



Adult Epilepsy 101

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What is a seizure?

- A seizure is the result of a sudden disruption of orderly communication among nerve cells in the brain
- Some lay terms that have been used to describe a seizure are a “fit,” “attack,” or “spell”

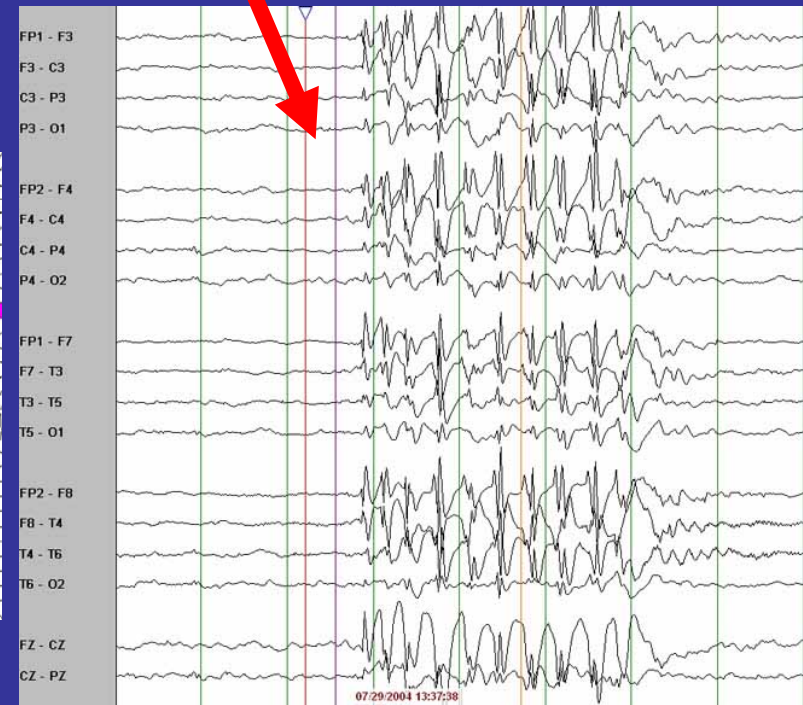
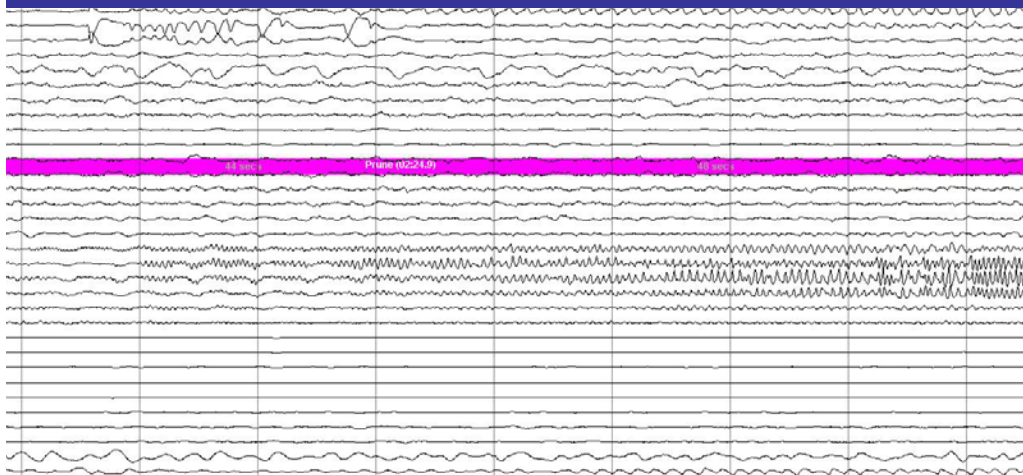
Two main flavors of that “sudden disruption”

