

catheters, or septic shock were excluded. Among others, data related to final diagnosis and investigations were gathered. Sensitivity, specificity, positive (PPV) and negative (NPV) predictive values, positive (LR+) and negative (LR-) likelihood ratios were estimated for each blood biomarkers. **Results:** Out of 1261 charts reviewed, 920 patients were included in this analysis. SBI prevalence was 13.0% (95%CI: 10.9-15.2) among infants of our cohort. The sensitivity, specificity, PPV, NPV, LR+ and LR- of the leucocytes <5000 or $\geq 15000/\square L$ were 43% (95%CI: 34-53%), 80% (95%CI: 77-83%), 25% (95%CI: 21-30%), 90% (95%CI: 88-91%), 2.1 (95%CI: 1.7-2.8), and 0.72 (95%CI: 0.61-0.84), respectively. The sensitivity, specificity, PPV and NPV of CRP ≥ 25 mg/L were 46% (95%CI: 37-56%), 96% (95%CI: 94-97%), 65% (95%CI: 55-73%), and 91% (95%CI: 89-92%), respectively. ROC curves analysis indicates that a CRP ≥ 25 mg/L offers the best LR+ (10.4; 95%CI: 6.9-15.6) with a corresponding LR- of 0.56 (95%CI: 0.47-0.67). **Conclusion:** When evaluating febrile infants in the ED, leucocytes appear to have limited added value, while CRP ≥ 25 mg/L significantly increases the pre-test probability of SBI. CRP should be considered for inclusion in the workup of FWS for infants of 22 to 60 days of age.

Keywords: fever without a source, infants 22 to 60 days old, serious bacterial infection

MP49

Prehospital oxygen administration to suspected acute myocardial infarction patients: a systematic review and meta-analysis

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Introduction: Oxygen is commonly administered to prehospital patients presenting with acute myocardial infarction (AMI). We conducted a systematic review to determine if oxygen administration, in AMI, impacts patient outcomes. **Methods:** We conducted a systematic search using MeSH terms and keywords in Medline, Embase, Cochrane Database of Systematic Reviews, Cochrane Central, clinicaltrials.gov and ISRCTN for relevant randomized controlled trials and observational studies comparing oxygen administration and no oxygen administration. The outcomes of interest were: mortality (≤ 30 days, in-hospital, and intermediate 2-11 months), infarct size, and major adverse cardiac events (MACE). Risk of Bias assessments were performed and GRADE methodology was employed to assess quality and overall confidence in the effect estimate. A meta-analysis was performed using RevMan 5 software. **Results:** Our search yielded 1192 citations of which 48 studies were reviewed as full texts and a total of 8 studies were included in the analysis. All evidence was considered low or very low quality. Five studies reported on mortality finding low quality evidence of no benefit or harm. Low quality evidence demonstrated no benefit or harm from supplemental oxygen administration. Similarly, no benefit or harm was found in MACE or infarct size (very low quality). Normoxia was defined as oxygen saturation measured via pulse oximetry at $\geq 90\%$ in one recent study and $\geq 94\%$ in another. **Conclusion:** We found low and very low quality evidence that the administration of supplemental oxygen to normoxic patients experiencing AMI, provides no clear harm nor benefit for mortality or MACE. The evidence on infarct size was inconsistent and warrants further prospective examination.

Keywords: acute myocardial infarction, emergency medical services, oxygen

MP50

National survey of 9-1-1 ambulance communication centers' resources related to prehospital recognition of agonal breathing and cardiac arrest

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Introduction: 9-1-1 telecommunicators receive minimal education on agonal breathing, often resulting in unrecognized out-of-hospital cardiac arrest (OHCA). We successfully piloted an educational intervention that significantly improved telecommunicators' OHCA recognition and bystander CPR rates in Ottawa. We sought to better understand the operations of Canadian 9-1-1 communications centers (CC) in preparation for a multi-centre study of this intervention.

