Tip: Head Injuries in Children 0-18yrs

Head injuries in children have to be one of the most upsetting situations for parents and caregivers; making assessment, accurate treatment and giving appropriate instructions for observation extremely important.

GCS following head injury is typically the parameter used to assess severity. A child presenting with GCS under 13 or declining GSC should be sent to the ED and will likely undergo further work up with imaging. For a child with GCS 14 or 15, providers must use clinical reasoning to decide whether the risk of radiation from CT head outweighs the risk they of developing a significant traumatic brain injury.

It should be noted that children under the age of 2 are assessed on different parameters given differences in presentation, anatomy/physiology etc.

What defines **minor head trauma**?

If <2 years old

- History of blunt trauma in infants who are alert or awaken to voice or light touch

If >2 years old

- GCS of 14 or 15 on initial exam
- No abnormal or focal findings on neurological exam
- No evidence of skull #

Patients with **minor head trauma** who meet all of the following criteria may resume **normal activity**:

- Age >3 months
- Normal mental status and at a baseline level of function
- Low-risk mechanism of injury
- No concern for inflicted injury
- No loss of consciousness or seizure
- No other apparent injuries
- No vomiting or only one episode of vomiting occurring shortly after injury
- No significant headache
- For the infants 3 to 12 months of age, trivial injury with either no hematoma or a small frontal scalp hematoma
- No underlying conditions predisposing to clinically important traumatic brain injury
- Reliable caretakers who are able to seek care, if indicated (UpToDate)

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Tip continued...

If you have classified your patient as having a minor head injury, you must now decide whether they can be safely discharged, require further observation or should be sent to the ED for a CT head and possible intervention.

There are 3 clinical decision making tools with different sets of criteria that can aid in that decision making:

PECARN

PECARN Pediatric Head Injury/Trauma Algorithm
mdcalc.com

CATCH

CATCH (Canadian Assessment of Tomography for Childhood Head injury) Rule
mdcalc.com

CHALICE

CHALICE (Children's Head injury ALgorithm for the prediction of Important...
mdcalc.com

The PECARN rule was tested to have the highest sensitivity (100%) and the CHALICE rule with the highest specificity (85%), therefore encouraging PECARN to be incorporated into practice to limit missing significant TBIs.

Based off the decision tool and combined clinical gestalt, if the recommendation is no imaging or observation, the following resources are recommended for caretakers

- BCCH Head Injury Advise for Parents and Caretakers: http://www.bcchildrens.ca/Resource-Centre-site/Documents/D-E/BCCH1001_HeadInjury_2014.pdf
- A concussion guide for parents and caregivers: https://parachute.ca/wp-content/uploads/2019/06/Concussion-Guide-for-Parents-and-Caregivers.pdf
- Parachute Canada's information on concussions: https://parachute.ca/en/injury-topic/concussion/
- From YouTube: From Dr. Mike Evans - Concussion Management What they are and what they do: https://www.youtube.com/watch?v=_55YmblG9YM
- From YouTube: From Dr. Mike Evans - Concussions 101 a Primer for Kids and Parents: https://www.youtube.com/watch?v=zCCD52Pty4A