Focal seizures

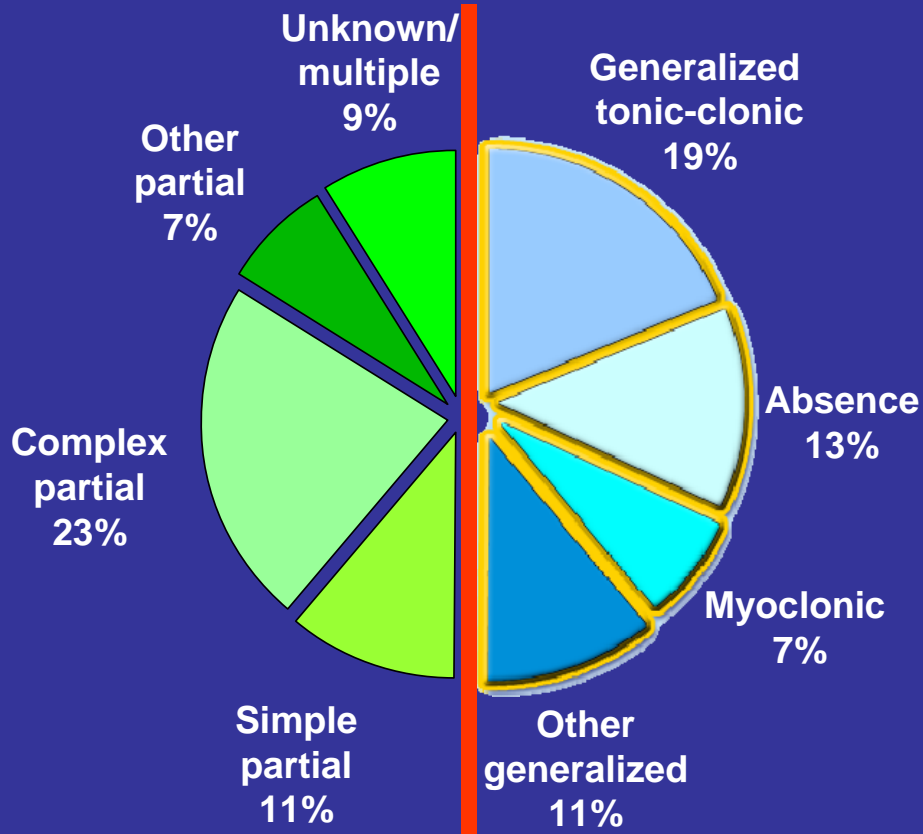
Seizures that originate in one specific area on one hemisphere of the brain, presents at any age

Generalized seizures

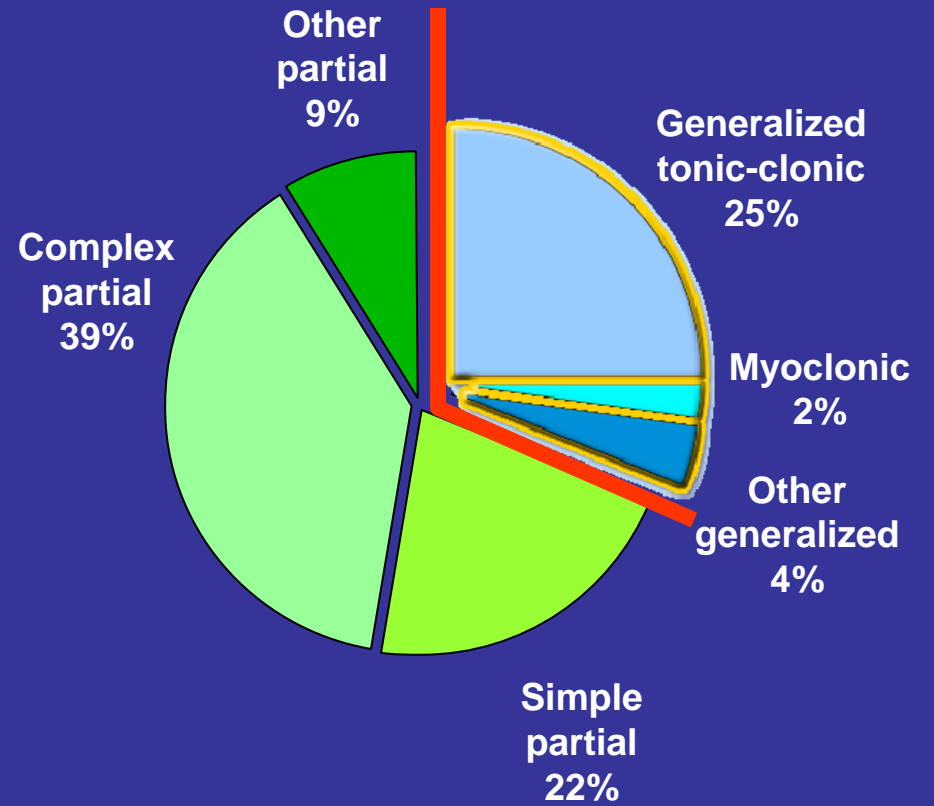
Seizures that originate diffusely, involving both hemispheres of the brain, often genetic, presents mainly in adolescence or childhood



Pediatric Patients <15 Years



Adults 35–64 Years



Hauser WA. *Epilepsia*. 1992;33(suppl 4):S6–S14.

