in the practice of an Emergency Physician. Recognizing the possible causes for a patient's cardiac arrest is essential in order to improve the likelihood of achieving ROSC with a favorable neurologic outcome for the patient. Pulmonary embolism is one of the entities likely to cause cardiac arrest. In a patient brought to the ED in cardiac arrest, assessing the patient's risk for a pulmonary embolism may be difficult as the patient's history and physical exam findings are often limited. Thus, making a clinical diagnosis under these circumstances presents a tremendous challenge. POCUS is an invaluable tool which helps resuscitative efforts in a patient in cardiac arrest. Whereas performing cardiac POCUS may be difficult during chest compression cycles, compression pauses of a maximum of 10 seconds may be sufficient to obtain adequate sonographic views of the heart. Cardiac POCUS performed by the Emergency Physicians in this case demonstrated findings suggestive of a PE with severe right heart strain and an occlusive right lower extremity DVT, increasing the likelihood of a PE being present. The findings on POCUS led to the expeditious recognition and medical management of the venous thromboembolism. The patient had made a complete neurologic recovery at the time of discharge from the hospital.

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Saturday, September 9, 2023

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Track: Posters - Case Reports

(P59) A Case of Mistaken Identity: Point of Care Ultrasound in the Rapid Differentiation of Multiple Life-threatening Diagnoses, a Case Report

Poster Presenter / Primary Author: Kerilyn W. Kimball (she/her/hers), DO - Riverside Regional Medical Center

Co-Author: Adrianna Kyle, DO - Riverside Regional Medical Center

Chief Complaint : 52-year-old male presented to the emergency department with chief complaint of shortness of breath and rapid heart rate.

History of Present Illness : History significant for recent intraparenchymal hemorrhage of the right basal ganglia approximately 3 weeks prior to this visit, with left-sided upper and lower extremity paralysis. He presented to the emergency department via ambulance from a skilled nursing facility with acute onset shortness of breath and rapid heart rate that was read as supraventricular tachycardia on electrocardiogram. Symptom onset started during active participation in a physical therapy session.

Pertinent Physical Exam: Patient was tachypneic with a respiratory rate in the 30's, hypoxic, requiring 12L oxygen via non-rebreather mask to maintain saturations above 92%. He was tachycardic, with a heart rate in the 160s, diaphoretic, and unable to speak in complete sentences. Patient had left sided hemiparesis with inability to move both left upper and lower extremity.

Pertinent Laboratory Data: Electrocardiogram (EKG) was significant for tachycardia and a large S wave in lead I, a Q wave in lead III and an inverted T wave in lead III. Troponin negative

Case Discussion: This patient presented with reported supraventricular tachycardia in the setting of shortness of breath. Following the ACLS tachycardia algorithm, the patient could have very easily undergone an inappropriate cardioversion. The patient's recent medical history and new EKG findings influenced the decision to hold adenosine and further investigate the underlying etiology for his presenting symptoms. Bedside point of care ultrasound (POCUS) was performed, with a high suspicion for pulmonary embolus. Transthoracic echocardiogram showed evidence of right heart strain, where a "D-sign" was visualized in the parasternal short axis, and a hyperkinetic apex of the right ventricle was seen in the apical four chamber view. These findings, in conjunction with deep venous thrombosis seen in the popliteal fossa on left lower extremity ultrasound, allowed for the timely and appropriate diagnosis of pulmonary embolism. Recognizing that tachycardia is often a compensatory measure for diminished right ventricular cardiac reserve, the differential diagnosis must always include pulmonary embolus(1). Massive pulmonary embolism is a life-threatening emergency, and the use of ultrasound can help expedite the disposition of patients presenting with signs and symptoms concerning for this underlying condition. Those presenting with signs of obstructive shock are likely to die within the first two hours of presentation, and aggressive early intervention is imperative (2). POCUS in this setting provided an early diagnosis and the ability to initiate correspondence with appropriate specialists to include interventional radiology, interventional neurology, vascular surgery and pulmonary critical care, without the delay of CT scan. This patient was not a tPA candidate due to his hemorrhagic stroke, and vascular surgery at the

presenting facility did not feel comfortable with surgical intervention without extracorporeal membrane oxygenation on standby. He was transferred emergently via air to a facility that could perform surgical intervention. The patient was ultimately started on heparin anticoagulation and underwent suction thrombectomy will favorable outcome.

References and Acknowledgements (Optional): 1. Cheta, Jordana, Ashleigh Long and Paul Marik. "Use of tachycardia in patients with submassive pulmonary emboli to risk stratify for early initiation of thrombolytic therapy: A case series comparing early versus late thrombolytic initiation." Journal of investigative medicine high impact case reports (2017). 2. Jan Bělohlávek, MD PhD, Vladimír Dytrych, MD, and Aleš Linhart, MD PhD. "Pulmonary embolism, part I: Epidemiology, risk factors and risk stratification, pathophysiology, clinical presentation, diagnosis and nonthrombotic pulmonary embolism" (2013)

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

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Track: Posters - Case Reports

(P60) Fiberoptic Nasopharyngoscopy to Diagnose Obstructing Glottic Web with Polyps: A Case Report

Poster Presenter / Primary Author: Kerilyn W. Kimball (she/her/hers), DO - Riverside Regional Medical Center

Co-Author: Amanda Polsinelli, MD - Riverside Regional Medical Center

Chief Complaint : A 29-year-old female presented to the emergency department with worsening shortness of breath, wheezing, stridor at rest and difficulty swallowing.

History of Present Illness : Current symptoms have been increasing over several weeks with acute worsening over one day. Patient's history is significant for asthma, numerous allergies, anaphylaxis, and epilepsy. She had a hospital admission four months prior for anaphylaxis and status epilepticus during which time she was intubated for a duration of one day. Since her prior intubation, the patient has had mild episodes of stridor, and has been evaluated by pulmonology with a CT scan of chest and neck that was significant for narrowing of her glottis.

Pertinent Physical Exam: On exam, she was tachycardic to the 140's with increased work of breathing, diffuse wheezing on auscultation of lungs, and audible stridor at rest. She was maintaining normal oxygenation and though stridulous, she was not drooling or showing signs of imminent airway collapse or profound fatigue.

Case Discussion: The patient was originally treated with interventions directed at the management of a reactive airway disease and anaphylaxis. These interventions had minimal impact on her stridor and discomfort with breathing and swallowing. Patient was stable, and it was decided to perform bedside fiberoptic nasopharyngoscopy to further assess the cause of her stridor and to guide management. Aerosolized 4% lidocaine in addition to viscous lidocaine was used to aid scope insertion without the need for sedation. Direct visualization of the vocal cords showed posterior glottic webbing with suspended polyps and provided the information needed to identify the etiology of the patient's presenting symptoms. Otolaryngology was consulted and patient was taken directly to the operating room for a successful surgical excision of posterior glottic webbing and anterior and posterior polyps. The presented patient had a glottic obstruction secondary to a previous intubation 4 months prior to this particular hospital visit. If the airway had not been directly visualized, this patient would have undergone a traumatic and unsuccessful rapid sequence intubation. Emergency physicians are keenly aware that intubation is not a benign procedure and carries high immediate risks. Immediate risks are numerous with unexpected physical airway obstruction among them. (1,2) These injuries and patient outcomes can be complicated further if paralytics and sedatives are used without first assessing the possible anatomic obstacles or addressing potential strategies to mitigate trauma to the airway. This case highlights the use of fiberoptic nasopharyngoscopy to diagnose a physical upper airway obstruction. It also serves as a reminder of downstream complications from intubation related injuries. We must consider resources such as fiberoptic visualization to ensure the safety of our patients.

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Clin Rep. 2018 Jun 5;4(1):43. PMID: 32025880; PMCID: PMC6967210. 2. Emmett SD, Akst LM, Skinner ML. Acquired Glottic Web Formation in a 3-Year-Old Girl: Case Report and Literature Review. Int J Pediatr Otorhinolaryngol Extra. 2014 Sep;9(3):139-140. Epub 2014 Jul 10. PMID: 36213696; PMCID: PMC9541600. Special thanks to Dr. Peter Galantich, Otolaryngology

Saturday, September 9, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Case Reports

(P62) Velocity Time Integral in Pulmonary Embolism

Poster Presenter / Primary Author: Pavitra Kotini-Shah, MD - University of Illinois at Chicago
Co-Author: Raghav Matta, MS-4 - University of Illinois at Chicago
Co-Author: Miracle Diala, MS-4 - University of Illinois at Chicago

Chief Complaint : Shortness of breath, dyspnea on exertion, and mild chest pain

History of Present Illness : Patient A is a 59-year-old Hispanic male with a past medical history of hypertension, hyperlipidemia, polycythemia vera, heart failure with preserved ejection fraction, and a history of myocardial infarction status post stent placement who presented to his primary care clinic for follow up following a 6-day hospital admission for a heart failure exacerbation one week prior with complaints of increasing fatigue, worsening shortness of breath, and diaphoresis. Additional history was gleamed from his wife which corroborated the patient's worsening dyspnea and decompensating status. Notably, during his prior admission he underwent a nuclear medicine stress test with myocardial perfusion study which was normal but noted an incidental retroperitoneal mass. Subsequent work up including a biopsy with interventional radiology revealed an adrenocortical neoplasm. Given the patients clinical status, low grade fever (100.4□F), tachycardia (120) and hypoxia (percent oxygen saturation of 93%) he was sent to the emergency department for further work up.

Pertinent Physical Exam: Patient was tachycardic with a heart rate of 120, febrile with a maximum temperature of 100.6□F and tachypneic with a respiratory rate of 36, and blood pressure was 135/90. On examination, the patient was conversationally dyspneic and in acute distress, with diffuse bilateral lower extremity pitting edema; cardiopulmonary auscultation revealed a regular tachycardic heart rate with no murmurs, bibasilar diminished breath sounds and inspiratory fine crackles.

Pertinent Laboratory Data: High sensitivity troponin I value was 67 ng/L (reference value < 15 ng/L), a Brain-type natriuretic peptide value of 67 pg/mL and venous blood gas with a pH of 7.49, partial pressure of venous carbon dioxide of 35 mmHg, and mixed venous bicarbonate of 27 mmHg which was most consistent with a primary respiratory alkalosis without metabolic compensation. He subsequently underwent a bedside transthoracic echocardiography with phased array (cardiac) probe, and diagnostic computed tomography (CT) pulmonary angiography.

Case Discussion: Left ventricular outflow tract velocity time integral (LVOT VTI) is a well-validated, rapid measure that has no danger due to its noninvasive nature of obtainment.(1) It has been shown that emergency physicians, including medical trainees and residents, can rapidly obtain VTI without extensive training with veracity and validity that correlates well with subsequent cardiologist evaluation. (1) Additionally, LVOT VTI has been shown to predict outcomes in select populations, including patients with acute decompensated heart failure and pulmonary embolism. (2,3) Yuriditsky et al. demonstrated that a low VTI, defined as less that 15 cm, was significantly associated with worse outcomes, specifically in-hospital death or cardiac arrest and shock or need for reperfusion in patients with acute PE. (4) Current prevailing theory

posits that a low LVOT VTI correlates with left ventricular dysfunction and hemodynamic instability and subsequent poor clinical outcomes. (4) In our case, the patient had a VTI of 12.9cm and a TAPSE of 1.9cm, indicating no evidence of right heart strain, but an abnormally low VTI, well below the cutoff defined by Yuriditsky. This case described here shows conflict between the LVOT VTI and TAPSE values in the diagnosis and prognostication of PE. We therefore propose that LVOT VTI could augment all bedside echocardiographic evaluation of patients with suspected acute PE given its strong association with adverse short-term outcomes in acute pulmonary embolism and utility for risk stratification. Additional studies need to be performed to better compare VTI and TAPSE to determine which is the most appropriate initial measure in these patient populations. The patient was initiated on intravenous continuous heparin therapy and was subsequently transitioned to oral direct anticoagulation with apixaban for three months for treatment of an acute provoked pulmonary embolus in the setting of a hypercoagulable state secondary to malignancy.

References and Acknowledgements (Optional): 1. Christopher William Parker, Amie Marie Kolimas, Pavitra Kotini-Shah,Velocity-Time Integral: A Bedside Echocardiography Technique Finding a Place in the Emergency Department, The Journal of Emergency Medicine, Volume 63, Issue 3, 2022, Pages 382-388, ISSN 0736-4679, https://doi.org/10.1016/j.jemermed.2022.04.012. (https://www.sciencedirect.com/science/article/pii/S0736467922002864) 2. Blanco, P. Rationale for using the velocity–time integral and the minute distance for assessing the stroke volume and cardiac output in point-of-care settings. Ultrasound J12, 21 (2020). https://doi.org/10.1186/s13089-020-00170-x 3. Tan, C., Rubenson, D., Srivastava, A. et al. Left ventricular outflow tract velocity time integral outperforms ejection fraction and Doppler-derived cardiac output for predicting outcomes in a select advanced heart failure cohort. Cardiovasc Ultrasound 15, 18 (2017). https://doi.org/10.1186/s12947-017-0109-4 4. Yuriditsky E, Mitchell OJ, Sibley RA, Xia Y, Sista AK, Zhong J, Moore WH, Amoroso NE, Goldenberg RM, Smith DE, Jamin C, Brosnahan SB, Maldonado TS, Horowitz JM. Low left ventricular outflow tract velocity time integral is associated with poor outcomes in acute pulmonary embolism. Vasc Med. 2020 Apr;25(2):133-140. doi: 10.1177/1358863X19880268. Epub 2019 Nov 10. PMID: 31709912.

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

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Track: Posters - Research Abstracts

(P63) Enhancing Prehospital Trauma Care Skills: An EMT Instructor-based Education Program - A Regional Consortium-controlled Study

Poster Presenter / Primary Author: Hyoung Youn Lee, MD, PhD - Trauma Center of Chonnam National University

Faculty Advisor: Kyoung Woon Jeung

Principal Investigator: Hyoung Youn Lee, MD, PhD - Trauma Center of Chonnam National University

Objectives: To assess the feasibility and efficacy of a novel EMT instructor-based education program in prehospital trauma care

Background: Major trauma remains a leading cause of mortality, with prehospital emergency medical technicians (EMTs) playing a pivotal role in delivering initial trauma care. In our region, however, EMTs demonstrate insufficient knowledge and skill in trauma care. To address this issue, we developed and assessed the feasibility of an EMT instructor-based education program.

Methods: A regional consortium-controlled before-after study was conducted, implementing a novel education program. Instructors were EMTs actively working in the field and voluntarily participating. Based on a review of prior surveys, we devised an EMT instructor-based education program supervised by emergency physicians licensed as Korea Trauma Assessment and Treatment Course (KTAT) instructors. The program comprised three 2-hour sessions, each encompassing hands-on training: trauma patient assessment (2 hours), trauma patient assessment + tourniquet (2 hours), and trauma patient assessment + pelvic binder (2 hours). Training groups maintained an instructor-to-trainee ratio of 1:3 or lower, employing Peyton's four-step approach. A pre-post assessment checklist, modified from the National Registry of Emergency Medical Technicians psychomotor examination, was utilized to determine efficacy.

Results: Fifty-three EMTs participated as trainees, with 15 serving as instructors. Each class included 17 or 18 trainees, six instructors, and three supervisors per training session. The education program was well-received, with no reluctance from participants. EMTs reported heightened confidence in providing prehospital trauma care (strongly agree 87%, agree 13% on a 5-point Likert scale). Post-program assessments revealed significant improvements in Scene Size Up (mean score, 52.1 vs 89.1, $p< 0.001$), Primary assessment (66.5 vs 92.5, $p< 0.001$), History taking (25.2 vs 64.8, $p< 0.001$), Secondary assessment (59.1 vs 86.4, $p< 0.001$), Pelvic binder (37.7 vs 91.2, $p< 0.001$), and Tourniquet (36.5 vs 96.9, $p< 0.001$). A significant enhancement in the total score was also observed (54.3 vs 87.8, $p< 0.001$).

Conclusions: The EMT instructor-based education program, emphasizing hands-on training, proved feasible for prehospital healthcare providers and effectively enhanced EMTs' knowledge and skills in trauma care. This approach is recommended as a model for future education programs.

References (Optional):

Funding: This work was supported by the Chonnam National University Hospital grant funded (BCR121038).

Saturday, September 9, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Case Reports

(P64) Spinal Epidural Abcess Caused by Streptococcus Intermedius

Poster Presenter / Primary Author: Camellia Nabati, MD - Capital Health Medical Center
Co-Author: Kudret Arslan, MD - Capital Health Medical Center
Faculty Advisor: Kayla Hempel, DO - Capital Health Medical Center
Faculty Advisor: Jamal Hussain, MD - Capital Health Medical Center

Chief Complaint : Severe lower back pain and bilateral lower extremity weakness

History of Present Illness : Patient is a 58 year-old female with past medical history (PMH) of hypercholesterolemia and HTN (hypertension) was brought to Emergency Department (ED) with two weeks worsening of back pain. Pain was located in her lower coccygeal area was associated with dark urine, lack of appetite. She then started to develop bilateral lower extremity weakness to the point that she needed to use a cane to walk around. She also reported tingling and shooting pain with radiation to her lower extremities. She then began to notice a pain in her neck, weakness in her arms, tingling and shooting pain with radiation down to her bilateral arms, as well as difficulty tilting her head up. Her symptoms were associated with nausea, lack of appetite but no vomit. She denied any fever chills, chest pain, abdominal pain, cough, SOB, blurry vision, dizziness, and vertigo and trauma.

Pertinent Physical Exam: Vital signs on presentation were temperature 37.9 °C, heart rate 82 beat per minute, respiratory rate 18 per minute, blood pressure 148/81 mmHg, and oxygen saturation 98% on room air. On examination, she was sitting in the supine position. She appeared uncomfortable, was wincing intermittently with movement of her neck and arms. Any head movement caused radiating pain to her bilateral hips. Physical exam was limited due to the severe pain. Pt had more passive ROM than active due to severe pain. She had no sensory deficient. Pt was moving all extremities. Neuro exam was intact.

Pertinent Laboratory Data: Labs were as follows: 11.9 K/mm3 (reference: 4.5-11 K/mm3), creatine 1.08 mg/dl (reference: 0.6-1.30 mg/dl), blood urea nitrogen (BUN) 29 mg/dl (reference: 7-23 mg/dl), ferritin: 760 ng/mL [16.4-294.0]; D-Dimer 2.08 mcg/mL (reference: less than 0.5); prothrombin time (PT) 13.5 seconds (reference: 12.2-14.9 seconds); international normalized ratio (INR) 1.2 (reference: less than 1), partial thromboplastin time (PTT) 26. (reference: 21.3-35.1 seconds), fibrinogen 572 (523-572); lactate dehydrogenase (LDH) 381 U/L (reference: 140-271 U/L), C-reactive protein (CRP) 22.3 mg/L (reference: less than 10 mg/L), Erythrocyte sedimentation rate (ESR) 71 mg/L (reference: less than 10 mg/L), Troponin 0.060 ng/mL (reference 0-0.034)

Case Discussion: Spinal epidural abscess (SEA) is a rare complication of dental procedures. It is a severe medical condition characterized by a localized collection of pus between the spinal canal and dura mater. SEA can have fatal consequences in up to 16% of cases, and up to 20% of patients may experience permanent paralysis (1)(2). The most common symptoms of SEA are acute localized neck or back pain and fever. However, almost half of patients may not have a fever, leading to a delayed diagnosis. SEA is most frequently observed in patients with immunodeficiency, intravenous drug abuse, and those who underwent spinal surgery or

intervention. Although the incidence of SEA following dental procedures is not well-known, it is expected to be rare. This case report describes a rare occurrence of SEA caused by Streptococcus intermedius after a dental cleaning, without tooth extraction, in a healthy patient without any immune competency or history of spine surgery. Our case emphasizes the importance of considering SEA as a potential complication of dental procedures even in immunocompetent patients without any history of spinal surgery. Early recognition and prompt management, including surgical intervention and appropriate antibiotic therapy, may be necessary to prevent further neurological deterioration and achieve a favorable outcome.

References and Acknowledgements (Optional): 1-1. Reihsaus E, Waldbaur H, Seeling W. Spinal epidural abscess: a meta-analysis of 915 patients. Neurosurg Rev 2000;23:175-204; discussion 5. 2. Darouiche RO, Hamill RJ, Greenberg SB, et al. Bacterial spinal epidural abscess. Review of 43 cases and literature survey. Medicine (Baltimore) 1992;71:369-85.

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

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Track: Posters - Research Abstracts

(P65) Effectiveness Perception and Preferred Route of Administration Pain Controlamong a Hispanic Population in Southern Puerto Rico

Poster Presenter / Primary Author: Gabriela I. Oquendo-Claudio, MD - Centro Medico Episcopal San Lucas, St Lukes Episcopal Hospital, Ponce, PR

Faculty Advisor: Carlos Garcia-Gubern, MD, FAAEM, FACS - Ponce Health Sciences University, Saint Lukes Episcopal Hospital, Ponce PR

Co-Author: Eva Romero Nutz

Co-Author: Javier Rentas Colón

Objectives: To evaluate the preferred route of pain medication administration by the Puerto Rican population; To compare preferred route of pain medication administration with demographics, to identify possible trends such as educational level.

Background: It has been known that pain are amongst the most common causes of ED visits yearly and that it associated with decreased quality of life, medications dependence, and a great burden of cost to the healthcare system. Factors such as race, ethnicity, social and economic conditions influence illness and health seeking behavior. Multiple studies demonstrate equal effectiveness of different route of administration for pain management in the ED. Despite this, there is a popular belief among Hispanic population that pain medications administered via IM or IV route are more effective than PO counterpart which becomes obvious at some medico-patient interactions.

Methods: Data gathering was made through a survey conducted from October 2016 thru June 2017 on Hispanics 21 years or older visiting Sant Lukes Hospital, Ponce Puerto Rico. Participation in this survey was made voluntarily after consent was obtained and no compensation was given of any type. In the survey, participants were questioned about what they believed was the best option for pain control for a specific intensity of pain (mild, moderate, or severe pain). The acceptable responses for these questions were the PO, IM or IV, route. The questionnaire administered contained the following information provided in table 1. Responses from patients were tabulated, and quantitative descriptive data was analyzed. Percentages were obtained after data analysis and graphical representations were made.

Results: For mild pain, those who preferred PO route 91.7% had an educational level of college or more (Level 3), 77% had a high school level of education (Level 2) and 79% an elementary level of education (Level 1). For moderate pain, 32.3% (Level 3), 38.8% (Level 2) and 35% (Level 1). For severe pain, 6.4% (Level 3), 11.6% (Level 2) and 16.4% (Level 1). Similarly, data was organized to evaluate for patients who preferred the parenteral route. Those who preferred IM route for mild, 5.8% (Level 3), 19.4% (Level 2) and 13% a (Level 1). For moderate, 49.1% (Level 3), 40.5% (Level 2) and 45.8% (Level 1). For severe, 42.6% (Level 3), 44.2% (Level 2) and 38.4% (Level 1). Those who preferred IV route for mild 2.5% (Level 3), 3.4% (Level 2) and 7.3% (Level 1). For moderate, 18.7% (Level 3) 20.4% (Level 2) and 19.2% (Level1). For severe, 51% (Level 3), 44.2% (Level 2) and 45.8% (Level 1). Overall, 78% of participants responded that the preferred route was IV, 15% responded IM and 7% selected the oral route as the preferred. Males in general selected IV route in 80% versus females who

preferred this route by a 20%.

Conclusions: For the studied population, southern Puerto Ricans, the preferred route for pain medication administration is the intravenous over the oral route. Nonetheless, there were changes in preference depending on the type of pain that was questioned, with the trend increasing towards more invasive routes as pain level increased. Educational level may have an impact on the selection of medication route as well since we observed that in mild pain, the group of college educational level or more were more prone to select an oral route than other participants while this pattern was not present in the severe pain answers.

References (Optional): American Pain Society, (2022). Study Shows Chronic Pain Costs United States Up to $635 Billion. [online] Socialworktoday.com. Brigham and Women's Hospital. (2021). One in five American adults experience chronic pain. ScienceDaily. Im, E. O., Guevara, E., & Chee, W. (2007). The pain experience of Hispanic patients with cancer in the US. In Oncology Nursing Forum (Vol. 34, No. 4, p. 861). NIH Public Access. Peacock, S., & Patel, S. (2008). Cultural influences on pain. Reviews in pain, 1(2), 6-9. Pergolizzi J, Raffa R. The WHO Pain Ladder: Do We Need Another Step?. Practical Pain Management. 2014;14(1). U.S. Department of Health and Human Services (2019). Pain Management Best Practices Inter-Agency Task Force Report: Updates, Gaps, Inconsistencies, and Recommendations. Retrieved from U. S. Department of Health and Human Wyatt, R. (2013). Pain and ethnicity. AMA Journal of Ethics, 15(5), 449-454. Zelaya, C. E., Dahlhamer, J. M., Lucas, J. W., & Connor, E. M. (2020). Chronic pain and high-impact chronic pain among US adults, 2019.

