LO89

Describing the evolution of post-concussion symptoms after sports-related mTBI

F. Beauchamp, V. Boucher, MSc, X. Neveu, MSc, V. Ouellet, P. Archambault, MD, MSc, S. Berthelot, MD, MSc, J. Chauny, MD, MSc, E. de Guise, PhD, M. Émond, MD, MSc, J. Frenette, PhD, E. Lang, MD, MSc, J. Lee, MD, MSc, É. Mercier, MD, MSc, L. Moore, PhD, M. Ouellet, PhD, J. Perry, MD, MSc, N. Le Sage, MD, PhD, Université Laval, Quebec City, QC

Introduction: Mild traumatic brain injury (mTBI) is a serious public health issue and as much as one third of mTBI patients could be affected by persistent post-concussion symptoms (PPCS) three months after their injury. Even though a significant proportion of all mTBIs are sports-related (SR), little is known on the recovery process of SR mTBI patients and the potential differences between SR mTBI and patients who suffered non-sports-related mTBI. The objective of this study was to describe the evolution of PPCS among patients who sustained a SR mTBI compared to those who sustained non sport-related mTBI. **Methods:** This Canadian multicenter prospective cohort study included patients aged ≥ 14 who had a documented mTBI that occurred within 24 hours of Emergency Department (ED) visit, with a Glasgow Coma Scale score of 13-15. Patients who were hospitalized following their ED visit or unable to consent were excluded. Clinical and sociodemographic information was collected during the initial ED visit. Three follow-up phone interviews were conducted by a research nurse at 7, 30 and 90 days post-injury to assess symptom evolution using the validated Rivermead Post-concussion Symptoms Questionnaire (RPQ). Adjusted risk ratios (RR) were calculated to demonstrate the impact of the mechanism of injury (sports vs non-sports) on the presence and severity of PPCS. **Results:** A total of 1676 mTBI patients were included, 358 (21.4%) of which sustained a SR mTBI. At 90 days post-injury, patients who suffered a SR mTBI seemed to be significantly less affected by fatigue (RR: 0.70 (95% CI: 0.50-0.97)) and irritability (RR: 0.60 (95% CI: 0.38-0.94)). However, no difference was observed between the two groups regarding each other symptom evaluated in the RPQ. Moreover, the proportion of patients with three symptoms or more, a score ≥21 on the RPQ and those who did return to their normal activities were also comparable. **Conclusion:** Although persistent post-concussion symptoms are slightly different depending on the mechanism of trauma, our results show that patients who sustained SR-mTBI could be at lower risk of experiencing some types of symptoms 90 days post-injury, in particular, fatigue and irritability.

Keywords: mild traumatic brain injury, post-concussion symptoms, sports-related injury

LO90

Predictors of post-concussion syndrome in adults with acute mild traumatic brain injury presenting to the emergency department: a secondary analysis of a randomized controlled trial

C. Varner, MD, MSc, C. Thompson, MSc, K. de Wit, MD, MSc, B. Borgundvaag, MD, PhD, R. Houston, BSc, S. McLeod, MSc, Mount Sinai Hospital - University of Toronto, Toronto, ON

Introduction: The emergency department (ED) is the first point of health care contact for most head injured patients. Although early and spontaneous resolution occurs in most patients with mild traumatic brain injury (MTBI), between 15-30% develop post-concussion syndrome (PCS). To date, clinical prediction tools do not yet exist to accurately identify adult MTBI patients at risk of PCS. The objective of this study was to identify predictors of PCS within 30 days in adults with acute MTBI presenting to the ED. **Methods:** This was a secondary analysis of a randomized controlled trial conducted in three Canadian EDs evaluating prescribed light exercise compared to standard care. Adult (18-64 years) patients with a MTBI sustained within the preceding 48 hours were eligible for enrollment. Participants completed follow-up questionnaires at 7, 14, and 30 days. The primary outcome was the presence of PCS at 30 days, defined as the presence of ≥ 3 symptoms on the Rivermead Post-concussion Symptoms Questionnaire (RPQ) at 30 days. Backward, stepwise, multivariable logistic regression with a removal criterion probability of 0.05 was conducted to determine predictor variables independently associated with PCS at 30 days. Likelihood ratio tests were used to determine appropriate inclusion of variables in the multivariable model. Results are reported as odds ratios (OR) with 95% confidence intervals (CIs). **Results:** A total of 367 patients were enrolled, 18 (4.9%) withdrew, and 108 (29.4%) were lost to follow-up. Median (IQR) age was 32 (25 to 48) years, and 201 (57.6%) were female. Of the 241 patients who completed follow-up, 49 (20.3%) had PCS at 30 days. Headache at ED presentation (OR = 6.59; 95% CI: 1.31 to 33.11), being under the influence of drugs or alcohol at the time of injury (OR = 4.42; 95% CI: 1.31 to 14.88), the injury occurring via bike or motor vehicle collision (OR = 2.98; 95% CI: 1.39 to 6.40), history of anxiety or depression (OR = 2.49; 95% CI: 1.23 to 5.03), and the sensation of numbness or tingling at ED presentation (OR = 2.25; 95% CI: 1.04 to 4.88), were independently associated with PCS at 30 days. **Conclusion:** Five variables were found to be significant predictors of PCS. Although MTBI is a self-limited condition in the majority of patients, patients with these risk factors should be considered high risk and flagged for early follow-up. There continues to be an urgent need for a clinical prognostic tool that accurately identifies adult patients at risk for PCS early in their injury.