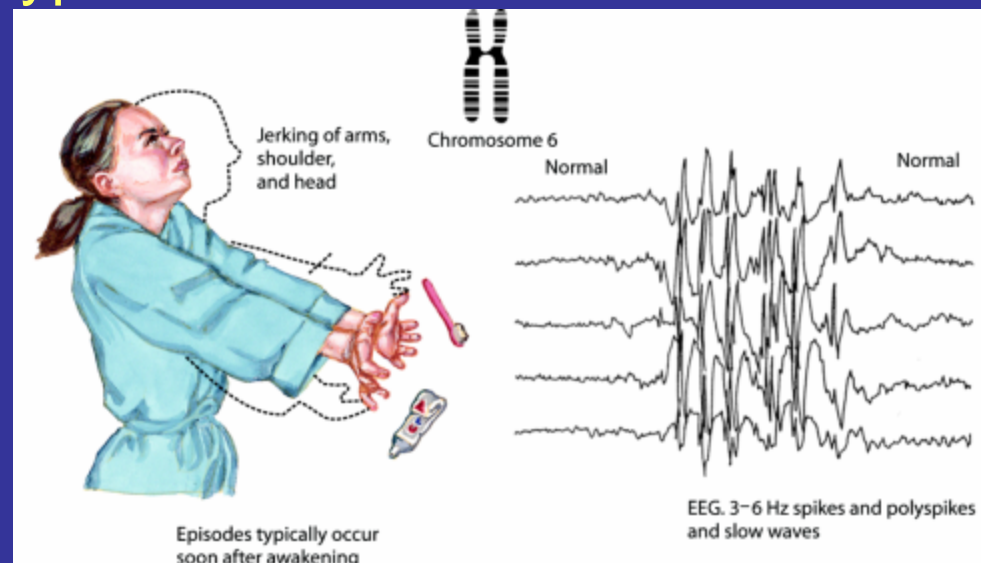


Atonic Seizures

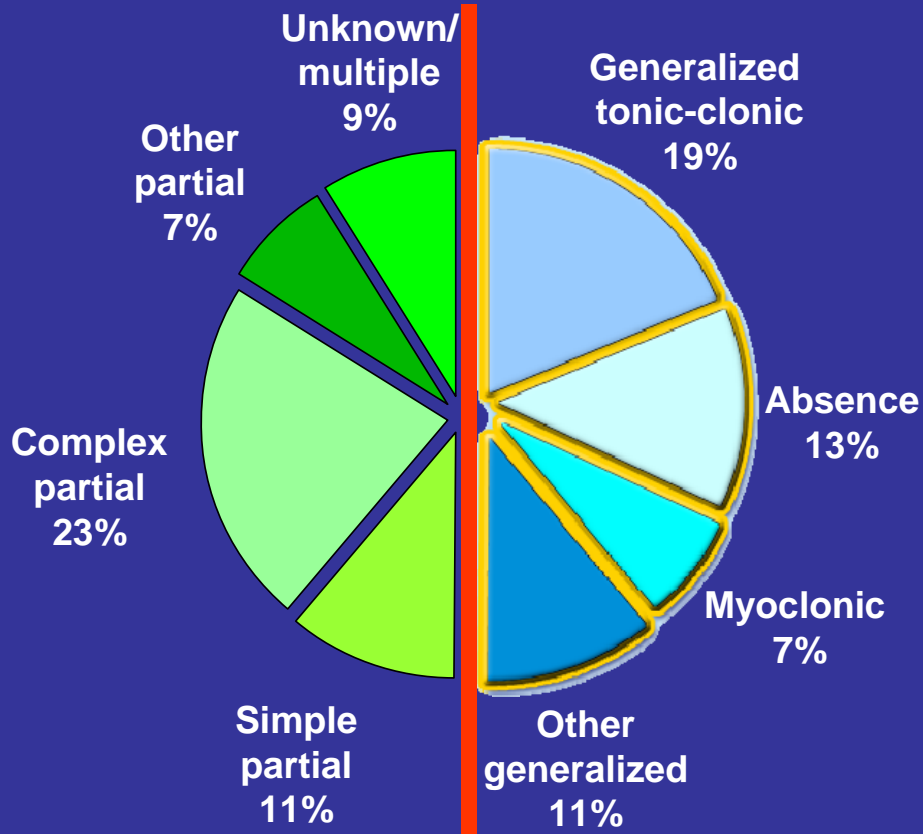
- Sometimes called “drop attacks”
- Associated with a sudden loss of muscle tone

