Child <2 yrs with apparent minor head trauma

Is the child at HIGH RISK for clinically-important traumatic brain injury (ciTBI)*?
- GCS < 14 (on non-verbal child GCS)
- Other signs of altered mental status¹
- Signs of skull fracture²

Predictors of ciTBI?
- Occipital/parietal/temporal scalp hematoma
- History of LOC ≥5 seconds
- Severe mechanism³
- Not acting normally per parent

CT scan NOT recommended

Observation vs CT scan?
- Consider other clinical factors:
  - Worsening symptoms/signs after initial evaluation/observation
  - Multiple vs isolated findings
  - Age <3 months
  - Parent preference

Reassess for predictors of ciTBI

CT scan recommended

¹Includes pts from derivation

0.9% risk of ciTBI

32.6% of population

53.5% of population

4.4% risk of ciTBI

13.9% of population

Discharge if Meets Criteria
- Reliable caregiver
- No significant extracranial injuries or other indications for admission
- No suspicion for abuse or neglect

Definitions

¹Altered mental status
- Agitation or somnolence
- Repetitive questioning (for age)
- Slow response to verbal communication

²Signs of skull fracture
- Palpable skull fracture
- Periorbital or retro-auricular bruising (Battle’s sign)
- CSF otorrhea or rhinorrhea
- Hemotympanum

³Severe mechanism
- MVC with patient ejection, death of another passenger or rollover
- Ped or bicycle struck by MV without helmet
- Fall of more than 3 ft
- Head struck by high-impact object
- Intentional injury (child abuse) suspected

*ciTBI results in
- Death
- Neurosurgical intervention
- Intubation >24 h
- Hospitalization > 2 nights

Figure 1b: Proposed Guidelines for Imaging after Minor Head Trauma in Children 2-18

Child 2-18 yrs with apparent minor head trauma

Is the child at HIGH RISK for clinically-important traumatic brain injury (cTBI)?
- GCS < 14
- Other signs of altered mental status
- Signs of skull fracture

Yes
CT scan recommended

14% of population†
4.3% risk of cTBI
†includes pts from derivation and validation set (n=31,694)

No
Predictors of cTBI?
- History of LOC
- History of vomiting
- Severe mechanism
- Severe headache

Yes
Observation vs CT scan?
- Consider other clinical factors:
  - Worsening symptoms/signs after initial evaluation/observation
  - Multiple vs isolated findings
  - Parent preference

No
CT scan NOT recommended

58.3% of population†
<0.05% risk of cTBI

Reassess for predictors of cTBI after 4-6 hours

Observation desired

Discharge if Meets Criteria
- Reliable caregiver
- No significant extracranial injuries or other indications for admission
- No suspicion for abuse or neglect

*cTBI results in
- Death
- Neurosurgical intervention
- Intubation >24 h
- Hospitalization > 2 nights

Definitions

1Altered mental status
- Agitation or somnolence
- Repetitive questioning
- Slow response to verbal communication

2Severe Mechanism
- MVC with patient ejection, death of another passenger or rollover
- Ped or bicycle struck by MV without helmet
- Fall of more than 5 ft
- Head struck by high-impact object
- Intentional injury (child abuse) suspected

2Signs of skull fracture
- Palpable skull fracture
- Periorbital or retro-auricular bruising (Battle’s sign)
- CSF otorrhea or rhinorrhea
- Hemotympanum