using a single troponin result. **Conclusion:** Using a single high-sensitivity troponin result collected at ED presentation, the HEART score can rapidly and effectively identify more than half of ED chest pain patients as low risk for 30-day AMI, but is less sensitive for 30-day MACE.
Keywords: troponin, chest pain, myocardial infarction

LO98

Optimal length of observation for emergency department patients with syncope: a time to event analysis

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Introduction: Concern for occult serious conditions leads to variations in ED syncope management [hospitalization, duration of ED/inpatient monitoring including Syncope Observation Units (SOU) for prolonged monitoring]. We sought to develop evidence-based recommendations for duration of ED/post-ED ECG monitoring using the Canadian Syncope Risk Score (CSRS) by assessing the time to serious adverse event (SAE) occurrence. **Methods:** We enrolled adults with syncope at 6 EDs and collected demographics, time of syncope and ED arrival, CSRS predictors and time of SAE. We stratified patients as per the CSRS (low, medium and high risk as ≤0, 1-3 and ≥4 respectively). 30-day adjudicated SAEs included death, myocardial infarction, arrhythmia, structural heart disease, pulmonary embolism or serious hemorrhage. We categorized arrhythmias, interventions for arrhythmias and death from unknown cause as arrhythmic SAE and the rest as non-arrhythmic SAE. We performed Kaplan-Meier analysis using time of ED registration for primary and time of syncope for secondary analyses. **Results:** 5,372 patients (mean age 54.3 years, 54% females, and 13.7% hospitalized) were enrolled with 538 (10%) patients suffering SAE (0.3% died due to an unknown cause and 0.5% suffered ventricular arrhythmia). 64.8% of SAEs occurred within 6 hours of ED arrival. The probability for any SAE or arrhythmia was highest within 2-hours of ED arrival for low-risk patients (0.65% and 0.31%; dropped to 0.54% and 0.06% after 2-hours) and within 6-hours for the medium and high-risk patients (any SAE 6.9% and 17.4%; arrhythmia 6.5% and 18.9% respectively) which also dropped after 6-hours (any SAE 0.99% and 2.92%; arrhythmia 0.78% and 3.07% respectively). For any CSRS threshold, the risk of arrhythmia was highest within the first 15-days (for CSRS ≥2 patients 15.6% vs. 0.006%). ED monitoring for 2-hours (low-risk) and 6-hours (medium and high-risk) and using a CSRS ≥2 cut-off for outpatient 15-day ECG monitoring will lead to 52% increase in arrhythmia detection. The majority (82.2%) arrived to the ED within 2-hours (median time 1.1 hours) and secondary analysis yielded similar results. **Conclusion:** Our study found 2 and 6 hours of ED monitoring for low-risk and medium/high-risk CSRS patients respectively, with 15-day outpatient ECG monitoring for CSRS ≥2 patients will improve arrhythmia detection without the need for hospitalization or observation units.
Keywords: syncope, risk stratification, electrocardiographic monitoring

Grizzly Den Presentations

GD01

Age-adjusted D-dimer and two-site compression point-of-care ultrasonography to rule out acute deep vein thrombosis

