



Rhode Island
Chapter

2017 Annual Scientific Meeting

*Resident /Fellow/Medical Student
Forum*

*Podium Presentation
and
Poster Competition
Program*

**May 3, 2017
Warren Alpert Medical School
Providence, RI**

Rhode Island Chapter, American College of Physicians
Annual Scientific Meeting

2017 Resident/Fellow Forum Winners

Podium Presentation Schedule
4:30 - 6:00 pm

(8 minute presentation followed by 3 minute Q&A each)

Presenter	Time	Institution represented	Abstract title
Sara Gore MD	4:30-4:41	Lifespan RIH/TMH/VA	A Telltale Crunch: Spontaneous Pneumomediastinum in Two Patients with Hamman's Sign
Alberto Goizueta MD	4:45-4:56	RWMC	National Rates of 30-day Hospital Readmissions for Adults with Asthma Exacerbation
Edward Medeiros Jr. DO	5:00-5:11	Kent	Utilization of Prediction Models for Pulmonary Embolism in a Community E.D.
Anäis Ovalle MD	5:15-5:26	MHRI	Refractory gout and the use of Anakinra
Somwail Rasla MD	5:30-5:41	MHRI	Association Between the Use of Arterial Catheters and Hospital Outcomes in Critically Ill Patients
Roshan Shah DO	5:45-5:56	Kent	CT Head Scans in Syncopal Patients in the Emergency Department

Kent Hospital Residents

Podium Presenters

Edward Medeiros Jr. DO

Roshan Shah DO

Poster Exhibitors

Ryan Allen DO

Rachael Biancuzzo DO

Rachel Black DO *

Ilona Goukassian DO

Matthew McMullen DO

Asmani Patel DO

Jameel Shareef DO

John Sullivan DO

Kylie Swearingen DO

Lifespan: Rhode Island Hospital, The Miriam Hospital, VA Medical Center Residents

Podium Presenter:

Sara Gore MD

Poster Exhibitors:

Ankita Agarwal MD *
Brian Agganis MD
Kashif Ather MD
Sandeep Bains MD
Russell Bratman MD
Kristen Dix MD
Heather Ferri DO
Meghan Nahass MD *
Vikram Raghunathan MD
Ashley Rossi MD *
Nadia Shaikh MD
Esseim Sharma MD
Iris Sheng MD
Zoe Weiss MD

Memorial Hospital of Rhode Island Residents

Podium Presenters

Anäis Ovalle MD
Somwail Rasla MD

Poster Exhibitors

Ahmad Abdin MD
Saif Al Adwan MD
Ahmad Al Salman MD *
Feras Al Shami MD
Mohamad Firas Barbour MD
Paulette Pinargote Cornejo MD
Fatima Hamid MD
Saira Imran MD
Humnah Khudayar MD
Faeq Kukhon MD
Ahmed Mohamed MD
Mahmoud Mowafy MD
Reema Qureshi MD *
Isha Shah MD
Osama Siddique MD
Roy Souaid MD
Juliet Yirerong MD *
Ali Zia MD

Roger Williams Medical Center Residents

Podium Presenter

Alberto Goizueta MD

Poster Exhibitors

Rebecca Asiamah MD
Miguel Cervena MD
Jared Christensen MD *
Eddie Copelin II MD
Mansour Gergi MD
DennisGuadarrama
Naomi Hauser MD *
Maninderpal Kaur MD

Nadine Mbuyi MD
Marie Prato MD
Nandinidevi Ramaswamy MD *
Tarun Sabharwal MD
Gabrielle Thottam MD

