Clinical signs of Seizure Activity - The 5 Losses

- Loss of consciousness
- Loss of muscle tone
- Loss of autonomic control
- Loss of normal behavior (sensation)
- ??Loss of memory??

Idiopathic seizure activity

- Age (1-5 years)
- Short generalized seizure activity (30-120 sec.)
- Low initial frequency / regular intervals
- Normal between episodes
- Non-interruptible

When to initiate therapy

- Any status epilepticus
- Any seizure activity lasting > 5 minutes
- Any cluster activity
- 2 or more episodes within 3 months
## Causes of Seizure activity

<table>
<thead>
<tr>
<th>Intracranial / Symptomatic</th>
<th>Extracranial / Reactive</th>
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<tbody>
<tr>
<td>Degenerative storage disease</td>
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<tr>
<td>Hydrocephalus</td>
<td>Hypoglycemia</td>
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<tr>
<td>Lissencephaly</td>
<td>Hyperkalemia</td>
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<tr>
<td>Arachnoid Cysts</td>
<td>Hypoxia</td>
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<tr>
<td>Primary Neoplasia</td>
<td>Liver Dz</td>
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<tr>
<td>Secondary Neoplasia</td>
<td>Renal Dz</td>
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<td>Bacterial infection</td>
<td>Hypothyroidism</td>
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<td>Fungal</td>
<td>Hypocalcemia</td>
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<tr>
<td>Distemper, Rabies, FIP</td>
<td>Hyperosmolality (ketoacidosis)</td>
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<tr>
<td>Toxoplasmosis, Neospora</td>
<td>Hyperlipoproteinemia</td>
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<td>Parasitic larval migrans</td>
<td>Cardiogenic syncope / cerebral hypoxia</td>
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<td>Erlichia, Rocky Mountain Spotted Fever</td>
<td>Porto systemic Shunts</td>
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<td>GME</td>
<td>Beta-cell tumor (insulin secreting)</td>
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<td>Traumatic (6mths-3yrs post)</td>
<td>Thiamine deficiency (cats)</td>
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<tr>
<td>Feline Ischemic Encephalopathy</td>
<td>Strychnine</td>
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<td>CVA</td>
<td>Metaldehyde</td>
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<td>Organophosphates</td>
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<td>Chlorinated hydrocarbons</td>
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<td>Lead</td>
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<td>Ethylene Glycol</td>
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Medications

Emergent therapy

Diazepam

- 0.5-1 mg/kg bolus IV ONLY

or

- 1-2 mg/kg per rectum

- Repeat as needed (x3)

Diazepam CRI rate: 1-2 mg/kg/hr

Mg of drug to add to base solution = \(\frac{\text{Dose mg/kg/hr}}{\text{Wt kg}}\times \text{Volume base ml}\)

Fluid rate ml/hr

- Monitor CAREFULLY!!
- Continue until seizure free 4-8 hours
- Taper off over same time frame

Phenobarbital

- Load = 16 mg/kg

- Dose varies with drug history & severity
  - Typically use 4 mg/kg bolus

- Give what it takes
  - Anesthesia if necessary

- Be prepared to support ventilation

Pentobarbital

- Load = 6 mg/kg
Typically use 2 mg/kg bolus as needed
Give what it takes
Be prepared to support ventilation

**Propofol**
- Load = 2-8 mg/kg
- Be prepared to ventilate
- Infusion @ 0.05-0.4 mg/kg/min

**Maintenance therapy**

**Phenobarbital**
- Recommendations:
  - 2-4 mg/kg PO BID
  - Baseline blood work prior to treatment
  - Check blood levels at 3 weeks
  - Check blood levels, CBC, liver function at 6 months and q 1 year

**Bromide**
- Recommendations:
  - KBr, NaBr
  - 40-70 mg/kg PO SID
  - Liquid Bromide to reduce vomiting and for easier dose adjustment
  - Check blood levels at 3 months
  - Check blood levels, at 6 months and q 1 year
Zonisamide

- Dose 5-10 mg/kg BID-TID

Topiramate

- Dose = 2.5-5 mg/kg BID-TID

Levetiracetam

- Dose = 10-30 mg/kg BID-TID