Methods: We conducted a National survey of all Canadian CCs. Survey domains included information on organizational structure, dispatch system used, education curriculum, and performance monitoring. It was peer-reviewed, translated in French, pilot-tested, and distributed electronically using a modified Dillman method. We designated respondents in each CC before distribution and used targeted follow-up and small incentives to increase response rate. Respondents also described functioning of neighboring CCs if known. **Results:** We received information from 51/51 provincial and 1/25 territorial CCs, representing 99.7% of the Canadian population. CCs largely utilize the Medical Dispatch Priority System (MPDS) platform (93%), many are Province/Ministry regulated (50%) and most require a High School diploma as minimum entry level education (78%). Telecommunicators receive initial in-class training (median 1.3 months, IQR 0.3-1.9; range 0.1-2.2), often followed by a preceptorship (84.4%) (median 1.0 months, IQR 0.7-1.7; range 0.4-6.0). Educational curriculum includes information on agonal breathing in 41% of CC, without audio examples in 34%. Among responding CCs, over 39,000 suspected OHCA 9-1-1 calls are received annually. Few CCs maintain local performance statistics on OHCA recognition (25%), bystander CPR rates (25%) or survival rates (50%). Most (97%) expressed interest in future research collaborations. **Conclusion:** Most Canadian telecommunicators receive no or minimal education in recognizing agonal breathing. Further training and improved OHCA monitoring may assist recognition and enhance outcomes.

Keywords: agonal breathing, cardiac arrest, telecommunication-assisted cardiopulmonary resuscitation

MP51

Assessment of predictors of deterioration in mild traumatic brain injury with intracranial hemorrhage at emergency department

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Introduction: Mild traumatic brain injury (mTBI) with intracranial hemorrhage (ICH) is a common cause of Emergency Department (ED) visits. Over the past years, several authors have debated the relevance of radiological and clinical follow-up of these patients, as the main challenge is to identify patients at risk of clinical deterioration.

Objectives: To determine whether demographic, clinical or

radiological variables can predict patient deterioration. **Methods:** Design: An historical cohort was constituted in two level-1 trauma centers (Chu de Quebec - Hôpital de l'Enfant-Jésus (Québec City) and Hôpital du Sacré-Coeur (Montréal)). **Participants:** Medical records of mTBI patients aged ≥ 16 with an ICH were reviewed using a standardized data collection tool. Consecutive medical records were reviewed from the end of 2017 backwards until sample saturation. **Measures:** Deterioration was defined as either death, deterioration of the control CT scan according to the radiologist, clinical deterioration or neurosurgical intervention. **Analyses:** Logistic regression analyses were performed to ascertain predictors of deterioration. Interobserver agreement was calculated. **Results:** A total of 274 patients were included in our analyses. Mean age was 60.8 and 68.9% (n = 188) were men. Four variables were found to be associated with all outcomes: radiological deterioration, clinical deterioration, death, and neurosurgical intervention. Diabetes (odds ratio (OR) = 2.6, 95% CI [0.97-6.94]), confusion as an initial symptom (OR = 2.8, 95% CI [1.42-5.61]), anticoagulation (OR = 2.8, 95% CI [1.01-7.84]) and significant subdural hemorrhage (≥ 4 mm) (OR = 3.4, 95% CI [1.42-5.61]) seen on the first computed tomography scan were strongly associated with these outcomes. Age had a neutral effect (OR = 1.01, 95% CI [0.99-1.03]) while high initial Glasgow Coma score seemed to have a protective effect (OR = 0.4, 95% CI [0.24-0.69]). Radiological deterioration was not systematically associated with clinical deterioration. As for the 46 patients with a deterioration of CT scan, only 30.4% vs. 69.5% without deterioration (p = 0.0035) showed a clinical deterioration. **Conclusion:** Diabetes, anticoagulation, significant subdural hemorrhage and confusion as an initial symptom seem to be predictors of deterioration following a mild traumatic brain injury with positive CT scan.