Medical Students

Best Medical Student Poster

Seungjun Kim

Warren Alpert Medical School of Brown University

Alyssa Aldridge

Anna Delamerced

Kira Neel

Madeline Pesec

New England College of Osteopathic Medicine

Stephanie Braunthal

Judges

Podium Presentation

J. Russell Corcoran MD, FACP

Pamela Harrop MD FACP

Allan Tunkel MD, PhD, MACP

Poster Competition

Tanya Ali MD

Katheryn Banner MD

Thomas Bledsoe MD, FACP

Mark E. Braun MD, FACP

Ross W. Hilliard MD

Dino Messina MD, FACP

Nadeem Mohammed MD

William Rafelson MD

Benjamin Sapers MD, FACP

Sarita Warriar MD FACP

* Poster Competition Finalists

Seungjun Kim

Best Medical Student Poster

Medical School: The Warren Alpert Medical School of Brown University, MS-3

Category: Research

Additional Author: Paul George MD, MHPE

Pass-fail versus Tiered Preclinical Grading and Average USMLE Scores in 96 U.S. Allopathic Medical Schools

Introduction

Pass-fail grading in the preclinical years of medical school is associated with improved student well-being. Previous studies do not demonstrate significant differences in United States Medical Licensing Examination (USMLE) Step 1 and Step 2 scores after changing from a grading system with three or more tiers (such as A, B, C or Honors/Pass/Fail) to pass-fail grading. However, the studies were conducted at highly selective institutions that may not represent all medical schools. Average Step scores were also increasing overall during the study periods, potentially masking the effect of pass-fail grading. To overcome these limitations, we investigated the effect of preclinical grading systems on USMLE scores across 96 U.S. allopathic medical schools.

Methods

Medical schools' preclinical grading systems were identified with the 2017 Association of American Medical Colleges Medical School Admissions Requirements and verified with official school websites. Median undergraduate grade point average (GPA) and Medical College Admission Test (MCAT) scores and average Step 1 and Step 2 Clinical Knowledge (CK) scores were available for 96 of 142 U.S. allopathic medical schools on the U.S. News & World Report Grad Compass online database. Multiple linear regression was used to adjust for entering student characteristics, and one-sided Student's t tests were used to test for non-inferiority. Equivalence margins were calculated using the standard errors of difference for Step 1 and Step 2 CK (8 and 9 points, respectively) reported in the USMLE Score Interpretation Guidelines, and average medical school class size. Statistical analysis was performed using Stata 14.0 (StataCorp, College Station, TX).

Results

In total, 79 of 142 (55.6%) U.S. allopathic medical schools use pass-fail grading for the entire preclinical curriculum. Of the 96 schools with USMLE data available, 56 (58.3%) use pass-fail preclinical grading. In the linear regression model to adjust for entering student characteristics, undergraduate GPA was not a significant predictor of Step 1 ($P = 0.17$) or Step 2 CK ($P = 0.55$) when added to MCAT ($P < 0.001$ for both), and was dropped. After adjusting for MCAT, pass-fail grading was not associated with significant differences in average Step 1 ($P = 0.98$) or Step 2 CK ($P = 0.63$). The 90% confidence interval of the effect of pass-fail grading on Step 1 (-1.27, 1.24) did not cross the equivalence margin of -1.33 ($P = 0.04$). The 90% confidence interval for Step 2 CK (-1.46, 0.81) also did not cross the equivalence margin of -1.5 ($P = 0.04$).

Conclusions

Pass-fail preclinical grading is non-inferior to tiered preclinical grading in terms of Step 1 and Step 2 CK scores. Schools that have not yet adopted pass-fail preclinical grading can do so without lowering their USMLE averages.

Alberto Goizueta MD

Residency Program: Roger Williams Medical Center, PGY-2

Category: Research

Additional Authors: Enoch Cobbina MSc2, Rosann Cholankeril MSIV, Liliana Gonzalez Ph.D., Rabih El-bizri, MD

National Rates of 30-day Hospital Readmissions for Adults with Asthma Exacerbation

Introduction

Approximately 19 million adults in the U.S. have asthma and it is extremely important to recognize the populations at greatest risk for hospitalizations to improve the healthcare system. Our primary objective was to determine the 30-day readmission rates for asthma exacerbations and the associated costs for adults in 2013.