Funding: Ponce Health Sciences University

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P66) Ultrasound Guided Axillary Brachial Plexus Block for ED Closed Reduction of Forearm Fracture

Poster Presenter / Primary Author: Pascal Phares (he/him/his), MD - ApolloMD Strike Travel Team Emergency Physician Envision Healthcare Emergency Physician

Chief Complaint : Left Wrist Injury

History of Present Illness : This is an otherwise healthy 15yo male who presented to a critical access emergency department for evaluation of left forearm injury sustained while sliding arms first into a base while playing baseball. He immediately experienced severe pain and deformity to his forearm. EMS immobilized the forearm prior to arrival. He arrived to the emergency department without sensory loss distal to the injury and was able to move all of his fingers. He denied any other injuries.

Pertinent Physical Exam: Well Appearing adolescent male who appeared to be in some discomfort related to his left forearm injury. There was marked deformity to the forearm, but skin was intact with no bleeding. He had sensation to the distribution of radial, median, and ulnar nerves on the hand. Flexion, extension, abduction and adduction of all fingers was limited but intact.

Pertinent Laboratory Data: Initial radiographs demonstrated markedly displaced and overriding fracture of the left distal radial diaphysis.

Case Discussion: Patient arrived to critical access facility located approximately 2hrs-2.5hrs by ground to nearest trauma center and had initial radiographs performed at 1620 although he officially was registered as a patient at 1637. ER physician assistant initially evaluated the patient and consulted orthopedic surgeon who was able to evaluate the patient in the emergency department within 20 minutes of being contacted. Expedited transfer to trauma center in this limited resource area was not possible by ground, although air transport by helicopter was an option. Orthopedic surgeon advised closed reduction was indicated and could obviate the need for transfer. Anesthesiologist and OR staff was not available due to the time of day. Emergency physician was consulted for pain management for the procedure. Risks, benefits and alternatives for procedural sedation versus ultrasound guided regional anesthesia were discussed with the patient and his parents who elected USGRA. An ultrasound guided axillary brachial plexus block was performed from approximately 1730-1745. A dense block of the forearm was achieved and reduction initiated by surgeon at approximately 1800. The procedure required several attempts, with an initial reduction deemed inadequate by the surgeon. Adequate reduction was completed at approximately 1821 with immobilizing plaster splint applied and final xrays at 1834. Patient was discharged home at 1953 neurovascularly intact with 1 week followup appointment scheduled. 6 week post reduction images demonstrated good outcome per surgeon and are included. Discussion - This case demonstrates successful ultrasound guided regional anesthesia in the emergency department performed by emergency physician to facilitate a difficult orthopedic procedure. The risks to the patient of prolonged sedation in the emergency department was avoided and a significant amount of nursing time was spared in this limited resource facility.

References and Acknowledgements (Optional): Image depicting Axillary Brachial Plexus Block courtesy of NYSORA.COM

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Track: Posters - Case Reports

(P67) Renal Trauma During Rugby Tackle

Poster Presenter / Primary Author: Sohil Pothiawala (he/him/his), FAMS (EM), MRCSEd (A&E), M.Med (EM), MBBS - Woodlands Health, Singapore

Co-Author: Rabind Charles, FAMS (EM) - Woodlands Health, Singapore

Co-Author: Rebecca Schroll, MD - Auckland City Hospital

Chief Complaint : Pain in her right lower chest and right flank with nausea after a tackle while playing rugby

History of Present Illness : A 16-year-old female patient was tackled on her right side by another player during a rugby game. She denied any head injury or loss of consciousness. After she went home, she complained of pain in her right lower chest and right flank with associated nausea. No past medical history

Pertinent Physical Exam: Vital signs showed a heart rate of 72 beats/min, respiratory rate of 17 breaths/min, blood pressure of 111/63 mm Hg and oxygen saturation of 100% on room air. On examination, there was tenderness over the right lateral lower ribs and right flank, but there were no signs of peritonism.

Pertinent Laboratory Data: Her blood investigations were normal, with a haemoglobin of 111 x 109 g/l, creatinine of 68 umol/l and lactate of 1.5mmol/l. Plain radiographs of chest and pelvis were normal. E-FAST showed a sliver of free fluid within the right renal capsule, but no free intraperitoneal fluid. There was hyperdensity noted within the urinary bladder which was suggestive of a blood clot. Urinalysis showed gross haematuria. She had a syncopal episode in ED. Repeat haemoglobin was 94 g/l. Computed tomography (CT) scan of abdomen and pelvis was done which showed a complex right lower pole renal laceration with associated retroperitoneal fluid/blood.

Case Discussion: Assessment with urinalysis, haematocrit and creatinine is required during the evaluation of a patient with suspected renal trauma. Haematuria (gross or microscopic) is a good indicator of renal injury, but does not correlate with the degree of injury. CT scan is the imaging modality for diagnosis and grading of renal injury. The indications for radiologic evaluation of renal injury in blunt trauma include 1. clinical signs suggestive of renal trauma e.g. abdominal tenderness, distension, flank pain, ipsilateral lower rib fractures, 2. gross haematuria, 3. microscopic haematuria and one episode of hypotension (pre-hospital or initial ED systolic BP < 90mm Hg) and/or 4. presence of other major injuries. Conservative treatment is the mainstay of therapy. Haemodynamically stable patients with microscopic haematuria, those with low-grade renal injuries (I-III), and even those with high-grade renal injuries (IV-V) can be managed conservatively. Conservative management includes observation, bed rest, serial abdominal examination and assessment of haemoglobin/haematocrit till haematuria resolves. Angiography and selective embolisation have showed a high success rate in the management of patients with high-grade (Grade IV and V) renal injuries with ongoing bleeding or vascular complications. Physicians must discuss the risk of potential complications and long-term sequelae with the patient. Patients who are managed conservatively should avoid sports

for at least 6 weeks, while those with high-grade renal injury may take longer time to heal and should avoid return to sports for 6 to 12 months.

References and Acknowledgements (Optional): References: 1. Harper K, Shah KH. Renal trauma after blunt abdominal injury. J Emerg Med. 2013; 45 (3):400-404. doi: 10.1016/j.jemermed.2013.03.043 2. Freeman CM, Kelly ME, Nason GJ, et al. Renal trauma: the rugby factor. Curr Urol. 2015; 8 (3):133–137. doi: 10.1159/000365704 3. Hagedorn JC, Fox N, Ellison JS, et al. Pediatric blunt renal trauma practice management guidelines: Collaboration between the Eastern Association for the Surgery of Trauma and the Pediatric Trauma Society. J Trauma Acute Care Surg 2019; 86 (5):916-925. doi: 10.1097/TA.0000000000002209

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Track: Posters - Case Reports

(P68) Successful Use of Hemato-polyvalent Anti Venom in the Management of Rhabdophis Subminiatus (red-necked Keelback) Envenomation: Is There Cross Neutralization Effects?

Poster Presenter / Primary Author: Ponampalam R, MD - Singapore General Hospital
Co-Author: Mingwei Ng, MBBS - Singapore General Hospital
Co-Author: Elizabeth MIng Jing Tan, MBBS, MCEM - Singapore General Hospital

Chief Complaint : A 55-year-old man sustained snakebite to the left heel presenting to the emergency department with rapidly progressing pain and swelling over the bite site.

History of Present Illness : A 55-year-old man sustained snakebite to the left heel and presented to the emergency department with pain, swelling and bleeding at the bite site and foot. Intravenous opioids, antibiotics and anti-tetanus toxoid were initiated. During observation, swelling progressed involving his leg and repeat blood investigations demonstrated coagulopathy. Due to rapid progression, decision was made to administer 2 vials of hemato-polyvalent snake antivenom (HPAV) after pre-medication with hydrocortisone and diphenhydramine. Although there was no overt bleeding manifestations and his lower limb swelling remained stable, coagulation profile showed initial improvement after HPAV administration followed by subsequent worsening attributed to venom-induced consumptive coagulopathy (VICC). A second dose of two vials HPAV was given 9 hours after the initial dose followed by cryoprecipitate infusion. The patient's limb swelling subsided and coagulation profile improved following the second dose. He remained hemodynamically stable throughout the duration of treatment and was eventually discharged well 72 hours post-envenomation.

Pertinent Physical Exam: Initial examination, patient had stable vital signs. He had a single puncture wound over his heel. His left ankle and dorsum of his left foot appeared swollen and the area surrounding the bite wound appeared bruised and tender (Figure 1). The perfusion, temperature, colour, power and sensation of his lower limb were preserved. He had no systemic signs or symptoms or bleeding from other sites. After a period of observation, swelling worsened to involve his leg (Figure 2).

Pertinent Laboratory Data: Initial blood investigations performed were normal. X-rays of his left lower limb did not reveal any retained foreign bodies but soft tissue swelling was apparent. Repeat blood investigation when patient developed progression of leg swelling revealed coagulopathy which improved after 2 courses of HPAV and normalized prior to discharge at 72 hours post envenomation. The snake was caught by the patient’s colleagues. Based on pictures of the captured snake (Figure 3), local herpetologist identified the snake as Rhabdophis subminiatus (red-necked keelback), a colubrid with rear fangs, generally thought to be non-venomous.

Case Discussion: Snake bites from Rhabdophis subminiatus, a rear fanged snake which belong to the Colubrid family are largely considered harmless to humans and many such snakes are kept as pets. There have been rare reports in the past of coagulopathy following bites by this species. Venom of these snakes, being procoagulant results in disseminated

intravascular coagulation with enhanced fibrinolysis resulting in VICC. Progressive soft tissue inflammation and significant coagulopathy is demonstrated in this case which illustrates severe morbidity that can result from bites of this species of snake. It is also noted that use of hemato-polyvalent snake antivenom (HPAV) has helped clinical improvement in coagulopathy in our patient. HPAV has been shown to demonstrate cross neutralization with common Southeast Asian viperid venoms. However, the possible cross neutralization potential of HPAV for Rhabdophis a colubrid may suggest a possible common underlying structure and pathophysiology of venom protein shared amongst the different of species of snakes. As Rhabdophis specific antivenom are unavailable in most countries, the possible therapeutic role of HPAV in similar situations deserves further consideration and evaluation.

References and Acknowledgements (Optional): Acknowledgements Emeritus Professor Ponnampalam Gopalakrishnakone, MBBS,PHD,FAMS,DSc, National University of Singapore (NUS) – Department of Anatomy, who helped with identification of the snake. E/Prof Gopalakrishnakone P - Department of Anatomy (nus.edu.sg)

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Track: Posters - Case Reports

(P69) Profound Hyponatremia in the Emergency Department

Poster Presenter / Primary Author: Adam Ruscher, MDCM, FAAEM - Swedish Medical Center - Ballard

Co-Author: Andy Tianfu Shang, OMS-II - Pacific Northwest University of Health Sciences

Chief Complaint : This is a 66 year old woman who presented to the Emergency Department with chief complaint of weakness and slurred speech.

History of Present Illness : This is a 66 year old woman with past history of hypertension and anxiety. Her home medications were lisinopril, metoprolol, and sertraline. She reported feeling unwell for several days. For the most part, the patient deferred to husband to provide history due to her weakness and lethargy. He reported 1 week of diarrhea, vomiting, and progressive weakness. She was prescribed Ondansetron and Loperamide by her primary care doctor 3 days prior to arrival. Over the last few days she largely stopped eating and drinking. Her husband made her drink 64 oz. of diluted Gatorade today. There was decreased urine output. 1 day PTA she developed slurred speech. Her weakness was reported to be generalized without focality. She otherwise denies significant symptoms including fever, cough, vision change, chest pain, or black or bloody stools or hematemesis.

Pertinent Physical Exam: On examination she was alert but sluggish. She had slow, slurred speech. There were normal visual fields and no facial droop. She had weak hand grips bilaterally, and profound weakness did not allow her to lift either leg off the bed. Lungs were clear to auscultation. She had bradycardic rhythm without murmur. Abdomen was nontender. She had decreased skin turgor and dry mucus membranes. Skin was pale. Physical exam was otherwise unremarkable.

Pertinent Laboratory Data: Initial Basic Metabolic Panel: Na: 92 mmol/L K: 7.5 mmol/L Cl: < 60 mmol/L CO2: 12 mmol/L Anion Gap: 20 mmol/L Calcium: 7.3 mmol/L BUN: 104 mg/dL Cr: 6.57 mg/dL Glucose: 163 mg/dL POC Chemistry Panel (Chem-8+) 2.25 hours after initial: Na: 100 mmol/L K: 6.2 mmol/L Cl: 69mmol/L CO2: 20 mmol/L Anion Gap: 18 mmol/L Ionized Calcium: 0.95 mmol/L BUN: 103 mg/dL Cr: 8.2 mg/dL Glucose: 179 mg/dL Sodium course in hospital: Day 1: 101 Day 2: 101 Day 3: 104 Day 4: 108 Day 5: 115 Day 6: 126 Day 7: 127 Day 8: 134 Day 11: 139

Case Discussion: The patient presented to the emergency department with a weeklong history of nausea, vomiting, diarrhea, poor oral intake, decreased urine output, and lethargy. Her baseline sodium and creatinine levels in the past were normal. Based on initial presenting symptoms, she was given 2 liters of normal saline intravenously. Fluids were stopped when hyponatremia with a level of 92 mmol/L was recognized to avoid overcorrection, and her repeat sodium was 100 mmol/L. She was also found to have acute renal failure, hyperkalemia, and metabolic acidosis. Insulin, D50, and calcium were given. Critical Care and Nephrology were consulted. The rapid rise in sodium so far had exceeded their desired rate of correction of 4-6 mmol/L/day. To slow the rate of sodium correction, the patient was given 1 mcg of desmopressin subcutaneously. Upon stabilization, she was transferred to the intensive care unit for continued Na correction and close observation. Throughout her hospitalization, she

received several doses of desmopressin to control sodium correction rate. On hospital day 6, sodium had moved from 115-126, and she experienced a period of decreased mentation. MRI was done without evidence of pontine demyelination. She was discharged on day 11 with improved mental status, sodium of 139 and creatinine of 3.48. The patient's significant volume loss and rapid response to fluid replacement points towards hypotonic hyponatremia, potentially complicated by renal effects of medications including lisinopril. A gradual correction of Na allowed for the patient to return home after 11 days in the hospital. This case supports the use of desmopressin to help control rate of sodium correction in profoundly hyponatremic patients. Desmopressin can be used as an adjunct to hypertonic saline in these patients, who may otherwise develop water diuresis and compound their deficits.

References and Acknowledgements (Optional): Lexicomp (2023). Desmopressin: Drug information. UpToDate. Retrieved March 28, 2023, from https://www.uptodate.com/contents/desmopressin-drug-information

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

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Track: Posters - Case Reports

(P70) A Strange Case of Refractory Shock: Valproic Acid Toxicity

Poster Presenter / Primary Author: Jazmin Sevilla (she/her/hers), MD - St. John's Riverside Hospital

Co-Author: Mark Samarneh, MD - St. John's Riverside Hospital

Faculty Advisor: Adrian A. Cotarelo, MD, MHS - St. John's Riverside Hospital

Chief Complaint : A 64-year-old man is brought in by EMS from a group home after being found unresponsive, hypotensive throughout the prehospital course.

History of Present Illness : A 64-year-old man with past medical history of COPD, chronic knee pain is brought in by EMS from a group facility after being found unresponsive. EMS pre-notification to the ED notable for minimal collateral information available on scene, with field intubation due to severe respiratory depression. He was noted to be hypotensive and bradycardic prior to hospital arrival. Per EMS, he was found in his room in the group home by another occupant who could not identify the patient. He remained obtunded and was ultimately intubated by EMS, and was unable to provide further history.

Pertinent Physical Exam: Upon arrival to the ED, the patient's vital signs were notable for a persistent hypotension of 70/37 after receiving fluids by EMS, alongside a bradycardia with a heart rate of 54. Rectal temperature was 91.7 F. He was intubated, on a mechanical ventilator, and fully obtunded with no response to painful stimuli. There were no visible signs of trauma, nor any visible wounds or obvious sources of infection. He remained profoundly hypotensive and bradycardic despite 3 liters of fluids, broad-spectrum antibiotic coverage, external warming, and the initiation of norepinephrine, vasopressin, and hydrocortisone.

Pertinent Laboratory Data: Laboratory results revealed a BUN of 30.4 and creatinine of 2.8, a lactic acidosis of 5.4, and an anion gap metabolic acidosis (pH 7.176, pCO2 33.5, HCO3 12.1, anion gap 18). Ammonia level was found to be elevated at 162.40. Urinalysis and urine drug screen were both negative. A COVID-19 swab was negative, and chest x-ray did not show signs of infectious process. CT head, cervical spine, chest, abdomen, and pelvis were negative. Ultimately, a valproic acid level was found to be elevated beyond the upper measurable threshold of 300, and serum acetaminophen level was elevated as well.

Case Discussion: This case represents an uncommon toxic overdose leading to refractory shock. With minimal collateral information, much of his initial management was focused on a presumed septic shock. Ultimately, the patient was found to have overdosed on valproic acid (VPA) as well as acetaminophen leading to his rapid deterioration. His ICU course was notable for the development of a nephrogenic diabetes insipidus, thought to have been a complication of his overdose, which eventually responded to thiazide and indomethacin treatment. He remained in the ICU for 40 days, before ultimately making a full neurologic recovery. Upon awakening, he confirmed the intentional overdose of prescribed medications in an attempt to end his life. After a prolonged admission and psychiatric evaluation, he was eventually discharged home with no lasting deficits. VPA is an anti-epileptic drug used to treat seizures, acute mania, bipolar disorder, and migraine headaches. As VPA has fallen out of favor, VPA

toxicity is an uncommon toxidrome which is difficult to distinguish from other pathologies. The present case demonstrated severe features of VPA and acetaminophen overdose - metabolic acidosis, coma, hypotension, respiratory depression, pancytopenia, and hyperammonemia. While hyperthermia is commonly seen in VPA toxicity, our patient was hypothermic to 91.7F. His presentation was also complicated by the co-ingestion of acetaminophen, which can both cause hepatic injury, hepatic encephalopathy, cerebral edema, and hypotension. While uncommon, the emergency physician must maintain a broad differential when faced with complex presentations with minimal collateral information. Ultimately, VPA toxicity was considered several hours into his ED course, when a medication reconciliation revealed the recently prescribed medication. This case highlights the importance of parsing through all available information even when history is limited, and considering rare causes of refractory shock.

References and Acknowledgements (Optional): N/A

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Track: Posters - Case Reports

(P71) Unusual Presenation - Delayed Haemothorax

Poster Presenter / Primary Author: SHOBHIT SWARUP, FAMS - MBBS ,MMED ,FAMS

Chief Complaint : A 23-year-old male comes with left-side chest pain for one month after a fall while playing soccer. The pain gradually got worsened over time.

History of Present Illness : - the pain was worse for the last 2 days and became constant - before was on and off, usually occurs at night when he is trying to sleep - worse when he moves his L arm - no shortness of breath, no exertion pain, no orthopnea - No fever, no cough

Pertinent Physical Exam: RR 20-22 HR 129 SpO2 100% RA BP 142/83 T 36.9 Alert, nontoxic. Nil pallor HS1S2 L slight reduced AE over the left lung Abdomen soft calves supple left lateral chest wall tenderness over 4th-6th rib reproducible on palpation nil rashes

Pertinent Laboratory Data: ECG, Full blood count, renal panel, and cardiac enzymes were within normal limits. Chest X-ray performed showed large globular opacity in the left pleural cavity causing a mass effect. CT thorax was performed and showed a Large loculated pleural collection (15 x 15 x 20 cm)

Case Discussion: The impression was a large pleural effusion secondary to trauma a month back. The case was referred to Thoracic surgeons and a large chest drain was inserted. After 50 ml of blood with clots, a large amount of empyema was drained. The patient was taken for Left UVATS drainage and decortication. Subsequently, he was monitored in the surgical High dependence ward and was discharged well.

References and Acknowledgements (Optional): Radiographs of the chest (Serial Chest X rays CT scan of the thorax Empyema collection

Saturday, September 9, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Case Reports

(P72) A Case of Acquired Methemoglobinemia from Chronic Orajel Use

Poster Presenter / Primary Author: Anisha Tailor, MD - McLaren Macomb
Co-Author: Jared J. Sharza, MD - McLaren Macomb
Principal Investigator: Joseph Carlier, MD - McLaren Macomb

Chief Complaint : Patient is a 21-year-old Caucasian female who presented secondary to acute respiratory distress, palpitations and cyanosis.

History of Present Illness : Patient is a 21-year-old female with a past medical history of depression and migraines, who presented to the emergency department with acute respiratory insufficiency and notable peripheral and central cyanosis. Patient was post-op day 3 from a routine laparoscopic salpingectomy, which was completed with no complications. Patient subsequently noted the onset of a generalized headache, non-productive cough and palpitations. She additionally noted progressively worsening cyanosis of her hands and feet, as well as her lips. It was discovered that the patient was using three tubes of oral benzocaine daily for the past year, secondary to ongoing dentalgia. Patient had been asymptomatic from her use until undergoing general anesthesia, during which she did receive lidocaine as well.

Pertinent Physical Exam: Patient's initial triage vital signs demonstrated hypoxia with an oxygen saturation of 85%, for which she was initially placed on 2L oxygen via nasal cannula. Patient was noted to be tachypneic with positive accessory muscle use. Patient was pale in appearance, with mild conjunctival pallor and cyanosis of the lips. Patient was additionally noted to have digital cyanosis of her upper extremities. Lung auscultation demonstrated bilateral symmetric breath sounds, however the patient was noted to have rapid, shallow respirations. Patient was additionally noted to be tachycardic, with EKG demonstrating sinus tachycardia. Blood pressure was within normal limits.

Pertinent Laboratory Data: Patient's laboratory studies demonstrated a methhemoglobin level of 27. An arterial blood gas was obtained which demonstrated a pH of 7.425, PCO2 34.1, PO2 205, bicarbonate of 22.4. Bedside cardiac ultrasound did not demonstrate any sizable pericardial effusion or tamponade. Portable upright chest x-ray demonstrated mild pneumoperitoneum from her recent surgery, however no acute intrathoracic pathology. CT PE did not reveal acute thoracic pathology however did redemonstrate pneumoperitoneum. CT abdomen pelvis with contrast revealed postoperative changes including mild scattered pneumoperitoneum and emphysema.

Case Discussion: Our patient presented with hypoxemia and peripheral cyanosis, consistent with a diagnosis of methemoglobinemia. She remained persistently at an oxygen saturation of 85% despite intervention with supplemental oxygen with 15L nonrebreather. Poison control was contacted and recommended administration of 1 mg/kg dose Methylene Blue with repeat methemoglobin levels 30 minutes after administration and again in 6 hours. Patient was noted to have symptomatic improvement within an hour of treatment. Methemoglobinemia is a known rare complication of topical and local anesthetic use. It is most commonly acquired through exposure to drugs which cause indirect oxidation of Fe (II) to Fe (III). In a 10-year retrospective

case control study published in JAMA in 2013, 94,694 cases were assessed which used topical anesthetics and found that a total of 33 cases of methemoglobinemia were identified, with a prevalence of 0.035%. The pathophysiology of methemoglobinemia is more often a result of secondary causes, rather than congenital etiologies. The oxidized ferrous component of hemoglobin is converted to the ferric state which results in an increased oxygen affinity leading to a decrease in oxygen unloading and decreased delivery to peripheral tissues, which is best exhibited by a leftward shift on the oxyhemoglobin dissociation curve. This case illustrates the importance of increasing awareness of the presentation, diagnosis and management of methemoglobinemia as a rare hemoglobinopathy which can present in a similar manner to cardiac and respiratory causes of acute hypoxemia.

References and Acknowledgements (Optional): 1. Chowdhary S, Bukoye B, Bhansali AM, et al. Risk of Topical Anesthetic–Induced Methemoglobinemia: A 10-Year Retrospective Case-Control Study. JAMA Intern Med. 2013;173(9):771–776. 2. Taleb, M., Ashraf, Z., Valavoor, S. et al. Evaluation and Management of Acquired Methemoglobinemia Associated with Topical Benzocaine Use. Am J Cardiovasc Drugs 13, 325–330 (2013). 3. Umbreit J. Methemoglobin—it's not just blue: a concise review. Am J Hematol. 2007;82(2):134–44.

