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**Afebrile Seizure (New Onset)**

**Lumbar Puncture**
- Not Indicated

**Laboratory**
- Consider CMP for any of the following:
  - Dehydration
  - Vomiting
  - Persistent altered mental status

**EEG**
- OUTPATIENT
  - Obtain in all cases of suspected, probable or definite seizure.
  - Neurology follow-up within 1 week.

**Neuroimaging**
- Consider urgent MRI (if available) or CT for any of the following:
  - Focal seizure
  - Persistent encephalopathy
  - Focal exam
  - < 6 months of age
  - Closed head injury
  - Recent shunt revision
  - Neurocutaneous disease
  - Sickle cell disease
  - AIDS
  - Malignancy
  - Travel to location endemic for cystercicosis

- Refer for consideration of outpatient brain MRI if none of the above factors apply.

**Admission**
- Admit for any of the following:
  - Recurrent seizures at onset
  - Persistent encephalopathy
  - Parental anxiety
  - Concerns regarding follow-up

- Contact Neurologist on call if STAT EEG read is required.

**Simple Febrile Seizure**

**Lumbar Puncture**
- Following a simple febrile seizure if the child is ill-appearing or if there are clinical signs or symptoms of concern

**Laboratory**
- A lumbar puncture should be considered:
  - Child 6 to 12 months of age who is deficient in immunizations or for whom immunization status is unknown
  - Child of any age who has been pretreated with antibiotics

**EEG**
- OUTPATIENT
  - Not Indicated

**Neuroimaging**
- Not indicated if only prolonged or recurrent within 24 hours.
  - Consider for focal motor seizure, persistent encephalopathy or abnormal focal exam.

**Admission**
- Only indicated in ill appearing child, extreme parental anxiety or social concerns.

**Complex Febrile Seizure**

**Lumbar Puncture**
- Following a complex febrile seizure if the child is ill-appearing or if there are clinical signs or symptoms of concern

**Laboratory**
- A lumbar puncture should be considered:
  - Child 6 to 12 months of age who is deficient in immunizations or for whom immunization status is unknown
  - Child of any age who has been pretreated with antibiotics

**EEG**
- OUTPATIENT
  - Not Indicated

**Neuroimaging**
- Consider for focal motor seizure onset, focal deficit or abnormal focal exam:
  - MRI of the brain w/wo contrast
  - Obtain CT only if emergent concerns and MRI is not available.

**Admission**
- Admit for any of the following:
  - Persistent encephalopathy
  - Focal exam
  - Ill-appearing

- Contact Neurologist on call if STAT EEG read is required.

- Consider observation for any of the following:
  - Recurrence within 24 hours
  - Extreme parental anxiety or social concerns

- Consider outpatient neurology referral:
  - Multiple recurrent febrile seizures (in different illnesses)
  - Focal seizures without focal deficits
  - Parental anxiety
Inclusion Criteria
- Age > 3 months to 18 years of age
- Convulsive seizure lasting > 5 minutes
  OR
- Non-convulsive seizure lasting > 10 minutes

Initiate Anti-epileptic Medication

IV Access:
- Lorazepam 0.1 mg/kg/dose (Max: 4 mg/dose)
  - Dilute medication 1:1 with Normal Saline. Infuse over 2-5 minutes
    (maximum infusion rate: 2 mg/minute)
  OR
No IV Access: Choose one of the following
- Diazepam 0.5 mg/kg/dose PR
- Midazolam – Use IV Formulation
  - Intranasal: 0.2-0.5 mg/kg/dose (Max: 10 mg/dose)
  - Use 5 mg/mL concentration, if ≥ 1 mL give half in each nare
  - Buccal: 0.2-0.5 mg/kg/dose (Max: 10 mg/dose)

Establish IV access

Notify attending physician and Pharmacy prepare next step medications

IV Access: Administer or Repeat
- Lorazepam 0.1 mg/kg/dose (Max: 4 mg/dose)
  OR
No IV Access: Repeat one of the following
- Diazepam 0.5 mg/kg/dose PR
- Midazolam – Use IV Formulation Intranasal or Buccal