Keywords: emergency department, mild traumatic brain injury with intracranial hemorrhage, predictors of deterioration

MP52

Prehospital opioid administration to acute myocardial infarction patients: a systematic review

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Introduction: Opioids are routinely administered for analgesia to prehospital patients experiencing chest discomfort from acute myocardial infarction (AMI). We conducted a systematic review to determine if opioid administration impacts patient outcomes. **Methods:** We conducted a systematic search using MeSH terms and keywords in Medline, Embase, Cochrane Database of Systematic Reviews, Cochrane Central and Clinicaltrials.gov for relevant randomized controlled trials and observational studies comparing opioid administration in AMI patients from 1990 to 2017. The outcomes of interest were: all-cause short-term mortality (≤ 30 days), major adverse cardiac events (MACE), platelet activity and aggregation, immediate adverse events, infarct size, and analgesia. Included studies were hand searched for additional citations. Risk of Bias assessments were performed and GRADE methodology was employed to assess quality and overall confidence in the effect estimate. **Results:** Our search yielded 3001 citations of which 19 studies were reviewed as full texts and a total of 9 studies were included in the analysis. The studies predominantly reported on morphine as the opioid. Five studies reported on mortality (≤ 30 days), seven on MACE, four on platelet activity and aggregation, two on immediate adverse events, two on infarct size and none on

analgesic effect. We found low quality evidence suggesting no benefit or harm in terms of mortality or MACE. However, low quality evidence indicates that opioids increase infarct size. Low-quality evidence also shows reduced serum P2Y12 (eg: clopidogrel and ticagrelor) active metabolite levels and increased platelet reactivity in the first several hours post administration following an increase in vomiting. **Conclusion:** We find low and very low quality evidence that the administration of opioids in STEMI may be adversely related to vomiting and some surrogate outcomes including increased infarct size, reduced serum P2Y12 levels, and increased platelet activity. We found no clear benefit or harm on patient-oriented clinical outcomes including mortality.

Keywords: acute myocardial infarction, emergency medical services, opioid

MP53

Management of cutaneous abscesses in the emergency department: a survey of Canadian practice patterns

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Introduction: The treatment of cutaneous abscesses in the Emergency Department (ED) is common. While most sources describe only incision and drainage (I&D) followed by healing through secondary intention, recent literature suggests that primary repair following I&D results in similar rates of healing as well as treatment failures when compared to standard care in the ED. The primary goal of this research project was to describe the variability in practice with respect to self-reported management of abscesses among Canadian ED physicians and explore potential reluctance in adopting primary repair as a management strategy. **Methods:** An electronic survey was distributed through the Canadian Association of Emergency Physicians (CAEP). Practicing physician members of CAEP were invited to complete the survey. The 9-question survey probed the willingness of physicians to perform primary closure of abscess in the ED as well as factors that dissuade them from performing this type of closure. The primary outcome was the quantification of practice variability among ED physicians with respect to abscess closure in the ED. The data was presented with simple descriptive statistics. **Results:** 217 surveys were completed out of 1145 eligible physicians. Physicians working at academic centres comprised 53% of responses, with 47% coming from community centres. Over half of responses were from physicians in practice at least ten years (65.9%). The overwhelming majority of physicians indicated that they manage abscesses following I&D by secondary closure (96.3%). The two main concerns dissuading respondents from performing primary closure of abscesses included risk of treatment failure (47.8%) and the procedure not being considered standard of care (36.7%). Despite these concerns, 67.3% of physicians indicated a willingness to perform primary closure if further evidence supported its use. These physicians were most likely to consider primary closure at the head and neck, breast, trunk, and extremities, however, only 1.5% considered primary closure appropriate for perianal or pilonidal abscesses. **Conclusion:** This study demonstrates that almost all Canadian ED physicians, regardless of experience or practice centre, manage cutaneous abscesses with I&D followed by healing via secondary intention. With increasing evidence supporting the use of primary closure, many physicians may be willing to adopt primary closure as part of the management of cutaneous abscesses in the ED.

Keywords: abscess, emergency department, primary closure