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Research Abstracts

(P73) Predictors of Prolonged Hospital Length of Stay After Traumatic Brain Injury

Poster Presenter / Primary Author: Shameeke Taylor (he/him/his), MD, MPH, MS - Icahn School of Medicine at Mount Sinai

Co-Author: George Loo, DrPH - Icahn School of Medicine at Mount Sinai

Co-Author: Eric Legome, MD - Icahn School of Medicine at Mount Sinai

Objectives: The aim of this study was to identify factors associated with prolonged hospital length of stay (PLOS) following traumatic brain injury (TBI).

Background: For TBI survivors, recovery can be a long and arduous process with a significant number of days spent in the inpatient and rehabilitation settings.(1-6) Hospital length of stay (HLOS) after TBI is a crucial metric of injury severity, resource utilization and treatment related costs.(7-8) Risk factors for PLOS after TBI require further characterization as there is a dearth of literature on this important topic.(5-6) Identification of the risk factors associated with PLOS in TBI patients may help health systems develop standards of care and facilitate early mobilization of resources, promote timely discharge and reduce health care costs.

Methods: De-identified patient data for individuals with diagnosed TBI who were evaluated by the trauma surgery service at a single U.S. level 2 academic trauma and tertiary referral center between January 2017 and August 2022 were extracted from the hospital's prospectively collected trauma registry. PLOS was defined as the 95th percentile of the in-hospital length of stay of the entire patient cohort. Patients with PLOS were compared with those without PLOS (normal HLOS). Clinical/injury factors, insurance status and discharge disposition were analyzed. In addition, a logistic regression model was developed that examined PLOS (outcome variable) using ICU stay, Glasgow coma scale (GCS) score on hospital arrival, injury severity score (ISS), hospital discharge disposition, use of a ventilator, in hospital cardiac arrest, alcohol withdrawal and unplanned intubation as predictor variables. Statistical analysis included descriptive statistics, chi square test, Wilcoxon rank sum test and multivariate logistic regression modeling (OR; 95% CI).

Results: The threshold for PLOS was >24 days. In the cohort of 1343 patients, 77 had PLOS. PLOS was significantly associated with male gender (80% vs 64%;P<.003), longer mean ICU stays (16.4 vs 1.5 days;P<.001) higher mean ISS (18.6 vs 13.8;P<.001), lower mean GCS score (11.3 vs 13.7;P<.001) and greater mean complication burden (0.7 vs 0.1;P<.001). PLOS patients were more likely to have moderate/severe TBI (44% vs 14%;P<.001), were more likely to die in hospital (19% vs 7%;P<.001), be discharged to a facility (55% vs 29%;P<.001) and use Medicaid (36% vs 22%;P<.005). In terms of complications, PLOS was associated with higher rates of cardiac arrest (5% vs 0.5%;P=0.002), unplanned intubations (13% vs 1%;P<.001), inpatient alcohol withdrawal (10% vs 2%;P<.001), ventilator associated pneumonia (5% vs 0.1%;P<.001) and acute respiratory distress syndrome (3% vs 0.2%;P<.02). Both groups had similar mean ages, racial distributions, Medicare/commercial insurance use and rates of orthopedic injuries, alcohol related injuries, unplanned extubations and operating room revisits. In the regression model, presence of an ICU stay (OR 2.5, CI 1.1-5.7) disposition to inpatient facility (OR 3.0 CI 1.6-5.9), ventilator use (OR 4.1, CI 2.0-8.4), unplanned intubation (OR 3.4, CI

1.1-10.5) and inpatient alcohol withdrawal (OR 3.5, CI 1.2-10.3) predicted PLOS.

Conclusions: TBI patients with PLOS were more likely to have severe injuries, in-hospital complications and Medicaid insurance use and less likely to be discharged to home. PLOS status was predicted by ICU stay, intubation, alcohol withdrawal and disposition to inpatient and post-acute care facilities. These findings have significant implications for quality improvement and resource utilization at acute care hospitals. Efforts to reduce in-hospital complications and expedite discharge to long term facilities may reduce length of stay and accompanying costs in TBI patients. Further validation of these results is needed from larger, multicenter studies with diverse patient populations.

References (Optional): 1. Carroll, Ellen L., et al. "Mild traumatic brain injury recovery: a growth curve modelling analysis over 2 years." Journal of neurology 267 (2020): 3223-3234. 2. Forslund, Marit V., et al. "Global outcome trajectories up to 10 years after moderate to severe traumatic brain injury." Frontiers in neurology 10 (2019): 219. 3. Dams-O'Connor, Kristen, et al. "Functional outcome trajectories following inpatient rehabilitation for TBI in the United States: a NIDILRR TBIMS and CDC interagency collaboration." The Journal of head trauma rehabilitation 35.2 (2020): 127. 4. Cullen, Nora. "Canadian healthcare perspective in traumatic brain injury rehabilitation." The Journal of head trauma rehabilitation 22.4 (2007): 214-220. 5. Yue, John K., et al. "Predictors of Extreme Hospital Length of Stay After Traumatic Brain Injury." World Neurosurgery 167 (2022): e998-e1005. 6. Abujaber, Ahmad, et al. "Predicting prolonged length of stay in patients with traumatic brain injury: a machine learning approach." Intelligence-Based Medicine 6 (2022): 100052. 7. Pavlov, Vladislav, et al. "Mild traumatic brain injury in the United States: demographics, brain imaging procedures, health-care utilization and costs." Brain injury 33.9 (2019): 1151-1157. 8. Tardif, Pier-Alexandre, et al. "Hospital length of stay following admission for traumatic brain injury in a Canadian integrated trauma system: a retrospective multicenter cohort study." Injury 48.1 (2017): 94-100.

Funding: N/A

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P74) Why Is My Arm Jerking?

Poster Presenter / Primary Author: Maria Tran (she/her/hers), DO - St. John's Riverside Hospital

Co-Author: Nitin Kuppanda, MD - St. John's Riverside Hospital

Faculty Advisor: Stephanie Widmer, DO - St John's Riverside Hospital

Chief Complaint : Right Arm Jerking

History of Present Illness : A 32-year-old male with a past medical history of alcohol and substance abuse presents to the emergency department with his partner at the bedside for several hours of right arm jerking at rest and associated arm pain. He states this arm jerking happened once before and went away on its own without intervention. The patient also endorses difficulty walking. The patient states he drinks ten pints of liquor a day, the last drink being four hours prior. The patient denies a history of withdrawal seizures, delirium tremens, or prior hospitalization for his alcohol use. The patient currently denies chest pain, shortness of breath, abdominal pain, nausea or vomiting, fever, or chills.

Pertinent Physical Exam: GENERAL: Awake, alert, and fully oriented, in mild acute distress HEAD: No signs of trauma, normocephalic, atraumatic EYES: PERRLA, EOMI, sclera anicteric, conjunctiva clear NECK: Normal ROM, supple, no lymphadenopathy, JVD, or masses LUNGS: speaks full sentences, clear to auscultation bilaterally HEART: Regular rate and rhythm, peripheral pulses normal and equal bilaterally. ABDOMEN: Soft, non-tender. No guarding, and no rebound. EXTREMITIES: contracted, adducted, and flexed right arm/elbow, with intermittent myoclonus, no edema. No clubbing or cyanosis. NEUROLOGICAL: Horizontal and vertical nystagmus noted. Normal speech, unsteady gait, intermittent unprovoked right upper extremity spastic contractions SKIN: no rashes or lesions noted

Pertinent Laboratory Data: CBC within normal limits CMP reveals elevated AST/ALT 96/67(normal range 15-37/13-61) elevated creatinine kinase 1430 (normal range 26-308) Elevated CKMB 8.5 (normal range 0.5-3.6) UA neg Urine Toxicology reveals positive for amphetamines Quantitative Alcohol: 299.4 [ranges: subject drinking (100-150), intoxication (150-500), comatose(>500)] Head CT reveals no acute pathology

Case Discussion: We present a case of a 32-year-old male with a history of alcohol and substance abuse who presented to the emergency department with new onset myoclonus. The patient was admitted to regular heavy drinking, and likely functions normally at the detected ethanol level. However, the patient adamantly denies drug use despite a positive urine toxicology screen for amphetamines, raising suspicion of amphetamine-associated myoclonus. Myoclonus/ true muscle pathology is further supported by the elevation in creatinine kinase. There have been some prior evidence and case reports with the association of amphetamine and its derivatives such as methamphetamine with movement disorders and myoclonus. Myoclonus is the act of involuntary movement of one or more limbs and can be elicited spontaneously or by a trigger such as a loud noise. There have been prior reports of myoclonus and choreoathetosis associated with amphetamine and methamphetamine use (1). In addition,

there have been reports of these substances worsening underlying movement disorders such as Parkinson's' or Huntington’s disease (2). These movements may resolve with time with or without abstinence and can be treated with benzodiazepines (3). This case highlights the association between acute amphetamine use and myoclonus. the patient was experiencing discomfort and pain from the right arm myoclonus he had been experiencing for several hours. In this case, the patient’s myoclonus improved with lorazepam treatment that enhances the inhibitory transmitter GABA, the myoclonus resolved, and the patient was discharged. It is important for healthcare providers to be aware of the potential neurological complications of acute amphetamine or methamphetamine use, as early recognition and treatment improve patient outcomes.

References and Acknowledgements (Optional): 1) Ellinwood EH. Amphetamine Psychosis: I. Description of the individuals and process. J Nerv Ment Dis. 1967;144:273–83. 2) Klawans HL, Weiner WJ. The effect of d-amphetamine on choreiform movement disorders. Neurology. 1974;24:312–8. 3) Asser A, Taba P. Psychostimulants and movement disorders. Front Neurol. 2015 Apr 20;6:75. doi: 10.3389/fneur.2015.00075. PMID: 25941511; PMCID: PMC4403511.

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P75) Small Tear, Big Root: Aortic Root Aneurysm Complicated by Pericardial Effusion and Cardiac Tamponade

Poster Presenter / Primary Author: Maia Winkel, MD - Jacobi Medical Center and Montefiore Medical Center

Co-Author: Taylor Burden, MD - Jacobie Medical Center and Montefiore Medical Center

Co-Author: Gagandeep Singh, MD - Jacobi Medical Center

Co-Author: Benjamin Araki, DO - Albert Eistein School of Medicine, Jacobi/Montefiore Emergency Medicine Program

Co-Author: Laila Cochon, MD - Jacobi Medical Center and Montefiore Medical Center

Co-Author: Alexandra Lew, MD - Jacobi Medical Center and Montefiore Medical Center

Co-Author: Eldin Pupovic, MD - Jacobi Medical Center and Montefiore Medical Center

Co-Author: Peter Gruber, MD - Jacobi Medical Center

Chief Complaint : chest pain

History of Present Illness : 59-year-old male, daily smoker with no other past medical history comes in by ambulance for sudden-onset, non-radiating, substernal chest pain associated with lightheadedness and shortness of breath that began while standing in the bathroom just prior to arrival. On arrival, the patient was hypotensive, tachycardic, and diaphoretic all while clutching his chest and complaining of severe chest pain and shortness of breath. He denied drug and alcohol use, and did not have a significant family history of cardiac disease.

Pertinent Physical Exam: ED vital signs: BP 97/62, HR 106, T 97.3 F, RR 17, O2 99% on RA On exam, the patient appeared uncomfortable and lethargic but was oriented to person, place and time. He had distant heart sounds on cardiac auscultation and his skin was pale and diaphoretic. Bedside point-of-care-ultrasound (POCUS) showed a large pericardial effusion with a clot, dilatation of aortic root, diastolic right ventricular collapse, possible systolic right atrial collapse, and a plethoric inferior vena cava (IVC). There was no obvious dissection flap seen on the cardiac or abdominal ultrasound.

Pertinent Laboratory Data: EKG: NSR and no acute signs of ischemia Labs: none resulted prior to transfer

Case Discussion: Chest pain is one of the most common chief complaints in the emergency department – key features can help distinguish the benign from the life-threatening. In a hypotensive patient with sudden-onset chest pain, it is imperative to evaluate for the fatal causes: acute coronary syndrome, aortic dissection, cardiac tamponade, esophageal rupture, pulmonary embolism, and pneumothorax.[1] Ultrasound is an efficient, non-invasive, bedside imaging modality that can guide both emergency evaluation and treatment. In order to better elucidate pathology, the Rapid Ultrasound for Shock and Hypotension (RUSH) exam can be used to obtain the following views: parasternal long, apical four-chamber, IVC, right upper quadrant (most sensitive), left upper quadrant (most dependent), bladder, aorta, bilateral pulmonary views, including the base of the thoraces. The combination of a focused history,

physical, and ultrasound led to a quick diagnosis of aortic root dilatation and accompanying tamponade physiology with a pericardial clot.[2,3] Notably, the listed criteria for cardiac tamponade were all visualized: pericardial effusion, diastolic right ventricular collapse (high specificity), systolic right atrial collapse (earliest sign), plethoric IVC without respiratory variation (high sensitivity).[3] Intravenous fluids and blood products were immediately administered.[4] Based on the aforementioned ultrasound findings, the decision was made to forego cardiac catheterization and, instead, obtain an emergent CTA dissection study and arrange transfer to a nearby hospital with a cardiothoracic surgery service. The CTA showed a dense, large pericardial effusion concerning for hemopericardium, an intramural hematoma, possible ulceration of the ventral ascending aorta, and aortic root ectasia (4.9 cm).[5] The patient was emergently transferred and, intraoperatively, a large hematoma involving the aortic root with a tear above the right coronary ostium was found just superior to the aortic valve. A valve-sparing aortic root replacement was performed and the patient was discharged home six days later.[6]

References and Acknowledgements (Optional): Johnson, K., & Ghassemzadeh, S. (2023). Chest Pain. In StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing. Available from: https://www.ncbi.nlm.nih.gov/books/NBK470557/ Thomas, K., & Amr, O. (2022). Use of Point-of-Care Ultrasound for Early Identification of Acute Aortic Root Dissection. Case Rep Crit Care, 2022, 7166230. doi: 10.1155/2022/7166230. PMID: 36299499; PMCID: PMC9592206. Alerhand, S., & Carter, J. M. (2019). What echocardiographic findings suggest a pericardial effusion is causing tamponade? Am J Emerg Med, 37(2), 321-326. doi: 10.1016/j.ajem.2018.11.004. PMID: 30471929. Sagristà-Sauleda, J., Angel, J., Sambola, A., & Permanyer-Miralda, G. (2008). Hemodynamic effects of volume expansion in patients with cardiac tamponade. Circulation, 117(12), 1545-9. doi: 10.1161/CIRCULATIONAHA.107.737841. PMID: 18332261. Mussa, F. F., Horton, J. D., Moridzadeh, R., Nicholson, J., Trimarchi, S., & Eagle, K. A. (2016). Acute Aortic Dissection and Intramural Hematoma: A Systematic Review. JAMA, 316(7), 754-63. doi: 10.1001/jama.2016.10026. PMID: 27533160. Brown, J. A., Arnaoutakis, G. J., Kilic, A., Gleason, T. G., Aranda-Michel, E., & Sultan, I. (2020). Current trends in the management of acute type A aortic intramural hematoma. J Card Surg, 35(9), 2331-2337. doi: 10.1111/jocs.14819. PMID: 32652687.

Saturday, September 9, 2023

Session Time: 12:30 - 13:30

Presentation Time: 12:30 - 13:30

Track: Posters - Case Reports

(P76) What Lies Beneath: A Case of Traumatic Rhabdomyolysis

Poster Presenter / Primary Author: Maia Winkel, MD - Jacobi Medical Center and Montefiore Medical Center

Co-Author: Boey Li, MD - Jacobi/Montefiore Medical Centers

Co-Author: Peter Gruber, MD - Jacobi Medical Center

Chief Complaint : leg pain

History of Present Illness : 53-year-old male with no past medical history presenting with right posterior thigh pain since yesterday. He states he tripped while carrying bricks at work and fell backwards, hitting his right posterior thigh on the flat edge of a lead pipe. He reports he was able to stand up and continue working. Afterward, he went to a pharmacy and bought over-the-counter analgesics and muscle relaxers. He has been able to ambulate since but does endorse severe pain (10/10) to his posterior thigh. He denies numbness, tingling, weakness, or anticoagulant use.

Pertinent Physical Exam: ED vital signs: BP 117/71, HR 67, T 97.9 F, RR 16, SpO2 98% On exam, the patient was calm and cooperative. He had full passive and active R hip and knee extension and flexion. There was tenderness to palpation of a mildly swollen but not tense posterior right thigh without bony tenderness. There were no ecchymoses, lacerations, or abrasions. Dorsalis pedis and posterior tibialis pulses were 2+ bilaterally. He was able to walk without assistance with a slightly antalgic gait.

Pertinent Laboratory Data: Labs: WBC 6.5, CK 11,363; ALT 133, AST 312 Normal femur x-rays.

Case Discussion: The initial differential for this patient included muscular contusion, occult fracture, compartment syndrome, rhabdomyolysis, muscular infarct, rheumatologic disease, and abscess. A muscular or osteopathic seemed most likely, given that the patient had soft compartments, no joint involvement, or infectious symptoms. Initially, the patient appeared to have a muscular contusion so he was given intramuscular toradol with a plan for reassessment. On re-examination, the patient was screaming, with pain out of proportion, for which he was given oxycodone/acetaminophen. The right posterior thigh remained slightly swollen but not tense, he was still able to actively fully flex and extend his lower extremities, there continued to be no overlying skin changes or changes in sensation, and bilateral pulses were still intact. Though these are often delayed findings, the classic “Five Ps” of compartment syndrome – pain, pulselessness, paresthesia, paralysis, and pallor – were all absent, save pain. Labs were significant for CK 11,363 (significantly greater than five times the upper limit of normal) and mild transaminitis, indicative of traumatic rhabdomyolysis. Right lower extremity x-ray imaging showed no fracture, dislocation, or bony mass. He was subsequently seen by orthopedics and deemed not to have compartment syndrome. The patient was admitted for intravenous fluids and pain control and was discharged home on day three.

References and Acknowledgements (Optional): Cabral BM, Edding SN, Portocarrero JP,

Lerma EV. Rhabdomyolysis. Disease-a-Month, Volume 66, Issue 8, 2020, 101015, ISSN 0011-5029, https://doi.org/10.1016/j.disamonth.2020.101015. Giannoglou GD, Chatzizisis YS, Misirli G. The syndrome of rhabdomyolysis: Pathophysiology and diagnosis. Eur J Intern Med 2007; 18:90. Torlincasi AM, Lopez RA, Waseem M. Acute Compartment Syndrome. 2023 Jan 16. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan–. PMID: 28846257.

Saturday, September 9, 2023
Session Time: 12:30 - 13:30
Presentation Time: 12:30 - 13:30
Track: Posters - Research Abstracts

(P77) Summer Zoom Series: Topics in Medicine

Poster Presenter / Primary Author: Alisa Wray, MD, MAEd - University of California Irvine
Co-Author: Konnor Davis, MS-II - University of California Irvine SOM
Co-Author: Trinidad Acala-Arcos, MS-II - University of California Irvine SOM
Co-Author: Nolan Huck, MS-II - University of California Irvine SOM
Co-Author: Keziah Tan, MS-II - University of California Irvine SOM

Objectives: The COVID-19 pandemic and “shelter-in-place” orders reduced medical student opportunities for research, clinical activities and mentorship. We created a Summer Zoom Series of Topics in Medicine to increase engagement of incoming and first year medical students (MS) with the current medical school students and faculty.

Background: The COVID-19 pandemic resulted in dramatic changes to medical education. In 2020, California ordered a “shelter-in-place” and the AAMC recommended removing MS from clinical duties. Medical education went from in-person to remote.1 Incoming and MS1s found their summer research and travel plans canceled and MS3/4s faced limited clinical rotations.2 MS expressed concerns about decreased opportunities to explore specialties and effects on their future careers.2,3 We designed the “Summer Zoom Series: Topics in Medicine,” a series for all incoming and current UC Irvine MS that featured medical and specialty talks that took place the summer of 2020, 2021 and 2022.

Methods: For the summer of 2020 Summer Zoom Series, a faculty member organized the one-hour Zoom based didactic sessions that occurred from June 2020 to August 2020. Based on student feedback sessions included a variety of speciality specific talkshops called “Why I chose XXX” that focused on why faculty chose their specific specialties, “Story Time” sessions that focused on clinical stories from various specialties and clinical topics sessions such as EKG reading, common labs, ultrasound, COVID-19 updates, intro to radiology, LGBTQ+ care, Anti-Racism, and a few hands on topics such as suturing and intravenous line placement where students picked up materials and then participated in instructional sessions on Zoom. The series was then repeated in the summer of 2021 and again in 2022--each year with increased student involvement in planning and creation. New sessions included student run “So you wanna be a first year” and “So you wanna be a second year” which focused on upperclassmen advice with respect to each year. In 2021 and 2022 there were in-person suturing, IV placement and ultrasound sessions. Attendance to sessions was tracked, all sessions were recorded and student comments were collected. Recordings were posted to the learning management system and views were recorded.

Results: The summer of 2020, 36 Zoom based sessions occurred with an average of 14.25 students/ session, composed of incoming first year and current MS1-4s. Posted recordings were viewed a total of 245 times by 104 unique viewers with a total of 3244 viewing minutes. The summer of 2021, 31 total sessions occurred, 27 Zoom and 4 in-person skills sessions, with an average of 9 students/session, composed primarily of incoming and current MS1s. Posted recordings were viewed a total of 407 times by 119 unique viewers with 10592 viewing minutes. The summer of 2022, there were 57 total sessions, 50 Zoom and 7 in-person skills sessions.

Sessions were primarily attended by incoming first year and current MS1s, averaging 7.4 students/session. Posted recordings were viewed 666 times by 138 unique viewers with 18814 viewing minutes. Overall the 2020 Summer Zoom Series was the most attended--likely due to “shelter-in-place” orders and students having limited opportunities for activities outside of home. As restrictions were lifted we saw a decrease in Zoom session attendance, however an increase in posted recordings views and increased attendance at in-person events. Overall student and faculty satisfaction each year was very high--verbal and written comments were overwhelmingly positive and appreciative.

Conclusions: The Summer Zoom Series provided MS the opportunity for faculty interaction/mentorship during an isolating time. We anticipated decreased attendance in 2021 and 2022 but were pleased with positive feedback and recording viewership. We plan to continue the series with standardized session times to improve attendance and increased in-person events.

References (Optional): 1. Association of American Medical Colleges. Important guidance for medical students on clinical rotations during the coronavirus (COVID-19) outbreak, 2020. Available: https://www.aamc.org/news-insights/press-releases/important-guidance-medical-students-clinical-rotations-during-coronavirus-covid-19-outbreak [Accessed 28 Sept 2022]. 2. Papapanou M, Routsi E, Tsamakis K, et al. Medical education challenges and innovations during COVID-19 pandemic. Postgraduate Medical Journal 2022;98:321-327. 3. Ferrel M N, Ryan J J (March 31, 2020) The Impact of COVID-19 on Medical Education. Cureus 12(3): e7492. doi:10.7759/cureus.7492

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Saturday, September 9, 2023
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Track: Posters - Research Abstracts

(P78) Predictive Factors of Infection Source on the Combined Chest and Abdominal Computed Tomography in Febrile Elderly Patients with No Clinical Clue in the Emergency Department: An Observational Study

Poster Presenter / Faculty Advisor: HEEBUM YANG, MD - Eulji Medical Center, Eulji University
Primary Author: WON YOUNG SUNG, MD - Daejeon Eulji Medical Center, Eulji University
Co-Author: SANG WON SEO, MD - Daejeon Eulji Medical Center, Daejeon, Republic of Korea
Co-Author: JIN Cheol KIM, EMT - Daejeon Eulji Medical Center, Daejeon, Republic of Korea

Objectives: The purpose of this study is to evaluate the utility of the combined chest and abdominal computed tomography (CT) in febrile elderly patients with no clinical clue in the emergency department (ED) and to find predictors that can identify infection source on the CT.

