

with no PC, the 79 (15.8%) patients with PC involvement had a higher one year mortality rate (70.9% vs. 18.8%,  $p < 0.0001$ ), more ED visits/year for HF (0.82 vs. 0.52,  $p < 0.0001$ ), and more hospital admissions/year for HF (1.4 vs. 0.85,  $p < 0.0001$ ). Using the heart failure palliative care score criteria, 60 patients had scores  $\geq 2$ . Compared to those with scores  $< 2$ , these patients had a higher 1-year mortality rate (50% vs. 24%,  $p < 0.0001$ ) and more ED visits/year for HF (0.83 vs. 0.54,  $p < 0.01$ ). Only 40.0% of these high risk patients had any PC involvement. **Conclusion:** We found that few HF patients had PC services involved in their care. Using this novel HF palliative care referral score, we were able to identify patients with a significantly greater risk of mortality and morbidity. This study provides evidence that the ED is an appropriate setting to identify and refer high risk HF patients who would likely benefit from earlier PC involvement and may be a future avenue for PC access for these patients.

**Keywords:** palliative care, heart failure, emergency department

### LO03

#### Application and usefulness of outpatient cardiac testing among emergency department patients with syncope

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**Introduction:** 2.6% of emergency department (ED) syncope patients will have underlying cardiac serious conditions (e.g. arrhythmia, serious structural heart disease) identified within 30-days of disposition. If those at risk are discharged home, outpatient cardiac testing can detect underlying arrhythmias and structural heart disease, and thereby improve patient safety. We describe the frequency of outpatient referrals for cardiac testing and the proportion of cardiac serious adverse events (SAE) among high risk and non-high (low and medium) risk ED syncope patients, as defined by the Canadian Syncope Risk Score (CSRS). **Methods:** We conducted a multicenter prospective cohort study to enroll adult syncope patients across five large tertiary care EDs. We collected demographics, medical history, disposition, CSRS value, outpatient referrals and testing results (holter, echocardiography), and cardiac SAE. Adjudicated 30-day SAE included death due to unknown cause, myocardial infarction, arrhythmia, and structural heart disease. We used descriptive analysis. **Results:** Of 4,064 enrolled patients, a total of 955 patients (23%) received an outpatient referral (mean age 57.7 years, 52.1% female). Of the 299 patients (7%) hospitalized, 154 received outpatient cardiac testing after discharge. Among the 3,765 patients discharged home from the ED, 40% of the non-high risk patients (305/756) and 56% of the high risk patients (25/45) received outpatient cardiac testing. Of all patients who received outpatient cardiac testing, 4 patients (0.8%) had serious cardiac conditions identified and all were arrhythmias. Among those with no cardiac testing, 5 patients (0.9%) suffered cardiac SAE (80% arrhythmias) outside the hospital. Of the 20 (44%) high risk patients who did not receive outpatient cardiac testing, 2 (10%) patients suffered arrhythmias outside the hospital. While among the 451 non-high risk patients, only 0.8% suffered arrhythmia outside the hospital. **Conclusion:** Outpatient cardiac testing among ED syncope patients is largely underutilized, especially among high risk patients. Better guidelines for outpatient cardiac testing are needed, as current practice is highly variable and mismatched with patient risk.

**Keywords:** cardiac, syncope, resource utilization

### LO04

#### Very low concentrations of high-sensitivity troponin T at presentation can rapidly exclude acute myocardial infarction in a significant proportion of ED chest pain patients

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**Introduction:** Chest pain is one of the most common presenting complaints to emergency departments (EDs) across the world, and the exclusion of acute myocardial infarction (AMI) using troponin testing is central to the care of many of these patients. Testing strategies using conventional troponin assays require repeat testing over many hours to avoid missed diagnoses. This study aims to validate the ability of very low concentrations of troponin at presentation to exclude AMI in ED chest pain patients. **Methods:** This prospective cohort study was conducted at a single urban tertiary centre and regional percutaneous coronary intervention site in Calgary, Alberta. Patients were eligible for enrolment if they presented to the ED with chest pain, were 25-years or older and required biomarker testing to rule out AMI at the discretion of the attending emergency physician. Patients were excluded if they had clear acute ischemic ECG changes, new arrhythmia or renal failure requiring hemodialysis. High-sensitivity troponin-T (Roche Elecsys hs-cTnT) results were obtained in all patients at presentation. Relevant outcomes were obtained from administrative data. The primary outcome was AMI within 30-days of ED visit, the secondary outcome was 30-day major adverse cardiac events (MACE). The study was REB approved. **Results:** A total of 1,016 patients were enrolled from August 2014-September 2016, of which 174 (17.1%) patients had an initial troponin below the limit of blank ( $< 3$  ng/L) and 369 (36.3%) had a level below the limit of detection ( $< 5$  ng/L). The sensitivity and negative predictive value (NPV) of a troponin below limit of blank ( $< 3$  ng/L) for 30-day AMI were 100% (95% CI 89.3%-100%) and 100% (95% CI 97.8-100%), respectively. The sensitivity and NPV of a troponin below limit of detection ( $< 5$  ng/L) for 30-day AMI were 93.8% (95% CI 80.0-98.3%) and 99.5% (95% CI 98.1-99.9%) respectively. Sensitivity for 30-day MACE at both cutoffs was lower: 96.1% (95% CI 92.5-98.0%) for  $< 3$  ng/L, and 88.4% (95% CI 83.3-92.1%) for  $< 5$  ng/L, respectively. **Conclusion:** A high sensitivity troponin T result below the limit of blank is highly sensitive at excluding AMI and identifies patients at reasonably low risk of 30-day MACE. A result below the limit of detection will identify a larger population of patients as low risk but has a greater risk of missed AMI and MACE.

**Keywords:** chest pain, troponin, myocardial infarction

### LO05

#### In patients presenting to the ED with STEMI, is the provision of morphine associated with worse patient outcomes?

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**Introduction:** ST-elevation myocardial infarction (STEMI) presenting to the ED is a significant health burden. The provision of IV morphine with doses titrated to provide comfort is recommended in the AHA STEMI Guidelines, yet there is limited evidence of safety in this setting. The primary objective of this study was to measure potential harm associated with the provision of IV morphine in STEMI patients presenting to the ED. **Methods:** This was a two centre retrospective chart review from an urban, inner city, academic ED with an annual census of 85,000 visits, and an affiliated community hospital with 35,000 annual visits. Consecutive patients from April 2009 to January