

LO22

Does point-of-care ultrasonography improve diagnostic accuracy in emergency department patients with undifferentiated hypotension? An international randomized controlled trial from the SHoC-ED investigators

P. Atkinson, MBChB, M. Peach, MD, S. Hunter, BSc, A. Kanji, BA, MB, MCh, BAO, L. Taylor, MD, D. Lewis, MBChB, J. Milne, MD, L. Diegelmann, MD, H. Lamprecht, MD, M. Stander, MD, D. Lussier, MD, C. Pham, MD, R. Henneberry, MD, M. Howlett, MD, J. Mekwan, MBChB, B. Ramrattan, MD, J. Middleton, MD, D. van Hoving, MD, L. Richardson, MD, G. Stoica, PhD, J. French, MBChB, Dalhousie University, Saint John, NB

Introduction: Point of care ultrasound has been reported to improve diagnosis in non-traumatic hypotensive ED patients. We compared diagnostic performance of physicians with and without PoCUS in undifferentiated hypotensive patients as part of an international prospective randomized controlled study. The primary outcome was diagnostic performance of PoCUS for cardiogenic vs. non-cardiogenic shock. **Methods:** SHoC-ED recruited hypotensive patients (SBP < 100 mmHg or shock index > 1) in 6 centres in Canada and South Africa. We describe previously unreported secondary outcomes relating to diagnostic accuracy. Patients were randomized to standard clinical assessment (No PoCUS) or PoCUS groups. PoCUS-trained physicians performed scans after initial assessment. Demographics, clinical details and findings were collected prospectively. Initial and secondary diagnoses including shock category were recorded at 0 and 60 minutes. Final diagnosis was determined by independent blinded chart review. Standard statistical tests were employed. Sample size was powered at 0.80 ($\alpha:0.05$) for a moderate difference. **Results:** 273 patients were enrolled with follow-up for primary outcome completed for 270. Baseline demographics and perceived category of shock were similar between groups. 11% of patients were determined to have cardiogenic shock. PoCUS had a sensitivity of 80.0% (95% CI 54.8 to 93.0%), specificity 95.5% (90.0 to 98.1%), LR+ve 17.9 (7.34 to 43.8), LR-ve 0.21 (0.08 to 0.58), Diagnostic OR 85.6 (18.2 to 403.6) and accuracy 93.7% (88.0 to 97.2%) for cardiogenic shock. Standard assessment without PoCUS had a sensitivity of 91.7% (64.6 to 98.5%), specificity 93.8% (87.8 to 97.0%), LR+ve 14.8 (7.1 to 30.9), LR- of 0.09 (0.01 to 0.58), Diagnostic OR 166.6 (18.7 to 1481) and accuracy of 93.6% (87.8 to 97.2%). There was no significant difference in sensitivity (-11.7% (-37.8 to 18.3%)) or specificity (1.73% (-4.67 to 8.29%)). Diagnostic performance was also similar between other shock subcategories. **Conclusion:** As reported in other studies, PoCUS based assessment performed well diagnostically in undifferentiated hypotensive patients, especially as a rule-in test. However performance was similar to standard (non-PoCUS) assessment, which was excellent in this study.

Keywords: diagnosis, hypotension, point of care ultrasonography (PoCUS)

LO23

Identifying patient values and expectations for pulmonary embolism CT scanning in the emergency department

V. Swarup, BSc, MSc, A. Soomro, BSc, MSc, S. Abdulla, BSc, MSc, K. de Wit, BSc, MBChB, MD, MSc, McMaster University, Hamilton, ON

Introduction: There is an evidence-practice gap between guidelines for diagnosing pulmonary embolism (PE) and emergency physician