Background: In patients with unclear causes of fever, if vital signs are unstable or if severe infection and sepsis are suspected due to high levels of inflammatory markers including C-reactive protein (CRP) and procalcitonin (PCT), CT is performed to clearly identify the cause of fever and use of appropriate antibiotics. the authors investigated whether combined chest and abdominal CT (systemic CT) scan performed in febrile elderly patients without any clinical clue to the cause of fever in the ED was useful in finding infection source, and there is factor that can predict the presence of infection source on the systemic CT.

Methods: We reviewed medical records of febrile elderly patients without any clinical clue who underwent combined chest and abdominal CT in the ED between January 2017 to December 2018. Fever in the elderly patients was defined as tympanic temperature ≥ 37.2℃ or increase in body temperature ≥ 1.3℃, and no clinical clue of fever was defined as no findings suggestive of the cause of fever in medical history taking, review of systems, physical examination, and emergency diagnostic tests including various blood tests, urinalysis and simple chest radiography.

Results: Total 110 febrile elderly patients without clinical clue who underwent systemic CT in the ED were included. 56 patients were classified as negative infection source on the CT group, and 54 patients classified as positive infection source group. The rates of identifying infection source by systemic CT performed in febrile elderly patients without clinical clue in the ED was 49.1%. From multivariate logistic regression, the underlying diabetes mellitus [odds ratio (OR) = 3.097, 95% confidence interval (CI): 1.146–8.364, p-value = 0.026], malignancy [OR= 12.973, 95% CI:2.433–69.168, p-value = 0.003], CRP (≥5.16 mg/L) [OR= 9.594, 95% CI: 3.157–29.159, p-value < 0.001] and q-SOFA score (≥2 point) [OR= 8.818, 95% CI: 2.597–29.947, p-value = 0.001] were significant independent predictors of the positive infection source on the combined chest and abdominal CT in febrile elderly patients without any clinical clue in the ED.

Conclusions: For febrile elderly patients with no clinical clues in the ED, with underlying diabetes, malignancy, CRP is greater than 5.16 mg/L, or q-SOFA score of 2 or higher, combined chest and abdominal CT to identify infection source can be considered when clinical benefit is judged to be high.

References (Optional):

Funding: none

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(P79) "My Brain Is Not Right"

Poster Presenter / Primary Author: Farah Ali, PA-C, MPH - Mount Sinai Icahn School of Medicine

Faculty Advisor: Jeremy Rose, MD - Mount Sinai Icahn School of Medicine

78 year old female with renal amyloidosis, Waldenstroms Macroglobulinemia, lymphoma, HFpEF, ESRD on peritoneal dialysis (PD) presented with altered mental status. History of Present Illness: She initially presented to her primary care doctor for facial rash and was started on renally-dosed valacyclovir for herpes zoster and was told that zoster had not spread to her eyes. However, that evening the patient's husband reported that she was agitated and having difficulty with word finding and operating her phone. She also had difficulty setting up her PD and could not remember how to connect it. She was also experiencing auditory and visual hallucinations. The next morning her mental status had not improved; this prompted her spouse to bring her in to the emergency department (ED). Pertinent Physical Exam: VS: BP 157/80 | HR 84 | RR 19 | Temp 96.8 | SpO2 100% Neurologic: Waxing and waning mental status; occasionally disoriented and unable to state date or where she is. During interview patient was agitated and stated that "her brain wasn't right and she felt as if she was going crazy". She was not able to tell ED providers any events that led up to the ED visit. Speech is not slurred. No facial droop. Moving all extremities, no focal weakness. No ataxia. Skin: Crusted vesicular lesions about the V1 distribution left side of face Pertinent Laboratory Data: Labs: WBC 24.1 BUN 81, Cre 10.91 BNP 419.4, Trop 0.123 CT Head: microvascular changes Dosed w/ pipercillin-tazobactam 3.375g, vancomycin 1g after blood cultures were sent; no antivirals given, out of concern for neurologic effects of valacylovir toxicity as the cause of patient's altered mental status. Admitted to medicine for altered mental status, presumed secondary to valacyclovir toxicity. Given V1 distribution of zoster and clinical suspicion of varicella encephalitis, lumbar puncture was eventually recommended and performed. Cerebrospinal fluid was positive for varicella zoster. Case Discussion: It is critical for emergency department providers to consider Varicella Zoster encephalitis in immunocompromised and renal patients with altered mental status and recent rash. Initial working diagnosis for admission was valacyclovir toxicity given patient's renal failure. ED staff had discussed with her nephrologist who assured team that her valacyclovir was appropriately dosed for her GFR; nevertheless, antivirals were deferred in the ED out of concern for neurologic effects of valacyclovir toxicity as the cause of her presentation. Given V1 distribution of zoster and clinical suspicion of varicella encephalitis, lumbar puncture was eventually recommended and performed, which was positive for varicella zoster and the patient was started on empiric IV acyclovir. In the hospital, patient continued to demonstrate poor mental status, AOx0 non-verbal minimally responsive to stimulus. MRI was Brain done, which was negative for other abnormalities. Patient was placed on vEEG which was notable for focal right temporal seizure activity, concerning for non-convulsive status epilepticus. Loaded with keppra 1g and ativan 2mg. Patient was transferred to MICU due to worsening mental status, where she had a prolonged two-month long course with many complications. It is critical for emergency department providers to consider varicella zoster encephalitis in immunocompromised and renal patients with altered mental status and recent rash. In this case, ED staff deferred antiviral administration and lumbar puncture, instead anchoring on the diagnosis of valacyclovir toxicity. Valacyclovir can cause neurologic effects and altered mental status especially in renal patients, and this is an important consideration.

However, early lumbar puncture and early antivirals might have given this patient a better outcome; instead, lumbar puncture was not performed until more than ten hours after initial presentation to the emergency department, and the diagnosis of varicella zoster encephalitis made.

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(P80) Seeing Double!

Poster Presenter / Primary Author: Farah Ali, PA-C, MPH - Mount Sinai Icahn School of Medicine

Co-Author: Ming Jie Jiang Jiang, PA-C - Mount Sinai Icahn School of Medicine

A 42 year old healthy female woke up and noted double vision only with extreme leftward and downward gaze. Sent to emergency department by ophthalmologist with concern for acute fourth nerve palsy of the right eye. On exam, patient found to have diplopia when gazing at the lower left visual field with improvement when occluding one eye. Pupils were equally round and reactive to light. Extraocular movements intact. No gross strabismus or hyperopia, nystagmus. Rest of neurologic exam normal. Workup: MRI brain showed acute/subacute infarct in the left thalamus. MRA head/neck showed no large vessel occlusion, no significant stenosis. Hypercoagulable workup revealed elevated anti-thrombin III. ▪ Case Discussion: Monocular diplopia reflects a problem with the eye itself. Binocular diplopia, which occurs when both eyes are open and resolves with one eye closed, typically reflects a lesion either along the pathway of a cranial nerve, at the neuromuscular junction (for example myasthenia gravis), or at the extraocular muscles (orbital myositis, infection, trauma, or mechanical restriction). ▪ Oculomotor nerve (CN III) pathology will involve limitation of elevation, depression and adduction, with an eye deviated “down and out”. If an aneurysm or other compressive lesion is the cause of third nerve palsy, the pupil will almost always be involved given the arrangement of parasympathetic fibers located at the periphery of the third nerve bundle. Microvascular disease may cause pupil sparing third nerve palsy, as the fibers that innervate the muscles are located towards the center of the nerve bundle. ▪ The abducens nerve (CN VI) turns the eye laterally; pathology involving this nerve will give horizontal binocular diplopia most pronounced in the direction of the palsy. If you have a right CN VI palsy, that eye cannot look rightward when the left can, causing double vision. Case discussion: This patient was sent in by ophthalmologist to rule out a trochlear nerve (CN IV) palsy. The trochlear nerve emerges from the dorsal brainstem near cranial nerves III and V, and decussates to innervate the contralateral superior oblique muscle. The superior oblique muscle is responsible for intorsion, depression, and abduction of the eye. Patients with trochlear nerve pathology may notice diplopia looking downwards, for example walking down stairs. They may compensate by tilting their head away from the affected side to correct. This patient was found to have a thalamic infarct, her sole finding on imaging. The thalamus has its own independent function in regulation of visual movements. The thalamus itself contains different nuclei that independently help coordinate eye movements involving saccades, fixation, and eye or gaze position. The frontal and supplementary eye fields receive many projections from the central thalamus. • If our patient had isolated trochlear nerve palsy due to thalamic stroke, the area of infarct would somehow have to involve the dorsal territory but bypass the rest of the cranial nerves. Ischemia involving the midbrain would likely involve the ipsilateral CN III, since its nucleus is located between the thalamus and CN IV nucleus. In the case of a stroke, this is such a small area that typically multiple cranial nerves are affected. Thus it is possible that the patient’s symptoms may be due to direct dysregulation of the thalamic function in coordinating eye movement, presenting similarly to a trochlear nerve palsy.

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(P81) Malignant Hyperthermia Due to Glufosinate Poisoning

Poster Presenter / Primary Author: Juho An, MD - Ajou University Hospital
Faculty Advisor: Young-Gi Min, MD - Ajou university hospital

Chief Complaint : A 59-year-old male presented to the Emergency Department (ED) after a suicidal consumption of glufosinate.

History of Present Illness : A patient with a history of HTN and DM, after fighting with others, ingested glufosinate ammonium 50cc for suicide and visited the emergency department in a state of stuporous mentality. Initial vital signs were stable and there was no fever, but after intubation with stupor mentality, the patient was hospitalized for ICU care. No recovery of consciousness on the first day of hospitalization, but no signs of meningeal irritation, observed with empirical antibiotics. From the second day of hospitalization, a fever of 39 degrees or higher persisted, and the body temperature was lowered using a cooling device, and medications including acetaminophen (AAP) and NSAID were administered, but the fever persisted. The patient's temperature is rapidly rising, rhabdomyolysis and hyperkalemia occurred with a high fever of 40 degrees or more. The patient expired as metabolic acidosis worsened and hyperkalemia worsened despite continued use of antipyuritic drugs and electrolyte imbalance correction.

Pertinent Physical Exam: During the general physical examination in the ED, the patient mentality was stupor. His vitals were stable with a blood pressure 110/70 mm Hg, respiratory rate 20 breaths/minute, body temperature 36 degrees and an oxygen saturation of 96% in room air. A nontender abdomen were revealed during his gastrointestinal examination. Initially, there were no signs of muscle rigidity and meningeal irritation. The fever continued, but there was nothing that could be the fever focus, and nothing was identified in the culture results. On the second day of hospitalization, the fever continued and the muscle rigidity increased.

Pertinent Laboratory Data: The patient's consciousness was consistently stuporous, but the ammonia level was 19 uMol/L at the time of visit to the emergency department and 21uMol/L on the first day of hospitalization, showing no significant difference. Leukocytosis was not present during admission. There was no elevation of inflammation markers such as CRP. On the second day of hospitalization, fever persisted, rhabdomyolysis occurred, and hyperkalemia and metabolic acidosis occurred.

Case Discussion: Glufosinate is a common herbicied drug and is widely used worldwide, and reports of accidental and suicidal poisoning are not uncommon. Malignant hyperthermia is a rare but potentially life-threatening condition that is typically triggered by certain types of anesthesia during surgery or genetic disorders. Malignant hyperthermia due to glufosinate is rare and has not yet been reported. In this case, the patient experienced an malignant hyperthermia crisis, likely triggered by glufosinate. Malignant hyperthermia results in uncontrolled release of calcium from muscle cells, leading to muscle rigidity, hypermetabolism, and a potentially fatal increase in body temperature. Treatment with dantrolene, intravenous fluids, and cooling measures can be life-saving in the event of an MH crisis. However, the possibility of malignant hyperthermia was not recognized and only IV hydration, NSAID,

acetaminophen and cooling methods were used without the use of drugs such as dantrolene. Since no case of malignant hyperthermia caused by glufosinate has been reported yet, it was not quickly recognized in this case. Our case raises the possibility that glufosinate may also be associated with malignant hyperthermia, aggressive treatment may be required in the presence of uncontrolled fever.

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(P82) Ovarian Torsion in a Woman After Hysterectomy: A Case Report

Poster Presenter / Primary Author: Baturay Aydemir, PGY-2 - Michigan University Homer Stryker M.D. School of Medicine. Department of Emergency Medicine

Co-Author: Nahal Massoudi, PGY-2 - Michigan University Homer Stryker M.D. School of Medicine. Department of Emergency Medicine

Faculty Advisor: Timothy Trichler, MD - Michigan University Homer Stryker M.D. School of Medicine. Department of Emergency Medicine

Chief Complaint : A 39-year-old G5P3 woman with a history of obesity presented to an outside emergency department complaining of intermittent right lower quadrant abdominal pain.

History of Present Illness : A 39-year-old G5P3 woman with a history of obesity presented to an outside emergency department for sharp worsening intermittent right lower quadrant abdominal pain radiating to the flank. She had three episodes of emesis at the peak of her pain. She reported running on the treadmill about 1 hour prior to the onset of her pain. About one year prior to presentation, the patient had a hysterectomy with bilateral salpingectomy due to uterine fibroids and abnormal uterine bleeding.

Pertinent Physical Exam: On examination, the patient had RLQ tenderness without rebound or guarding. No peritonitis. Bowel sounds present in all four abdominal quadrants. On pelvic examination patient had tenderness of right adnexa

Pertinent Laboratory Data: laboratory workup was unremarkable CT scan without contrast revealed possible ovarian cysts pelvic ultrasound which revealed an enlarged right ovary measuring 6.9 x 3.7 x 4.6 cm with an included 3 cm cyst. Doppler scan demonstrated a normal flow pattern

Case Discussion: Ovarian torsion after a hysterectomy is not a common occurrence, comprising about 8% of the total torsions. [1] However, complications related to it can be life-threatening including ischemia and infection. Ovarian torsion can be a challenging diagnosis due to its nonspecific signs and symptoms. Currently, there is no specific and sensitive testing for diagnosis of ovarian torsion. Most of the patients with ovarian torsion present with nausea and vomiting (70%), and approximately 70% of patients present with a sharp abdominal pain [3] . The ultrasound result in our patient was significant for an enlarged right ovary and the presence of a cyst however, the doppler scan demonstrated a normal flow pattern in our patient. In one study, the specificity of pelvic ultrasound to rule in ovarian torsion was 99.6% but the sensitivity of ultrasound in ruling out ovarian torsion was found to be only 72% [4] . This means that around 28% of ovarian torsions were missed by ultrasound due to absence of abnormal flow patterns. In our case, the patient did have a normal flow pattern causing delay in the diagnosis and appropriate management. Unilateral ovarian enlargement of the affected ovary was discovered to be one of the most common findings in ovarian torsion, which was present in our patient. Additionally, our patient had an ovarian cyst which further increases her chances of having a torsion. In this case, largely because the patient had a hysterectomy in the past, the OB-GYN team discharged the patient home despite the concerning ultrasound

findings. However, patient's pain worsened on follow-up appointment, and she eventually came back to the hospital for emergency laparoscopy and had an unsalvageable torsed right ovary. This case shows that ovarian torsion needs to be considered even in the patients with a prior history of hysterectomy.

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(P83) RUSH to the Answer: A Case of Cardiac Injury Diagnosed on Bedside Ultrasound

Poster Presenter / Primary Author: Matthew Berger, MD, FAAEM - Capital Health
Co-Author: Matthew Tripod, MD - Capital Health
Co-Author: Marco Anshien, MD, FAAEM - Capital Health

Chief Complaint : A 63-year-old female presented as a rapid response from the outpatient CVIR suite after becoming hypotensive and unresponsive during an IVC filter removal procedure.

History of Present Illness : A 63 year old female with a past medical history of asthma, hypertension, diabetes, ovarian cancer and pulmonary embolism presented as a rapid response from the outpatient interventional radiology (IR) suite after she became hypotensive and unresponsive during an IVC filter removal procedure. The patient had reportedly received flumazenil and naloxone to reverse the effects of benzodiazepines and opioids that she had been given in case they were the cause of her hypotension. She also received glucose and a 500cc bolus of fluid with a reported improvement in her blood pressure and mental status. However shortly after arrival to the ED the patient had a systolic blood pressure of 30mmHg and aggressive fluid resuscitation was initiated.

Pertinent Physical Exam: Initial Vitals: BP 30/palp, HR 82, RR 15 General: Somnolent, not answering most questions Head: Normocephalic, atraumatic Neck: Supple HEENT: Pale mucous membranes Respiratory: Normal work of breathing CV: Hypotensive, only carotid and femoral pulses palpable Abd: Soft, nontender Skin: Cool, pale

Pertinent Laboratory Data: Due to the patient's critical illness no pertinent laboratory data was able to be obtained in the emergency department.

Case Discussion: Due to the patient’s profound hypotension and altered mental status on arrival, a RUSH exam was performed at the bedside which identified a large pericardial effusion with signs of developing cardiac tamponade. This was highly suspicious for proximal IVC or right atrial injury and the cardiothoracic surgery team was immediately called. The patient was taken emergently to the OR where a large amount of pericardial blood and hematoma were evacuated. The right atrial appendage showed an area of bruising that was suspicious for a perforation. The patient was transferred to the ICU where she continued to recover well and was discharged on post operative day 7. The above case describes a very unstable patient who’s diagnosis was obtained rapidly with bedside ultrasound using the RUSH exam. On arrival from the outpatient IR suite, the patient’s cause of hypotension was not known. It was only after the cardiac view of the RUSH exam that a pericardial effusion and developing tamponade was identified and appropriate management was able to occur. In this situation there were very few other options to evaluate the patient. She was too unstable to remove from the emergency department for a CT and labwork would have taken too long. Bedside ultrasound however was able to immediately identify a pericardial effusion and developing tamponade as the cause of this patient’s hypotension. The purpose of the RUSH exam, similar to the eFAST, is to identify pathology that needs to be intervened on immediately. Incorporation of bedside ultrasound into

the evaluation of critically ill patients shortens the time to correct diagnosis and improves the accuracy of diagnosis. Our case is an example of bedside ultrasound being used to very quickly answer a clinical question that lead to a lifesaving diagnosis and supports the use of bedside ultrasound for all hypotensive patients.

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(P84) A Young Man with Upper Chest Pain and Sore Throat

Poster Presenter / Primary Author: Iwei Chen, md - kaohsiung chang kung hospital

Chief Complaint : intermittent sore throat and upper chest pain for 3 days

History of Present Illness : A 17-year-old man presented to the emergency room with intermittent sore throat and upper chest pain for 3 days after jogging for 1.6 km. The pain was not associated with position nor exertion. The patient also denied the related symptoms like fever, dyspnea, cold sweating, nor back pain.

Pertinent Physical Exam: On physical exam, he was conscious and afebrile with a pulse rate of 96 beats/min, respiratory rate of 18 times/min, body temperature of 36.1 Celsius, and blood pressure of 119/75 mmHg. Clear breathing sound and symmetrical breathing pattern were noted.

Pertinent Laboratory Data:

Case Discussion: Pneumomediastinum is the term which defines the presence of air in the mediastinum. It usually occurs in young patients.(1) The presenting symptom is acute onset chest pain, usually retrosternal, radiating to the neck or the back.(2.3) Other frequent symptoms include dyspnea (75%), coughing spells (80%), neck pain (36%), emesis or dysphagia.(3.4) The diagnosis is based on Chest X-ray and computed tomography. After the diagnostic approach has excluded significant pathology, the pneumomediastinum treatment is directed towards symptom relief.(5) Overall, pneumomediastinum usually has good prognosis and few recurrence cases have been reported.

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(P85) Acute Aortic Dissection Presented as Acute Ischemic Limb

Poster Presenter / Primary Author: Abbie Cheng, MD - Chang Kung Memorial Hospital

Chief Complaint : Acute onset right flank while lying on bed

History of Present Illness : This 46 year old male, who denied systemic disease, presented to our emergency department due to sudden onset right flank pain while lying on his bed. Initial vital signs in the right arm was 143/72 mm of Hg, pulse rate was 73 beats per minute, and her respiratory rate was 18 per minute and temperature was 36 degrees celsius. Accompanied symptoms include soreness and numbness from right thigh extending to lower leg and patient complain difficulty moving his leg. Pain score was around VAS:6 accompanied with cold sweating. According to patient, his occupation involved heavy lifting. He denied chest pain, dyspnea, fever, hematuria or abdominal pain.

Pertinent Physical Exam: Physical examination reveal right lower leg muscle power decrease (muscle power 4), SLRT test negative. Bilateral legs looked pale. Right legs were cold to the touch compared with left leg. No tenderness, erythema or swelling was noted. Respiratory and abdomen examinations were normal.

Pertinent Laboratory Data: A T+L spine radiography was ordered with L spine spurs formation but otherwise negative finding for spondylolisthesis or compression fracture. Bedside echo was done, which showed poor femoral artery perfusion on doppler. Urine analysis showed hematuria without significant increase of white count. CTA of aorta was arranged preceding negative findings from initial evaluation, which showed Stanford type A aortic dissection with intimal flap extending to aortic root, bilateral common iliac arteries, innominate artery and left CCA, right external iliac artery from false lumen with thrombosis.

Case Discussion: This case is an great example of why aortic dissection is called the “great masquerader”. Although there there is nothing new about the disease, the prompt recognition of the situation has always been an import task in the emergency department, owing to the high mortality rate without early surgical intervention. In this case, relative stable vital signs , initial presentations without typical chest pain and history of heavy weight lifting may lead doctors into approaching the case as a probable spinal stenosis, siatica or even urolethiasis due to findings of hematuria. However, when physical examinations such as pale leg and pain characteristics such as numbness and paralysis indicate a possibility of a ischemic limb, physicians should reconsider if this symptoms can be fully explained by initial differential diagnosis. Several radiological tests can aid in diagnosis including, mediastinal widening on CXR, contrast CT, TEE or MRA but none are as readily available as POCUS. According to previous studies, early POCUS use can help reduce diagnosis time of up to 145 minutes if performed early. Moreover POCUS not only aid diagnosis but also help with resuscitation by assessing intravascular volumes.

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(P87) Abdominal Compartment Syndrome: Nonspecific Abdominal Pain to Cardiac Arrest

Poster Presenter / Primary Author: Ariella Gartenberg (she/her/hers), MD - Montefiore Medical Center, Jacobi Medical Center

Co-Author: Aria Fariborzi, MD - Montefiore Medical Center/Jacobi Medical Center

Chief Complaint : Abdominal Pain

History of Present Illness : Patient was a 13-year-old female with a past medical history of developmental delay, dysmorphic facial features, and possible Genetic Syndrome who presented to the pediatric emergency room for abdominal pain and nausea for 1 day. Patient was non-verbal and unable to elaborate further, but able to nod her head yes/no and point to her abdomen. The history was mainly obtained from the mother at bedside who stated that the patient pointed to her abdomen the evening prior to the ED presentation and refused oral intake. The last bowel movement recorded was two days prior with multiple episodes of retching without emesis. No fevers, chills, diarrhea, urinary complaints, syncope, or rash.

Pertinent Physical Exam: Upon arrival to the ED, vital signs were within normal limits. Patient appeared well without any significant distress. Abdominal exam notable for soft abdomen with distension. Mild tenderness to palpation in left upper quadrant without rebound or guarding.

Pertinent Laboratory Data: WBC 7.87, Hgb 13.7, Anion Gap 16.6, Sodium 147, Potassium 4.4, BUN/Cr 19/0.4. COVID positive. Abdominal X-ray: initially read as non-obstructive bowel gas pattern.

Case Discussion: Given the limited history and initial x-ray read, an enema was given without relief in symptoms. An addendum to the abdominal x-ray indicated severe dilation of the stomach containing air-fluid level and possible gastric outlet obstruction. The patient remained hemodynamically stable and continued to mentate well, while a nasogastric tube was inserted by the general surgery team. There was minimal output of clear liquid from the nasogastric tube after 10 minutes and the patient self-removed the tube. CT of the abdomen and pelvis was obtained with findings emergently communicated to the ED reporting tension pneumoperitoneum likely from gastric perforation, with associated compression of aorta, abdominal organs, and bowel with extensive air in the venous system. Upon return from CT, the patient suddenly became hypoxic, cyanotic, and pulseless. Multiple rounds of PALS were initiated with successful needle decompression of the thoracic cavity and return of spontaneous circulation. The patient was emergently taken to the operating room for exploratory laparotomy and decompressive laparotomy. Decompressive laparotomy incision resulted in immediate expulsion of air, with noted large amount of coffee ground gastric contents and gastric perforation. Abdominal compartment syndrome (ACS) is a rare pediatric surgical emergency that can quickly lead to hemodynamic collapse. There are two types of ACS: primary and secondary. Primary ACS, as seen in this patient, is due to a primary intra-abdominal pathology causing a steep rise in intra-abdominal pressures and thereby significantly decreasing organ perfusion. Secondary ACS is seen in pathologies originating outside of the abdomen but also increasing intra-abdominal pressures thereby causing decreased perfusion. The gastric

perforation noted in this case likely introduced large amounts of free air and gastric contents into the abdominal cavity. The resultant sharp increase of intra-abdominal pressure led to compression of the aorta, decreased intra-abdominal organ perfusion, and hemodynamic collapse.