Notify attending physician and Pharmacy prepare next step medications

Monitor blood pressure and respiratory function

Fosphenytoin 20 mg PE/kg/dose IV
- 1:1 with Normal Saline or D5W – infuse no faster than 3 mg PE/kg/minute (Max infusion rate: 150 mg PE/minute)
- Call emergency response team and PICU to evaluate for transfer and/or respiratory assistance
  OR
Phenyltoin/fosphenytoin Allergy OR physician request:
Choose one of the following
Levetiracetam 30-60 mg/kg/dose IV (Max: 3 g/dose) Infuse over 15 minutes
Valproic Acid 20 mg/kg/dose IV (Max: 40 mg/kg/dose up to a max of 2 g/dose)
Infuse at a rate of 1-6 mg/kg/minute

Notify attending physician
Phenobarbital 20 mg/kg/dose IV x 1 dose at a rate of 2 mg/kg/minute (Max: 30-60 mg/minute)

Seizure continues

NO

Seizure continues for additional 5 minutes

NO

Seizure continues for additional 5 minutes

NO

Seizure continues for additional 15 minutes

NO

Seizure continues

YES

Transfer to PICU

Electroencephalographic (EEG) Seizure Cessation Process: Choose one of the following
- Midazolam 0.2 mg/kg/dose IV bolus (Max: 10 mg/dose) – Continue to bolus as necessary
- Midazolam 0.2 mg/kg/dose IV continuous infusion
  - Titrate to effect (usual range: 0.2-0.6 mg/kg/hour up to recommended max: 1.5 mg/kg/hour)
If seizure persists push Midazolam IV dose to achieve burst suppression on EEG

Consider if unable to suppress epileptiform activity:
Choose one of the following
- Pentobarbital 5-15 mg/kg/dose slow IV infusion over 1-2 hours
- Continue as IV continuous infusion at 1-3 mg/kg/hour to maintain burst suppression on EEG if necessary

YES

YES

NO

NO

NO

NO

YES

EXCLUSION CRITERIA
- AGE < 3 Months
- Age > 18 Years
- Prior neurological insult

For questions concerning this pathway, Click Here
Last Updated April 27, 2015
**Seizure Clusters Acute Care & IMC Pathway**

**Evidence Based Outcome Center**

**Inclusion Criteria**
- Age ≥ 3 months to 18 years of age
- 3 Seizures (each lasting less than 5 minutes) in 1 hour
- OR
- 3 repetitive Infantile Spasm Clusters or Infantile Spasms lasting for > than 15 minutes total

**Initiate Anti-epileptic Medication**

**IV Access:**
- Lorazepam 0.1 mg/kg/dose IV (Max: 4 mg/dose)

**No IV Access:** Choose one of the following
- Diazepam 0.5 mg/kg/dose PR
- Midazolam – Use IV Formulation
  - Intranasal: 0.2-0.5 mg/kg/dose (Max: 10mg/dose)
  - Use 5 mg/mL concentration, if ≥ 1 mL give half in each nare
  - Buccal: 0.2-0.5 mg/kg/dose (Max: 10 mg/dose)

**Establish IV access**

- 4th Seizure OR Additional Cluster of Spasms

**Notify attending physician and Pharmacy prepare next step medications**

**Monitor blood pressure and respiratory function**

**Administer one of the following:**
1) Lorazepam 0.1 mg/kg/dose (Max: 4 mg/dose)
2) Diazepam PR / Midazolam Intranasal/Buccal (if no IV available)
3) Fosphenytoin 20 mg PE/Kg/dose IV
   - 1:1 with Normal Saline or D5W – infuse no faster than 3 mg PE/kg/minute (Max infusion rate: 150 mg PE/minute)
   - Call emergency response team and PICU to evaluate for transfer and/or respiratory assistance

**Phenytoin/fosphenytoin Allergy OR physician request:**
- Levetiaceam 30-60 mg/kg/dose IV (Max: 3 g/dose) **Infuse over 15 minutes**
- Valproic Acid 20 mg/kg/dose IV (Max: 40 mg/kg/dose up to a max of 2 g/dose) **Infuse at a rate of 1-6 mg/kg/minute**

**Manage OFF Pathway**

**Consult Attending**

**EXCLUSION CRITERIA**
- AGE < 3 Months
- Age > 18 Years
- Prior neurological insult