

# Antiepileptics

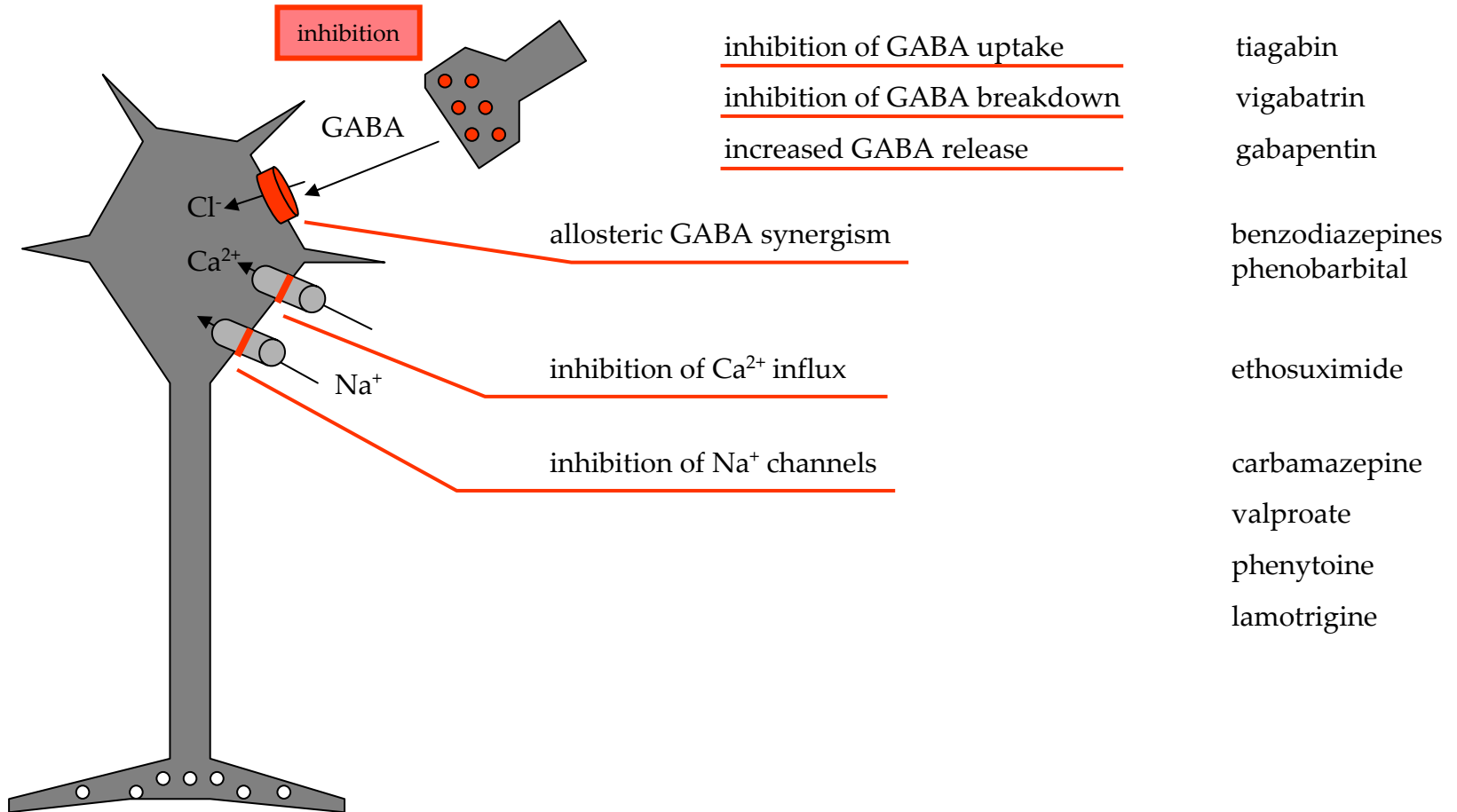
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# Epilepsy



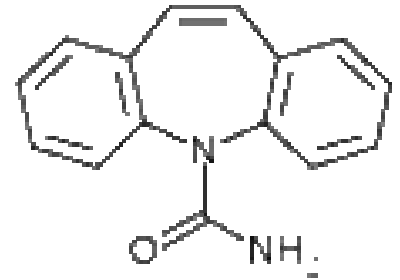
- Generalised
  - e.g. grand mal
  - loss of consciousness
  - absences
  - tonic-clonic seizures
- Partial
  - Jacksonian epilepsy
  - complex seizures

- **General considerations**
  - long-term treatment
  - therapeutic index
  - gradual dose titration
  - individual approach
  - monotherapy preferred
  - gradual withdrawal
  - TDM

- Interactions
  - enzyme inducers
  - competition
  - plasma protein binding
- Mechanism
  - use-dependent inhibition of channels