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Introduction: Undiagnosed deep vein thrombosis (DVT) can lead to significant morbidity and mortality, including death from DVT-associated massive pulmonary embolism (PE). While several validated clinical prediction rules, blood test and imaging modalities exist to investigate a potential DVT, there is currently a lack of rapid, accessible and reliable methods to exclude the possibility of DVT without resorting to formal venous duplex scanning. Currently, the use in the ED of a validated clinical prediction rule combined to either a high-sensitivity D-dimer test or ultrasonography of the lower extremities has a poor predictive value, as 75-90% of patients suspected of DVT have a negative formal venous duplex scan. Compression bedside ultrasound has however recently been shown to be a safe, rapid and accurate method for the diagnosis of proximal DVT in the emergency department with a high sensitivity and specificity (combined sensitivity and specificity of 96.1% and 96.8%, respectively[1]). **Research question:** In the present study, we will primarily assess whether two-site compression POCUS combined with a negative age-adjusted D-dimer test can accurately rule out DVT in ED patients regardless of the Wells criteria. **Methods:** This is a single-center, prospective, observational study carried out over one year in the Emergency Department of the Jewish General Hospital in Montreal, Quebec. We aim to enroll a convenience sample of 475 patients aged 18 years and older presenting to the ED with symptoms suggestive of a DVT. All enrolled patients will receive the standard of care required for a lower leg DVT presentation. After calculating Patients DVT risk using modified wells criteria, all patients will undergo POCUS for DVT followed by a D-dimer test. Based on their results, patients will either undergo formal duplex scanning, or will be discharged without further testing and receive a three-month phone follow-up. A true negative lower leg DVT will be defined as follows: (1) Negative follow-up phone questionnaire for patients who were sent home with no formal duplex venous scanning. (2) Negative formal duplex venous scanning for patients who were deemed likely to have lower leg DVT using the Wells score, with a negative D-dimer and POCUS. Age adjusted DVT was added to account for below knee DVT and avoid the need for patients to return for fellow up duplex study in 1 week. To estimate our technique's sensitivity with a 4% margin of error with 95% confidence intervals, 92 confirmed DVT patients are needed. We expect to recruit a total 475 patients within one-year period at the JGH (95 DVT-positive patients and 380 DVT-negative patients). **Impact:** The use of compression bedside ultrasound with a negative age-adjusted D-dimer test to rule out DVT in the ED may accelerate the decision regarding patient disposition and significantly decrease the length of patient stay in the ED. In addition, it may help avoid unnecessary medical interventions and diagnostic tests, thus representing potential quality of care and cost-saving improvements as well.

[1]Pomero F, Dentali F, Borretta V, et al. Accuracy of emergency physician-performed ultrasonography in the diagnosis of deep-vein thrombosis: a systematic review and meta-analysis. Thromb Haemost 2013;109:137–45.

GD02

An international consensus study to identify quality indicators for ambulatory emergency care

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Introduction: Redirecting low acuity patients from emergency departments to primary care walk-in clinics has been identified as a priority by many health authorities. Promoting family physicians for the

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management of ambulatory patients with urgent health concerns reflects the assumption that primary care facilities can offer high-quality and more affordable ambulatory emergency care. However, no performance assessment framework has been developed for ambulatory emergency care and consequently, quality of care provided in these alternate settings has never been formally compared. **Primary objective:** To identify structure, process and outcome indicators for ambulatory emergency care. **Methods:** We will identify and develop quality indicators (QIs) for ambulatory emergency care using a RAND/UCLA Appropriateness Method (RAM) composed of three different steps. First, we will perform a scoping literature review to inventory 1) all previously recommended QIs assessing care provided to ambulatory emergency patients in the ED or the primary care settings; 2) all conditions evaluated with the retrieved QIs; and 3) all outcomes measured by the same QIs. Second, a steering committee composed of the research team and of international experts in performance assessment in emergency and primary care will be presented with the lists of QI-related conditions and outcomes. They will be asked to identify potential outcome indicators for ambulatory emergency care by generating any relevant combinations of one condition and one outcome (e.g. acute asthma exacerbation/re-consultation). Committee members will be given the latitude to use and pair any conditions or outcomes not included in the lists as long as they think the resulting indicators are compatible with the study objectives. Using a structured nominal group approach, they will combine their suggestions and refine the list of potential QIs. This list of potential outcome indicators composed of pairs "condition/outcome" will be merged with the list of already published QIs identified during the literature review. Third, as per the RAM standards, we will assemble an international multidisciplinary panel (n = 20) of patients, emergency and primary care providers, researchers and decision makers, after recommendations from international emergency and primary care associations, and from the Canadian Strategy for Patient-Oriented Research (SPOR) Support Units. Through iterative rounds of ratings using both web-based survey tools and videoconferencing, panelists will independently assess all candidate QIs. They will be asked to rate on a nine-level scale to what extent each QI is a relevant and useful measure of ambulatory emergency care quality. From one round to the next, QIs with a median panelist rating score of one to three will be excluded. Those with a median score of seven or more will be automatically included in the final list. QIs with median score of four to six will be retained for future deliberations among the panelists. Rounds of ratings will be conducted until all QIs are classified. Impact: The QIs identified will be used to develop a performance assessment framework for ambulatory emergency care. This will represent an essential step toward testing the assumption that EDs and primary care walk-in clinics provide equivalent care quality to low acuity patients.

