LO075

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

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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

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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

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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.

Keywords: upper gastrointestinal bleeding, blood transfusions, hemoglobin

LO078

The immigrant effect: a barrier to accessing primary and emergency department care - a Canadian population cross-sectional study

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Introduction: In 2011, Canada had a foreign-born population of about 6,775,800 people. They represented 20.6% of the total population, the highest proportion among the G8 countries. Immigrants encounter significant barriers to accessing primary healthcare. This is thought to be due to lower education level, employment status and the healthy immigrant effect. Our objective was to assess in an immigrant population without a primary care physician, would similar socioeconomic barriers also prevent access to the emergency department. **Methods:** Data regarding individuals' ≥ 12 years of age from the Canadian Community Health Survey, 2007 to 2008 were analyzed (N = 134,073, response rate 93%). Our study population comprised 15,554 individuals identified without a primary care physician who used emergency department care. Socioeconomic variables included employment, health status, and education. Covariates included chronic health conditions, mobility, gender, age, and mental health. Prevalence estimates and confidence intervals for each variable were calculated. Weighted logistic regression models were constructed to evaluate the importance of individual risk factors and their interactions after adjustment for relevant covariates. Model parameters were estimated by the method of maximum likelihood. The Wald statistic was employed to test the significance of individual variables or interaction terms in relation to ED choice. **Results:** Our study population included 1,767 immigrants and 13,787 Canadian born respondents from across Canada without a primary care physician (57.3% male). Immigrants were less likely to use the emergency department then Canadian born respondents (Odds Ratio 0.4759 (95%CI 0.396-0.572). Adjusting for health, education or employment had no effect on this reduced access (Odds Ratio 0.468 (95%CI 0.378-0.579). **Conclusion:** In a Canadian population without a primary care physician, immigrants access the emergency department less then Canadian born respondents. However this effect is independent of previously reported social and economic barriers. Immigration status is an important but complex component of racial and ethnic disparity in access to care. Specific policy and system development targeting this at risk population are required to allow for equal access to healthcare.
Keywords: immigrant, emergency department, primary care

LO079

Prevalence and geographic variability of ectopic pregnancy in Ontario using inpatient and outpatient data: a 12-year surveillance study

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Introduction: It is estimated that 6% to 13% of patients presenting to the emergency department (ED) with vaginal bleeding or abdominal pain will have ectopic pregnancy. Risk factors such as previous pelvic infections, assisted reproductive technologies and previous tubal surgery as well as prevalence of ectopic pregnancy vary geographically. To date, the surveillance of ectopic pregnancy in Canada has been limited to hospitalized patient data, excluding patients receiving methotrexate therapy, day surgery or expectant management, possibly underestimating the true prevalence. The objective of this study was to determine Ontario's ectopic pregnancy rate and geographic variability using both inpatient and outpatient data sources. **Methods:** Data from the Canadian Institute for Health Information Discharge Abstract Database, Same Day Surgery Database, National Ambulatory Care Reporting System, and Ontario Health Insurance Plan (OHIP) Claims Database was retrieved for all females with valid OHIP coverage aged 15 to 45 years from July 2002 to August 2014. Using ICD-10 and OHIP codes for ectopic pregnancy, abortions and deliveries, the rates and distribution of ectopic pregnancy (per 1000 reported pregnancies) by age group and public health unit (PHU) were documented. These data were also compared to the rate of ectopic pregnancy documented using only hospitalized patient data. **Results:** Using inpatient and outpatient data sources, the rate of ectopic pregnancy in Ontario increased from 20.5 to 27.5 per 1000 reported pregnancies from 2002 to 2014, respectively. The rate of ectopic pregnancy using only hospitalized patient data decreased from 12.6 to 9.5 per 1000 reported pregnancies from 2002 to 2014, respectively. The median (IQR) rate of ectopic pregnancy over the 12-year study period varied across public health units in Ontario, ranging from 14.9 (12.5, 17.5) to 37.7 (29.1, 55.8) per 1000 reported pregnancies. **Conclusion:** The rate of ectopic pregnancy is increasing in Ontario and has been previously underreported using only hospitalized patient data. Further research is needed to identify the factors resulting in this increase as well as the outcomes of ectopic pregnancies in Ontario.
Keywords: ectopic pregnancy, pregnancy, gynecology

LO080

Performance and proximity: exploring resident factors that impact the quality of work-based assessments

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Introduction: Much of the literature investigating the challenges associated with completing high quality work-based assessments (WBAs) have raised specific concerns over the appropriate documentation of assessments of underperforming trainees or trainees in difficulty. The purpose of this study was to examine the relationship between resident performance and the quality of assessments documented by supervisors on Daily Encounter Cards (DECs). The effect of trainee proximity (i.e. on-service versus off-service status) on this relationship was also examined. **Methods:** A series of DECs from the Department of Emergency Medicine at the University of Ottawa was scored by two raters using the Completed Clinical Evaluation Report Rating (CCERR). The CCERR is a 9-item instrument that has previously demonstrated reliable ratings and the ability to discriminate the quality of completed DECs. A proxy measure of resident performance was calculated by averaging the scores across performance items on the DEC to produce a "mean DEC rating". Linear regression analysis was conducted with "mean DEC rating" as the independent measure and CCERR score as the dependent measure. Separate linear regression analyses were repeated for DECs completed for on-service versus off-service residents. **Results:** Linear regression analysis demonstrated a small but significant inverse relationship between mean DEC rating and CCERR score (p < 0.001, r = -0.184), suggesting that when residents performed poorly, their supervisors tended to document higher quality assessments, and conversely, when residents performed well, their supervisors provided lower quality assessments. Further analysis demonstrated that this relationship was present for the on-service group