

Aim: Standardize the administration of seizure prophylaxis for patients with head injuries

EXCLUSIONS:

- Patient has a head injury that does not require CT by PECARN rules

Patient presents with head injury or suspected head injury

Does patient have any of the following:

- Severe TBI (GCS 3-8)
- Moderate TBI (GCS 9-12) AND intracranial hemorrhage
- Seizure on presentation
- Concern for seizure activity after injury

See Note 1

Yes

No

Treat with levetiracetam (Keppra)

- Load Dose: 20 mg/kg IV (no max dose)
- If patient continues seizing after levetiracetam load, refer to Seizure and Status Epilepticus Guideline and consult Neurology (see Note 3)
- EEG monitoring if seizure activity witnessed or if patient with moderate-severe TBI is intubated

Patient has an established seizure disorder AND/OR is on seizure medication regimen?

Yes

No

Levetiracetam (Keppra) 10 mg/kg (max 1000 mg) IV/PO BID for 7 days
Initiate 12 hours after Load Dose

Consult Neurology for seizure medication, dosage, and duration recommendations

Yes

Concern for seizure activity or abnormal EEG?

No

No further seizure prophylaxis indicated after completion of levetiracetam (Keppra) for 7 days

Head CT positive for:

- Cerebral contusions (See Note 2)
- Intracranial foreign body or extension of foreign body intracranially
- Depressed skull fracture requiring surgery
- NAT with any intracranial hemorrhage

Yes

No

No seizure prophylaxis indicated

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NOTES:**Note 1:**

Infants/children have lower threshold for subclinical seizures - up to 70% with severe TBI

Note 2:

Cerebral contusions = intracranial parenchymal contusions only. Extracranial, scalp, or skull contusions are NOT an indication for seizure prophylaxis.

Note 3:

Neurology to be consulted for patients:

1. With established seizure disorder AND/OR on established seizure medication regimen
2. Presenting with seizures
3. That develop seizures noted clinically AND/OR on EEG anytime during clinical course

REFERENCES:

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2. Kochanek PM, Tasker RC, Carney N, et al. Guidelines for the Management of Pediatric Severe Traumatic Brain Injury, Third Edition: Update of the Brain Trauma Foundation Guidelines. *Pediatr Crit Care Med.* 2019;20(3S Suppl 1):S1-S82. doi:10.1097/PCC.0000000000001735
3. Surtees TL, Kumar I, Garton HJL, et al. Levetiracetam Prophylaxis for Children Admitted With Traumatic Brain Injury. *Pediatr Neurol.* 2022;126:114-119. doi:10.1016/j.pediatrneurol.2021.10.009

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