practice. Computed tomography (CT) scanning is being overused to exclude PE in Canadian emergency departments (EDs) and current guidelines do not fit well with the ED model of patient care. There is a lack of research on patient opinions on PE testing, and a poor physician understanding of patient-specific goals in the ED. We are addressing this by conducting patient interviews to identify patient-specific values and opinions on PE testing in the ED. These will be used to develop patient-centered educational tools which physicians and patients can use to discuss the decision to order a CT PE scan. The aim of this study is to identify patient expectations and priorities on PE testing in the ED. **Methods:** This qualitative study uses constructivist grounded theory to analyze patient values and opinions on PE testing in ED patients from two hospitals. Participants are screened by monitoring the ED patient tracker. If a patient is being tested for PE, they are approached and consented by a researcher to take part in a 30-minute semi-structured interview. Each interview is transcribed verbatim and independently analyzed by four researchers using constant comparative coding. The researchers meet weekly to compare codes and agree on common coding terms. The codes are grouped into themes, and the interview script is modified to maximize information on emerging themes. From this, major themes with associated subthemes will be derived, each representing an opportunity, barrier or value which must be addressed in our new patient education tools. We have performed 23 interviews and expect to reach theme saturation at 30 interviews. Full results will be available by the 2019 CAEP conference. **Results:** From the patient interviews conducted so far, we have mapped four major themes: patient satisfaction comes from addressing their primary concern (for example, their pain); patients expect individualized care; patients prefer imaging over clinical examination when testing for PE; and patients expect 100% confidence from their ED physician when given a diagnosis. **Conclusion:** These four domains will be used to create a new patient-centered approach to PE testing in the ED which will include physician education, patient information and organizational changes to patient processing. This study incorporates evidence-based medicine with ethical and social implications to improve patient outcomes.

Keywords: decision making, patient-centred care, pulmonary embolism

LO24

What patients need early surgical intervention for acute ureteric colic?

G. Innes, MD, MSc, E. Grafstein, MD, M. Law, PhD, A. McRae, MD, PhD, F. Scheuermeyer, MD, MSc, J. Andruchow, MD, MSc, University of Calgary, Calgary, AB

Introduction: Ureteral colic is a common painful disorder. Early surgical intervention is an attractive management option but existing evidence does not clarify which patients benefit. Based on lack of evidence, current national specialty guidelines provide conflicting recommendations regarding who is a candidate for early intervention. We compared treatment failure rates in patients receiving early intervention to those in patients offered spontaneous passage to identify subgroups that benefit from early intervention. **Methods:** We used administrative data and structured chart review to study consecutive patients attending one of nine hospitals in two provinces with an index emergency department (ED) visit and a confirmed 2.0-9.9 mm ureteral stone. We described patient, stone and treatment variables, and used multivariable regression to identify factors associated with treatment failure, defined as the need for rescue intervention or hospitalization within 60 days. Our secondary

outcome was ED revisit rate. **Results:** Overall, 1168 (37.9%) of 3081 eligible patients underwent early intervention. Patients with small stones <5mm experienced more treatment failures (31.5% v. 9.9%) and more ED revisits (38.5% v. 19.7%) with early intervention than with spontaneous passage. Patients with large stones ≥ 7.0 mm experienced fewer treatment failures (34.7% v. 58.6%) and similar ED revisit rates with early intervention. Patients with intermediate-sized 5.0–6.9mm stones had fewer treatment failures with intervention (37.4% v. 55.5%), but only if stones were in the proximal or middle ureter. **Conclusion:** This study clarifies stone characteristics that identify patients likely to benefit from early intervention. We recommend low-risk patients with uncomplicated stones <5mm generally undergo initial trial of spontaneous passage, while high-risk patients with proximal or middle stones >5mm, or any stone >7mm, be offered early intervention.

Keywords: intervention, outcomes, renal colic

LO25

Use of Glasgow Blatchford Score, time to endoscopy, and proton pump inhibitor use in patients presenting with upper gastrointestinal bleeding to the emergency department

S. Sandha, BSc, J. Stach, MD, M. Bullard, MD, B. Halloran, MD, H. Blain, BSc, D. Grigat, MA, E. Lang, MD, S. Veldhuyzen van Zanten, MD, MPH, MSc, PhD, University of Alberta, Edmonton, AB