References and Acknowledgements (Optional): N/A

Sunday, September 10, 2023
Session Time: 12:30 - 13:00
Presentation Time: 12:30 - 13:00
Track: Posters - Case Reports

(P88) Abdominal Wall Hematoma in a High-risk Patient: Navigating the Complexities of Anticoagulation

Poster Presenter / Primary Author: Arpita Gupta, MD - Kaiser Permanente San Diego
Faculty Advisor: Jeff Lapoint, DO - Kaiser Permanente San Diego

Chief Complaint : Right lower quadrant abdominal pain and distension

History of Present Illness : 63 year old male with hypertension, diabetes, chronic kidney disease, atrial fibrillation, severe mitral regurgitation status post bioprosthetic mitral valve replacement on Coumadin, and recent transient ischemic attack presented with right lower quadrant abdominal pain and distention. Patient stated that this is his third visit to the emergency department for sharp, stabbing abdominal pain and swelling that has progressively worsened and radiated to his scrotum in the past twenty-four hours. He noted that superficial abdominal bruising began one week ago after his last Lovenox injection following a recent TIA in the setting of subtherapeutic INR on Coumadin. Prior abdominal surgeries include one exploratory laparotomy for a left abdominal stab wound over forty years ago.

Pertinent Physical Exam: Physical exam revealed a non-toxic patient in mild acute distress from pain. There was distension and severe tenderness localized to the right lower quadrant of the abdomen without guarding or rebound. Guaiac test was negative, however, mild scrotal swelling was present without overlying skin changes or significant tenderness. Cardiovascular and pulmonary examination were unremarkable. Patient was alert and oriented to person, place, time, and event.

Pertinent Laboratory Data: Initial CBC revealed a hemoglobin of 10.2 consistent with the patient's baseline then dropped to 7.7 within twenty-four hours. CMP was unremarkable with kidney function consistent with known chronic kidney disease. INR of 2.6 was increased from 1.4 prior to receiving Lovenox. CT abdomen and pelvis with IV contrast showed a low-density collection in the right lower abdominal wall, most consistent with a hematoma, measuring 13.5 cm by 8.5 cm by 18.5 cm with suspicion for active extravasation of contrast. BMI was stable at 34.9.

Case Discussion: In the emergency department, the patient became hypotensive with systolic BP 70-90's without significant sustained improvement after IV fluids. Repeat hemoglobin of 7.7 prompted transfusion of 2 units of packed RBCs, 2 units of FFP, and vitamin K followed by embolization by interventional radiology on day 1 of hospital admission. Per cardiology recommendations, the patient continued to receive blood transfusions to maintain hemoglobin greater than 8. On day 6, the patient's clinical status worsened with a hemoglobin of 6.2 and a repeat CT scan that revealed an expanding hematoma. The patient received a final transfusion and underwent a second embolization by interventional radiology on day 7. Coumadin was held throughout the duration of admission with repeat daily INR consistent at 1.3. The patient remained hemodynamically stable with hemoglobin 8.6 and was discharged on day 11 with instructions to hold coumadin at home and cardiology follow-up. In this case, the addition of a second anticoagulation agent should be done with caution and entail a detailed evaluation of risk and benefits. Older age, use of anticoagulation agents, and obesity predispose to the

development of dangerous abdominal wall hematomas with possibly fatal consequences due to increased bleeding risk and different vascular structure and matrix composition of subcutaneous tissue [1]. Hemodynamic instability secondary to an abdominal wall hematoma is especially concerning for patients with multiple comorbidities who are poor candidates for surgical intervention. Relevant literature shows that mortality rates can range from four to twenty percent and conservative management is preferred for those with multiple chronic conditions given no increase in hematoma size and hemodynamic stability [2]. Careful consideration of anticoagulation regimens in patients with abdominal wall hematoma involving known risk factors, co-existing medical conditions, and early intervention can prevent sequelae, such as hemodynamic instability and fatality.

References and Acknowledgements (Optional): [1] Goldstein, J. M., & Sebire, D. (2013). Abdominal wall haematoma in the obese: a dangerous phenomenon. Journal of surgical case reports, 2013(7), rjt060. https://doi.org/10.1093/jscr/rjt060 [2] Çolakoğlu MK, Özdemir A, Kalcan S, Demir A, Demiral G, Pergel A. Spontaneous abdomen and abdominal wall hematomas due to anticoagulant/antiplatelet use: Surgeons' perspective in a single center. Ulus Travma Acil Cerrahi Derg 2020;26:50-54.

Sunday, September 10, 2023

Session Time: 12:30 - 13:00

Presentation Time: 12:30 - 13:00

Track: Posters - Case Reports

(P89) Masked: A Challenging Diagnosis for a Common Symptom

Poster Presenter / Primary Author: Mohamed Hagahmed (he/him/his), MD, FAAEM - University of Pittsburgh Medical Center

Co-Author: Olivia McReynolds, MD - University of Pittsburgh Medical Center

Chief Complaint : Nausea, vomiting, diarrhea, and abdominal pain.

History of Present Illness : This is a single-patient chart review of a 90-year-old female with a past medical history of asthma who presented to the emergency department (ED) with vomiting, diarrhea, and abdominal pain for several days. There were no intraabdominal abnormalities on the CT scan. Her symptoms were managed as viral gastroenteritis, and she was subsequently discharged. She presented again a few days after her first ED admission with the same symptoms.

Pertinent Physical Exam: On the second ED admission, the patient was febrile to 38.5 °C, hypotensive at 90/70 mmHg with diffuse abdominal tenderness. She had dry mucosal membranes and appeared in obvious distress.

Pertinent Laboratory Data: Laboratory abnormalities included acute kidney injury (creatinine: 2.8 mg/dL, baseline 1.2 mg/dL), leukocytosis (WBC: 18× 10*9/L), and elevated lactate (Lactate: 3.0 mmol/L). The patient’s presentation was initially managed as a diagnosis of sepsis while in the ED. Medication reconciliation revealed daily theophylline use for over five years. A theophylline level was obtained and found supratherapeutic (level 62 mcg/mL). The patient was admitted, and theophylline was discontinued.

Case Discussion: Theophylline is a methylxanthine with a narrow therapeutic window, once commonly used to treat apnea in newborns and asthma. It has decreased in usage due to the myriad of adverse effects. Age and disease state are endogenous factors that alter the kinetics of theophylline and can increase the risk of toxicity. The patient was found to have acute-on-chronic theophylline toxicity. Based on the patient’s age, it was decided that the patient would not undergo hemodialysis and would be conservatively managed. The theophylline level trended down, and the patient improved clinically. She was counseled on discontinuing theophylline use for her asthma and discharged. Acute-on-chronic theophylline toxicity can present similarly to viral gastroenteritis, and there is an increased risk of toxicity with illness. Recognition of the theophylline toxidrome in patients with increased risk can lead to prompt intervention and subsequent recovery.

References and Acknowledgements (Optional): https://doi.org/10.1016/0736-4679(93)90244-2

Sunday, September 10, 2023
Session Time: 12:30 - 13:00
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Track: Posters - Case Reports

(P90) Sonographic Findings of Patient with Air Embolism and Pneumothorax

Poster Presenter / Primary Author: Kevin Hu, MD - Icahn School of Medicine at Mount Sinai
Co-Author: Kristie Price, MD - Icahn School of Medicine at Mount Sinai

Chief Complaint : Shortness of Breath and Confusion

History of Present Illness : A 64-year-old woman with a history of multiple myeloma was brought to the emergency department by her son who noticed she was confused and short of breath. She was in respiratory distress and had poor peripheral perfusion. She was intubated for airway protection and taken for computed tomography (CT) imaging before returning for central line placement.

Pertinent Physical Exam: Patient was alert and oriented only to her name. She had a normal heart exam. She had decreased breath sounds on her right lung.

Pertinent Laboratory Data: The CT chest image revealed a right-sided pneumothorax. Point-of-care ultrasound was used in an attempt to guide cannulation of the left femoral vein when the sonographer observed what was later termed the “venous curtain sign,” showing intermittent air artifact within the lumen of the vessel with ventilations (Figures 1 and 2). This is the first published use of this term to describe the sonographic appearance of venous air embolism. CT of the abdomen/pelvis confirmed this finding of air within the left femoral vein (Figure 3).

Case Discussion: Barotrauma is a known complication of endotracheal intubation and mechanical ventilation, estimated to occur in 0.5%–38% of patients who are critically ill.1, 2 There may be a higher incidence of venous air emboli associated with barotrauma than previously thought as most remain clinically inconsequential and likely go unnoticed.3 Rapidly formed or large air emboli lead to high morbidity and mortality.4 The recognition of the “venous curtain sign” as a sonographic finding of venous air emboli may lead to rapid diagnosis and management.

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Sunday, September 10, 2023

Session Time: 12:30 - 13:00

Presentation Time: 12:30 - 13:00

Track: Posters - Case Reports

(P91) The Posterior Reversible Encephalopathy Syndrome (PRES) at the ED - A Case Study

Poster Presenter / Primary Author: Judit Imecz, Dr - Department of Emergency Medicine, Semmelweis University

Co-Author: Julia Rozgonyi, EMT - Emergency Department of Semmelweis University, Hungary

Co-Author: Bánk Gábor Fenyves, Dr - Department of Emergency Medicine, Semmelweis University

Co-Author: Gábor Xantus

Co-Author: Pál Novák Kaposi

Co-Author: Szabolcs Gaál, Dr - Department of Emergency Medicine, Semmelweis University

Co-Author: Csaba Varga, MD - Emergency Department of Semmelweis University, Hungary

Chief Complaint : A 29-year-old female patient was admitted in the Emergency Department of Semmelweis University (Hungary) with repeated seizures after having had headache and hypertension in the past few days. She had a C-section 6 days prior.

History of Present Illness : On arrival at the clinic, the patient had a repeated convulsion. After physical examination and stabilization, laboratory tests and urgent non-contrast cranial CT were performed and symptomatic therapy was continued. Imaging ruled out intracranial bleeding, but described radiological features of PRES. To confirm the diagnosis, an urgent contrast-mediated head MRI was performed where the corresponding perfusion sequences demonstrated radiomorphological sign of a PRES. As the radiological findings were in line with the clinical picture, the diagnosis of post-partum eclampsia and subsequent PRES was made. Further, multidisciplinary care was performed with the participation of the Department of Neurology, Obstetrics and Gynaecology, and Anaesthesiology and Intensive Care of Semmelweis University. The EEG examination did not confirm active seizure activity, but due to cumulative seizures antiepileptic therapy (levetiracetam) was initiated. Treatment of hypertension was continued with intravenous urapidil therapy. A transvaginal ultrasound showed coagulum, during the curettage a large amount of coagulum was removed from the uterus. Subsequently, the patient's blood pressure rapidly decreased and she was switched to per os medication. On further observation of the patient, her complaints resolved. Follow-up MRI 14 days after initial cranial MRI showed significant regression.

Pertinent Physical Exam: The patient was somnolent (GCS of 3-5-6) with left sided (upper and lower limb) hemiparesis and hyperreflexia. airway and breathing assessment was negative but severe hypertension (210/145) was noted during physical examination. Initial blood gas analysis showed marked lactic acidosis (pH 7,29, Lac 7,2) and euglycemia (Glu 6,5 mmol/l). In the ED the patient was initially managed with intravenous (IV) magnesium (5g), IV benzodiazepine (clonazepam 0,5 mg), phenytoin (250 mg bolus and 750 mg/10 hours in perfusor), and received labetalol (3x10mg). During the ED stay, her blood pressure was adequately controlled, and no further convulsive activity was observed. Due to the PRES confirmed by radiological imaging, the patient was further managed with the involvement of several co-clinicians.

Pertinent Laboratory Data: Laboratory studies revealed elevated CRP and reduced renal function, however there was no evidence of liver, kidney or other potential organ dysfunction or HELLP syndrome. The elevation of inflammatory markers was due to postpartum, postoperative period. Thus, in agreement with the radiological findings, the clinical diagnosis was PRES syndrome due to postpartum eclampsia.

Case Discussion: The posterior reversible encephalopathy syndrome (PRES) is a rare, severe, but potentially reversible clinical and neuroradiologycal disorder. The diverse clinical symptoms can occur without any direct link to age-group or medical history. Early recognition, diagnostics, and treatment are key elements to reverse encephalopathy syndrome. Pathology: the exact mechanism of PRES is not known, but it is thought to be related to endothelial cell dysfunction and altered blood-brain barrier integrity, with consequent cortical and subcortical vasogenic oedema. Etiology: many diseases should be considered in association with the possibility of PRES, the most common conditions are untreated hypertension, eclampsia, sepsis, autoimmune disease (TTP, SLE), COVID infection, drug toxicity (cisplatin, interferon, erythropoietin, cyclosporin), bone marrow or stem cell transplantation, organ transplantation, sepsis, COVID-19 infection, HELLP syndrome. Clinical manifestations: clinical signs and symptoms of PRES are often non-specific and take hours or days to develop. Red flag symptoms are characterized by headache, visual disturbance, altered mental state, seizures, vomiting and cortical blindness. Radiological presentation: clinical suspicion of PRES can be confirmed by cranial CT or magnetic resonance imaging. The most characteristic visual appearance is the presence of reversible vasogenic subcortical oedema affecting the white matter of the posterior part of both hemispheres. The frontal, temporal and cerebellar lobes are also frequently affected. Treatment: PRES is still a reversible condition if adequate treatment is started within a few days. If treatment is inadequate or delayed, there is a high risk of irreversible neurological damage, cerebral infarction or haemorrhage, even death. Treatment includes management of the primary lesion, as well as control of neurological symptoms and hypertension, with emphasis on antihypertensive agents (e.g. labetalol, hydralazine, nicardipine, nifedipine), initiation of hydration with crystalloid solutions, ensuring adequate oxygenation, treatment of seizure activity (magnesium sulphate; diazepam, phenytoin for epilepsy). Diuretics, corticosteroids (e.g. dexamethasone, bethamethasone) are complementary therapeutic options.

References and Acknowledgements (Optional): Tetsuka S, Ogawa T. Posterior reversible encephalopathy syndrome: A review with emphasis on neuroimaging characteristics. (2019) Journal of the neurological sciences. 404: 72-79.

Sunday, September 10, 2023
Session Time: 12:30 - 13:00
Presentation Time: 12:30 - 13:00
Track: Posters - Case Reports

(P92) A Unique Case of Lower Abdominal Pain in the Emergency Room

Poster Presenter / Primary Author: Jamila Jamal, MD - Jacobi-Montefiore
Co-Author: Hillary Moss, MD - Montefiore Medical Center, Moses Campus
Co-Author: Divya Mishra, MD - Jacobi-Montefiore

Chief Complaint: Right lower quadrant abdominal pain and difficulty urinating for ten days. History of Present Illness: Patient was a 29 year old G2P2 female with a past surgical history of two C-sections and tubal ligation who presented with ten days of right lower quadrant abdominal pain associated with dysuria, difficulty urinating, intermittent hematuria and vaginal spotting. The pain radiated to her right flank and back and was associated with nausea but no vomiting, fevers, or chills. Patient denied vaginal discharge, dyspareunia, diarrhea, chest pain, shortness of breath, headache or dizziness.Patient denied any previous history of nephrolithiasis. Pertinent Physical Exam: Patient was a young female noted to be in no acute distress. Cardiovascular exam with regular rate and rhythm no murmurs, rubs, or gallops,and lungs clear to auscultation bilaterally. Abdomen was flat and soft with right greater than left lower abdominal and suprapubic tenderness with voluntary guarding and no rebound. Pelvic exam was notable for right adnexal tenderness without palpable masses or lesions, no cervical motion tenderness, closed os, and no blood or discharge in the vaginal vault. Capillary refill was less than 2 seconds and the patient was ambulatory in the ED. Pertinent Laboratory Data: Blood work noted a negative HCG, a hemoglobin/hematocrit of 11.9/ 34.9, a white blood cell count of 10.6, a urinalysis with trace leukocyte esterase and white blood cells but no bacteria, and a negative vaginitis panel. The patient underwent a transvaginal ultrasound which showed a didelphys uterus with trace free fluid and fluid distension of the right endometrial cavity. Patient underwent a CT Abdomen and Pelvis, showing a normal appendix, a solitary left kidney, and an ill defined right adnexa, with recommendation for MRI. MR Pelvis demonstrated obstruction of the right hemivagina with hematometrocolpos and hematosalpinx; consistent with Herlyn-Werner-Wunderlich(HWW) Syndrome. Case Discussion: This case demonstrates a unique cause of lower abdominal pain. Lower abdominal pain is an incredibly common Emergency Room (ER) complaint representing 5-10% of annual ER visits [1]. The differential for this pain is broad and can include GYN pathology such as ectopic pregnancy, fibroids, ovarian masses, and ovarian torsion, GU pathology such as kidney stones and pyelonephritis, and GI pathology such as appendicitis, colitis, and diverticulitis [2]. In this patient’s case, her lower abdominal pain was found to be due to hematocolpos secondary to Herlyn-Werner-Wunderlich (HWW) Syndrome. HHW is a rare congenital condition characterized by uterus didelphys with blind hemivagina and ipsilateral renal agenesis, affecting up to 3.8% of the population. Patients typically present a few years post menarche with a variety of symptoms including recurrent urinary tract infections, urinary retention, and pelvic pain with hematocolpos, which is how our patient presented. Management includes surgical repair to allow for outflow of uterine lining during menstruation [3]. This case is particularly unique given the patient had a history of multiple obstetric and gynecological procedures including two C-sections and a tubal ligation before her ultimate diagnosis of HWW was discovered. This patient was evaluated by gynecology and cleared for close outpatient follow up for surgical repair.

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Wangensteen SL. Abdominal pain. An analysis of 1,000 consecutive cases in a University Hospital emergency room. Am J Surg. 1976 Feb;131(2):219-23. doi: 10.1016/0002-9610(76)90101-x. PMID: 1251963. 2. Cartwright SL, Knudson MP. Evaluation of acute abdominal pain in adults. Am Fam Physician. 2008 Apr 1;77(7):971-8. PMID: 18441863. 3. Wdowiarz K, Skrajna A, Reinholz-Jaskólska M. Diagnosis and treatment of Herlyn-Werner-Wunderlich syndrome: a case report. Prz Menopauzalny. 2021 Apr;20(1):52-56. doi: 10.5114/pm.2021.104034. Epub 2021 Mar 1. PMID: 33935621; PMCID: PMC8077801.

Sunday, September 10, 2023

Session Time: 12:30 - 13:00

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Track: Posters - Case Reports

(P93) Complex Removal of a Penile Foreign Body

Poster Presenter / Co-Author: Joslyn F. Joseph (she/her/hers), DO, FACEP, FAEMS, EMT - RWJBH EHM - Community Medical Center

Primary Author: John D. Genova, MD - RWJBH-Rutgers Health Community Medical Center

53 year old male presented to the ED for evaluation penile swelling and pain after patient put a steel hook on the shaft of his penis for approximately 48 hours. The patient was unable to remove the steel hook after 48 hours and noticed severe pain and swelling to the penis that had moved to the patients testicles. The patient attempted to remove the hook at home unsuccessfully. The patient reported increased pain and pressure around his shaft and testicles which prompted him to come into the ED for further evaluation and removal. Upon presentation, the patient was noted to be in severe, painful distress and 6mg of IV morphine was administered with slight reduction in penile pain. In light of the patient presenting with a steel foreign body to the penile area, the patient was administered tDAP for tetanus prophylaxis. Prior to removal attempt, a pudendal nerve block with 5 mL of Lidocaine without epinephrine was administered. A steel/diamond cutter saw was used on the steel ring with the support of steel pliers placed between the ring and the patients penis. The saw that was used ended up being fragmented and broken due to the strength of the steel ring and we had to replace the saw with a new blade/saw. Upon a second attempt, after a second pudendal nerve block, the second saw ended up breaking as well. After the failed second attempt, attempts were made to reduce the swelling of the shaft and testicles via direct compression along with ice water that the patient soaked his penis in for about 15-30 minutes. After another unsuccessful attempt to reduce the swelling enough to remove the object, a third pudendal block was administered along with additional dosing of IV morphine. Ultimately, after 3-4 hours, 2 broken saw's and 3 pudendal nerve blocks, the object was able to be removed safely with an orthopedic cast saw. There was initial fear of a penile fracture as the patients skin began to break down and the swelling increased to the point where the penis began to bend severely. The patient was seen by Urology and was noted to have no penile fractures or dead tissue and was inpatient for an additional 48 hours to monitor swelling and pain control. The patient was subsequently discharged home with no further complications.

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Session Time: 12:30 - 13:00
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Track: Posters - Research Abstracts

(P95) Enterovirus Meningitis Without Pleocytosis Is Not Only a Problem in Children: A Retrospective Observational Study in Adults

Poster Presenter / Primary Author: Jisook Lee, MD - Ajou University School of Medicine
Co-Author: Moonki Shim, MD - Ajou University School of Medicine
Co-Author: Woochan Jeon, MD - Inje University Ilsan Paik Hospital

Objectives: We evaluated the prevalence of EV meningitis without pleocytosis and examined differences in characteristics among patients with EV meningitis according to the presence of CSF pleocytosis in adults who visited the ED.

Background: EV meningitis and encephalitis are diagnosed by inflammatory changes in the cerebrospinal fluid (CSF), including pleocytosis and abnormal protein and glucose levels. Viral culture was previously used to confirm EV meningitis, but in the 2000s, reverse-transcriptase polymerase chain reaction (RT-PCR) was shown to be as accurate as culture and became the new gold standard to confirm diagnosis. Previous studies have reported a lack of pleocytosis with EV meningitis. Most reported cases of EV meningitis without pleocytosis diagnosed by CSF RT-PCR have been studied in pediatric populations. However, we don't know the adult presentation.

Methods: The present study retrospectively analyzed the medical records of patients with EV meningitis confirmed by cerebrospinal fluid (CSF) RT-PCR. We reviewed the data of patients older than 19 years who visited the emergency department (ED) between May 2016 and May 2021. Clinical and laboratory variables were compared according to the presence of CSF pleocytosis.

Results: Among 17 patients included, 10 (58.8%) did not have pleocytosis. The mean age was not different between the pleocytosis and the non-pleocytosis group (37.50 vs 33.50 years old, P=0.22). There were no significant differences between two groups regarding clinical symptoms, such as headache, fever, and meningeal irritated signs. All patients visited the ED from April to October only. There were no statistically significant differences between the two groups in terms of seasonal variation or time from the onset of meningitis symptoms to undergoing lumbar puncture. The peripheral white blood cell (WBC) count of the pleocytosis group was 10.9 × 109/L with 81.95% neutrophils, which was significantly higher than in patients without pleocytosis (WBC, 7.15 × 109/L and 66.65% neutrophils, P=0.04). The median CSF pressure showed higher trend in the non-pleocytosis group than the pleocytosis group (175.00 vs 152.50 mmH2O, P=0.70). Patients whose CSF pressure was higher than the normal level of 200.00 mmH2O were more common in the non-pleocytosis group (40%). The median CSF protein values were higher than the normal values in both groups.

Conclusions: The present study confirmed a high frequency of EV meningitis without pleocytosis in adult patients. An accurate diagnosis using RT-PCR is necessary when meningitis symptoms are prominent during an EV epidemic and CSF protein levels and pressure are high, even if the CSF WBC count is normal.