Methods

We determined the 30-day readmission rates and associated costs by using the 2013 Healthcare Cost and Utilization Project's–National Readmission Database (HCUP–NRD). The NRD contains discharge data from all-payer hospital inpatient stays in 21 geographically dispersed states. We started by determining all the admissions for asthma in adults 18 or above and then identified the patients readmitted within thirty days. The rates and risks of readmission were then calculated and analyzed based on specific demographics and comorbidities. Additionally, we calculated the average cost per readmission and the total overall costs for asthma readmissions.

Results

In 2013 there were 29,242,439 adult admissions in the HCUP-NRD database, which included 527,592 (1.8%) for asthma. Of the admissions with asthma, 70,186 (13.3%) were readmitted within 30-days for asthma. Among those readmitted for asthma, we noted a higher rate of readmission for males (14.9%) verse females (12.6%). Also, the risk of readmission for asthma in patients with comorbidities such as drug abuse, CHF, and renal failure (OR: 1.21, 1.22, 1.22, 1.23, respectively ($p < 0.05$)) was increased compared to the patients without these comorbidities after multivariate analysis. Patients with Medicaid had a higher readmission rate for asthma compared to patients with Medicare and private insurance. Lastly, the total overall cost for asthma readmissions was 2.8 billion dollars in 2013 and was highest among the female, elderly, Medicare, and lower income patients.

Conclusion

Asthma is a serious health and economic problem in the United States. A patient admitted for asthma has an overall 30-day readmission rate for asthma of 13.3% and specific subsets of patients in our data increase this rate. To conclude, our data represents the first time a nationwide analysis of 30-day asthma readmissions and associated costs has been compiled. By promoting proper education and care in these at risk patients we can help reduce the number of hospitalizations and improve the livelihood of our patients.

Sara Gore MD

Residency Program: Rhode Island Hospital/The Miriam Hospital, PGY-2

Category: Clinical Vignette

Additional Authors: Zoe Weiss MD, Hadeel Zainah MD, Bethany GentileSCO MD

A Telltale Crunch: Spontaneous Pneumomediastinum with Hamman's Sign

Spontaneous pneumomediastinum (SPM) is the rare and typically benign finding of free air in the mediastinum resulting from alveolar rupture in the setting of increased intrathoracic pressure. Hamman's sign, or the presence of crepitus on cardiac auscultation, is an unusual exam finding that is pathognomonic for SPM. The following cases describe two patients who presented with emesis and chest pain and were found to have extensive pneumomediastinum with Hamman's sign. Although SPM does not typically mandate further workup to evaluate for esophageal injury, esophagram is indicated in cases of severe vomiting.

A 19-year-old man with a history of cocaine, alcohol, and marijuana use presented from urgent care with one day of chest discomfort and dyspnea in the setting of back and flank pain, persistent emesis, and excessive exercise. The patient worked outside in the heat and had continued to exercise vigorously at the gym despite his symptoms. On admission physical exam, the patient had an audible crunching sound with auscultation of S1 along with bilateral flank tenderness. There was no crepitus on palpation of his neck or chest. Labs revealed a leukocytosis of 14.5 K/uL, creatinine of 1.93 mg/dl, and a creatinine kinase of 8393 IU/L. CT chest demonstrated extensive pneumomediastinum from the gastroesophageal junction to the neck. The patient was admitted to the medicine service for pneumomediastinum and rhabdomyolysis. Given his history of emesis, there was concern for Boerhaave's syndrome, so he was started on piperacillin-tazobactam until gastrograftin swallow evaluation revealed no esophageal perforation. He was discharged home in stable condition after aggressive fluid resuscitation.

Just two days later, a 20-year-old man with anxiety presented with a one-week history of nausea, vomiting, and sharp chest pain in the setting of panic attacks, marijuana use, and a possible viral gastroenteritis. His vitals and laboratory workup were stable. His exam was notable for a positive Hamman's sign and palpable subcutaneous emphysema on the anterior chest wall and neck. Chest x-ray revealed extensive pneumomediastinum extending into the cervical soft tissues and a gastrograftin swallow evaluation was negative. He was discharged with psychiatric follow-up.