Introduction: Upper gastrointestinal bleeding (UGIB) is a common presentation to the emergency department (ED). Early endoscopy within 24 hours has been shown to reduce re-bleeding rates and lower mortality. However, low-risk patients can often be managed through outpatient follow-up. The aim of this study was to compare the timing and appropriateness of endoscopy and proton pump inhibitor (PPI) use in a tertiary care ED setting for low- and high-risk patients determined using the Glasgow Blatchford Score (GBS). **Methods:** Retrospective chart review was conducted to examine the management of patients presenting with an UGIB in 2016 to the University of Alberta Hospital ED. TANDEM and Emergency Department Information System (EDIS) databases were used to identify patients using specific ICD-10 codes and the CEDIS presenting complaints of vomiting blood or blood in stool/melena. Patients with GBS 0–3 were categorized as low-risk and those with GBS > 3 were considered high-risk with appropriateness of and time to endoscopy, disposition of patient at 24 hours, and use of PPIs determined for each group. **Results:** A total of 400 patients were included. A total of 319/400 patients (80%) underwent esophagogastroduodenoscopy (EGD). EGD was performed within 24 hours in 37% of patients (29/78) with GBS 0 to 3 and in 77% (248/322) with GBS greater than 3. Of the remaining high-risk patients, 11% (36/322) underwent EGD after 24 hours and 12% (38/322) did not undergo EGD. The endoscopic diagnoses were peptic ulcer disease (PUD) in 41% of patients (130/319), esophagitis in 18% (56/319), and varices in 14% (45/319). PPIs (data available 375/400) were administered (mainly intravenously) to 93% (279/300) of high-risk and 79% (59/75) of low-risk patients. Data on patient disposition showed 60/322 (19%) high-risk patients were discharged from the ED within 24 hours and only 31/60 (52%) of these underwent EGD before discharge. Of 29 low-risk patients undergoing EGD within 24 hours, 9 (31%) were admitted, 17 (59%) were discharged from ED, and 3 (10%) were kept for observation in the ED greater than 24 hours. Of low-risk patients, 76% (59/78) were discharged from the ED within 24 hours. **Conclusion:** A majority of patients presenting with UGIB

appropriately received endoscopy within 24 hours. 19% of high-risk patients were discharged from the ED. Earlier discharge for low-risk patients can be improved as only 76% of low-risk patients were discharged from the ED within 24 hours. As expected, PPI use was high in these patients.

Keywords: endoscopy, gastrointestinal bleeding, management

LO26

Are ED physicians contributing to the opioid epidemic?

G. Mok, MD, H. Newton, BSc, L. Thurgur, MD, I. Stiell, MD, MSc, University of Ottawa, Department of Emergency Medicine, Ottawa, ON

Introduction: There is an opioid epidemic which has seen an increased mortality rate of 200% related to opioid use over the past decade. Prescription practices amongst ED physicians may be contributing to this problem. Our objective was to analyze ED physician prescription practices for patients discharged from the ED with acute fractures. **Methods:** We conducted a health records review of ED patients seen at two campuses of a tertiary care hospital with total annual census of 160,000 visits. We evaluated a consecutive sample of patients with acute fractures (January 1 2016–April 15 2016) seen and discharged by ED physicians. Patients admitted to hospital or discharged by consultant services were excluded. The primary outcome measure was the proportion of patients discharged with an opioid prescription. We collected data using a screening list, review of electronic records, and interobserver agreement for measures. We calculated simple descriptive statistics and estimated 4 months would be required to enroll 250 patients receiving opioid prescriptions. **Results:** We enrolled 816 patients, with 442 females (54.2%), median CTAS score of 3, and median pain score at triage of 6/10. The most common fractures were wrist/hand (35.2%) and foot excluding ankle (14.8%). An ED pain directive was used at triage for 21.2% and 281 patients (34.4%) received an opioid during ED stay, with tramadol (21.2%) being the most common. Overall, 250 patients (30.6%) were discharged with the following opioid prescriptions and median total dosages: hydromorphone (N = 114, median dosage 23mg, range 1–120mg), tramadol (N = 86, 1000mg, 200–2000mg), oxycodone (N = 33, 100mg, 10–170mg), codeine (N = 20, 600mg, 360–1200mg), and morphine (N = 9, 100mg, 25–200mg). Of patients prescribed hydromorphone, 61 (53.5%) were prescribed >20mg. Overall, 35 patients (4.3%) had a pain related ED visit <1 month after discharge, of which 14 (40%) received an opioid prescription on initial discharge, and 12 (34.2%) received an opioid prescription upon subsequent discharge. **Conclusion:** Amongst patients presenting to the ED with acute fractures, the majority were not discharged home with an opioid prescription from ED physicians. Hydromorphone was the most common opioid prescribed, with large variations in total dosage. Despite only a minority of patients receiving opioid prescriptions, there were very few return to ED visits. To limit potential abuse, we recommend standardization of opioid prescribing in the ED, with attention to limiting the total dosage given.

Keywords: analgesia, fractures, opioids

LO27

Risk factors for misuse of prescribed opioids: a systematic review and meta-analysis

A. Cragg, MSc, S. Kitchen, BA, J. Hau, MSc, S. Woo, MMed, C. Liu, BSc, M. Doyle-Waters, MA, C. Hohl, MD, MHSc, University of British Columbia, Emergency Medicine, Vancouver, BC