Keywords: concussion, mild traumatic brain injury, post-concussion syndrome

LO91

Opioid poisoning and opioid use disorder in older trauma patients

R. Daoust, MD, MSc, J. Paquet, PhD, L. Moore, PhD, A. Cournoyer, MD, M. Emond, MD, MSc, S. Gosselin, MD, G. Lavigne, PhD, DMD, A. Boulanger, MD, J. Mac-Thiong, MD, J. Chauny, MD, Université de Montréal, Montréal, QC

Introduction: Patients hospitalized following a trauma will be frequently treated with opioids during their stay and after discharge. We examined the relationship between acute phase (< 3 months) opioid use after discharge and the risk of opioid poisoning (OP) or opioid use disorder (OUD) in older trauma patients **Methods:** In a retrospective multicenter cohort study conducted on registry data, we included all patients aged 65 years and older admitted (hospital stay >2 days) for injury in 57 trauma centers in the province of Quebec (Canada) between 2004 and 2014. We searched for OP and OUD from ICD-9 and ICD-10 code diagnosis that resulted in a hospitalization or a medical consultation after their initial injury. Patients that filled an opioid prescription within a 3-month period after sustaining the trauma were compared to those who did not fill an opioid prescription during that period using Cox proportional hazards regressions. **Results:** A total of 70,314 participants were retained for analysis; median age was 82 years (IQR: 75-87), 68% were women, and 34% of the patients filled an opioid prescription within 3-months of the

https://doi.org/10.1017/cem.2020.145 Published online by Cambridge University Press

initial trauma. During a median follow-up of 2.6 years (IQR: 1-5), 192 participants (0.30%; 95%CI: 0.25%-0.35%) were hospitalized for OP and 73 (0.10%; 95%CI: 0.07%-0.13%) were diagnosed with OUD. Having filled an opioid prescription within 3-months of injury was associated with an increased hazard ratio of OP (2.6; 95%CI: 1.9-3.5) and OUD (4.0; 95%CI: 2.3-7.0). However, history of OP (2.7; 95%CI: 1.2-6.1), of substance use disorder (4.3; 95%CI: 2.4-7.9), or of opioid prescription filled (2.7; 95%CI: 2.1-3.5) before trauma were also related to OP or OUD. **Conclusion:** Opioid poisoning and opioid use disorder are rare events after hospitalization for trauma in older patients. However, opioids should be used cautiously in patients with history of substance use disorder, opioid poisoning or opioid use during the past year.

Keywords: opioid poisoning, opioid use disorder, trauma

LO92

The effect of prehospital intravenous fluids on mortality in trauma: a systematic review and meta-analysis

M. Davison, MD, MSc, M. Schenk, MD, R. Ohle, MD, D. Savage, MD, PhD, J. Scully, HBA, S. Regalado, MA, MISt, A. Affleck, MD, Northern Ontario School of Medicine, Sudbury, ON

