

Predicting and Preventing Post-Concussive Problems in Pediatrics (SP) Study: a Prospective Multicentre Clinical Prediction Rule Derivative and Validation Study in Children with Concussion

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Persistent post-concussive symptoms (PCSs) is the persistence of somatic, cognitive, physical, psychological and/or behavioral changes lasting more than 1 month following concussion. Persistent concussion impacts the quality of life through impaired cognition, memory and attention affecting school performance, mood and social engagement. No large epidemiological studies have determined the true prevalence of persistent concussion symptoms. Validated, easy-to-use prognosticators do not exist for clinicians to identify children at highest risk. The goal of Predicting and Preventing Post-concussive Problems in Pediatrics Study is to derive and validate a clinical prediction rule for the development of persistent post-concussion symptoms in children and adolescents presenting to emergency department following acute head injury. Methods and analysis: This study is a prospective, multicentre cohort study across nine academic Canadian pediatric emergency departments.

We will recruit the largest prospective epidemiological cohort of children with concussion. Eligible children will be followed using Post-Concussion Symptom Inventory, a validated tool in children as young as 5 years. Patients will follow-up at 1, 2, 4, 8 and 12 weeks post-injury. The main outcome will be the presence/absence of PCSs defined as three or more persistent concussion symptoms 1 month following the injury. 1792 patients provide adequate power to derive a clinical decision rule using multivariate analyses to find predictor variables sensitive for detecting cases of persistent post-concussion symptoms. Ethics and dissemination: Results of this large prospective study will enable clinicians to identify children at highest risk, optimize treatment and provide families with realistic and appropriate anticipatory guidance. Ethics has been obtained through the Children's Hospital of Eastern Ontario Research Ethics Board. Results will be disseminated at international conferences and in four manuscripts to peer-reviewed journals.