Myoclonic Seizures

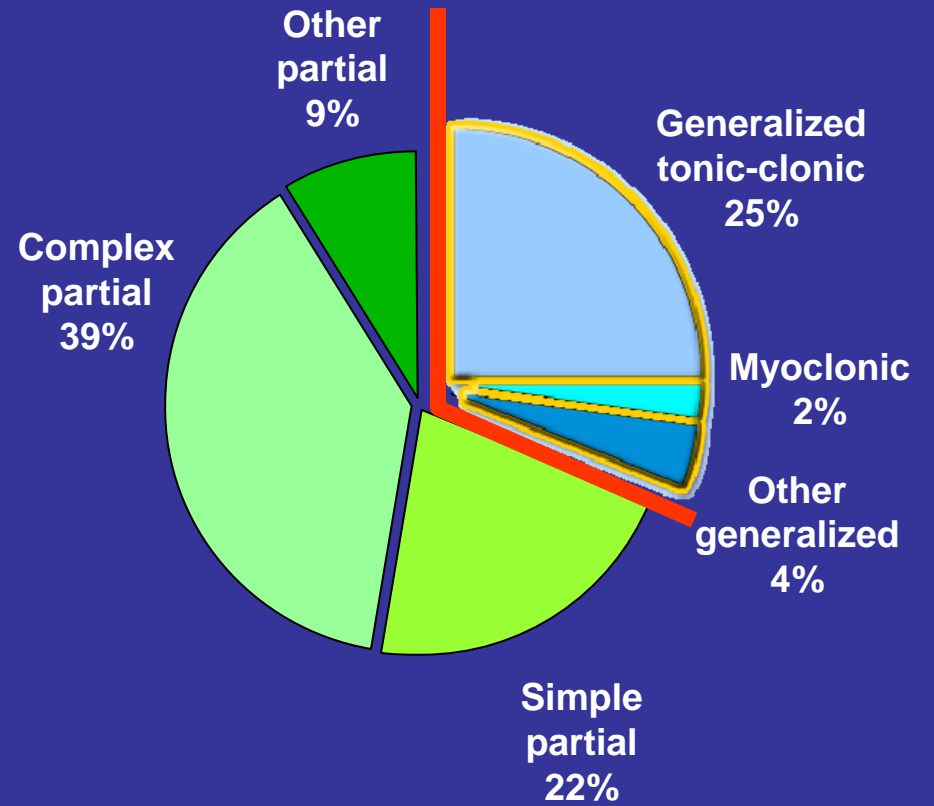
- Sudden muscle jerks
- Often occur when falling asleep or waking up
- Can occur with other types of seizures



