

**LO89****Describing the evolution of post-concussion symptoms after sports-related mTBI**

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**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  $\geq 14$  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  $\geq 21$  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**

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**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  $\geq 3$  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**

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**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