

Parental Severity Scoring in Minor Head Injury

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Background

3 million

The number of children worldwide every year that sustain a traumatic brain injury¹

80-90%

The proportion of paediatric head injuries that are classified as mild²

700,000

The number of children attending Emergency Departments (ED) in England and Wales annually with a head injury³

The development of a validated decision aid that parents could use in the community could improve parental education and safely reduce ED attendances

Systematic review

- MEDLINE and EMBASE were searched
- Free-text and subject heading variations
- ‘Parent’, ‘head injury’ and ‘clinical decision rule’ (CDR) terms used
- ✗ No relevant studies were identified
- ✓ There are several validated clinician CDRs
- ✓ The PECARN CDR is the most easily adapted for non-clinicians

Aim

To assess the feasibility of parental use of a decision aid by evaluating the inter-rater reliability between parents and clinicians using PECARN criteria

Methods

Screening

- All children over 2 years of age
- Attending Royal Manchester Children's Hospital with a head injury
- Who are alert on arrival

Inclusion

- Children aged 2-15 years
- Presenting within 24 hours of head injury
- Not requiring initial resuscitation

Exclusion

- Children or parents unable to verbally communicate
- Parents unable to read or write
- Children not accompanied by a person with parental responsibility

Data collection & Analysis

- Parents are given a questionnaire from triage
- Questionnaire includes the PECARN CDR in lay-man's language
 - developed with patient input
- Children are seen and managed as normal
- The clinician scores the child on the PECARN CDR after the consultation
 - blinded to parental response
- Inter-observer reliability is calculated for:
 - each variable
 - rule outcome overall

Recruitment Plan

Intended sample size = 45 patients

- Estimated using a sample size calculator for reliability studies⁴
- To demonstrate a kappa of 0.8 with a minimal kappa of 0.6
- Alpha = 0.05, beta = 0.2
- Would require 39 patients
- Extra ~10% recruited to allow for data cleaning problems

To date (recruitment open for 1 month) n = 3

Reasons for the poor return rate are being explored

All respondents say the questionnaire is easy to complete

We propose to extend recruitment for a further 5 months

Future direction

If the feasibility study shows good potential inter-rater reliability between parents and clinicians:

- ✓ We will aim to set up a larger, multicenter trial
- ✓ The eventual aim would be to validate a decision tool for parents to use in the community

If inter-rater reliability is poor this may need further exploration as it has implications for services such as 111

References: ¹Dewan MC, *et al.* Epidemiology of Global Pediatric Traumatic Brain Injury: Qualitative Review. *World Neurosurg.* 2016 Jul;91:497-509.e1 ²Anderson T, *et al.* Concussion and mild head injury. *Pract Neurol.* 2006 Dec 1;6(6):342–57. ³National Institute for Health and Care Excellence. Head Injury: Triage, assessment, investigation and early management of head injury in children, young people and adults. CG 176 (Partial update of NICE CG56). 2014. ⁴Walter SD, Eliasziw M, Donner A. Sample size and optimal designs for reliability studies. *Stat Med.* 1998 Jan 15;17(1):101–10.