Pediatric Patients <15 Years

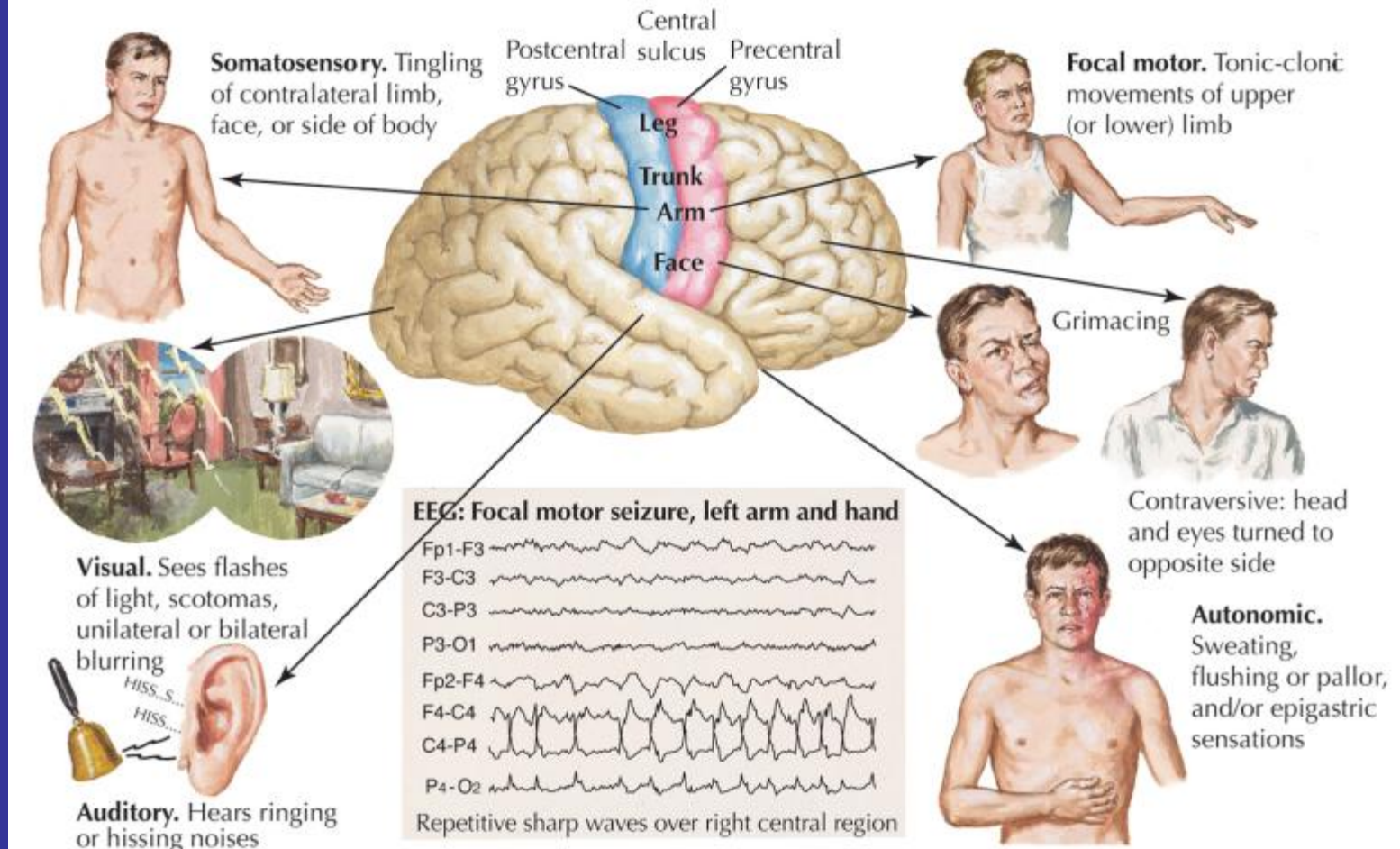


Adults 35–64 Years



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Simple Partial Seizures

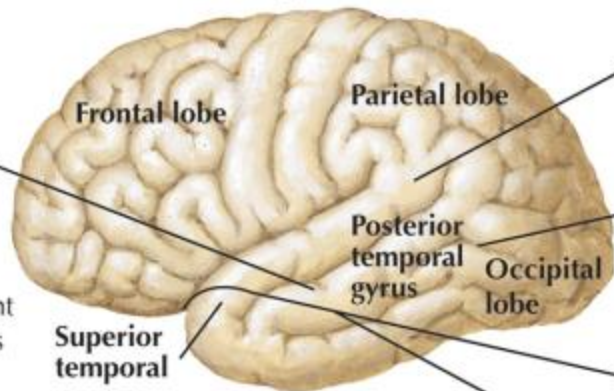


Impairment of consciousness:
cognitive, affective symptoms



Dreamy state; blank, vacant expression; déjà vu; jamais vu; or fear

Complex Partial Seizures



Formed auditory hallucinations. Hears music etc



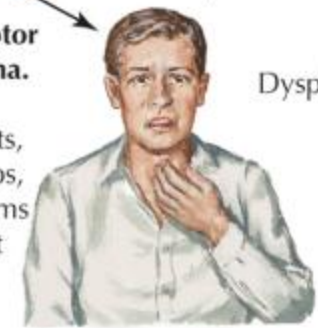
Formed visual hallucinations. Sees house, trees that are not there



Bad or unusual smell

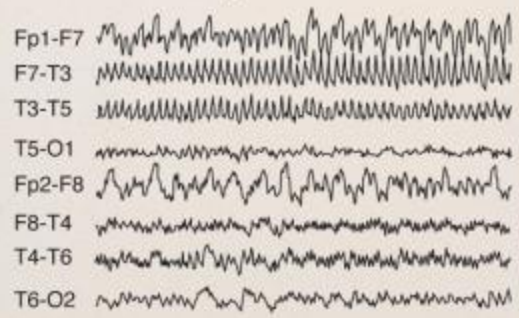
Olfactory hallucinations

Psychomotor phenomena. Chewing movements, wetting lips, automatisms (picking at clothing)