Introduction: Hemorrhage is the primary cause of death in 39% of trauma patients. In prehospital trauma management, there is debate over pursuing a 'scoop-and-run' approach versus early intravenous (IV) fluid therapy. We evaluated the literature regarding the effect of prehospital IV fluid therapy on mortality in adult trauma patients. **Methods:** A librarian-assisted search was conducted in PubMed, Medline and Embase. The population was adults with blunt and/or penetrating trauma. The intervention was total prehospital IV fluid volume 0-500 mL, and the control was prehospital fluid volume >500 mL. The outcome of interest was in-hospital mortality. Randomized controlled trials (RCTs), cohort and case-matched studies were included. Two reviewers used the Cochrane Risk of Bias (RoB) and Risk of Bias in Non-randomized Studies of Interventions (ROBINS-I) tools to evaluate biases, and kappa was calculated for inter-rater agreement. A summary relative risk (RR) of in-hospital mortality was calculated and heterogeneity (I2) analysis performed using RevMan 5 software. **Results:** Four RCT's and eleven observational studies were identified, with n = 15,448 patients. Two RCTs and four observational studies were excluded due to non-English language, and the location or volume of IV fluid administered, leaving eight studies with n = 4,568 patients. Inter-rater agreement was high with the ROBINS-I (unweighted κ=0.8841) and RoB tool (unweighted κ=0.8276). Two studies found decreased mortality, one found increased mortality, and five found no significant relationship to mortality with 0-500 mL prehospital IV fluid. The summary relative risk of mortality with 0-500 mL IV fluid compared to >500 mL IV fluid was not significant (RR = 0.98 [0.87, 1.11]). The heterogeneity for all studies was high (I2 = 84%), but was low (I2 = 0%) with removal of two studies. **Conclusion:** The majority of studies did not find a relationship between the volume of prehospital IV fluids and in-hospital mortality. Study heterogeneity was low except for two studies: this may be explained by mortality only being recorded at emergency department discharge in one study, and the high rate of penetrating gunshot and stabbing wounds in the other. There is a paucity of high-quality RCTs on the topic, and many studies are at significant risk of bias. Further research is needed to delineate the best approach to IV fluid therapy in adult trauma patients.

Keywords: intravenous fluid, prehospital, trauma

LO93

A single center randomized control trial of intravenous lidocaine for the management of traumatic rib fractures

P. Patton, MD, MSc, K. Vogt, MD, MSc, N. Parry, MD, F. Priestap, MSc, I. Ball, MD, MSc, Western University, London, ON

Introduction: Traumatic rib fractures (RF) are a common occurrence with 10% incidence in all trauma patients and are associated with significant morbidity and mortality. Adequate analgesia is paramount for preventing pulmonary complications and reducing morbidity and mortality. There is evidence of intravenous (IV) lidocaine's effectiveness and safety in the post-operative thoracic and abdominal surgical patient and we hypothesize that it may be ideal in trauma patients with RF. We evaluated IV lidocaine's analgesic efficacy in this population. **Methods:** A single-centre, double-blind, randomized control trial comparing a 72-96 hour IV lidocaine infusion plus standard analgesics to placebo infusion plus standard analgesics. Participants were adult trauma patients diagnosed with two or more RFs requiring hospital admission. A total of 36 patients were enrolled over 5 months in 2019. The study was powered to detect a 20% reduction in pain scores, which is determined to be clinically significant. **Results:** The primary outcome was mean pain score at rest and with movement, as measured on the Visual Analog Scale (VAS). There were consistent trends toward reduced VAS pain scores at rest and with movement in the lidocaine group as compared to placebo group with mean scores of 3.49 [SD 2.02 95% CI] and 7.08 [SD 1.71 95% CI] in the lidocaine group and 3.83 [SD 1.93 95% CI] and 8.03 [SD 1.44 95% CI] in the placebo group, at rest (p value 0.624) and with movement (p value 0.110), respectively . Secondary outcomes were patient satisfaction as measured on the VAS which demonstrated a score of 7.79 [SD 1.82 95% CI] in the lidocaine group and 6.63 [SD 1.77 95% CI] (p = 112) in the placebo group, and total morphine equivalents (ME) used (including breakthrough doses) that demonstrated a trend towards a reduction in the lidocaine group with 210.9 mg [SD 180.0 95% CI] compared to the placebo with total ME used of 309.9 mg [SD 221.8 95% CI]. Other secondary outcomes were protocol adherence, incidence of respiratory failure, hospital and ICU length of stay, mortality, incidence of lidocaine toxicity, and treatment regimens (non-opioid analgesics). **Conclusion:** These results demonstrate a trend towards lidocaine's analgesic benefit during rest and the critical times of patient movement and mobility, which has been demonstrated to be paramount in the reduction of respiratory complications from rib fractures. The results also tend towards a reduction in morphine equivalents, although the trial was not powered to demonstrate this

Keywords: pain management, traumatic rib fractures

LO94

Evaluation of stroke and bleeding outcomes among patients managed in the emergency department for newly diagnosed atrial fibrillation

S. Niaz, MD, C. Kirwan, BSc, N. Clayton, RA, M. Mercuri, BSc, PhD, K. de Wit, MBChB, MD, MSc, McMaster University, Hamilton, ON

Introduction: Atrial Fibrillation (AF) is the most common arrhythmia seen in patients presenting to the emergency department (ED). AF increases the risk of ischemic stroke which can be mitigated by anticoagulant prescription. National guidelines advise that emergency physicians initiate anticoagulation when AF is first diagnosed. We aimed to evaluate the 90-day incidence of stroke and major bleeding

https://doi.org/10.1017/cem.2020.145 Published online by Cambridge University Press