## LO075

**Clinical exam for acute aortic dissection: a systematic review and meta-analysis**

R. Ohle, MA, MB, BCh, BAO, H. Kareemi, BSc, J.J. Perry, MD, MSc; University of Ottawa, Ottawa, ON

**Introduction:** Acute aortic dissection (AAD) is difficult to diagnose and if missed carries a significant mortality rate. Our aim was to assess the accuracy of history, physical exam and plain radiographs compared to advanced imaging in the diagnosis of AAD in adults presenting to the ED with a clinical suspicion of AAD. **Methods:** We conducted a librarian assisted systematic review. Databases searched: Pubmed, Medline, Embase and the Cochrane database from 1968 to January 2016. No restrictions for language were imposed. Studies were reviewed and data extracted by two independent reviewers. AAD was defined by CTA, MRI or TEE Prospective and retrospective studies of patients presenting with a clinical suspicion of AAD were included. Case series were excluded. Studies were combined if low clinical and statistical heterogeonity ($I^2 < 30\%$). Study quality was assessed using the QUADAS tool. Bivariate random effects meta analyses using Revman 5 and SAS 9.3 was performed. **Results:** We identified 792 records: 61 selected for full text review, 13 included and a further 7 from reference searches. 20 studies with 4721 participants were included (mean QUADAS score 12/14 SD 1.2, Kappa 0.8). Prevalence of AAD ranged from 9.6-76.1% (mean 39.1% SD 17.1%). Mean diagnosis in those without AAD varied between studies with ACS (30.3% SD 30.1%), Anuerysm(12.4% SD 9.8%), Chest wall pain(18.1% SD 13.3%) and PE (7.9% SD 7.85%) being the most common. The clinical findings most suggestive of AAD were, neurological deficit (specificity 94% LR 4.1 [95% CI, 3.1-5.2], $I^2$ 0%, n = 9), hypotension(specificity 94% LR 2.6 [95% CI 1.6-4.2], $I^2$ 0%, n = 8), pulse deficit (specificity 92% LR 3.4 [95% CI 1.8-6.4], $I^2$ 0%, n = 9) and syncope (specificity 92% LR 1.4 [95% CI 1.1-1.8], $I^2$ 10%, n = 6). The most useful for identifying patients less likely to have AAD were an absence of a widened mediastinum (sensitivity 80% LR 0.3 [95% CI 0.2-0.5], $I^2$ 20%, n = 13) and an AHA Aortic dissection risk score <1 (n = 2 sensitivity 91%,99% LR 0.02,0.22, [95% CI 0.003-0.128, 95%CI 0.2-0.3]). **Conclusion:** Suspicion for AAD should be raised with syncope, hypotension and pulse or neurological deficit in the appropriate clinical setting. Conversely the absence of a widened mediastinum and a low ADD score decreases likelihood. Clinical exam alone cannot rule out acute aortic dissection but it can help risk stratify for further testing.
**Keywords:** aortic dissection, clinical exam

## LO076

**Remote ischemic conditioning to reduce reperfusion injury during acute STEMI: a systematic review and meta-analysis**

S.L. McLeod, MSc, A. Iansavitchene, MLS, S. Cheskes, MD; Sunnybrook Centre for Prehospital Medicine, Toronto, ON

**Introduction:** Remote ischemic conditioning (RIC) is a non-invasive therapeutic strategy that uses brief cycles of inflation and deflation of a blood pressure cuff to reduce ischemia-reperfusion injury during acute ST-elevation myocardial infarction (STEMI). The primary objective of this systematic review was to determine if RIC initiated prior to catheterization increases myocardial salvage index, defined as the proportion of area at risk of the left ventricle salvaged by treatment following emergent percutaneous coronary intervention (PCI) for STEMI. Secondary outcomes included infarct size and major adverse cardiovascular events. **Methods:** Electronic searches of PubMed, Ovid MEDLINE, EMBASE and Cochrane Central Register of Controlled Trials were conducted and reference lists were hand-searched. Randomized controlled trials comparing PCI with and without RIC for patients with STEMI published in English were included. Two reviewers independently screened abstracts, assessed quality of the studies, and extracted data. Data were pooled using random-effects models and reported as risk ratios (RR) with 95% confidence intervals (CIs). **Results:** Nine RCTs were included with a combined total of 999 patients (RIC + PCI = 534, PCI = 465). The myocardial salvage index was higher in the RIC + PCI group at 3 and 30 days; mean difference 0.09 (95% CI: 0.04, 0.15) and 0.12 (95% CI: 0.03, 0.21), respectively. Infarct size was reduced in the RIC + PCI group at 3 and 30 days; mean difference -3.82 (95% CI: -8.15, 0.51) and -4.00 (95% CI: -7.07, -0.93), respectively. There was no statistical difference with respect to death and re-infarction, however there was a reduction in heart failure with RIC + PCI at 6 months; RR: 0.43 (95% CI: 0.19, 0.99). **Conclusion:** RIC is emerging as a promising adjunctive treatment to PCI for the prevention of reperfusion injury in STEMI patients. Ongoing, multicenter clinical trials will help elucidate the effect of RIC on clinical outcomes such a hospitalization, heart failure and mortality.
**Keywords:** remote ischemic conditioning, STEMI, meta-analysis

## LO077

**A restrictive transfusion strategy decreases mortality, re-bleeding and adverse events in hemodynamically stable patients with acute upper gastrointestinal bleeding: findings from a systematic review and meta-analysis of randomized controlled trials**

J. Ahn, MSc, L.J. Soril, MSc, L.E. Leggett, MSc, R. Holmes, BSc, D. Grigat, MA, E. Lang, MD, F. Clement, PhD; Cumming School of Medicine, University of Calgary, Calgary, AB

**Introduction:** Acute upper gastrointestinal bleeding is a potentially life-threatening medical emergency that frequently requires red blood cell (RBC) transfusions. However, the optimal hemoglobin thresholds for transfusion is controversial. The objective of this study was to establish the most efficacious transfusion threshold. **Methods:** A systematic review of the published literature was completed. MEDLINE, Health technology assessment database, Cochrane central register, Cochrane database of systematic reviews, and EMBASE were searched from inception to May 2015 using search terms including "blood transfusions", "hemoglobin", and "red blood cell". Studies were included if they: reported original data, were peer-reviewed, studied adult populations, were randomized controlled clinical trials and primarily focused on clinical efficacy or effectiveness of liberal and restrictive pre-transfusion hemoglobin level thresholds. Quality was assessed using the Cochrane Risk of Bias tool. Data were extracted and meta-analysis was conducted using a random effects model to determine the risk ratio for: all-cause mortality, further bleeding and any adverse events. All steps were completed independently by two reviewers. **Results:** The literature search identified 4037 unique abstracts. Of these, 156 abstracts proceeded to full text review. 154 articles were excluded during full-text review resulting in 2 articles for final analysis. The total number of participants included was 701. The hemoglobin threshold to transfuse RBC varied between 70-80g/L versus 90-100g/L in restrictive and liberal policies, respectively. Both studies were at low risk of bias. Meta-analysis resulted in a pooled decreased risk of all-cause mortality (RR 0.65, 95% CI 0.44-0.96), re-bleeding (RR 0.63, 95% CI 0.46-0.85) and adverse events (RR 0.83, 95% CI 0.73-0.95) in the restrictive blood transfusion group versus the liberal blood transfusion group. **Conclusion:** While the evidence is limited, the risk of death is lower and there is no significant harm for a restrictive strategy. In this context, there is a decreased risk of transfusion associated adverse events among those receiving a restrictive strategy and should be considered for its impact on patient safety and health system resources.