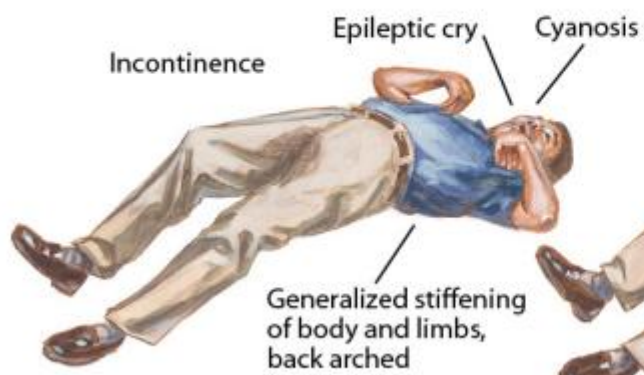
Dysphasia

EEG: left temporal lobe seizure

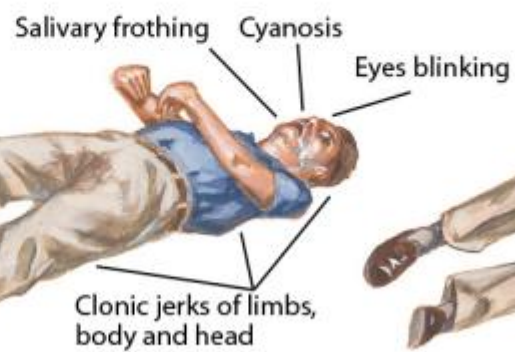


Repetitive sharp waves over left temporal region

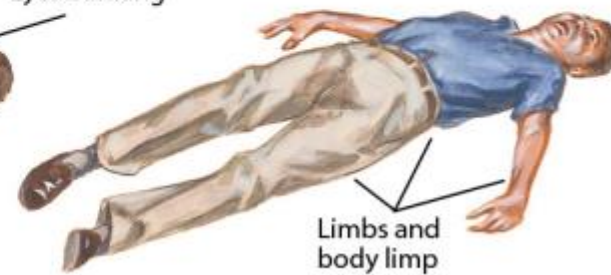
A. Tonic phase



B. Clonic phase



C. Post-ictal confusional fatigue



What causes a seizure?

What prevents a seizure?

Unknown— epilepsy for which a specific cause can neither be identified nor is presumed to exist, occurring in a person without other brain abnormalities

