Pediatric Anti-epileptic Therapy for Traumatic Brain Injury Protocol

**Traumatic brain injury**

- **No seizure; No risk factors**
  - **No anti-epileptic drug (AED) therapy**
    - **No EEG needed**
    - **No neurology consult required**
    - **No neurology follow up in clinic required**
  - **If still no seizures after 7 days of therapy, stop AED.**
    - **No EEG needed**
    - **No neurology consult required**
    - **No neurology follow up in clinic required**

- **Yes seizures**
  - **Management of status**
    - **Ativan (preferred)**
      - IV/IM: 0.1 mg/kg (Max: 4 mg/dose)
    - **Midazolam**
      - IV: 0.05-0.1 mg/kg/dose
        - (Max: 6 mg/dose for < 6 years; Max: 10 mg/dose for > 6 years)
      - IM: 0.1-0.2 mg/kg/dose (Max: 7 mg/dose)
      - IN: 0.2-0.3 mg/kg/dose (Max: 10 mg/dose)

- **Phenobarbital (PB)**
  - **Load**: 20 mg/kg
  - **Maintenance**: 2-6 mg/kg/day divided twice daily
  - **Monitoring**: Drug level on days 2 and 5; Goal level 10-40 mg/L
  - **Needs EEG**
    - **If EEG normal and seizures controlled, no need for inpatient neurology consult.**
    - **Patient will continue on AED until discontinued by neurologist at neurology clinic visit.**
    - **Patient will need follow up appointment in neurology clinic within 1 to 2 weeks of discharge.**
    - **Further imaging and labs to be determined by neurologist at clinic visit.**

**NOTES:**

1) Defined as: Cortical contusion Depressed skull fracture Subdural hematoma Epidural hematoma Intracerebral hematoma Subarachnoid hemorrhage Penetrating head wound

2) Risk factors: Severe traumatic brain injury with GCS = 3-8 Extra-axial hemorrhage in age < 2 year old Depressed skull fracture Penetrating head wound

3) If seizure is self-limited, can just load with AED drug and then start maintenance without ativan or midazolam administration.

4) Anticonvulsant load must be IV formulation. Continue on IV form until therapeutic drug levels (with seizures controlled if applicable). Then may change to enteral form when patient tolerating feeds.

5) Can start phenobarbital as first line drug if fosphenytoin is contraindicated (e.g. allergy).

6) At this time, levetiracetam (Keppra) is not approved for use in patients < 16 years of age so this drug is not being included in the algorithm. Consultation with a pediatric neurologist is recommended for alternate therapies.