Guideline

1.0 SCOPE

1.1. Care of the Trauma Services Patient at CCHMC

2.0 DEFINITIONS

2.1. **Post-contact seizure:** Seizure that occurs less than one (1) hour post-injury
2.2. **Early seizure:** Seizure that occurs between one (1) hour to less than seven (7) days post-injury
2.3. **Late seizure:** Seizure that occurs more than one (1) week post-injury

3.0 GUIDELINE

3.1. Expert consensus recommends Levetiracetam (Keppra) for seizure prophylaxis, when indicated, due to:
- 3.1.1. Predictable pharmacokinetics.
- 3.1.2. Does not require serum drug monitoring to ensure that therapeutic levels are achieved.
- 3.1.3. Lack of sedating effects.
- 3.1.4. Low propensity for drug interactions.

3.2. Indications for seizure prophylaxis:
- 3.2.1. Early seizure activity.
- 3.2.2. Late seizure activity.
- 3.2.3. Presence of cerebral edema.
- 3.2.4. Severe traumatic brain injury (GCS ≤8).
- 3.2.5. Moderate traumatic brain injury (GCS 9-12) with associated head CT findings as listed below:
  - 3.2.5.1. Cortical contusion
  - 3.2.5.2. Subdural hemorrhage
  - 3.2.5.3. Subarachnoid hemorrhage
- 3.2.6. Neurosurgery or Neurology attending decision.

3.3. Contraindications to administration of Levetiracetam (Keppra) include a previous medical history of aggression or behavioral problems due to tendency of the medication to exacerbate agitation.
  - 3.3.1.1. Neurology consult for seizure prophylaxis recommendations if Keppra is contraindicated.

3.4. <u>**DOSING**</u>:
- 3.4.1. Initial Levetiracetam (Keppra) dose of 20 mg/kg should be given in the trauma bay for patients with concern for TBI (unless actively seizing, then see 3.4.2 below).
  - 3.4.1.1. Levetiracetam (Keppra) maintenance dose for seizure prophylaxis is 20 mg/kg IV/PO q12hrs (40 mg/kg/day). Max dosing 1000 mg every 12 hours.
- 3.4.2. For patients actively seizing, post-contact seizure or status epilepticus, dosing is 60 mg/kg IV with a maximum single dose of 4500 mg.
  - 3.4.2.1. Maintenance Levetiracetam (Keppra) after suspected status epilepticus should be directed by the neurology service.
- 3.4.3. Anti-epileptic drugs should be administered, when indicated, for a 7-day course post-injury to decrease risk of post-traumatic seizure.

4.0 REFERENCES

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4.6. Torbic, H, Forni AA, Anger KE, Degrado JR, Greenwood BC. (2013) Use of antiepileptics for seizure prophylaxis after traumatic brain injury. *American Journal of Health System Pharm, 70*(9), 759-766.
4.7. Glauser T, Shinnar S, Gloss D, Alldredge B, Arya R, Bainbridge J, Bare M, Bleck T, Dodson WE, Garrity L, Jagoda A, Lowenstein D, Pellock J, Riviello J, Sloan E, Treiman DM. Evidence-Based Guideline: Treatment of Convulsive Status Epilepticus in Children and Adults: Report of the Guideline Committee of the American Epilepsy Society. Epilepsy Curr. 2016 Jan-Feb;16(1):48-61.

5.0 APPROVALS

All revisions of this guideline are approved by the Trauma Service. This guideline is reviewed every three years or sooner if deemed necessary. Policy authority for this document resides with the Trauma Service. This guideline is approved by the Trauma Services Manager and the Director of Trauma Services.

HISTORY
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