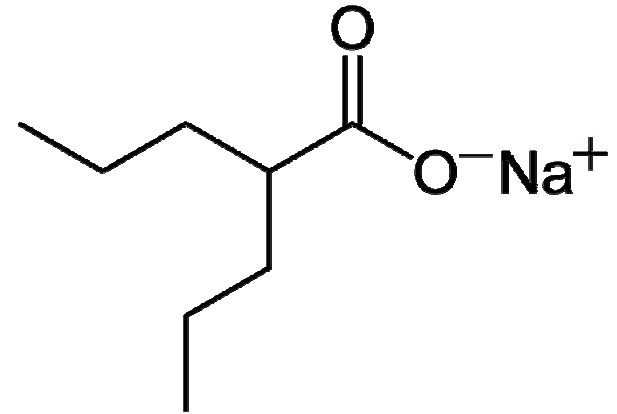
# First choice antiepileptics

- **Carbamazepine** (Tegretol®)
  - kinetics and dynamics
    - metabolised to epoxide
    - CYP inducer – half-life from 20 to 8
    - Na<sup>+</sup> channel inhibitor
  - indications
    - grand mal
    - partial seizures
    - neuropathic pain
  - side effects
    - sedation, vertigo, bone marrow suppression



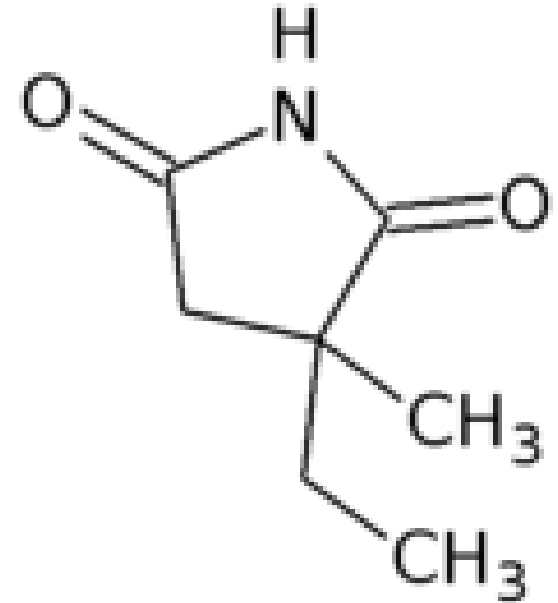
# First choice antiepileptics

- **Valproate** (Orlept<sup>®</sup>, Epilim<sup>®</sup>)
  - kinetics and dynamics
    - 95% protein binding
    - half-life 8-15 hours
    - Na<sup>+</sup> channel inhibitor (and Ca<sup>2+</sup>)
  - indications
    - wide spectrum
    - including absences
    - mood stabiliser
  - side effects
    - tremor, liver toxicity, hair loss, teratogenic



# First choice antiepileptics

- **Ethosuximide** (Zarontin<sup>®</sup>, Emeside<sup>®</sup>)
  - kinetics and dynamics
    - T-channel blocker ???
    - half-life 20 hours
  - indications
    - absences
  - side effects
    - ataxia, bone marrow suppression





# First choice antiepileptics

- Clonazepam (Rivotril®)
  - kinetics and dynamics
    - benzodiazepine (GABA<sub>A</sub>)
    - half-life 18-50 hours
  - indications
    - absences
    - epilepsy in children
  - side effects
    - ataxia, bone marrow suppression



# Reserve antiepileptics

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- **Phenytoin (Epanutin®)**
  - kinetics and dynamics
    - related to barbiturates
    - complicated kinetics
    - powerful inducer
    - protein binding
  - indications
    - wide spectrum
    - antiarrhythmic
  - side effects
    - sedation, psychotic symptoms, lupus, gingival hyperplasia

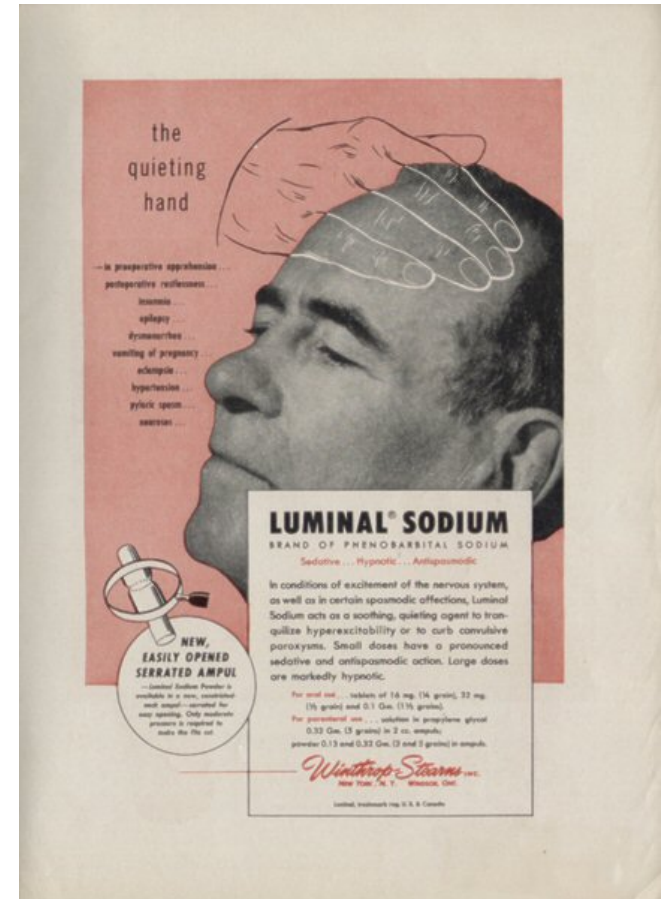


# Gum hyperplasia



# Reserve antiepileptics

- **Phenobarbital (Luminal®)**
  - kinetics and dynamics
    - powerful inducer
    - low protein binding
  - indications
    - oldest one still used
    - WHO essential drug list
  - side effects
    - sedation