These cases demonstrate the challenges inherent to the workup of pneumomediastinum. It is widely accepted that SPM secondary to a clear inciting factor does not require further workup with esophagram. However, given both patients' history of severe emesis, an esophagram was warranted to rule out hollow organ rupture. These cases also illustrate the potential for a careful physical exam to reveal key findings prior to confirmation on imaging. Hamman's sign is only heard in approximately 30% of all cases of pneumomediastinum, but is considered pathognomonic for the condition.

Edward Medeiros Jr. DO

Residency Program: Kent Hospital Internal Medicine Residency Program, PGY-2

Category: Research

Additional Authors: Alisa Merolli MD

Utilization of Prediction Models for Pulmonary Embolism in a Community E.D.

Introduction

Pulmonary embolism (PE) remains a challenging diagnosis given lack of specific signs and symptoms. In 2015, the American College of Physicians (ACP) released clinical practice guidelines for PE diagnosis. Using the prospectively validated Wells' Criteria, patients are stratified into Low risk, Moderate risk, or High risk groups. Low risk patients are subdivided using the "Pulmonary Embolism Rule-out Criteria" (PERC); "PERC negative" patients require no further workup, while those meeting 1+ PERC and all moderate risk patients should have d-dimer testing. Individuals with elevated d-dimer subsequently undergo diagnostic imaging, such as CT angiography. High risk patients have diagnostic imaging without laboratory testing. The American College of Emergency Physicians (ACEP) also support a "two step" Wells' Criteria. Patients in the "PE unlikely" group use PERC and d-dimer, while "PE likely" patients undergo imaging. Our hypothesis suggests the increased availability of CT imaging has led to reduced Wells' Criteria utilization and inappropriate CT imaging. This retrospective chart review in an Emergency Department (ED) setting evaluated utilization of Wells' Criteria and CT imaging appropriateness for suspected PE based on the aforementioned risk model.

Methods

A retrospective chart review was conducted in a community hospital ED. We selected patients whom underwent CT Angiography of the Chest for suspected acute pulmonary embolism. Patient encounters ranged from 01/01/14 – 12/31/14. Wells' Criteria was retrospectively applied, with each patient placed into Low risk, Moderate risk, or High risk groups. Moderate risk patients were further stratified based on the "two-step" Wells' Criteria. CT scan appropriateness and Wells' Criteria utilization were determined based on each patient's diagnostic workup. CT scans performed for indications other than acute PE were excluded from our study.

Results

369 CT scans were included, with 159 of the scans (43.1%) determined to be inappropriate based on Wells' Criteria. Inappropriate CT scans in each population included 109 of 216 (50.5%) in Low risk patients, 50 of 120 (41.7%) in the Moderate risk category and 0 of 33 (0%) High risk. An additional 25 CT scans were deemed inappropriate using the more recently studied Age-Adjusted D-Dimer criteria. Additionally, Wells' Criteria was documented in only 164 of 369 (44.4%) patient encounters, which included any documentation of risk stratification. CT scan was positive for pulmonary embolism in 7 of 369 (1.9%) cases.

Conclusion

Despite supporting evidence, Wells' Criteria remains underutilized in the workup of pulmonary embolism. While research shows increasing rates of CT imaging, our study suggests it may be associated with inappropriate usage. Wells' Criteria was not documented in more than half of the cases, supporting our hypothesis of underutilization. Increasing the usage of previously validated prediction models may lead to more appropriate diagnostic testing, limiting the unnecessary complications and healthcare costs associated with CT imaging.

Anais Ovalle MD

Residency Program: Memorial Hospital of Rhode Island , PGY-2

Category: Clinical Vignette

Additional Authors: Firas Al Shami MD, Vanessa Sazani MD, Sajid Saraf MD

Refractory Gout and the Use of Anakinra

Introduction

Gout is the most common crystal-induced arthropathy caused by joint and soft tissue deposition of monosodium urate crystals resulting in acute inflammation, affecting approximately one to two percent of the population. In the acute setting, Gout commonly presents with monoarthritis. However, in about 20% of patients it presents with polyarticular involvement. Typically, these cases are treated with nonsteroidal anti-inflammatory drugs (NSAIDs) , colchicine, or steroids. Recently, immunomodulators have demonstrated efficacy in resistant cases. This is a patient with polyarticular gout refractory to conventional therapy.

