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Status Epilepticus Transport/ED/Inpatient Pathway

Arkansas Children's
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Inclusion Criteria
-Age > 1 month
-Generalized convulsive seizure > 5 minutes
-With or without history of epilepsy
-With or without fever
-Patient presenting with seizure > 5 minutes who received neuromuscular blocking agent
-Any non-convulsive seizure

Exclusion Criteria
- Severe traumatic brain injury
- < 1 month of age

! **Transport start pathway from where referring hospital stopped**

Follow Phases of Care

0-5 minutes

Initial Onset of Seizure:
- Obtain AMPLE history
- Assess ABCs
- Give 100% oxygen, suction if needed
- Obtain IV access
- Check glucose, obtain electrolytes

→ **If patient is cyanotic, bradycardic, or apneic:**
- Start CPR
- Provide BVM, RSI

Seizure continues

! **Call MET at 5 minutes**

5-20 minutes

Phase 1
- **At 5 minutes** administer Lorazepam (Ativan) 0.1 mg/kg IV/IM (max 4 mg)

OR
- Intranasal midazolam (<40 kg – 5 mg or >40 kg – 10 mg) (max dose 10 mg)
- Neurology consult if ED/Inpatient

Seizure STOPS →
- Continue to assess ABCs
- Maintain oxygenation

Order medications and continue pathway → **Order the following medications after the 2nd dose of lorazepam to have at bedside:**
- Levetiracetam
- Fosphenytoin

Seizure continues

- **At 10 minutes** if seizure continues: repeat lorazepam 0.1 mg/kg IV/IM (max 4 mg)

Seizure STOPS →
- Continue to assess ABCs
- Maintain oxygenation

Seizure continues

20-40 minutes

- **At 20 minutes** (or earlier if patient still seizing after 10 mins of 2nd dose of lorazepam IV) administer levetiracetam (Keppra) 60 mg/kg IV (max 4500 mg)

Seizure continues

40-60 minutes

Phase 3
- Check lab results
- Reassess ABCs
- Consider RSI
- Administer Fosphenytoin 20 mg/kg IV (max 1500 mg)

Consider →
Hypoglycemia:
- 1-2 months: 2.5 mL/kg of D10W
- >2 months: D25W 2-4 mL/kg or D10W 5-10 mL/kg

Hypomagnesemia:
- Magnesium sulfate 25-50 mg/kg IV (max 2000 mg/dose)

Hyponatremia:
- Consider 3% NS 4-5 mL/kg IV for Na < 120

Hypocalcemia:
- Calcium gluconate 50-100 mg/kg IV (max 3000 mg/dose)

Seizure continues

- Continuous EEG
- Admit to PICU

Refractory Phase → Page 2

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Refractory Phase: > 60 minutes

Midazolam IV:
- Give 0.2 mg/kg bolus (maximum 10 mg), then start infusion at 0.2 mg/kg/hr (max 10 mg/hr)
- Increase infusion rate by 0.2 mg/kg/hr (max 10 mg/hr) every 10 minutes until target burst suppression or reach a dose of 1.2 mg/kg/hr
- Perform endotracheal intubation if not already done

Add Vimpat IV:
- 10 mg/kg (max 300 mg loading dose)
- Then 5 mg/kg BID (max 600 mg/day)

Therapeutic target not achieved

Add Ketamine IV:
- Start infusion at 0.5 mg/kg/hr
- Increase infusion rate by 0.5 mg/kg/hr every 15-20 minutes until target burst suppression or maximum dose of 7.5 mg/kg/hr
- Prepare to add IV pentobarbital infusion when ketamine infusion reaches 6 mg/kg/hr

Add Phenobarbital
- Start 20 mg/kg IV loading dose (max 1500 mg)
- Maintenance 5 mg/kg IV once daily (max 500 mg)

Therapeutic target not achieved

Pentobarbital IV:
- Give 5 mg/kg bolus, then start infusion at 1 mg/hg/hr
- Increase infusion rate by 0.5 mg/kg/hr every 15-20 minutes until target burst suppression or max dose of 3 mg/kg/hr
- Decrease midazolam infusion rate to 1 mg/kg/hr at the start of pentobarbital infusion, stop midazolam after first increase of pentobarbital infusion to 1.5 mg/kg/hr

Add Perampanel:
- 4 mg PO once daily
- Increase every 2 days by 2 mg (max 12 mg)

For super refractory seizure for > 24 hours

Consider other therapies:
- Ketogenic diet
- Immunotherapy (corticosteroids, IVIG, plasmapheresis)
- Pyridoxine (if not already tried)
- Epilepsy surgery consultation

!
Consider intubation

Therapy target achieved

Treatment Target

- Complete suppression of seizures
- EEG burst suppression around 70% (never <50%)

Maintain burst suppression:
- Initial 24-48 hours
- Repeated: 48-72 hours

Weaning continuous infusions:
- ≤48 hours duration: wean over 6-12 hours, decrease rate by 15-30% every 2 hours
- >48 hours duration: slow wean, decrease rate by 15-30% every 6-12 hours
- Consider adding scheduled benzodiazepines or barbiturates for withdrawal for infusions >5 days

Add maintenance anti-seizure medications:
- Use doses at high end of therapeutic range
- Consider combinations with multiple different mechanisms

Metrics

1. Time from seizure onset to first dose of lorazepam or midazolam administration
    A. Dose correct?
2. Time from seizure onset to Keppra administration
    A. Dose correct?

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References

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