## Reserve antiepileptics

- **Vigabatrin (Sabril®)**
  - kinetics and dynamics
    - inhibitor of GABA aminotransferase
    - half-life 2-4 hours
  - indications
    - severe forms of epilepsy
  - side effects
    - sedation, visual field reduction

# Reserve antiepileptics

- **Lamotrigine** (Lamictal®)
  - kinetics and dynamics
    - sodium channel inhibitor
    - glutamate release inhibition
  - indications
    - Lennox-Gastaut syndrome
    - combinations
  - side effects
    - skin adverse effects,



# Reserve antiepileptics

- **Levetiracetam (Keppra®)**
  - kinetics and dynamics
    - NMDA?
  - indications
    - can be now used in monotherapy
  - side effects
    - ataxia, skin adverse effects



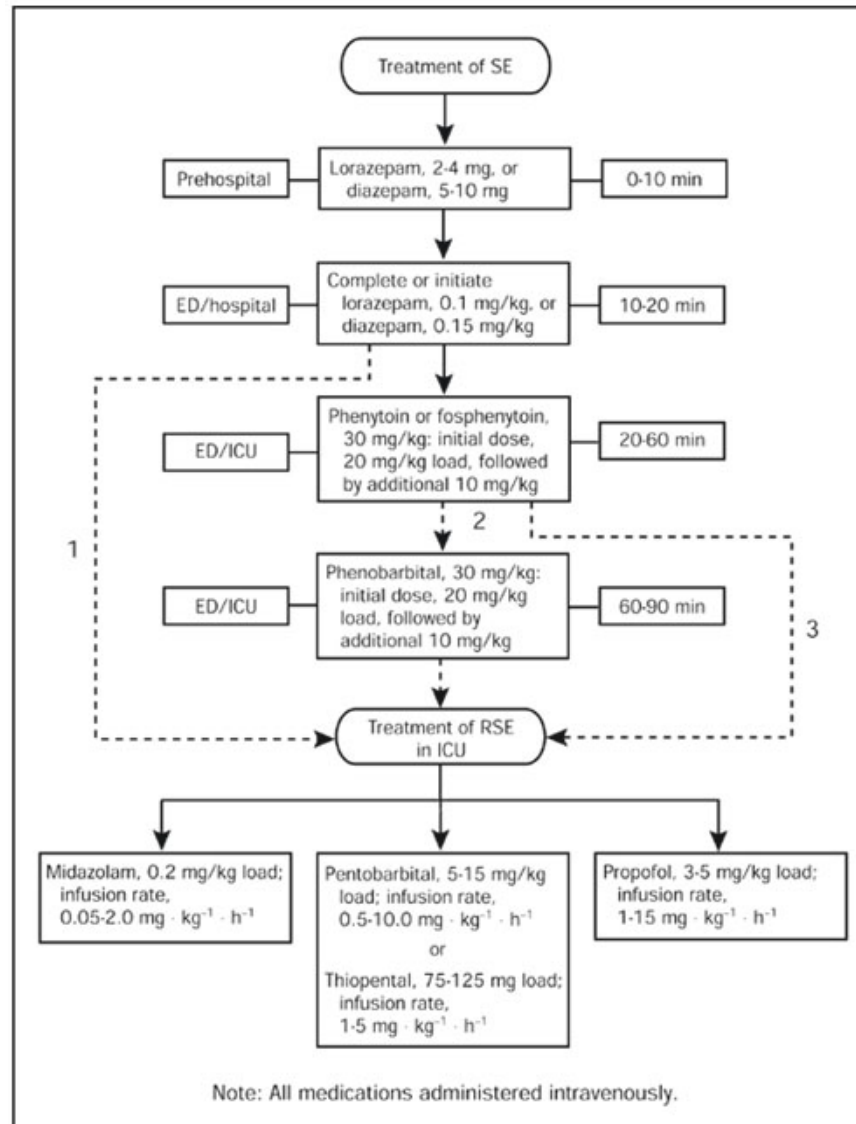


# Status epilepticus

- **Diazepam** (Valium<sup>®</sup>, Apaurin<sup>®</sup>)
  - 0,15-0,25 mg/kg
  - i.v., i.m., p.r., i.p.
  - risk of respiratory depression
- **Lorazepam** (Ativan<sup>®</sup>)
  - fast, safer
- **Paraldehyde** (Paral<sup>®</sup>)
  - does not cause resp. suppression
  - 30 % eliminated via lungs



# Status epilepticus



Thank you for you attention

thank you for your attention

Thank you for you attention

thank you for your attention

# An apology

that was a very bad joke