

LO95**A prospective evaluation of mild traumatic brain injuries in a working population in Edmonton, AB**

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Introduction: Patients with mild traumatic brain injury (mTBI) frequently present to the emergency department (ED); however, wide variation in diagnosis and management has been demonstrated in this setting. Sub-optimal mTBI management can contribute to post-concussion syndrome (PCS), affecting vocational outcomes like return to work. This study documented the work-related events, ED management, discharge advice, and outcomes for employed patients presenting to the ED with mTBI. **Methods:** Adult (>17 years) patients presenting to one of three urban EDs in Edmonton, Alberta with Glasgow coma scale score ≥ 13 within 72 hours of a concussive event were recruited by on-site research assistants. Follow-up calls ascertained outcomes, including symptoms and their severity, advice received in the ED, and adherence to discharge instructions, at 30 and 90 days after ED discharge. Dichotomous variables were analyzed using chi-square testing; continuous variables were compared using t-tests or Mann-Whitney tests, as appropriate. Work-related injury and return to work outcomes were modelled using logistic or linear regression, as appropriate. **Results:** Overall, 250 patients were enrolled; 172 (69%) were employed at the time of their injury and completed at least one follow-up. The median age was 37 years (interquartile range [IQR]: 24, 49.5), both sexes were equally represented (48% male), and work-related concussions were uncommon (16%). Work-related concussion was related to manual labor jobs and self-reported history of attention deficit disorder. Patients often received advice to avoid sports (81%) and/or work (71%); however, the duration of recommended time off varied. Most employed patients (80%) missed at least one day of work (median = 7 days; IQR: 3, 14); 91% of employees returned to work by 90 days, despite 41% reporting persistent symptoms. Increased days of missed work were linked to divorce, history of sleep disorder, and physician's advice to avoid work. **Conclusion:** While work-related concussions are uncommon, most employees who sustain a mTBI at any time miss some work. Many patients experience mTBI symptoms past 90 days, which has serious implications for workers' abilities to fulfill their work duties and risk of subsequent injury. Workers, employers, and the workers compensation system should take the necessary precautions to ensure that workers return to work safely and successfully following a concussion. **Keywords:** occupational injury, mild traumatic brain injury

LO96**Syncope prognosis based on emergency department diagnosis: a prospective cohort study**

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Introduction: Relatively little is known about outcomes after disposition among syncope patients assigned various diagnostic categories during emergency department (ED) evaluation. We sought to measure the 30-day serious outcomes among 4 diagnostic groups (vasovagal, orthostatic hypotension, cardiac, other/unknown) within 30 days of the index ED visit. **Methods:** We prospectively enrolled adult syncope patients at six EDs and excluded patients with pre-syncope, persistent mental status

changes, intoxication, seizure, and major trauma. Patient characteristics, ED management, diagnostic impression (vasovagal, orthostatic, cardiac, or other/unknown) at the end of the ED visit and physicians' confidence in assigning the etiology were collected. Serious outcomes at 30-days included: death, arrhythmia, myocardial infarction, structural heart disease, pulmonary embolism, and hemorrhage. **Results:** 5,010 patients (mean age 53.4 years; 54.8% females) were enrolled; 3.5% suffered serious outcomes: deaths (0.3%), arrhythmias (1.8%), non-arrhythmic cardiac (0.5%) and non-cardiac (0.9%). The cause of syncope was determined as vasovagal among 53.3% and cardiac in 5.4% of patients. The proportion of patients with ED investigations ($p < 0.001$) and short-term serious outcomes increased ($p < 0.01$) increased in each diagnostic category in the following order: vasovagal, orthostatic hypotension, other/unknown cause and cardiac. No deaths occurred in patients with vasovagal syncope. A higher proportion of all serious outcomes occurred among patients suspected of cardiac syncope in the ED ($p < 0.01$). Confidence was highest among physicians for a vasovagal syncope diagnosis and lowest when the cause was other/unknown. **Conclusion:** Short-term serious outcomes strongly correlated with the etiology assigned in the ED visit. The physician's clinical judgment should be incorporated in risk-stratification for prognostication and safe management of ED syncope patients.

Keywords: syncope, prognosis

LO97**Validation of the HEART score in Canadian emergency department chest pain patients using a high-sensitivity troponin T assay**

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Introduction: The HEART score is a validated tool created to risk stratify emergency department (ED) chest pain patients using 5 simple criteria (History, ECG findings, Age, Risk factors, and Troponin). Several studies have demonstrated the superiority of HEART over other well known risk stratification tools in identifying low risk chest pain patients suitable for early discharge. All but one of these studies used conventional troponin assays, and most were conducted in European populations. This study aims to validate the HEART score using a high-sensitivity troponin T assay in a Canadian population. **Methods:** This prospective cohort study was conducted at a single urban tertiary centre and regional percutaneous coronary intervention site in Calgary, Alberta. Patients were eligible for enrolment if they presented to the ED with chest pain, were age 25-years or older and required biomarker testing to rule out AMI at the discretion of the attending emergency physician. Patients were excluded if they had clear acute ischemic ECG changes, new arrhythmia or renal failure requiring hemodialysis. Clinical data were recorded by the emergency physician at the time of enrolment and outcomes were obtained from administrative data. High-sensitivity troponin-T (Roche Elecsys hs-cTnT) results were obtained in all patients at presentation. The primary outcome was AMI within 30-days of ED visit, the secondary outcome was 30-day major adverse cardiac events (MACE). **Results:** A total of 984 ED patients with complete HEART scores were enrolled from August 2014 to September 2016. The 30-day incidence of AMI and MACE in the overall population was 3.3% and 20.6%, respectively. HEART scores were predictive of 30-day AMI incidence: low risk (0-3): 0.77% (95%CI 0.0-1.5%), moderate risk (4-6): 4.3% (95%CI 2.3-6.2%) and high risk (7-10): 12.2% (95%CI 5.5-19.0%). HEART scores also predicted 30-day MACE: low risk (0-3): 5.0% (95% CI 3.1-6.9%), moderate risk (4-6): 31.8% (95%CI 27.2-36.4%) and high-risk (7-10): 61.4% (95%CI 51.2-71.5%). More than half of patients, 522 (53.0%) could be identified as low risk based on the HEART score