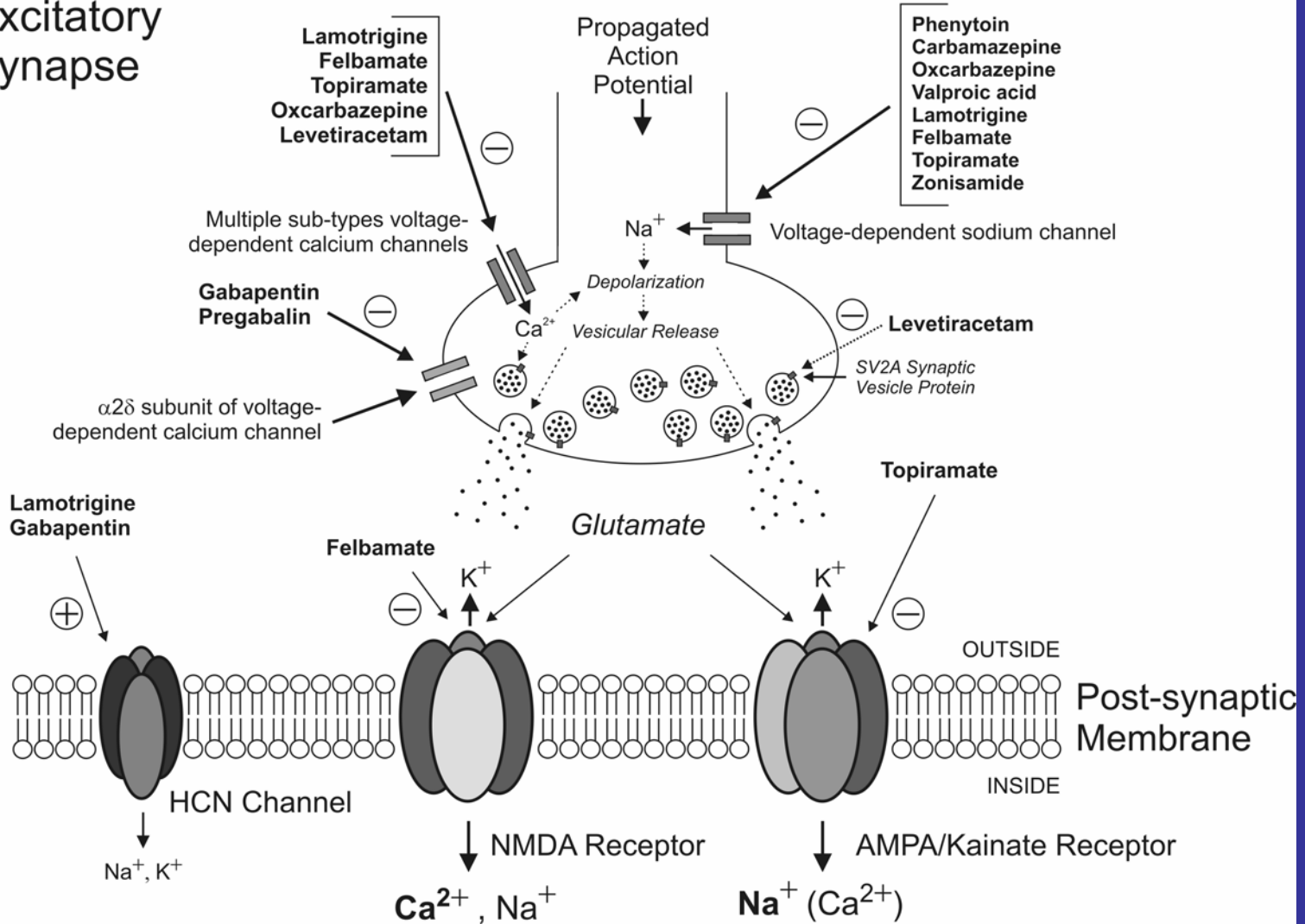
- 7 out of 10 people with epilepsy

Structural/Metabolic— epilepsy for which an underlying cause has been identified Usually an injury or structural abnormality in the brain

Genetic: Specific genetic epilepsy identified or associated with chromosomal developmental encephalopathies

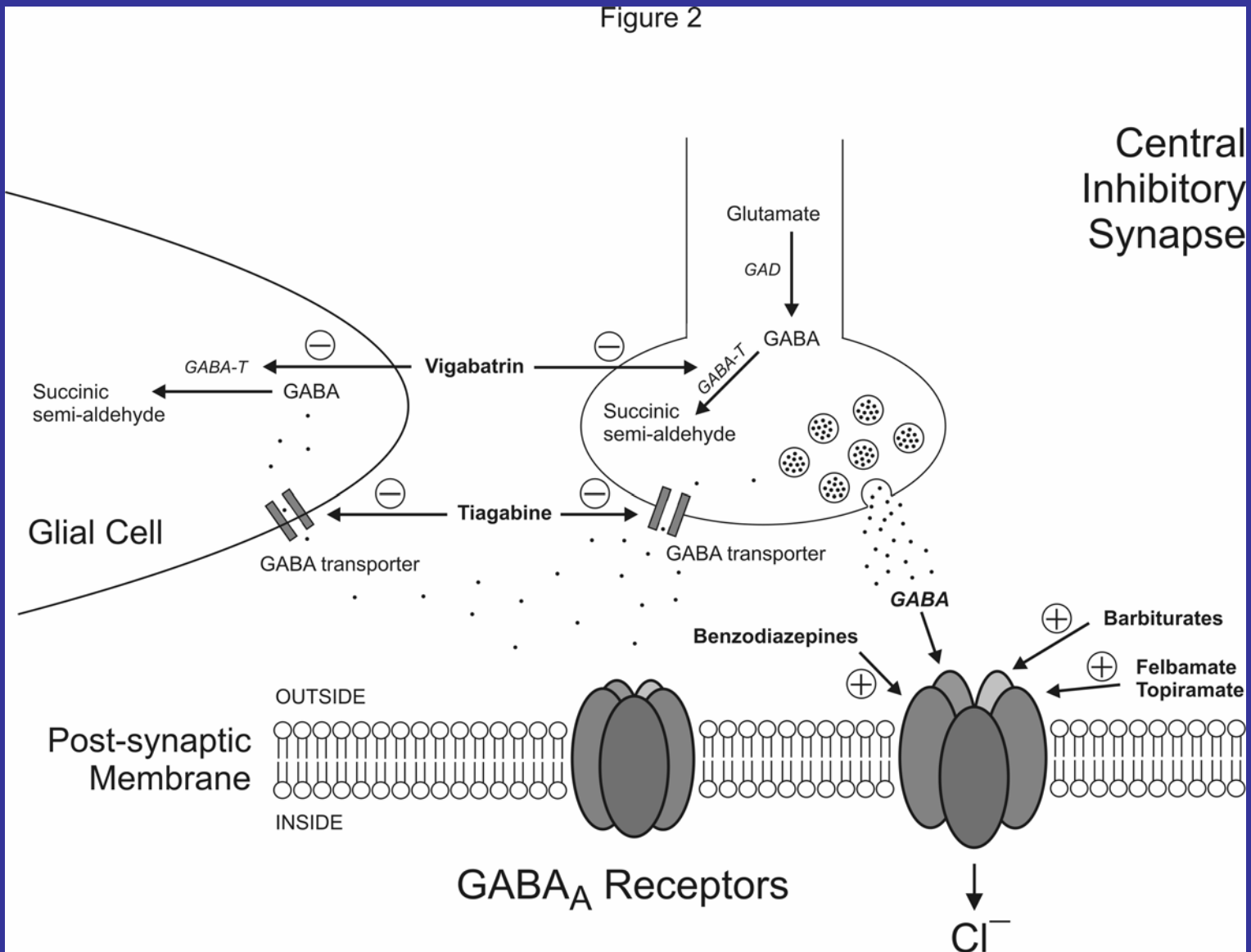
Figure 1

Central Excitatory Synapse



Anderson GD, Rho, JM. Pharmacodynamic Interactions of Antiepileptic Drugs. In: Shorvon S, Pedley T. The Epilepsies 3. Elsevier Inc, Burlington, 2009: 277-293.

