LO09

Role of hospitalization for detection of serious adverse events among emergency department patients with syncope: a propensity-score matched analysis of a multicenter prospective cohort

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Introduction: Selecting appropriate patients for hospitalization following emergency department (ED) evaluation of syncope is critical for serious adverse event (SAE) identification. The primary objective of this study is to determine the association of hospitalization and SAE detection using propensity score (PS) matching. The secondary objective was to determine if SAE identification with hospitalization varied by the Canadian Syncope Risk Score (CSRS) risk-category. **Methods:** This was a secondary analysis of two large prospective cohort studies that enrolled adults (age ≥ 16 years) with syncope at 11 Canadian EDs. Patients with a serious condition identified during index ED evaluation were excluded. Outcome was a 30-day SAE identified either in-hospital for hospitalized patients or after ED disposition for discharged patients and included death, ventricular arrhythmia, non-lethal arrhythmia and non-arrhythmic SAE (myocardial infarction, structural heart disease, pulmonary embolism, hemorrhage). Patients were propensity matched using age, sex, blood pressure, prodrome, presumed ED diagnosis, ECG abnormalities, troponin, heart disease, hypertension, diabetes, arrival by ambulance and hospital site. Multivariable logistic regression assessed the interaction between CSRS and SAE detection and we report odds ratios (OR). **Results:** Of the 8183 patients enrolled, 743 (9.0%) patients were hospitalized and 658 (88.6%) were PS matched. The OR for SAE detection for hospitalized patients in comparison to those discharged from the ED was 5.0 (95%CI 3.3, 7.4), non-lethal arrhythmia 5.4 (95%CI 3.1, 9.6) and non-arrhythmic SAE 6.3 (95% CI 2.9, 13.5). Overall, the odds of any SAE identification, and specifically non-lethal arrhythmia and non-arrhythmia was significantly higher in-hospital among hospitalized patients than those discharged from the ED ($p < 0.001$). There were no significant differences in 30-day mortality ($p = 1.00$) or ventricular arrhythmia detection ($p = 0.21$). The interaction between ED disposition and CSRS was significant ($p = 0.04$) and the probability of 30-day SAEs while in-hospital was greater for medium and high risk CSRS patients. **Conclusion:** In this multicenter prospective cohort, 30-day SAE detection was greater for hospitalized compared with discharged patients. CSRS low-risk patients are least likely to have SAEs identified in-hospital; out-patient monitoring for moderate risk patients requires further study.

Keywords: Canadian Syncope Risk Score, hospitalization, syncope

LO10

Low high-sensitivity troponin concentrations identify low-risk chest pain patients unlikely to benefit from further risk stratification

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Introduction: Very low high-sensitivity troponin-T (hs-cTnT) concentrations on presentation can rule out acute myocardial infarction (AMI), but the ability to identify patients at low risk of 30-day major adverse cardiac events (MACE) is less clear. This study examines the sensitivity of low concentrations of hs-cTnT on presentation to rule out 30-day MACE. **Methods:** This prospective cohort study enrolled emergency department chest pain patients with non-ischemic ECGs who underwent AMI rule-out with an hs-cTnT assay. The primary outcome was 30-day MACE; secondary outcomes were individual MACE components. Because guidelines recommend using a single hs-cTnT strategy only for patients with more than 3-hours since symptom onset, a subgroup analysis was performed for this population. Outcomes were adjudicated based on review of medical records and telephone follow-up. **Results:** Of 1,167 patients enrolled, 125 (10.7%) experienced 30-day MACE and 97 (8.3%) suffered AMI on the index visit. More than one-third (35.6%) had presenting hs-cTnT concentrations below the limit of detection (5ng/L), which was 94.4% (95%CI 88.8-97.7%) sensitive for 30-day MACE and 99.0% (95%CI 94.5-100%) sensitive for index AMI. Of 292 (25.0%) patients with hs-cTnT < 5ng/L and at least 3-hours since symptom onset, only 3 experienced 30-day MACE (sensitivity 97.6%, 95%CI 93.2-100%) and none suffered AMI within 30-days (sensitivity 100%, 95%CI 96.3-100%). **Conclusion:** Among patients with non-ischemic ECGs and >3-hours since symptom onset, low hs-cTnT concentrations on presentation confer a very low risk of 30-day MACE. In the absence of a high risk clinical presentation, further risk stratification is likely to be low yield.

Keywords: high-sensitivity troponin, myocardial infarction, risk stratification

LO11

STAR-EM: An innovative summer research program for medical students in an urban Canadian academic emergency department

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Innovation Concept: Research training programs for students, especially in emergency medicine (EM), may be difficult to initiate due to lack of protected time, resources, and mentors (Chang Y, Ramnanan CJ. Academic Medicine 2015). We developed a ten-week summer program for medical students aimed at cultivating research skills through mentorship, clinical enrichment, and immersion in EM research culture through shadowing and project support. **Methods:** Five second year Ontario medical students were recruited to participate in the Summer Training and Research in Emergency Medicine (STAR-EM) program at University Health Network, Toronto, from June - Aug, 2019. Program design followed review of existing summer research programs and literature regarding challenges to EM research (McRae, Perry, Brehaut et al. CJEM 2018). The program had broad emergency physician (EP) engagement, with five EP research project mentors, and over ten EPs delivering academic sessions. Curriculum development was collaborative and iterative. All projects were approved by the hospital Research Ethics Board (REB). **Curriculum, Tool or Material:** Each weekly academic morning comprised small group teaching (topics including research methodology, manuscript preparation, health equity, quality improvement, and wellness), followed by EP-led group progress review of each student's project. Each student spent one half day per week in the emergency department (ED), shadowing an EP and identifying

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