## Antiepileptic Medications

### Phenytoin
- **Drug**: Phenytoin (Phtn)
- **Dose**: 3.8-10 mg/kg PO q24h
- **MOA**: Increases sodium inactivation at neuronal junctions, preventing excessive firing
- **Metabolism**: Hepatic
- **Bioavailability**: Oral: 60-90%
- **Peak concentration**: 6 hours
- **Half Life**: 20-30 hours
- **Therapeutic range**: 10-15 mg/mL
- **Factors that affect absorption**: None
- **Other factors**: Impact:
  - Hepatotoxicity if used for more than a month
  - Neurotoxicity in overdose
  - Sedative in lower doses

### Levetiracetam
- **Drug**: Levetiracetam (Levet)
- **Dose**: 100 mg/kg PO q24h (Cat)
- **MOA**: Enhances neuronal recycling, reduces glutamate, NE, and serotonin reuptake and release, reuptake and recycling
- **Metabolism**: Hepatic (50% in liver to several metabolites, 10% excreted in urine)
- **Bioavailability**: 90% (absorbed within 2 hours)
- **Peak concentration**: 30-60 min
- **Half Life**: 2-3 hours
- **Therapeutic range**: 10-20 mg/mL
- **Factors that affect absorption**: None
- **Other factors**: Impact:
  - Hepatic concentration after 1 month
  - Increase Pb levels (due to phenobarbital decreases renal Pb excretion; atazanavir decreases renal Pb reabsorption)