2015 presenting to the 2 EDs with a diagnosis of STEMI were identified in the ED database. Eight trained research assistants, blinded to the study hypothesis, used standardized data collection templates. The primary investigator double collected 20% of all data to ensure completeness and accuracy. **Results:** We included 311 patients with STEMI (124 received morphine [M]; 187 no morphine [nM]). The ages of the two groups were similar (mean 64 yrs [M] & 67 yrs [nM]; median 63 yrs [M] & 66 yrs [nM]; IQR 45-81 [M] and 45.5-86.5 [nM]); as were the proportion of female patients (21.0% [M] & 23.5% [nM]. The pre-STEMI Charlson comorbidity scores (mean 2.6), median time to first ECG (11 min [M] & 16 min [nM]), and mean time-to-needle for PCI (96.8 min [M] & 92.0 min [nM]) were similar between groups. The mean CCU length of stay (LOS) (9.3 days vs 6.3 days) and hospital LOS (7.4 days vs 4.6 days) were longer for patients receiving morphine than those not receiving morphine. Rates of congestive heart failure, acute kidney injury and cardiac arrest in hospital were unchanged between the groups. Unadjusted mortality was similar (10.5% [M] vs 13.3% [nM]) between groups. Binary logistic regression controlling for age, Charlson score, first and peak troponin values demonstrated an association between receiving morphine in the ED and an increased risk of death at 30 days (OR 8.1; 95% CI 7.1.-9.1). **Conclusion:** The provision of morphine to patients with STEMI in the ED may be associated with increased CCU and hospital LOS. When controlling for age, pre-STEMI Charlson score, first and peak troponin values, receiving morphine was associated with an increased risk of death at 30 days. Further research to elucidate this association is warranted.

**Keywords:** acute myocardial infarction, morphine, mortality

## LO06

### Role of the age adjusted D-dimer in suspected deep venous thrombosis

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**Introduction:** It is well established that a negative D-dimer will reliably rule out thromboembolism in selected low risk patients. Multiple modified D-dimer cutoffs have been suggested for older patients to improve diagnostic specificity. However, these approaches are better established for pulmonary embolism than for deep venous thrombosis (DVT). This study will evaluate the diagnostic performance of previously suggested D-dimer cutoffs for low risk DVT patients in the ED, and assess for a novel cutoff with improved performance. **Methods:** This health records review included patients >50 years with suspected DVT who were low-risk and had a D-dimer performed. Our analysis evaluated the diagnostic accuracy of D-dimer cutoffs of 500 and the age adjusted (age x 10) rule for patients >50 years; and 750, and 1,000 cutoffs for patients >60 years. 30-day outcome was a diagnosis of DVT. We also assessed the diagnostic accuracy for a novel cutoff (age x 12.5). **Results:** 1,000 patients (mean age 68 years; 59% female) were included. Of these, 110 patients (11%) were diagnosed with DVT. The conventional cutoff of <500 µg/L demonstrated a sensitivity of 99.1% (95% CI 95.0-99.9) and a specificity of 36.4% (95% CI 33.2-39.7). For patients >60 years, the absolute cutoffs of 750 and 1,000 showed sensitivity of 98.7% (95% CI, 92.9, 99.9), and the specificity increased to 48.6% (95% CI, 44.5-52.8%) and 62.1% (95% CI, 58.1-66.1%) respectively. For all study patients, age adjusted D-dimer demonstrated a sensitivity of 99.1% (95% CI 95.0-99.9) and a specificity of 51.2% (95% CI, 47.9-54.6). A novel age adjusted cutoff (age x 12.5) for patients >50, demonstrated a sensitivity of 97.3% (95% CI 92.2-99.4) and a specificity of 61.2% (95% CI 58.0-64.5). When compared to conventional cutoff, the age adjusted cutoffs (age x 10 and age x 12.5) would have resulted in an absolute decrease in further investigations of 13.1% and 22.2%, respectively, with false negative rates of 0.1% and 0.3%. **Conclusion:** Among older patients with suspected DVT and low clinical probability, the age adjusted D-dimer increases the proportion of patients among whom DVT can be ruled out. A novel cutoff (age x 12.5) demonstrated improved specificity. Future large scale prospective studies are needed to confirm this finding and to explore the cost savings of these approaches.

**Keywords:** deep venous thrombosis, D-dimer

## LO07

### Does point of care ultrasonography improve diagnostic accuracy in emergency department patients with undifferentiated hypotension? The first Sonography in Hypotension and Cardiac Arrest in the Emergency Department (SHOC-ED1) Study; an international randomized controlled trial

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**Introduction:** Point of care ultrasonography (PoCUS) is an established tool in the initial management of hypotensive patients in the emergency department (ED). It has been shown rule out certain shock etiologies, and improve diagnostic certainty, however evidence on benefit in the management of hypotensive patients is limited. We report the findings from our international multicenter RCT assessing the impact of a PoCUS protocol on diagnostic accuracy, as well as other key outcomes including mortality, which are reported elsewhere. **Methods:** Recruitment occurred at 4 North American and 3 Southern African sites. Screening at triage identified patients (SBP < 100 mmHg or shock index >1) who were randomized to either PoCUS or control groups. Scans were performed by PoCUS-trained physicians. Demographics, clinical details and findings were collected prospectively. Initial and secondary diagnoses were recorded at 0 and 60 minutes, with ultrasound performed in the PoCUS group prior to secondary assessment. Final chart review was blinded to initial impressions and PoCUS findings. Categorical data was analyzed using Fishers two-tailed test. Our sample size was powered at 0.80 (α:0.05) for a moderate effect size. **Results:** 258 patients were enrolled with follow-up fully completed. Baseline comparisons confirmed effective randomization. The perceived shock category changed more frequently in the PoCUS group 20/127 (15.7%) vs. control 7/125 (5.6%); RR 2.81 (95% CI 1.23 to 6.42; p = 0.0134). There was no significant difference in change of diagnostic impression between groups PoCUS 39/123 (31.7%) vs control 34/124 (27.4%); RR 1.16 (95% CI 0.786 to 1.70; p = 0.4879). There was no significant difference in the rate of correct category of shock between PoCUS (118/127; 93%) and control (113/122; 93%); RR 1.00 (95% CI 0.936 to 1.08; p = 1.00), or for correct diagnosis; PoCUS 90/127 (70%) vs control 86/122 (70%); RR 0.987 (95% CI 0.671 to 1.45; p = 1.00). **Conclusion:** This is the first RCT to compare PoCUS to standard care for undifferentiated hypotensive ED patients. We found that the use of PoCUS did change physicians' perceived shock category. PoCUS did not improve diagnostic accuracy for category of shock or diagnosis.

**Keywords:** point of care ultrasound (PoCUS), hypotension, diagnosis