References (Optional):

Funding: None

Sunday, September 10, 2023

Session Time: 12:30 - 13:00

Presentation Time: 12:30 - 13:00

Track: Posters - Case Reports

(P96) A Case of a Psoas Abscess Complicated by Septic Arthritis Secondary to an Enlarged Communicating Iliopsoas Bursa: An Unusual Lethal Cause of Unilateral Lower Extremity Pitting Edema

Poster Presenter / Primary Author: BENJAMIN K. LIU (he/him/his), MD - Montefiore and Jacobi Medical Centers

Co-Author: Maha Fakherddine, MD - Montefiore and Jacobi Medical Centers

Co-Author: Angelo Baccellieri, MD - Montefiore Medical Center

Co-Author: Glory Okugo, MD - Medical City Arlington

Chief Complaint : Left hip pain and left leg swelling

History of Present Illness : A 76-year-old female presented to the emergency department for one month of worsening left hip pain and one week of left leg swelling involving the entire left lower extremity. Her medical history is significant for multiple myeloma with remote bone marrow transplant, osteoporosis, hyperthyroidism, peripheral vascular disease, and hypertension. The patient describes an inability to ambulate over the last few days prompting her ED visit. Prior to this, she had been able to walk without assistive devices. She denies trauma, fevers, chills, nausea, vomiting, chest pain, shortness of breath, numbness, weakness, or skin changes. She has no history of deep vein thrombosis (DVT) or pulmonary embolism, has not had recent surgery or travel, and does not use intravenous drugs or immunosuppressive medications.

Pertinent Physical Exam: Initial blood pressure was 135/73, heart rate 108 beats per minute, temperature 37.1°C, and oxygen saturation was 94% on room air. She was in no distress, breathing comfortably, heart and lung sounds were normal. Her left hip had significantly decreased range of motion secondary to pain but she had normal range of motion at the knee and ankle joints. There was significant pitting edema from her left foot to the hip while her right lower extremity had no swelling. Both extremities were warm, with equal pulses, neurologically intact, and had no skin changes.

Pertinent Laboratory Data: Laboratory evaluation revealed a white blood cell count of 14.7 cells/µL and D-dimer elevated to 7.03 mg/L. X-rays showed degenerative changes. Lower extremity duplex was unavailable to evaluate for a DVT prompting a CT-angiogram of the abdominal aorta with lower extremity runoff instead. No DVT was identified, however the CT revealed a rim-enhancing collection within the left iliiopsoas muscle, fluid in the left iliopsoas tendon sheath, and a left hip joint effusion, all concerning for iliopsoas abscess and septic arthritis (figure 1). MRI also showed evidence of iliopsoas bursitis.

Case Discussion: Psoas abscesses and septic arthritis are rare but potentially fatal entities with mortality rates of 2.4-19% and 4-42%, respectively. (1-4) Psoas abscesses present with pain in 91% of cases, usually located in the flank, back or lower abdomen, and fever in 75% of cases. (5) Septic arthritis typically presents with a swollen, erythematous joint with decreased range of motion. (6) Neither typically present with such significant pedal edema. It is known that expansion of the iliopsoas bursa can lead to pedal edema through compression of the iliac

veins. (7) Further, according to cadaveric studies, 10-15% of individuals have a connection between the retroperitoneal space (where the iliopsoas muscle resides) and the hip joint via the iliopsoas bursa. (8) Given the CT and MRI findings, likely her infection spread from the iliopsoas abscess to the hip joint via the iliopsoas bursa (causing expansion) or vice versa, leading to her significant pedal edema. However, in the setting of unilateral leg swelling without infectious signs or symptoms, many clinicians would likely first consider ruling out a DVT. This patient has a Wells Score of 3 (table 1), indicating a high pre-test probability for DVT. (9) Most societies recommend compressive ultrasound (with repeat study in one week if initially negative) as the test of choice. (10, 11) Given the extent of this patient's edema, a proximal iliofemoral thrombosis was a likely possibility so proximal imaging, such as CT, should be considered, especially if an ultrasound study is negative. (12) Proximal imaging techniques would also allow for alternate diagnoses and causes of deep vein compression such as psoas abscesses. The patient ultimately received open operative drainage of the abscess and washout of her left hip. She was treated with antibiotics for four weeks, entered rehabilitation, and ultimately regained her previous mobility.

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(P97) A Case of Severe Hyperthermia in the Setting of COVID-19 Infection

Poster Presenter / Primary Author: BENJAMIN K. LIU (he/him/his), MD - Montefiore and Jacobi Medical Centers
Co-Author: Maha Fakherddine, MD - Montefiore and Jacobi Medical Centers
Co-Author: Benjamin Kessler, MD - Montefiore Medical Center
Co-Author: Delia Kristol, MD - Montefiore Medical Center

Chief Complaint : Seizure

History of Present Illness : A 33-year-old male with a history of asthma and multiple sclerosis with no current deficits presents for seizures. Approximately 30 minutes prior to arrival, the patient was found on the floor of his bedroom with seizure-like activity. In the Emergency Department (ED) he was unresponsive and noted to have left gaze deviation. He was treated with lorazepam and levetiracetam. However, he remained minimally responsive for hours. The family reported 3 days of fever, malaise, and headaches prior to arrival. The family denied any prior seizures or substance misuse. His medications were albuterol and fingolimod. A lumbar puncture was performed and antibiotics were given. Shortly afterwards, he aspirated and was intubated for airway protection with etomidate and rocuronium. Approximately one hour after intubation, his rectal temperature rose to 41.8°C.

Pertinent Physical Exam: The patient was unresponsive and had left gaze deviation. Initial vitals were temperature 36.4°C, heart rate 100, blood pressure 128/92, saturating 98% on room air with respiratory rate of 22. His pupils were 3 millimeters bilaterally and reactive. He did not have any witnessed seizure-like activity or myoclonic movements. He had no evidence of trauma on full exposure. After IV lorazepam and levetiracetam the gaze deviation resolved but he remained minimally responsive. His vitals were stable and he remained afebrile for several hours until intubation.

Pertinent Laboratory Data: On arrival, his capillary glucose was 199. Noncontrast CT of the head was unremarkable. Initial labs showed a venous pH of 7.22, pCO2 of 69 and a lactate of 5.2 mmol/L – all of which normalized with IV fluids. He was found to be COVID-postitive but otherwise labs, EKG, chest x-ray, urinalysis and urine drug screen were unremarkable. Bedside EEG was also done and did not show seizure activity. A lumbar puncture was performed with normal cell counts, glucose, and protein. His meningitis/encephalitis panel was negative.

Case Discussion: Within an hour of intubation, the patient experienced a hyperthermic emergency - a failing of the body’s temperature regulation mechanisms. This life-threatening emergency can lead to cardiac arrest and multiple-organ failure. No universal temperature definition exists but 40.5°C is often used specifically for heat stroke. (1) Regardless of the etiology of severe hyperthermia, it is critical that immediate aggressive cooling measures, along with resuscitation (e.g. fluids, intubation), be initiated quickly to minimize end-organ damage. Ice water immersion is the superior method for cooling, with a rate of 0.20°C/min but can be intolerable for the patient or make monitoring difficult. Evaporative cooling can achieve 0.05°C/min. Core temperature should be continuously monitored and cooling should stop when

it reaches 38-39°C to avoid hypothermia. (2,3) Due to the patient's prolonged period of stability prior and the temporal relationship of decompensation to the intubation, malignant hyperthermia (MH) was a primary differential. Other causes of hyperthermic emergencies such as sympathomimetic or anticholinergic overdose, neuroleptic malignant syndrome, serotonin syndrome, and heat stroke were unlikely. (2) In addition, multiple sclerosis patients are more prone to thermal dysregulation. (4) Rarely, rocuronium has been implicated as a cause of MH. (5) Treatment of MH includes dantrolene, which reduces muscle contraction and heat generation through inhibition of calcium release from the sarcoplasmic reticulum. (6) After recognition of this temperature, the patient was placed in a bag filled with ice and water under constant temperature monitoring. Dantrolene was given and his antibiotics were broadened. He was admitted to the intensive care unit where he was diagnosed with COVID myocarditis based on a newly reduced ejection fraction, troponemia and ST-elevations. Overall his presentation was thought to be due to severe COVID and autonomic dysfunction from multiple sclerosis. Despite severe illness, with supportive care he made a full neurologic recovery.

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(P98) A Case for ED POCUS for the Evaluation of Syncope

Poster Presenter / Co-Author: Nora McNulty, MD - Montefiore/Jacobi Medical Center
Primary Author: Juanita Pinto, MD - Montefiore/Jacobi Medical Center - Bronx, NY
Faculty Advisor: Siu Fai Li, MD - Montefiore/Jacobi Medical Center

Chief Complaint : Hyperglycemia, Loss of consciousness

History of Present Illness : 59-year-old female with a past medical history of diabetes mellitus and breast cancer s/p mastectomy presenting for epigastric pain and dizziness for 2 days. Patient was in her otherwise usual state of health until 2 days ago when she began to have epigastric pain. Pain is described as bloating pain in the epigastric region, nonradiating. Pain was not associated with food or with exertion. She presented to the emergency department because she had two episodes of syncope at home. Patient has no history of DKA in the past. Denies fever/chills, cough, GU symptoms, GI symptoms, GYN symptoms. Of note, she was diagnosed with breast cancer in her home country in 2021. At that time, she underwent mastectomy of the left breast as well as chemotherapy and radiation. Testing with her home doctor confirmed she was in remission 5 months prior to this ER presentation.

Pertinent Physical Exam: Vital signs were notable for tachycardia to 119 and BP 105/81. Patient was otherwise afebrile with normal respiratory rate and oxygen saturation. Her FSG read as “HI” on initial triage. General exam was notable for our patient lying on the stretcher not in acute distress, appearing fatigued on exam, with dry mucous membranes. Abdominal exam with mild tenderness to palpate in the epigastric region.

Pertinent Laboratory Data: Patient was initiated on IV fluids for treatment of suspected hyperglycemia resulting from infectious source from triage. Initial blood work was notable for ALT 249, AST 150, and Alk Phos 131. POCUS Transabdominal study was performed to determine biliary pathology resulting in the patient's shock state. Exam of the epigastric region quickly revealed pathology outside of the biliary tract.

Case Discussion: Syncope is a common emergency department chief complaint. The initial work-up for syncope is relatively basic: H&P and an EKG (1). Ultrasound is not part of the typical syncope evaluation. In this patient, the working diagnosis in the patient was DKA or HHS in the setting of an underlying infection. Our finding of cardiac tamponade in a well-appearing patient was unexpected. ED ultrasound is commonly performed in patients with blunt trauma, shock, abdominal pain, and gynecologic emergencies; however, there are very few reports in the literature of critical findings on bedside ultrasound in ED patients with syncope (2,3). Unexpected diagnoses for syncope that can be identified via ultrasound include pulmonary embolism and aortic emergencies. In our literature search of bedside POCUS for syncope, we only found a single case report of cardiac tamponade diagnosed on bedside ultrasound (4). As the technology for bedside ultrasound becomes more widely available and providers incorporate POCUS into their everyday practice, there may be immense value in incorporating bedside ultrasound for the evaluation of syncope. In one prospective study, bedside ultrasound changed the patient disposition in 14% of patients (3). Cardiac tamponade itself can be a

challenging diagnosis, especially those who develop pericardial effusion gradually. The sensitivity of clinical signs of muffled heart sounds, hypotension, and distended neck veins (Beck's Triad) can be as low as 20% (5). Therefore, since syncope is often related to hypotension, a bedside ultrasound may have diagnostic value in syncope, particularly in patients who initially present without an obvious diagnosis.

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(P99) The Importance of a Thorough History: A Case of Subtle Parasitic Disease

Poster Presenter / Primary Author: Matthew Mocol, MD - St. John's Riverside Hospital
Co-Author: Joseph O'Keefe, MD - St. John's Riverside Hospital
Faculty Advisor: Yomna Nassef, MD - St. John's Riverside Hospital

Chief Complaint : Dizziness, chest tightness, shortness of breath, and weight loss

History of Present Illness : A 57-year-old male with a past medical history of hypertension, GERD, hiatal hernia, and H. pylori infection presents to the emergency department with an acute pre-syncopal episode. The patient reports sudden onset of lightheadedness, diaphoresis, and tachycardia while brushing his teeth this morning. Symptoms resolved spontaneously after several minutes, and the patient is presently asymptomatic. The patient also endorses episodic chest tightness and shortness of breath for the past six months. Episodes are provoked by exertion, but have also occurred at rest. During this time, he reports unintentional weight loss of approximately 60 pounds. He denies fevers, cough, abdominal pain, nausea, vomiting, diarrhea, constipation, or rashes. The patient states that his episodic chest pain and shortness of breath began during an extended stay in Ghana one year ago. He had emigrated here from Ghana approximately thirty years ago. He does not take any medications. He denies recent diet changes.

Pertinent Physical Exam: The patient is cachetic, but is in no acute distress. Skin is warm and dry, and without rashes or lesions. His abdomen is soft and non-tender to palpation. Lungs are clear to auscultation and he is able to speak full sentences. Pulse oximetry is 98% on room air. Blood pressure and heart rate are within normal limits. He is afebrile.

Pertinent Laboratory Data: WBC 3.2k, Eosinophils 2.7%. Hgb and LFTs are within reference range. HIV negative. Computed tomography of the abdomen and pelvis with IV contrast reveals several small bowel loops which demonstrate non-specific continuous concentric wall thickening, as well as mild-to-moderate gastric overdistension and mild non-specific dilatation of the main pancreatic duct.

Case Discussion: The patient presents with an acute pre-syncopal episode in the setting of chronic intermittent chest tightness, shortness of breath, and weight loss. He endorses extensive outpatient work-up of his chronic symptoms by multiple specialists over the past six months which included an unremarkable EGD, colonoscopy, and chest CT. Although his work-up in the emergency department yielded only non-specific findings, he is admitted to the hospital for further work-up in the setting of intermittent chest tightness and progressive unintentional weight loss. During his admission, he has positive serologic Strongyloides IgG antibody testing. He remains leukopenic and his eosinophils trend up to 7.6%. He also develops mild transaminitis with his AST and ALT trending up to 123 and 180, respectively. Additional imaging was obtained, and was notable for scattered small benign-appearing sub-centimeter liver cysts on abdomen MRI. The patient is discharged with a plan for close outpatient gastroenterology follow-up and treatment with ivermectin. On follow-up a month later, the patient has completed treatment. He continues to endorse intermittent chest tightness but

states his weight has been neutral since discharge. This patient's weight loss, eosinophilia, and positive antibody testing are consistent with a chronic Strongyloides infection. His weight stabilized after treatment, suggesting the infection was contributing to his weight loss. Additionally, strongyloidiasis has been shown to trigger an asthma-like response in some individuals, which may at least partially explain his episodic chest tightness. This case highlights the importance of a thorough history and high clinical suspicion for individuals traveling to high risk areas. Non-specific symptoms should prompt further questioning on recent travel to high risk areas or other possible disease exposures. In this case, a thorough history facilitated diagnosis and treatment of an endemic infection which presented with subtle symptoms and lab findings resulting in evasion of detection on extensive outpatient evaluation.

References and Acknowledgements (Optional): none

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(P100) First Episode Psychosis in a Young Female: Concomitant Nmda-receptor Encephalitis and Multiple Sclerosis (Radiologically Isolated Syndrome)

Poster Presenter / Co-Author: Stephen c. Morris, MD, MPH - University of Washington
Primary Author: Ryan Cocca, MD - University of Washington

Chief Complaint : Hallucinations, Psychosis

History of Present Illness : 27 year-old G4P4004 female (9 months post-partum) without significant PMH presented to the emergency department after 2 weeks of new onset psychosis. Evaluated by outside hospital in the setting of command auditory hallucinations instructing her to hurt herself, husband, and children. She presented without focal neurologic deficits, with normal vital signs, and in appropriate behavioral control. Screening labs and urine toxicology were unremarkable. No personal or family history of psychosis, seizures, or behavioral health symptoms. Husband noted self-isolation and inattention to children. Patient was medically cleared, evaluated by social work, and voluntarily admitted to inpatient psychiatry for first-episode schizophrenia. She remained voluntarily admitted for 4 days prior to leaving AMA due to minimal effect of Aripiprazole. She re-presented 1 week later to our ED with worsening auditory and new onset visual hallucinations with worsening inattentiveness. Husband endorsed a single short period of non-responsiveness and rightward gaze deviation that resolved spontaneously.

Pertinent Physical Exam: Her neurologic exam on presentation was without focal neurologic deficits beyond bilateral horizontal nystagmus and altered mental status. There was no evidence of central hypoventilation. Normal strength in bilateral upper and lower extremities. Sensation intact in bilateral upper and lower extremities. Finger to nose and heel to shin intact. No cranial nerve deficits. Intermittently decreased attentiveness. No ataxia. Vital signs within normal limits and stable. No tremor, no erratic movements. Normal tone, no rigidity.

Pertinent Laboratory Data: Complete blood count, comprehensive metabolic panel, urinalysis, serum pregnancy testing, and blood alcohol level were unremarkable. Urine toxicology screen was notable for cannabinoids alone. CSF negative for HSV1/2, JC virus, EB virus, Quantiferon TB, VDRL, and mycobacteria. CSF/blood cultures unremarkable. CSF cytometry/pathology negative. CSF cell studies demonstrated slight lymphocytic pleocytosis with 10 nucleated cells, 0% PMNs, 95% lymphocytes, glucose of 52, and protein of 44. Her serum studies were pan-negative for HCV, HBV, RPR, HIV, toxoplasmosis, oligoclonal bands, anti-aquaporin 4 antibodies, and anti-MOG antibodies. CSF positive for NMDAR antibody. Serum negative for NMDAR antibody.

Case Discussion: Neuroimaging was pursued with CT head w/o contrast and MRI with and without contrast of brain . CT head notable for a left frontoparietal lobe lesion (1.1 x 1.3 cm). MRI brain confirmed a rim-enhancing lesion of undetermined etiology in the left temporoparietal lobe as well as T2/FLAIR hyperintense signal abnormalities throughout the supratentorial and infratentorial white matter, highly suggestive of central demyelinating disease, specifically multiple sclerosis. She was admitted to the neurology service where she continued to deteriorate from a psychiatric standpoint, requiring physical restraints and antipsychotic

medications. She was initiated on Lacosamide for seizure prophylaxis. An EEG was performed and unremarkable for epileptiform activity. She underwent MRI full spine which did not reveal any evidence of lesions in her spinal cord. Differential remained broad with autoimmune encephalitis, limbic encephalitis, viral/bacterial encephalitis, toxoplasmosis, Creutzfeldt-Jakob disease, progressive multifocal leukoencephalopathy, neurosyphilis, primary psychiatric disorder, among others. Due to concern for possible HSV encephalitis, she was not initiated on immunosuppressants on admission. Lumbar puncture was performed and CSF testing was unremarkable and with cell count without evidence of meningitis. Given CSF HSV negative, she was started on IV methylprednisolone 1g daily x 5 days. Given high concern for NMDAR encephalitis, CT imaging of her chest, abdomen, and pelvis was performed as well as a transvaginal ultrasound without evidence of ovarian teratoma or primary malignancy. On Day 8, she was weaned off antipsychotic medications. Further CSF testing was noted for elevated oligoclonal bands and a positive NMDAR antibody screen, though her serum studies were negative for NMDAR antibodies. Given high likelihood of NMDAR encephalitis with concomitant multiple sclerosis, she was started on a 5 day course of IVIG at 400mg/kg with marked improvement in her mental status. She was ultimately discharged on Lacosamide for seizure prophylaxis with plan for outpatient Rituximab infusions.

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Sunday, September 10, 2023
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(P101) Saturday Night Compartment Syndrome

Poster Presenter / Primary Author: William Murk, MD, PhD - Albert Einstein College of Medicine
Co-Author: Aria Fariborzi, MD - Montefiore Medical Center/Jacobi Medical Center
Co-Author: Vinay Saggar, MD - Albert Einstein College of Medicine, The Bronx, NY
Co-Author: Priyan Wickremesinghe, MD - Albert Einstein College of Medicine, The Bronx, NY
Co-Author: Joshua Silverberg, MD - Albert Einstein College of Medicine, The Bronx, NY

Chief Complaint : Hand swelling

History of Present Illness : 36 year-old male with a PMHx of alcohol use disorder presents after a fall with left hand pain. Patient reported that, on the day prior to arrival, he was drinking alcohol throughout the day and eventually fell out of bed and landed on his left side. He did not attempt to get off the floor and slept in that position, bearing his entire body weight on his left hand overnight. In the morning, he felt severe pain in the left hand, which became progressively more swollen, erythematous, and numb. He also reported eventual onset of weakness in the hand. On average, he drinks a pint of whiskey every other day and is an everyday smoker. Denies other drug use. No previous injuries or procedures to hand.

Pertinent Physical Exam: General: Appears uncomfortable. Diaphoretic. AOx3. Pulmonary: Lungs clear. Heart: Tachycardic. Regular rate. Left upper extremity: Diffuse swelling and erythema of left hand extending to forearm, with hand fixed in claw position. Small bullae over thenar eminence and tip of 2nd digit. Compartments firm. Tenderness over thenar eminence. Pain with passive range of motion. Unable to extend thumb at IP or MCP. Weak extension of digits 2-5, most pronounced at digit 2. Able to flex digits 2-5. Able to flex, extend wrist. Extremity warm. Palpable radial pulse. Reduced sensation over median, radial, ulnar distributions.

Pertinent Laboratory Data: BP 126/84, HR 104, temp 36.5C, RR 18. CPK 106,200. Na 134, K 6.4, Cl 94, BUN 17, creatinine 2.0, glucose 185, anion gap 18.1. pH 7.34, pCO2 47, lactate 3.6. WBC 24.8, Hgb 15.6, Plt 297. AST 1,225, ALT 177, alk phos 83. EKG: normal sinus without peaked T-waves. X-rays of the left hand, wrist, and forearm showed no fracture or dislocation.

Case Discussion: This presentation was most concerning for left hand compartment syndrome with rhabdomyolysis and acute kidney injury (AKI). Orthopedics was immediately paged, who took the patient to the OR for emergent fasciotomy and debridement. Patient underwent open carpal tunnel release and was admitted to the SICU for management of rhabdomyolysis and AKI. He required continuous renal replacement therapy and underwent hyperbaric oxygen therapy. He had a prolonged hospital course complicated by two returns to the OR for left hand I&D and washout. Compartment syndrome is a potentially devastating condition characterized by elevation in compartment pressure leading towards ischemia and tissue compromise. Acute compartment syndrome (ACS) of the extremities most commonly occurs after trauma involving long bone fractures, although trauma without fracture can also cause ACS, including crush injuries, burns, or use of casts. While rare, even minor injuries can cause ACS, and here we present an unusual case of ACS caused by sleeping on a hand after a fall from bed while

intoxicated. Similar to the colloquial association between intoxication and arm compression causing radial nerve damage (i.e., “saturday night palsy”), intoxicated individuals may not be able to reflexively correct their sleep positioning, increasing their risk for ACS. Early signs and symptoms of ACS include progressive pain of the affected limb that worsens with passive range of motion. Additional signs include tense compartments, sensory deficits, paresthesia, pallor, and muscle weakness, though not all of these features may be present. Patients may also have bullae over the affected limb. For hand ACS in particular, the hand is often found in the intrinsic minus position (MCP hyperextension and IP joint flexion; “claw hand”), as in this patient. Without prompt intervention, ACS may lead to disability, necrosis, and death. Thus, prompt identification of ACS by the Emergency Department provider is crucial.

References and Acknowledgements (Optional): N/A

Sunday, September 10, 2023

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Presentation Time: 12:30 - 13:00

Track: Posters - Case Reports

(P102) Identifying Interstitial Ectopic Pregnancy on Transvaginal Point of Care Ultrasound

Poster Presenter / Primary Author: R. Grace Owens-Pochinka (she/her/hers), MD - Jacobi/Montefiore Emergency Medicine

Co-Author: Trevor Dixon, MD - Jacobi Medical Center

Chief Complaint : Abdominal pain

History of Present Illness : A female in her 30s with a past medical history of 2 vaginal deliveries and 1 dilation and curettage was referred to the emergency department due to concern for an ectopic pregnancy on ultrasound at her obstetrician's office. She had seen an obstetrician to establish prenatal care following a positive home pregnancy test 4 days before presentation. She reported cramping suprapubic abdominal pain and mild vaginal bleeding for two days, with her LMP approximately 6 weeks ago.

Pertinent Physical Exam: Vital signs stable with heart rate 67 beats/min, blood pressure 121/76mmHg, respiratory rate 20 breaths/min, oxygen saturation 95%, and temperature 98.2°F. The patient was generally well-appearing with suprapubic tenderness and mild bleeding from a closed os.

Pertinent Laboratory Data: **β**-Hcg 4500, Hgb 11.3 (no baseline), Rh positive Abdominal ultrasound showed no intraperitoneal free fluid and insufficient visualization of the uterus and adnexa. Transvaginal ultrasound (TVUS) demonstrated a thickened endometrial stripe (Image 1) and a gestational sac within the uterine myometrium (Image 2) containing a yolk sac and fetal pole with cardiac activity confirmed on M-mode. These findings raised concern for an interstitial pregnancy and gynecology was consulted.