Case presentation

A 63 year old man with a medical history of monoarticular gout and hypertension presented to our institution with complaints of progressive polyarticular swelling, diffuse pain and impaired functioning, progressively worsening over a period of two weeks. Upon examination, he was found to be afebrile with bilateral swelling of the elbows, metacarpophalangeal, proximal interphalangeal, distal interphalangeal joints, knees, ankles and metatarsophalangeal joints with localized warmth, erythema, tenderness, and limited active and passive range of motion. He was unable to ambulate. Blood work demonstrated a leukocytosis of 15,000/mcL, sedimentation rate of 130mm/hr and C-reactive protein of 247. Synovial fluid from the knee revealed white blood cell count of 69,000/mcL with 96% neutrophils, along with intracellular negatively birefringent crystals and negative gram stain and cultures. Rheumatoid factor, anti-cyclic citrullinated peptide, anti-nuclear antibodies, anti-neutrophil cytoplasmic antibodies, Lyme titers, mononucleosis, urine Chlamydia and Gonorrhea were negative. C3, C4 levels were within normal limits. No evidence of joint erosion was noted on X-rays. No signs suggestive of sarcoidosis were seen on CT of the chest. Trials of colchicine, non-steroidal anti-inflammatory medications and systemic steroids had failed to provide any improvement over a six-day period. He was started on Anakinra at 100 mg subcutaneous daily for three days, resulting in significant improvement in joint pain, swelling and overall motor function. The patient ultimately was discharged and continued on colchicine and allopurinol in the outpatient setting.

Discussion

Gout is classically a monoarticular crystal induced arthropathy, which is self-limiting and responds to NSAIDs, colchicine, or steroids. The pathogenesis involves the presence of urate crystals, which activate phagocytes triggering release of chemokines such as Interleukin (IL) 1, IL-6, IL-8, TNF-alpha, which amplify the inflammatory response. Anakinra is an interleukin-1 receptor antagonist that is FDA approved for Rheumatoid Arthritis in adults and is noted to be useful in other rheumatologic conditions including Adult Still's Disease and Behcet's Disease. Anakinra should be strongly considered by clinicians as an alternative therapy for cases where therapies are limited or inadequate to treat the patients with acute refractory gout.

Somwail Rasla MD

Residency Program: Memorial Hospital of Rhode Island, PGY-3

Category: Research

Additional Authors: Ahmed Mohamed MD, Reema Qureshi MD, Marina Garas DO, Taro Minami MD FACP

Association Between the Use of Arterial Catheters and Hospital Outcomes in Critically Ill Patients

Background

Arterial catheters are frequently used in the intensive care units (ICUs) for precise blood pressure measurement. Their clinical effectiveness and adverse effects have not been thoroughly evaluated in clinical studies.

Objective

To determine whether the use of arterial catheters improve 28 day mortality and ICU mortality in critically ill patients

Design, Setting, and Participants

MIMIC-III (Medical Information Mart for Intensive Care III) is a database comprising of health-related data associated with over 40,000 patients admitted to critical care units of The Beth Israel Deaconess Medical Center between 2001 and 2012. We examined the subset of patients in whom arterial catheters were included.

Exposure: Use of arterial catheter.

Main Outcomes and Measures

The primary outcome was 28-day and ICU mortality starting from the time of admission. The secondary outcomes included hospital and ICU length of stay. We assessed a primary cohort of patients using underlying SOFA score as a marker for degree of multi-organ failure. We used the following statistical analyses: score-matched pairs as the primary analytical strategy; descriptive analysis, and Pearson chi square to compare baseline characteristics; and cox proportional hazards to assess survival of the participants after adjusting to covariates.

