

Identification of children at very low risk of clinically-important brain injuries after head trauma: a prospective cohort study.

Lancet. 2009 Oct 3;374(9696):1160-70

Background & Objectives:

- CT scans are commonly used in children with Head Injury
- Unnecessary CT scan poses important malignancy risk in future
- Simple clinical prediction rules can identify children at low risk of clinically important traumatic brain injury

Methods: Prospective multicentric cohort study, which enrolled and analysed 42,412 children presented within 24 hours of head trauma with Glasgow Coma Scale scores of 14-15 in 25 North American emergency departments. They derived and validated age-specific prediction rules for Clinically-important traumatic brain injury ciTBI (death from traumatic brain injury, neurosurgery, intubation >24 h, or hospital admission >or=2 nights)

ACADEMIC P.E.A.R.L.S

Pediatric Evidence And Research Learning Snippet



SIMPLE CLINICAL PREDICTION RULE FOR MINOR HEAD INJURY IN CHILDREN

Results:

In children younger than 2 years (normal mental status, no scalp haematoma except frontal, no loss of consciousness or loss of consciousness for less than 5 s, non-severe injury mechanism, no palpable skull fracture, and acting normally according to the parents) had a negative predictive value for ciTBI of 1176/1176 (100.0%, 95% CI 99.7-100.0) and sensitivity of 25/25 (100%, 86.3-100.0).

The prediction rule for children aged 2 years and older (normal mental status, no loss of consciousness, no vomiting, non-severe injury mechanism, no signs of basilar skull fracture, and no severe headache) had a negative predictive value of 3798/3800 (99.95%, 99.81-99.99) and sensitivity of 61/63 (96.8%, 89.0-99.6).

Conclusions: Simple clinical prediction rules were highly sensitive and specific in identifying children at low risk clinically important traumatic brain injury and can avoid ordering unnecessary CT scans.

Key message: PEACARN's validated rules empower the clinician to ruling out clinically important traumatic brain injury in children with minor head trauma and obviate the unnecessary CT scans.

EXPERT COMMENT



“This study has derived and validated simple prediction rules to rule out underlying clinically important brain injury and clinician can avoid ordering unnecessary CT scan in children with minor head injury.”

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With warm regards,

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Reference

Kuppermann N, Holmes JF, Dayan PS et al; Pediatric Emergency Care Applied Research Network (PECARN). Identification of children at very low risk of clinically-important brain injuries after head trauma: a prospective cohort study. Lancet. 2009 Oct 3;374(9696):1160-70. doi: 10.1016/S0140-6736(09)61558-0.