Case Discussion: This case demonstrates the use of transvaginal ultrasound in the emergency department to identify a rare type of ectopic pregnancy with a higher risk of complications. Interstitial pregnancy (IP) is a type of tubal ectopic within the myometrium. They constitute 2-6.8% of ectopic pregnancies but with higher morbidity (2-2.5%) due to their proximity to the intramyometrial arcuate vasculature, and delayed diagnosis compared to other ectopic pregnancies.1 Ultrasound is the diagnostic standard, with diagnostic criteria defined as (1) an empty uterine cavity; (2) chorionic sac >1cm from lateral uterine border; and (3) myometrial layer < 5mm surrounding chorionic sac, with a specificity of 88-93% and sensitivity of 40%.2 On our POC TVUS, we first noted no gestational sac within the endometrial cavity, then identified a gestational sac surrounded by myometrium. IP must be differentiated from a viable angular pregnancy, with distinguishing criteria of (1) non-anomalous uterus, (2) embryonic implantation in the superior lateral angle of the uterus, (3) < 10mm myometrial thickness from gestational sac to outer border of uterus, and (4) gestational sac fully encompassed by circumferential endometrium.3, 4 If this determination cannot be made on ultrasound, MRI can be offered to clinically stable patients. Treatment is either expectant, medical, or surgical, depending on patient preference and clinical status. Expectant or medical management with Methotrexate is first line for clinically stable patients.5 For unstable patients, including patients such as ours with stable vital signs but symptoms concerning for ectopic

rupture, surgical options are cornuostomy or corneal resection.5 Based on our TVUS results, we consulted gynecology who took our patient to the OR for diagnostic laparoscopy, which found an unruptured right interstitial ectopic pregnancy. She underwent a right cornual wedge resection and salpingectomy and was discharged home in stable condition.

References and Acknowledgements (Optional): 1. Brincat M, Bryant-Smith A, Holland TK. The diagnosis and management of interstitial ectopic pregnancies: a review. Gynecol Surg. 2019 Feb 4; 16(2). doi:10.1186/s10397-018-1054-4 2. Timor-Tritsch IE, Monteagudo A, Matera C, Veit CR. Sonographic evolution of cornual pregnancies treated without surgery. Obstet Gynecol 1992 Jun 1; 79(6):1044–1049. PMID:1579304. 3. Durand YG, Capoccia-Brugger R, Vial Y, Balaya V. Diagnostic dilemma between angular and interstitial ectopic pregnancy: 3D ultrasound features. J Ultrasound. 2022 Apr 21; 25:989-994. doi:10.1007/s40477-022-00668-1 4. Bollig KF, Schust DJ. Refining angular pregnancy diagnosis in the first trimester: a case series of expectant management. Obstet Gynecol 2020 Jan; 135(1):175-184. doi:10.1097/AOG.0000000000003595. 5. Cassik P, Ofili-Yebovi D, Yazbek J, Lee C, Elson J, Jurkovic D. Factors influencing the success of conservative treatment of interstitial pregnancy. Ultrasound Obstet Gynecol. 2005 July 25; 26(3):279-282. doi:10.1002/uog.1961

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Session Time: 12:30 - 13:00

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Track: Posters - Case Reports

(P103) Refractory Status Asthmaticus Managed with Sevoflurane

Poster Presenter / Primary Author: Thomas J. Papadimos, MD - The University of Toledo College of Medicine and Life Sciences

Co-Author: Olufunke Dada, MD - The University of Toledo College of Medicine and Life Sciences

Co-Author: Gavin Bennett, MS-III - The University of Toledo College of Medicine and Life Sciences

Co-Author: Faryal Irfan, MS-III - The University of Toledo College of Medicine and Life Sciences

Faculty Advisor: Andrew Bruno Casabianca, MD - The University of Toledo College of Medicine and Life Sciences

Chief Complaint : A 38-year-old female with a history of asthma, tobacco and marijuana smoking, obesity, and hypertension presented with worsening dyspnea, chest tightness and rhinorrhea.

History of Present Illness : She was admitted to the ED with the aforementioned complaints, stating that her symptoms at home did not abate with ipratropium-albuterol treatments. In the ED she was managed with oxygen, nebulized ipratropium-albuterol, IV methylprednisolone, IV magnesium, and IV theophylline without improvement and subsequent deterioration. She was admitted to the medical intensive care unit (ICU) and required intubation/mechanical ventilation on volume cycled assist control. She was sedated with propofol and midazolam and briefly with ketamine. Her high airway pressures (up to 55 cmH2O) and small tidal volumes eventually necessitated pressure control ventilation with cis-atracurium paralysis. ABGs worsened to pH < 7 and pCO2 > 125 mmHg. Her SpO2 remained quite variable, and her PaO2 continued to decrease over a 6-hour period, necessitating 100% FiO2 and 12 cmH2O of peep. Anesthesiology was consulted for management with inhaled anesthetics to correct her ventilation and waning ability to oxygenate effectively.

Pertinent Physical Exam: There were loud wheezes bilaterally on admission to the ED that progressed to extremely diminished breath sounds over several hours. Breathing was demonstrably paradoxical. CXR revealed some focal atelectasis and hyperinflation. EKG demonstrated heart rates of 100-125/ min. The patient was also hypertensive up to 180/100 mmHg. SpO2 readings varied between 85%-95%.

Pertinent Laboratory Data: See Table 1.

Case Discussion: The patient was taken to an operating room (OR) and started on 1.5-2.0% sevoflurane. Within 30 minutes of sevoflurane administration expiratory wheezes were again audible, and within 90 minutes of therapy normal tidal volumes were achieved with near-normal peak pressures with a steady improvement of blood gases (see Table 1). She was transferred back to the ICU where she continued to improve, demonstrating adequate oxygenation and ventilation. Her pH/pCO2 completely normalized within 12 hours of the OR administration of sevoflurane. Paralytics were weaned off on the third day post admission day. She extubated on

the ninth post admission day, and was discharged 15 days after presentation. Asthma is characterized by chronic inflammation, airway hyper-responsiveness, bronchospasm, and reversible airway obstruction. Status asthmatics is a severe form of asthma that involves hypoxemia, hypercarbia, and respiratory failure, typically refractory to standard therapeutic measures. It is an emergency condition. This case demonstrates that patients in status asthmaticus can be managed with inhaled anesthetics (which are bronchodilators) in reducing bronchospasm, improving ventilation, and accelerating recovery. While no current guidelines exist regarding the ideal anesthetic agent and its dosing in status asthmaticus, there have been published reports describing their successful use, particularly with sevoflurane and isoflurane. Desflurane, on the other hand, at particularly at high concentrations, may increase smooth muscle tone and airway resistance and is not recommended in patients with asthma. More formal studies would be useful to establish guidelines and methods for the use of inhaled anesthetic agents in patients with refractory status asthmaticus.

References and Acknowledgements (Optional): CDC. Most Recent National Asthma Data—cdc.gov/asthma/most_recent_national_asthma_data.htm. February 9, 2023. Keenan LM, Hoffman TL. Refractory Status Asthmaticus: Treatment with SSevoflurane. Fed Pract. 2019 Oct;36(10):476-479. PMID: 31768099; PMCID: PMC6837338. Masuda Y, Tatsumi H, Goto K, Imaizumi H, Yoshida S, Kimijima T, Yamakage M. Treatment of life-threatening hypercapnia with isoflurane in an infant with status asthmaticus. Journal of Anesthesia. 2013;28(4):610-612. Mondonedo JR, McNeil JS, Amin SD, Hermann J, Simon BA, Kaczka DQ. Volatile anesthetics and the treatment of severe bronchospasm: A concept of targeted delivery. Drug Discovery Today Disease Models. 2015;15:43-50. doi: 10.1016/j.ddmod.2014.020.04

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Track: Posters - Case Reports

(P104) "The Old Kid Around the Block" - A Case Report of Complete Heart Block from Coxsackie Myocarditis

Poster Presenter / Primary Author: Nikita R. Paripati, MD - Hospital of the University of Pennsylvania

Faculty Advisor: Tatiana Carrillo, DO - Hospital of the University of Pennsylvania

Co-Author: Anthony Spadaro, MD - Hospital of the University of Pennsylvania

Chief Complaint : 72-year-old male with multiple co-morbidities presents from home via ambulance with worsening dyspnea.

History of Present Illness : 72-year-old male with a past medical history of end-stage renal disease on dialysis, coronary artery disease with percutaneous coronary intervention to the LAD, patent foramen ovale with aneurysmal atrial septum, diabetes mellitus, hyperlipidemia, hypertension, pulmonary sarcoidosis, and chronic obstructive pulmonary disease on supplemental oxygen presented to the emergency department with worsening dyspnea for two days. Patient reported dyspnea was unchanged with exertion, associated with generalized malaise and weakness without associated productive cough and minimally improved with home oxygen. He reported viral-like symptoms one week prior to symptom onset. Additionally, the patient stated he missed hemodialysis due to worsening symptoms. Patient denied any recent travel, tick exposure, or rashes. He denied starting any new medications and noted compliance with all home medications. Review of systems was negative for chest pain, back pain, nausea, vomiting, fevers, syncope, and headache. He had not received sarcoid treatment since his initial diagnosis ~20 years ago.

Pertinent Physical Exam: VS: BP: 103/88, HR: 35, SpO2 98% on NC General appearance: Sitting up on 2L via NC, speaking in full sentences Cardio: Bradycardia- HR 35, s/p 1mg atropine given by EMS Respiratory: Bilateral rales in all fields with associated coarse breath sounds Abdomen: Soft, Non-tender, non-distended Extremities: Full ROM, no pedal edema bilaterally, distal pulses intact Heme: cap refill 2-3 seconds, no petechiae or purpura Neuro: AAOx3, no focal deficits Skin: no rash or wounds

Pertinent Laboratory Data: Left / Right Heart Catheterization: No obstructive coronary artery disease in a co-dominant system. Transcutaneous pacing from ED stopped during catheterization; underlying rhythm noted to be complete heart block with ventricular escape at 30bpm. PET/ CT Heart Sarcoid with Perfusion: No evidence of myocardial inflammation suggestive of active cardiac sarcoidosis. As an incidental finding, there was extensive myocardial calcification, suggestive of calcinosis. TTE: Left ventricular ejection fraction ~45-50% with mild left ventricular hypertrophy, mildly decreased right ventricular function.

Case Discussion: Complete heart block can occur secondary to pathologic or iatrogenic causes. In this case report, we discuss the pragmatic approach taken in stabilizing and evaluating a medically complex patient. First, identifying reversible, life-threatening causes of this presentation such as acute MI, hyperkalemia, acute medication-induced toxicity such as beta-blocker toxicity were considered, prompting immediate intervention. On arrival, the patient

was emergently treated for presumed hyperkalemia, based on the HPI obtained and initial EKG. He was found to have CHB, elevated troponin and emergently transcutaneous paced and taken for cardiac catheterization with concern for STEMI. A transvenous pacer (TVP) was placed and the patient was admitted to the cardiac ICU. After an unremarkable catheterization and decreased LVEF, there was increasing concern for myocarditis. Given his history of pulmonary sarcoidosis, cardiac sarcoidosis could also cause complete heart block. Similarly, given his recent viral illness, there was a possibility of viral myocarditis. Possible, but more rare causes of his presentation included Giant Cell or Lyme myocarditis. Given his medication history, AV-nodal blocking medications seemed less likely. With positive titers, the etiology was ultimately attributed to Coxsackie myocarditis, a rare inflammatory disorder resulting from direct injury to the myocardium. Coxsackie myocarditis can be present within the umbrella of viral myocarditis in infants and adolescents, but it is rare to present as complete heart block and diagnose in older adults. There are generally three stages of progression in Coxsackie myocarditis – direct viral cytotoxicity to the myocardium, an increase in autoimmune injury with antibody, T and B cell production and diffuse myocardial fibrosis and cardiac dysfunction. Our patient prodromal viral URI was likely the inciting event leading to the development of the underlying cardiac dysfunction. This case exemplified the thinking model of resuscitation and team driven focus behind emergency medicine patient stabilization.

References and Acknowledgements (Optional): Leonard, EG. Viral myocarditis. Pediatric Infectious Disease Journal. 2004;23:665–666. Tam, P. Coxsackievirus Myocarditis: Interplay between Virus and Host in the Pathogenesis of Heart Disease. 2006; 19(2):133-146. Olejniczak M, Schwartz M, Webber E, Shaffer A, Perry T. Viral Myocarditis – Incidence, Diagnosis and Management. 2020; 34(6):1591-1601. Ogunbaya G, Elayi S-C, Ha L, Olorunfemi O, Elbadawi A, Saheed D, Sorrell V. Outcomes of Heart Block in Myocarditis: A Review of 31,760 Patients. 2019; 28(2):272-276.

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(P105) Pseudoaneurysm Secondary to Frequent IV Drug Use

Poster Presenter / Primary Author: Michelle Romeo (she/her/hers), MD FAAEM - Temple University

Chief Complaint : Groin abscess (bounce back)

History of Present Illness : 32-year-old female with past medical history of IVDU presents to the ED complaining of multiple abscesses for the past few weeks. Pt was here last week for neck and groin abscess. Admitted for further work up and IV abx. Normally injects cocaine and fentanyl (usually around 36 bags a day). Since leaving AMA last week now returning with worsening symptoms. L groin abscess burst open and has been bleeding. Notes it "burst open" 3x today where she just noted a lot of blood but no pus.

Pertinent Physical Exam: Cardiovascular: Regular rhythm. Tachycardia present. Skin: Skin is warm and dry. Abscess noted. She is not diaphoretic. There is erythema. Neck abscesses in multiple areas L femoral/inguinal area with pulsating mass, surrounding erythema and tenderness Please see media

Pertinent Laboratory Data: WBC: 31.2; Hgb 7.0 (down from 10 - 1 week ago), Plt: 527; Bands 2%;Trop HS: 76 Blood cx: staph aureus, MRSA; lactate 4.7; Cr. 1.17; Na 133; K 3.3; Cl 96;

Case Discussion: 32 y.o. female with a past medical history of opioid use disorder who presented with left groin bleeding. Patient stated that she uses 2 bundles daily and frequently injected into her neck, arms and groin. Patient stated that she last injected into her left groin two weeks ago and she developed mass after. The mass continued to increase in size and developed pulsatile bleeding one week ago. She stated that then the skin became necrotic and had two large episodes of bleeding before she presented to the ED. On arrival to the ED she was tachypneic and complaining of shortness of breath. CT scan of pelvis showed large soft tissue mass in the left groin with pseudoaneurysm from the left common femoral artery with degeneration of the CFA without contrast extravasation and additionally there were multiple abscesses seen. She underwent CT of neck which demonstrated multiple abscesses within the subcutaneous tissue. Repeat hemoglobin prior to patient going to OR was 5.6. Patient received 2 units preop and another additional unit before going to the OR. Patient was then taken to the OR where she underwent left external iliac artery exposure for proximal control, repair of left common femoral pseudoaneurysm with ePTFE graft and four compartment fasciotomies.

References and Acknowledgements (Optional): To be included

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Track: Posters - Case Reports

(P106) Toxic Shock Syndrome Secondary to Group a Strep Pharyngitis Leading to Acute Renal Failure, Cardiomyopathy, and Extremity Amputation in 28 Year Old Female

Poster Presenter / Primary Author: Michelle Romeo (she/her/hers), MD FAAEM - Temple University

Co-Author: Shruti Gujaran, MD - Temple University

Chief Complaint : Shortness of breath

History of Present Illness : 28-year-old female with history of endometriosis presenting from urgent care with shortness of breath. Patient has had 2 days of URI symptoms with worsening hoarseness and neck swelling. She was using benzocaine spray for her throat pain. Was initially hypoxic to the high 80s and tachycardia to the 180s with EMS. She was placed on oxygen with improvement of her oxygenation. She has a friend who tested positive for COVID 3 days ago, but has had negative test.

Pertinent Physical Exam: Mouth/Throat: Oropharyngeal exudate present. No elevation of the floor of mouth. Unable to visualize posterior throat. Diffuse swelling of the neck with tenderness. Hoarse voice. No tongue swelling. and normal pulses. Tachycardia present. Pulmonary/Chest: She is in respiratory distress (mild). Decreased breath sounds Speech garbled Skin is warm and intact. Turgor is poor. She is diaphoretic.

Pertinent Laboratory Data: WBC: 12.2; Bands 19%; BUN: 31; Cr: 3.61; GFR: 17; Na: 130; Cl: 4; CO2: 17; AG: 19; Covid negative; Blood Cx: Strep pyogenes; Lac 3.9; pH 7.17, Bicarb 16; CO2: 44; Throat culture: Strep pyogenes; troponin 2,0003

Case Discussion: 28 y.o. female with history of endometriosis with hoarseness and neck swelling, found to be hypoxic requiring intubation, found to have septic/cardiogenic shock 2/2 GAS TSS. She was transferred to TUH for c/f stress cardiomyopathy on 2/3 for VA ECMO evaluation (but was temporized without), she was placed on dobutamine gtt now with recovered EF. Hospital course c/b acute renal failure requiring CRRT (now resolved), critical illness myopathy, peripheral limb ischemia 2/2 shock/pressors, VDRF s/p tracheostomy now on trach collar.

References and Acknowledgements (Optional): To be in final report

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(P107) Muscle Atrophy, Nystagmus, and Confusion in Pregnancy: Think Wernicke Encephalopathy

Poster Presenter / Primary Author: Shana EN Ross (she/her/hers), DO, MSc, FAAEM, FACEP - University Of Illinois

Co-Author: Ryan Kilian, MD - University Of Illinois

Chief Complaint : Nausea and vomiting

History of Present Illness : A 19yo G2P0010 female at 20 weeks gestational age with remote D&C and no medical problems presented for lethargy, confusion. Speaking in short sentences, she endorsed abdominal pain, vomiting, bilateral leg paresthesias. Friend noted multiple recent ED visits for nausea/vomiting.

Pertinent Physical Exam: Toxic-appearing. Loose hanging skin on arms and abdomen with poor turgor. Cracked lips. Intermittent nystagmus. Regular rhythm. Clear lungs. Mild tenderness diffusely to gravid abdomen. A&Ox3, slow speech. Thenar/hypothenar muscle atrophy. Moving all extremities weakly.

Pertinent Laboratory Data: Labs: Na 128, K 2.7, Cl 82, Cr 2.37, pH 7.4, CO2 26, anion gap 20, Lactate 7.2. WBC 8.9, Hgb 13.8. EKG with sinus tachycardia, prolonged QTc. Ultrasound with IUP, EGA 17 weeks, fetal HR 143, no free fluid.

Case Discussion: Given exam ,there was concern for Wernicke Encephalopathy. Patient received electrolyte repletion, IV fluids with dextrose, IV B1 and B9 for presumed WE. MRI with abnormal T2 signal intensity along medial thalami consistent with WE (fig 1&2). Nausea and vomiting occurs in the majority of pregnancies with 0.3-2% diagnosed with hyperemesis gravidarum (HG), which may be associated with weight loss or electrolyte derangements. In severe cases, development of thiamine (B1) can lead to Wernicke Encephalopathy (WE). While rare with less than 200 cases reported. WE should be considered in pregnant patients with HG with neurologic findings. WE, usually described in patients with chronic alcohol use or bariatric surgery, classically consists of ophthalmoplegia, altered mental status and ataxia; however, rarely do patients present with all three. In pregnancy, poor oral intake, vomiting and higher metabolic demand increase risk for thiamine deficiency in as little as 18 days, with nystagmus being the most common finding. Thiamine is a vital co-factor in glucose metabolism; deficiency increases anaerobic metabolism and lactate production. Prompt treatment with 500mg IV Thiamine improves maternal and fetal morbidity and mortality. Signs of malnutrition (eg. muscle atrophy) and neurologic findings in pregnant patients should prompt consideration of thiamine deficiency and WE. If high suspicion, immediate empiric IV Thiamine, fluids with dextrose and electrolyte repletion should be administered. Emergency providers play a critical role in the evaluation and management of these high-risk patients.

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(P109) Medial Rectus Palsy in the Setting of Pontine Infarct

Poster Presenter / Primary Author: Heather Schlaman, MD - St. John's Riverside Hospital
Co-Author: Xavier Quezada (he/him/his), MD - St. John's Riverside Hospital

Chief Complaint : Weakness, unsteady gait, and diplopia

History of Present Illness : 64 year old male with a PMH of HTN (non-compliant with home medication), CVA (3 years ago) with no deficits, polio (diagnosed at 11 months old) with residual left arm and right leg weakness who was BIBA to the emergency department for evaluation of ongoing weakness, unsteady gait, and blurry vision since yesterday at 22:30. States that he was smoking a cigar when he felt off balance. When trying to go back inside, he hit the left side of his head on the wall, then noted double vision, especially when looking to the left. Denies fever, chest pain, sob, cough, nausea, emesis, back or neck pain, headache, LOC.

Pertinent Physical Exam: GENERAL: A&Ox3 HEAD: Atraumatic EYES: PERRLA, L EOMI, R medial rectus palsy, sclera anicteric, conjunctiva clear ENT: Auricles normal, hearing grossly normal, oropharynx clear, moist mucosa NECK: Normal ROM, supple LUNGS: CTAB HEART: RRR, normal S1 and S2, no murmurs, rubs or gallops ABDOMEN: Soft, nontender, normoactive bowel sounds. EXTREMITIES: Normal range of motion, no edema. No clubbing or cyanosis. No erythema or tenderness NEUROLOGICAL: CN II-XII intact with the exception of R medial rectus palsy. Dec strength in LUE and RLE (chronic and unchanged). Normal sensation. SKIN: Warm, dry, no rashes or lesions

Pertinent Laboratory Data: CBC, CMP, TSH, UA wnl Troponin < 0.02 EKG: sinus bradycardia Cxr: no acute chest pathology CT head: Mild-to-moderate volume loss and periventricular chronic microvascular ischemic disease changes. No mass lesion, acute infarct or intracranial hemorrhage MRI brain: Acute, nonhemorrhagic infarct of right aspect of the pons ~1 cm in its longer axis. Old ischemic changes in the white matter of both cerebral hemispheres. No evidence of basilar artery stenosis, dissection, or occlusion.

Case Discussion: Patient presented to the ED for weakness, diplopia, and unsteady gait since the night before. On evaluation, pt was bradycardic to 59 and hypertensive to 168/114, and had a right medial rectus palsy and chronic, unchanged decreased strength in LUE and RLE with normal sensation. Pt was outside the window for tPA and NIHSS was 3. CT head showed no acute infarct or hemorrhage. EKG showed sinus bradycardia. Labs showed no abnormalities. Neurology was consulted and patient was admitted. MRI brain later showed an acute, nonhemorrhagic infarct of the right aspect of the pons. Pontine strokes account for roughly 7% of all ischemic strokes, as in the case of this patient, and 10% of all hemorrhagic strokes.(1) Most commonly, the presenting findings of a pontine infarct are ipsilateral cranial nerve palsy and contralateral motor and/or sensory impairment.(2) Patients typically have dysarthria, contralateral hemiparesis, and lateral rectus palsy.(3) However, upon literature review, this case report is significant as it shows that there can be other presenting symptoms for a pontine infarct. To our knowledge, isolated medial rectus palsy is a very rare presenting symptom for a

pontine stroke. There needs to be more research done as to how medial rectus palsy is connected to pontine stroke presentations.

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(P110) Primary Carnitine Deficiency and Wolf-parkinson-white Syndrome – a Case Report

Poster Presenter / Primary Author: Tahir Shahzad (he/him/his), MD, MRCEM - Hamad Medical Corporation

Chief Complaint : A 12-year-old girl was brought by the emergency medical services with the complaint of choking followed by difficulty breathing, seizure, and loss of consciousness.

History of Present Illness : She had been eating watermelon, suddenly choked with difficulty breathing, developed a generalized tonic-clonic seizure, and lost consciousness. When EMS arrived, she was found to be in cardiac arrest with ventricular fibrillation. EMS placed a laryngeal tube (LT), had two rounds of defibrillation, and on arrival to ED she had a return of spontaneous circulation (ROSC). The patient is a known case of Primary Carnitine Deficiency.

Pertinent Physical Exam: Her respiratory rate was 20 breaths per minute, oxygen saturation was 97% on room air, blood pressure was 115/65, heart rate was 94 beats per minute, and temperature was 37 degrees Centigrade. Her weight and height are both above the 97th centile. There was no stridor and chest auscultation revealed bilateral diffuse crepitations but no wheeze. She had warm extremities, and capillary refill time < 2 seconds. Her pupils were 4 mm, equal, and reactive to light. Her Glasgow Coma Scale was no opening of eyes to any stimulus (E1), decerebrate response to a painful stimulus (M1), and intubated (Vt).

