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# **STATUS EPILEPTICUS (SE)**

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# STATUS EPILEPTICUS (SE)

## I. Definitions

A. Prolonged or repetitive epileptic seizures lasting 30 minutes or more

OR

B. A state of repetitive seizures without return to full baseline neurologic function between seizures

# STATUS EPILEPTICUS (SE)

## II. Demographics

- A. Majority of patients with SE do not have idiopathic epilepsy
- B. Only about 5 % of patients with idiopathic epilepsy ever develop SE
- C. Mortality 3 % to 30 %
- D. For every type of seizure there is a corresponding type of SE

# STATUS EPILEPTICUS (SE)

## III. Causes

**A. Sudden discontinuation of antiepileptic meds :**  
most common cause in epilepsy

**B. Metabolic derangements :**

**Hypoxia :** most important to exclude first  
emergently

**Hypoglycemia :** next most important to exclude  
emergently

**Hyponatremia** (next most important to exclude)

**Hypocalcemia** (next most important to exclude)

**Hypomagnesemia** (next most important to  
exclude)

# STATUS EPILEPTICUS (SE)

## III. Causes (cont.)

**C. Alcohol or sedative (especially benzodiazepines) withdrawal : common**

**D. Drug intoxication or interaction**

- **Any anticholinergic med (including tricyclics and phenothiazines)**
- **Aminophylline**
- **Cocaine / amphetamines**

# STATUS EPILEPTICUS (SE)

## III. Causes (cont.)

### E. Structural abnormalities

- Stroke, head trauma, tumor, degenerative diseases

### F. Infection / inflammation

- Meningitis / encephalitis / collagen vascular diseases

### G. Uremia

### H. Congenital or perinatal CNS / metabolic disorders



# STATUS EPILEPTICUS (SE)

## IV. Complications

### A. Hypertension (early), hypotension (late)

Hypoxia, ↑ ICP, acidosis, fever,  
hyperkalemia, ↑ CPK → rhabdomyolysis  
→ ARF ; CNS bleeds, neuronal death

# STATUS EPILEPTICUS (SE)

## V. Emergent Rx

1. Secure airway ; O<sub>2</sub> by face mask
2. Check vital signs : start cooling measures if hyperthermic
3. Start IV : usually Normal Saline (best diluent if IV diphenylhydantoin will be given later)
4. Check ChemStrip / O<sub>2</sub> saturation

# STATUS EPILEPTICUS (SE)

## V. Emergent Rx (cont.)

5. Draw blood for glucose, electrolytes, BUN , creatinine (most important)
  - Ca, Mg, CBC (next most important)
  - ABG if O<sub>2</sub> sat. low or respiratory compromise
  - Anticonvulsant levels
  - Consider drug / toxin screen (ETOH at least often useful)

# STATUS EPILEPTICUS (SE)

## V. Emergent Rx (cont.)

6. If ChemStrip low or any chance of hypoglycemia, give 1 amp D50 IV (dilute to 25 % for small children) and consider thiamine 100 mg IV
7. If SZ continue: diazepam 2 mg / min IV (0.2 mg/kg) with repeated doses as needed up to 5 mg in infants and 30 mg in adults, or lorazepam (much longer acting anti-SZ effect) 1 to 2 mg/min (0.04 mg/kg) IV up to 10 to 15 mg. Watch for respiratory depression : may need intubation.

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## V. Emergent Rx (cont.)

8. Follow diazepam or lorazepam with phenytoin 50 mg/min (25 mg/min in kids) IV to 18 mg/kg dose

9. If SZ persist :

Phenobarbital IV 100 mg/min up to 20 mg/kg or diazepam drip (100 mg in 50 ml D5W, run at 40 ml/hr) ; then expect to endotracheally intubate since these almost always will cause respiratory depression or apnea.

# STATUS EPILEPTICUS (SE)

## V. Emergent Rx (cont.)

### 10. If SZ still persist:

Paraldehyde 4 % (20 ml in 500 cc NS) at 1 cc/kg/hr IV and/or lidocaine 1 mg/kg IV bolus then drip at 1 to 4 mg/min

### 11. If SZ still persist consider general anesthesia with halothane / paralysis

### 12. Once SZ stop, then consider further workup with head CT, LP, etc.

If etiology turns out to be hyponatremia, consider use of 3 % NaCl IV for Rx (initial rate about 100 cc/hr in adults)

# STATUS EPILEPTICUS (SE)

## VI. Commonly used meds for maintenance Rx for seizures :

Drug (generic/trade name)	Loading dose mg/kg	Maintenance dose mg/kg	Therapeutic serum conc. (ml/L)
Phenytoin (Dilantin)	10 to 20	4 to 8	10 to 20
Phenobarbital (Luminal)	8 to 20	2 to 5	10 to 30
Primidone (Mysoline)	--	10 to 25	5 to 10
Carbamazepine (Tegretol)	--	10 to 20	5 to 10
Valproic acid (DepaKene)	--	15 to 30	55 to 100
Ethosuximide (Zarontin)	--	20 to 30	40 to 100
Clonazepam (Clonopin)	--	1 to 12 mg/day	0.005 to 0.05