Results

Our primary cohort consisted of 2752 patients; 1358 of these patients did not have an arterial catheter in place during their ICU stay (Group-1) while 1393 patients had them (Group-2). Both groups had comparable SOFA scores (mean: 2.61 ± 0.07 and 2.68 ± 0.07 , respectively). Group-1 had shorter hospital length of stay (6.24 ± 0.14 days) than Group-2 (10.05 ± 0.21 days) (95% CI: 3.82-3.79; $P = .001$). Similarly, Group-1 had a shorter ICU length of stay (2.51 ± 0.04 days) compared to Group-2 (4.43 ± 0.10 days) (95% CI: 1.92-1.91; $P = .001$). There was no significant difference in 28-day mortality between both groups (Group-1 had 206 deaths and Group-2 had 211 deaths). Cox proportional hazard models stratified by mean arterial blood pressure and SOFA score did not show any statistically significant difference in 28-day mortality among both groups. (HR 1.07; 95% CI: 0.55-2.11), or in ICU mortality (HR 1.6; 95% CI: 0.68-3.75)

Conclusions and Relevance

The use of arterial catheters was not associated with decreased 28-day mortality nor ICU related mortality. Patients without arterial catheters had significantly shorter hospital and ICU stays. This study brings attention to the indications of arterial catheter placement in the wake of advances in non-invasive monitoring technologies. Given the costs and potential harms associated with this invasive monitoring method, randomized clinical trials are suggested to further reexamine the benefits and risks.

Roshan Shah DO

Residency Program: Kent Hospital Internal Medicine Residency Program, PGY-1

Category: Research

Additional Authors: Vincent Sicari DO, Alisa Merolli MD, Eric Christie OMS III, Tenes Paul OMS III

CT Head Scans in Syncopal Patients in the Emergency Department

Introduction

In the emergency department (ED) the chief complaint of syncope is commonly encountered, accounting for 1-3 percent of all ED visits and hospital admissions in the United States. It has been shown in prior studies that the head CT has the lowest likelihood of useful results, and therefore the highest cost per yield. This has led the Choosing Wisely Campaign, in conjunction with the American College of Emergency Physicians, to recommend that physicians avoid CT of the head in asymptomatic adult patients in the ED for syncope, with insignificant trauma, and a normal neurological evaluation. The purpose of this study was to determine adherence to this recommendation in a community teaching hospital ED. In addition, we hope to gather information which will guide the development of a syncope evaluation decision tool to be utilized in our ED.

Methods

This study is a retrospective data analysis approved by the IRB of Care New England. Patients with the ED discharge diagnosis code of syncope from 1/1/14 to 12/31/15 were selected for chart review. Charts were reviewed and data was recorded for the presence of actual syncope, documented head trauma, and an abnormal neurologic exam. Additional data included the documentation of orthostatic measurements. The performance of head CT and the respective results were chronicled, as well as patient disposition. Patients were included regardless of age, race, ethnicity or gender. Exclusion criteria included pre-syncope and inconclusive syncope. Inconclusive syncope was defined as an unwitnessed event, an inconclusive history due to dementia or poor personal account, or if conflicting documentation amongst providers occurred. Head CT was deemed indicated if the patient had documented trauma, reported seizure, or an abnormal neurologic exam. Head CT was defined as positive if a bleed (subarachnoid/subdural or parenchymal), CVA, or brain mass was present.

Results

Of the 733 patient charts, 313 were excluded, and 420 syncopal patients were included in the study. In 154 (37%) patients a head CT was performed, of which 88 (57%) were indicated. In the 66 head scans which not indicated all demonstrated negative findings. In the 25 patients that had orthostatics performed, 4 were positive.

Conclusion

Our results confirm that physicians in our community teaching hospital ED are not yet adhering to recommendations addressing syncope and CT imaging. This practice is unnecessarily exposing patients to radiation and imaging expenses. Eliminating the unnecessary imaging in our study would have resulted in a cost savings of \$105,336. This study supports the recommendation that patients presenting to the ED with syncope do not benefit from head CT unless there is documented trauma, seizure, or an abnormal neurologic exam. We hope to use this data to develop, implement, and prospectively derive a clinical decision rule for syncope.