Pertinent Laboratory Data: Hemoglobin, white blood cell, coagulation profile (INR), glucose, blood gas, creatinine, and electrolytes are normal. She has mildly raised transaminases. The initial electrocardiogram showed findings of Wolf Parkinson White Syndrome. Echocardiogram showed good contracting heart with no pericardial effusion, no obvious segmental wall motion abnormality, and no right ventricular dilation, or D-sign. CT head was normal and CTPA showed bilateral ground glass opacities and consolidation suggestive of aspiration, no foreign body with no vessel filling defect. Magnetic resonance imaging of the brain showed evolving ischemia/edema, suggestive of metabolic decompensation due to the reduction or absence of beta-oxidation of fatty acids.

Case Discussion: The catecholamine surge in sudden hypoxia due to choking contributes to arrhythmias and excitation of cardiac tissue due to late sodium current producing a new heartbeat when the heart has not recovered from previous electrical activity [1]. In the presence of an accessory pathway in WPW syndrome, excitation can degenerate into fatal arrhythmias. The accessory pathway can conduct electrical current, either antegrade, retrograde, or both. The characteristic electrocardiographic (ECG) signs are short PR interval (less than 120 milliseconds), slurred QRS (known as delta wave), and prolonged QRS complex (more than 120 milliseconds) [2]. In this case, a sudden episode of choking led to hypoxia which shifted the metabolic pathway from aerobic to anaerobic. Since the patient is deficient in carnitine, it also worsened the production of energy by beta-oxidation of fatty acids which is an alternative pathway for generating ATP (adenosine triphosphate). Ventricular fibrillation (VF) is considered one of the favorable factors for neurologic outcome [3]; However, 30-80% can have anoxic encephalopathy depending upon the timing of the first defibrillation [4], which was delayed in

this case. PCD is found to be associated with short QT intervals and ventricular arrhythmias including ventricular fibrillation and ventricular tachycardia [5] but underlying cardiomyopathy is evident on echocardiography and rapidly reversed on replenishing carnitine [6,7]. The absence of cardiomyopathy and the presence of WPW syndrome are two unique features related to this case. The co-existence or association of primary carnitine deficiency with Wolf-Parkinson-White syndrome is subject to further exploration and research as fatal dysrhythmias can result. The available literature is insufficient to address this relation or association.

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Sunday, September 10, 2023
Session Time: 12:30 - 13:00
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Track: Posters - Case Reports

(P111) Is That an IUP?

Poster Presenter / Primary Author: Gagandeep Singh, MD - Jacobi Medical Center
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Co-Author: Nicole Leonard-Shiu, MD - Jacobi Medical Center
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Chief Complaint : Abdominal cramping and one day of light vaginal spotting

History of Present Illness : A 20-something-year-old female, 6 weeks pregnant by LMP, presented to the ED for abdominal cramping and one day of light vaginal spotting. She used one pad in a 24-hour period without the passage of clots. Denied any history of ovarian cysts, uterine fibroids, or known STDs. Vitals were stable.

Pertinent Physical Exam: The pelvic exam was negative for blood in the vaginal vault and adnexal tenderness. External cervical os was closed on the bimanual exam.

Pertinent Laboratory Data: Positive urine pregnancy.

Case Discussion: A point-of-care ultrasound (POCUS) transabdominal study was done which did not show a clear intrauterine pregnancy (IUP) and was negative for free fluid at the caudal tip of the liver. The right upper quadrant (RUQ) view is the most sensitive when looking for free fluid in the abdomen, and the caudal tip of the liver is the most sensitive location to look for free fluid in the RUQ. [1] Minimal criteria to rule in an IUP include a gestational sac with a yolk sac, and a myometrial mantle of at least 8 mm. An endocavitary transvaginal ultrasound was obtained which showed a small amount of free fluid in the Pouch of Douglas. The left adnexa showed a gestational sac with fetal pole and fetal cardiac activity. The patient was taken to the operating room (OR) based on EM POCUS images. Teaching Point: The minimum criteria for diagnosing an IUP are visualizing two organs (uterus and bladder) in order to accurately identify the uterus, a yolk sac within the gestational sac, and the myometrial mantel should be greater than 8 mm at its thinnest segment. The myometrial mantel in this case was less than 5 mm in thickness raising concern for this being an ectopic pregnancy.

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Sunday, September 10, 2023
Session Time: 12:30 - 13:00
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(P112) Flaccid Paralysis

Poster Presenter / Co-Author: Mai Tantawy, MD - Jacobi/Montefiore
Primary Author: Boey Li, MD - Jacobi/Montefiore Medical Centers
Co-Author: Oark Ahmed, MD - Jacobi Medical Center
Faculty Advisor: Sandeep K. Dhillon, MD - Jacobi Medical Center

Chief Complaint : A 70-year-old male presented to the adult emergency department as an EMS pre-notification for altered mental status and hypotension.

History of Present Illness : The patient has a history of with past medical history of hypertension, diabetes, end-stage renal disease on hemodialysis, congestive heart failure, coronary artery disease, cirrhosis status post liver transplant on tacrolimus, C4-C6 laminoplasty. He notes that he was previously found to have cervical stenosis, for which he underwent laminectomy two months prior to presentation; before the surgery, his symptoms were bilateral hand tremors and discoordination. Since then, he endorses progressive bilateral lower extremity weakness for one month and difficulty ambulating for one week. He denies chest pain, back pain, numbness, fever, cough, abdominal pain, dysuria, rash, or any history of intravenous drug use. As per nursing home staff, the patient was in his usual state of health the day prior to arrival. During the emergency department evaluation, the patient suddenly complained of inability to move or feel his legs; he denied any associated chest or back pain.

Pertinent Physical Exam: Upon ED arrival, the patient's vitals were as follows: blood pressure 86/43, heart rate 77, temperature 98 F, respiratory rate 16, pulse oximetry 98% (on room air). On exam, the patient was awake, alert, and answering questions appropriately. Heart sounds were regular and lung sounds were clear. He had full active and passive range of motion of his neck. He was moving bilateral upper extremities without difficulty; bilateral lower extremities strength was 2/5. On reassessment, the patient was found to have bilateral lower extremity flaccid paralysis with no rectal tone.

Pertinent Laboratory Data: Labs: WBC 13 CT cervical spine: grossly normal, orthopedic hardware appears in place MRI cervical, thoracic, and lumbar spine: mid-thoracic spinal cord swelling and edema concerning for myelitis CSF: glucose 202, protein 139.2, culture negative

Case Discussion: While initially presenting for altered mental status and hypotension, this patient was found to have focal neurological deficits, prompting emergent neurologic imaging, initiation of broad-spectrum antibiotics and acyclovir, and lumbar puncture. The additional infectious work-up consisted of an echocardiogram negative for vegetations and a lumbar puncture without pathogens. Furthermore, an abdominal aorta ultrasound was done without any concern for aortic dissection. His paraneoplastic work-up was negative. The antibiotics were started to cover for autoimmune causes of myelitis. After treatment, the patient regained a small amount of his bilateral lower extremity strength and sensation. This patient was found to have transverse myelitis, an inflammation of the spinal cord that can cause motor, sensory, and/or autonomic dysfunction. Although this diagnosis is rare, it is important to be familiar with the etiologies as it will guide management. There are various causes of transverse myelitis, which

include autoimmune, rheumatologic, neoplastic, vascular, and infectious diseases. In our patient with a complex medical history – which includes immunocompromised state, recent spinal surgery, and unstable vitals – it was challenging to determine how best to evaluate and treat him. He was empirically started on antibiotics to cover infectious pathogens, while undergoing evaluation for metabolic, vascular, and paraneoplastic etiologies. When his initial work-up was unrevealing, prior to the results of the MRIs indicative of myelitis, an emphasis was placed on treating an inflammatory cause; thus, he was started on steroids, which served to improve his symptoms. It is important to note that morbidity depends on the etiology of transverse myelitis. While some patients may recover fully, others have residual deficits, and some remain severely disabled.

References and Acknowledgements (Optional): Asundi A, Cervantes-Arslanian AM, Lin NH, Barbosa F. Infectious Myelitis. Semin Neurol. 2019 Aug;39(4):472-481. doi: 10.1055/s-0039-1688923. Epub 2019 Sep 18. PMID: 31533188. West TW, Hess C, Cree BA. Acute transverse myelitis: demyelinating, inflammatory, and infectious myelopathies. Semin Neurol. 2012 Apr;32(2):97-113. doi: 10.1055/s-0032-1322586. Epub 2012 Sep 8. PMID: 22961185. West TW. Transverse myelitis--a review of the presentation, diagnosis, and initial management. Discov Med. 2013 Oct;16(88):167-77. PMID: 24099672.

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Session Time: 12:30 - 13:00

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(P113) Rare Presentation of a Cystic Hygroma in an Adolescent Female

Poster Presenter / Primary Author: Hersh Wazir, MD - Brookdale University Hospital Medical Center

Faculty Advisor: Amira Faour, MD - Brookdale University Hospital and Medical Center

Co-Author: DeJuan Kinchelow, MD PGYI - Brookdale University Hospital and Medical Center

Chief Complaint : Increasing neck pain and mass

History of Present Illness : A 15 -year-old Hispanic female, with a past medical history of asthma, presented to our emergency department with a chief complaint of neck pain and a right-sided neck mass, increasing in size for one month. The patient reported increasing pain with neck movement and carrying her backpack over the past month. Denied fever, chills, dysphagia, dyspnea, loss of appetite or weight loss.

Pertinent Physical Exam: Her vital signs were stable and as follows: temperature of 36.4 °C (97.5 °F), heart rate of 97, blood pressure 103/64, respiration rate of 20 and oxygen saturation of 99%. Remarkable exam findings were as follows: comfortable- appearing, obese, adolescent female with a soft, non-pulsatile, nontender, approximately 5x5 cm right-sided neck mass located at the right supraclavicular notch with pain on active ROM. Remainder of the physical exam was unremarkable.

Pertinent Laboratory Data: Further investigations with blood tests revealed no abnormalities and CT chest with contrast revealed a 6.5 x 5.5 x 5.5cm right neck cystic hygroma. Patient was ultimately scheduled to surgically excise the mass one month after initial presentation.

Case Discussion: The etiology of cystic hygroma is not entirely understood. It is thought to arise from a defect in the development of the lymphatic system during fetal development, which results in the formation of abnormal lymphatic tissue. In some cases, genetic factors may also play a role in the development of the condition. Cystic hygroma is more common in females than males and usually presents in the head and neck region, most commonly in the posterior triangle of the neck. with a strong right-sided predominance. Other locations outside of the head and neck region, including chest wall, and even mesenteric lesions are exceedingly rare. Cystic hygromas in adolescents and adults are rare due to the congenital nature of this pathology. Though cases in these ages are rare, with less than 150 reported cases upon literature review, most are associated with some sort of trauma and located in the head and neck area. Theoretically, given our patient is of school age, repeated microtrauma from backpack usage may have been a proponent to her spontaneous cystic hygroma. The curative treatment of choice for cystic hygroma is surgical excision. Complete excision is important to prevent recurrence, and is usually more successful in older children and adults. In some cases, cystic hygroma may be unresectable due to the involvement of vital structures, and in such cases, other treatment options such as sclerotherapy or radiation therapy may be considered. Something else to consider is an observation period in select cases if possible, as there is a high complication and recurrence rate associated with intervention. The main complication noted in literature is neurological damage. Various treatment options have their advantages and

disadvantages, the selected treatment modality should depend on the patient's individual status and available technology and expertise.

References and Acknowledgements (Optional): Acknowledgements to patient and family for allowing us to learn from this case

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(P86) Morel-Lavallée Lesion: Point-of-Care Ultrasound Assessment of Soft Tissue Trauma in the Emergency Department

Poster Presenter: Megan Daniels, MD - Lewis Katz School of Medicine at Temple University
Primary Author: Jacob H. Korus - Lewis Katz School of Medicine at Temple University
Faculty Advisor: Ryan C. Gibbons, MD - Lewis Katz School of Medicine at Temple University
Co-Author: Alexis Germain, MD - Lewis Katz School of Medicine at Temple University

Chief Complaint : The patient complains of left thigh pain that is getting worse after he got in a car accident the previous day.

History of Present Illness : A 21-year-old male without past medical history presented complaining of worsening left thigh pain and swelling following a motor vehicle accident the previous day. Immediately after the accident he was evaluated at an outside hospital for an uncomplicated laceration to his right lower extremity.

Pertinent Physical Exam: GENERAL: Healthy appearing, well-developed. PSYCH: Alert and Oriented to person, place and location. Normal memory, mood, and affect. HEENT: Normocephalic, atraumatic, pupils equal and reactive bilaterally, Moist mucous membranes CARDIOVASCULAR: Regular rate and rhythm, no murmurs, rubs, or gallops. LUNGS: Clear to auscultation bilaterally, no wheezing. ABDOMEN: Abdominal tenderness SKIN: Warm, well perfused. No skin rashes or abnormal lesions. MSK: Ecchymosis along the left superolateral thigh with marked fluctuance NEURO: Ambulating with no limitations. Normal muscle strength and tone. No focal deficits. Vitals signs included: BP 124/71, HR 97, RR 23, 98.4 F.

Pertinent Laboratory Data: Hemoglobin: 16.1. All coagulation studies were normal.

Case Discussion: Physical exam revealed ecchymosis along the left superolateral thigh with marked fluctuance. The emergency physician (EP) performed a point-of-care ultrasound (POCUS), visualizing an anechoic fluid collection deep to the subcutaneous adipose. A subsequent computed tomography (CT) with contrast demonstrated a high-density soft tissue fluid collection deep to subcutaneous adipose but superficial to the underlying fascia consistent with a Morel-Lavallée (MLL) injury. The patient was admitted for surgical drainage and discharged the next day in stable condition. MLL is an internal degloving injury secondary to shearing forces separating the superficial subcutaneous tissue from the muscular fascia (1). Disruption of the capillaries and lymphatic structures leads to accumulation of hemolymph and necrotic fat that may encapsulate (1,2). It is often missed in the setting of polytrauma (1,3). Untreated, MLL may progress to skin necrosis, infection, poor cosmesis (1). Point-of-care ultrasound is a useful diagnostic imaging modality for the rapid identification of MLL. POCUS will demonstrate an anechoic or hypoechoic fluid collection deep to the hypodermis but superficial to underlying fascia. Internal echogenic debris, such as necrotic fat globules, may be visualized as well (3,4). This case illustrates the strong efficacy of point of care ultrasound in the early diagnosis of Morel-Lavallée injury. Due to the severe complications of MLL injuries, ultrasound should be the preferred diagnostic modality for these cases.

References and Acknowledgements (Optional): 1. Scolaro, John A. MD, MA; Chao, Tom MD; Zamorano, David P. MD The Morel-Lavallée Lesion: Diagnosis and Management, Journal of the American Academy of Orthopaedic Surgeons: October 2016 - Volume 24 - Issue 10 - p 667-672 doi: 10.5435/JAAOS-D-15-00181 2. De Coninck, T., Vanhoenacker, F., & Verstraete, K. (2017). Imaging Features of Morel-Lavallée Lesions. Journal of the Belgian Society of Radiology, 101(S2), 15. DOI: http://doi.org/10.5334/jbr-btr.1401 3. Scott LaTulip, Rameshwar R. Rao, Alan Sielaff, Nik Theyyunni, John Burkhardt, "Ultrasound Utility in the Diagnosis of a Morel-Lavallée Lesion", Case Reports in Emergency Medicine, vol. 2017, Article ID 3967587, 3 pages, 2017. https://doi.org/10.1155/2017/3967587 4. Neal C, Jacobson JA, Brandon C, Kalume-Brigido M, Morag Y, Girish G. Sonography of Morel-Lavallee lesions. J Ultrasound Med. 2008 Jul;27(7):1077-81. doi: 10.7863/jum.2008.27.7.1077. PMID: 18577672.

Sunday, September 10, 2023
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(P94) Richter Hernia Detected by Point-Of-Care Ultrasound

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Faculty Advisor: Ryan C. Gibbons, MD - Lewis Katz School of Medicine at Temple University
Co-Author: Otega Esegine, MD - Lewis Katz School of Medicine at Temple University
Poster Presenter: Ruth Lewis, MD, FAAEM - Lewis Katz School of Medicine at Temple University

Chief Complaint : The patient complains of worsening, dull, abdominal pain for 3 days.

History of Present Illness : A 21-year-old gravida 3 para 2 female who presented to the emergency department for worsening, dull, abdominal pain for 3 days. She was concerned that she was having this pain as she is pregnant and come to the emergency department for evaluation. She denies fever, diarrhea, dysuria, nausea/vomiting vaginal bleeding, and vaginal discharge.

Pertinent Physical Exam: GENERAL: Healthy appearing, well-developed. PSYCH: Alert and Oriented to person, place and location. Normal memory, mood, and affect. HEENT: Normocephalic, atraumatic, pupils equal and reactive bilaterally, Moist mucous membranes CARDIOVASCULAR: Regular rate and rhythm, no murmurs, rubs, or gallops. LUNGS: Clear to auscultation bilaterally, no wheezing. ABDOMEN: Abdominal tenderness SKIN: Warm, well perfused. No skin rashes or abnormal lesions. MSK: No deformities or signs of scoliosis. Normal gait. NEURO: Ambulating with no limitations. Normal muscle strength and tone. No focal deficits. Vital signs included: blood pressure 105/59mmHg, heart rate 75, respiratory rate 20, pulse oximetry 100%, and temperature 36.8℃.

Pertinent Laboratory Data: Pertinent laboratory values included positive beta-hCG.

Case Discussion: Transvaginal ultrasound depicted an intrauterine pregnancy with fetal heart tones and an estimated gestational age of 9 weeks. Abdominal bedside ultrasound showed a ventral hernia with bowel peristalsis within the hernia. Surgery was consulted. Radiology ultrasound showed a Richter hernia with findings concerning for entrapment and strangulation. She underwent umbilical hernia repair with surgery. A 3x2 cm fascial defect was noted and primary repair was performed. This case provides evidence for the utility of point-of-care ultrasound (POCUS) in hernia diagnosis. POCUS recognized the diagnosis for a Richter’s hernia based upon visualization of peristalsis within the hernia compartment. Steinke et al. used 18 prospectively collected cases and a literature review to outline that Richter's hernia is a deceptive entity whose high death rate can be reduced by accurate diagnosis and early surgery (1). A meta-analysis of 23 studies of radiology-performed ultrasound of occult inguinal hernias in adults demonstrated a pooled sensitivity of 86% and a specificity of 77%, outperforming computed tomography's 80% and 65%, respectfully (2). This case further indicates POCUS as a safe, effective, and inexpensive medium for hernia diagnosis (3). Additionally, Richter’s hernias are known to develop at laparoscopic sites (4). As the rate of laparoscopic procedures increase, EP’s should include Richter’s hernia on the differential diagnosis for abdominal protrusion patients. Prompt and accurate diagnosis of Richter’s hernia reduces associated

morbidity. This patient had an unremarkable post-operative course. This case demonstrates that point-of-care ultrasound is an emerging diagnostic imaging modality to expedite the diagnosis and management of undifferentiated hernias. Ultrasound was critical for diagnosis in this patient due to her pregnancy as she was unable to get a CT scan.

References and Acknowledgements (Optional): 1. Steinke W, Zellweger R. Richter's hernia and Sir Frederick Treves: an original clinical experience, review, and historical overview. Ann Surg 2000; 232:710. 2. Robinson A, Light D, Kasim A, Nice C. A systematic review and meta-analysis of the role of radiology in the diagnosis of occult inguinal hernia. Surg Endosc. 2013;27(1):11-18. 3. Guidelines for diagnostic imaging during pregnancy and lactation. Committee Opinion No. 723. American College of Obstetricians and Gynecologists. Obstet Gynecol 2017;130:e210–6 4. Callery MP, Strasberg SM, Soper NJ. Complications of laparoscopic general surgery. Gastrointest Endosc Clin N Am. 1996;6(2):423-444.

Sunday, September 10, 2023
Session Time: 12:30 - 13:30
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(P114) A Curious Case of Constipation

Poster Presenter / Primary Author: Dean J. Wiseman, MD - Montefiore/ Jacobi Medical Center
Co-Author: Nora McNulty, MD - Montefiore/Jacobi Medical Center
Co-Author: Anjali Cherukuri, MD - Jacobi Medical Center
Faculty Advisor: Trevor Dixon, MD - Jacobi Medical Center

Chief Complaint : Constipation x 5 days, syncope

History of Present Illness : 84-year-old female with past medical history of TIA and past surgical history notable for volvulus 13 years ago, small bowel obstruction 4 years ago presenting for constipation x 5 days. In an attempt to relieve her constipation, she attempted to use Dulcolax but with no change. Today, after an episode of straining to use the bathroom, she stood up from the toilet and felt dizzy. Her son was present at the time and witnessed the patient attempting to hold herself up on the wall and then slowly collapsing to the floor. Denies fever/chills, chest pain, difficulty breathing, palpitations, leg pain, leg swelling, history of DVT/PE. Considering our differential was focused on gastrointestinal pathology, a POCUS abdomen was conducted in an attempt to assess for bowel obstruction prior to x-ray or CT imaging.

Pertinent Physical Exam: General - Patient speaking in full sentences comfortably. Skin warm and dry. Cardiovascular - Normal S1/S2. No murmurs, rubs, or gallops. Respiratory - Clear to auscultation bilaterally. No wheezes, rales, or rhonchi. Abdomen - Soft, nontender to palpation. No guarding, rigidity, or rebound. Neurological - Equal sensation and motor function to the upper and lower extremities bilaterally. Tongue midline, no facial droop.

Pertinent Laboratory Data: VBG with no acidosis (pH 7.4), no lactate elevation (Lactate 1.0) CBC without leukocytosis (WBC 8.3), without anemia (Hgb 12.7) CMP without electrolyte abnormalities (Na 138, K 4.2), without Cr elevation (0.7), without transaminitis (AST 26, ALT 13) Troponin < 0.04 ECG normal sinus rhythm without ischemic changes or prolongation of PR, QRS, or QT intervals

Case Discussion: POCUS abdomen was remarkable for a large, linear structure estimated 2.5cm in diameter posterior to the bladder (Figure 1). Within this large structure there is a hypoechoic circular structure, reminiscent of a gestational sac in the uterus (Figure 2). Given that the patient is eighty-four and postmenopausal, pregnancy was unlikely; however, similar findings in a young woman would be difficult to discern. CT abdomen/pelvis was then pursued, which revealed a markedly distended rectum with large fecal content and rectal wall thickening suggestive of stercoral colitis. Stercoral colitis is an inflammatory colitis that can occur with colonic distension from fecal material most often seen in the elderly, bedbound, and those on chronic opioids1. A devastating consequence of stercoral colitis is ischemic pressure ulceration from the distension, which can result in focal ischemic necrosis and colonic perforation1. The most common locations of ulceration are in the sigmoid colon and the rectum2. About 27% of patients develop multiple areas of focal ulceration1. Patients with stercoral colitis with findings concerning for peritonitis or perforation require operative management. However, in our patient

with stercoral colitis but without evidence of perforation or bleeding, disimpaction is first-line management to facilitate passage of the fecal matter. Subsequent enema can be administered to soften the impaction. In the elderly, warm water enemas are preferred over sodium phosphate enemas because of the association of these kinds of enemas with hypotension, volume depletion, hyperphosphatemia, and hyperkalemia. After disimpaction, osmotic laxatives such as polyethylene glycol and lactulose can be considered. Patients with stercoral colitis who do not show signs of peritonitis can be considered for admission for close monitoring1,3.

References and Acknowledgements (Optional): [1] Heffernan C, Pachter HL, Megibow AJ, Macari M. Stercoral colitis leading to fatal peritonitis: CT findings. AJR Am J Roentgenol. 2005 Apr;184(4):1189-93. [2] Tokunaga Y, Hata K, Nishitai R, Kaganoi J, Nanbu H, Ohsumi K. Spontaneous perforation of the rectum with possible stercoral etiology: report of a case and review of the literature. Surg Today. 1998;28(9):937-9. [3] Naseer M, Gandhi J, Chams N, Kulairi Z. Stercoral colitis complicated with ischemic colitis: a double-edge sword. BMC Gastroenterol. 2017 Nov 28;17(1):129.