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Abstract template

Choosing when to use Computed Tomography in paediatric head injury

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Background: Computed Tomography (CT) is an excellent tool for understanding the nature and severity of head injury. In paediatric head injury judicious use is urged however as the risk of later malignancy has been reported between 1 in 1000-5000. Clinical Decision Rules (CDRs) are often used to help determine when a CT is likely to be of most use, thus reducing unnecessary exposure to radiation. The Townsville Emergency Department has largely endorsed the use of CHALICE to date.

Method: Townsville participated as one of 10 sites across Australia in this prospective, observational study. Sufficient information was collected to make clinical decisions according to three commonly used CDRs for CT use in paediatric head injuries – CHALICE, PECARN and CATCH. Also collected was outcome information through follow up phone calls to parents.

Results: In total 20,255 patients were included in the study with 1064 contributed from Townsville. Sensitivities (95% CI) were ranked as follows: PECARN <2 years 100.0% (91.4% to 100.0%), PECARN ≥2 years 99.1% (95.0% to 100.0%), CATCH 96.0% (79.6% to 99.9%) and CHALICE 93.8% (91.0% to 95.9%). PECARN <2 years did not miss any patients, PECARN ≥2 years missed one patient who did not require neurosurgery. CATCH missed one patient with a bleeding disorder who required neurosurgery. CHALICE missed 28 patients, two of whom required neurosurgery.

Conclusions: The sensitivity of the PECARN CDRs was higher than CATCH or CHALICE when the CDRs were used as designed as well as in an undifferentiated cohort of children with mild head injury.