GD03

Hyoscine butylbromide (Buscopan) versus acetaminophen for non-surgical abdominal pain in children: a randomized controlled superiority trial

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Background: Children with abdominal pain in the emergency department (ED) are at particular risk of suboptimal analgesia due to fears of missing appendicitis and absent guidelines. Many still experience pain at discharge. Acetaminophen is the most commonly used analgesic and efficacy of hyoscine butylbromide (HBB) is supported by adult evidence. However, no evidence exists for either agent in children with abdominal pain. **Objective:** To determine if HBB is superior to acetaminophen for abdominal pain in children. **Methods:** We will consecutively recruit children 8-17 years presenting to the ED with presumed non-surgical abdominal pain rated >4/10 on the Faces Pain Scale – Revised (FPS-R) and described as colicky, excluding:-Suspected appendicitis or bowel obstruction-Anticholinergic, analgesic, or antispasmodic <12 hours-Peritoneal inflammation-Unable to swallow pills-Hypersensitivity to either intervention-Medically unstable-Previous bowel obstruction, abdominal surgery, myasthenia gravis, liver disease, glaucoma, or recent abdominal trauma (<48 hours)-Toxin ingestion (<24 hours)-Vomiting-Pregnancy Randomization and allocation concealment will be pharmacy-controlled and performed using a computerized random number generator and sequentially numbered, opaque, sealed envelopes, respectively. The physician, research assistant, nurse, and participant will be blinded. Due to perceptible differences, participants will be randomized in a double-dummy approach to:-HBB 10 mg tablet + acetaminophen placebo OR-Acetaminophen 15 mg/kg liquid (maximum 975 mg) + HBB placebo. The primary outcome will be the difference from baseline on the FPS-R at 120 minutes, reflecting HBB's time to peak plasma concentration. The FPS-R has been validated in children > five years. Secondary outcomes include:-Pain scores at 15, 30, 45, 60, 80, 100, and 120 minutes post-intervention (FPS-R and 100 mm visual analog scale)-Discharge pain score-Rescue analgesia-Time to achieve a 20% reduction in pain-Adverse effects-Recidivism <48 hours-Missed surgical diagnoses (National Ambulatory Care Reporting System (NACRS) database)-Caregiver satisfaction (five-item Likert scale). Using the intention to treat principle, ordinal, ratio, and categorical data will be analyzed using the Mann-Whitney, paired t-test, and Pearson's chi-square, respectively and summarized using 95% confidence intervals. Assuming a standard deviation of 2 faces, 83 children per group will be required to detect a 1-face difference at 5% significance with 90% power. Increasing by 20% equals 100 participants per group. P values <0.05 will be considered significant. An institutional audit revealed 380 eligible patients per year during research assistant availability. Given a 30% refusal rate, we expect five participants enrolled per week for 40 weeks. **Importance:** Our findings will guide evidence-based analgesic choices for children with non-surgical abdominal pain in the ED.

GD04

A blinded, randomized controlled trial of opioid analgesics for the management of acute fracture pain in older adults discharged from the emergency department

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Background: Emergency department (ED) providers are frequently challenged with how best to treat acute pain in older patients, specifically when non-opioid analgesics are ineffective or contraindicated. Studies have documented older patients presenting to the ED with painful conditions are less likely to receive pain medications than younger patients, and this oligoanalgesia has been associated with increased risk of delirium and longer hospital stays. Given the concerns for drug interactions, side effects, over-sedation and addiction, emergency physicians often report uncertainty regarding the ideal choice of opioid analgesic in older adults. There are no guidelines informing best practice for the management of acute pain in this population. **Objective:** The primary objective is to compare the efficacy of codeine, oxycodone and hydromorphone for acute fracture pain in older patients discharged from the ED. **Methods:** This will be a blinded, randomized controlled

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