Figure 2



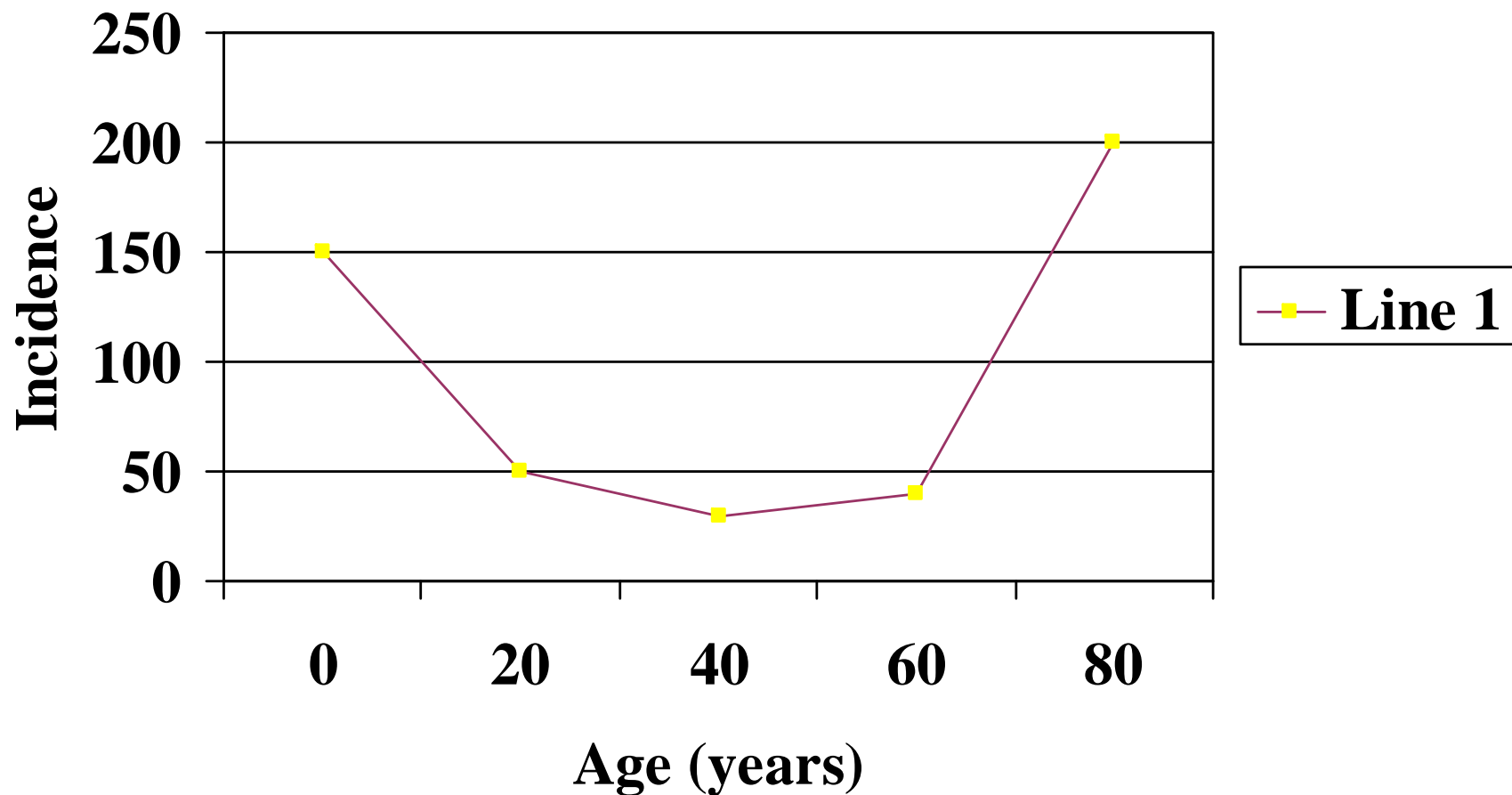
Anderson GD, Rho, JM. Pharmacodynamic Interactions of Antiepileptic Drugs. In: Shorvon S, Pedley T. The Epilepsies 3. Elsevier Inc, Burlington, 2009: 277-293.

Q: What is Epilepsy?



A: More than one seizure...

Age-adjusted Incidence of Epilepsy

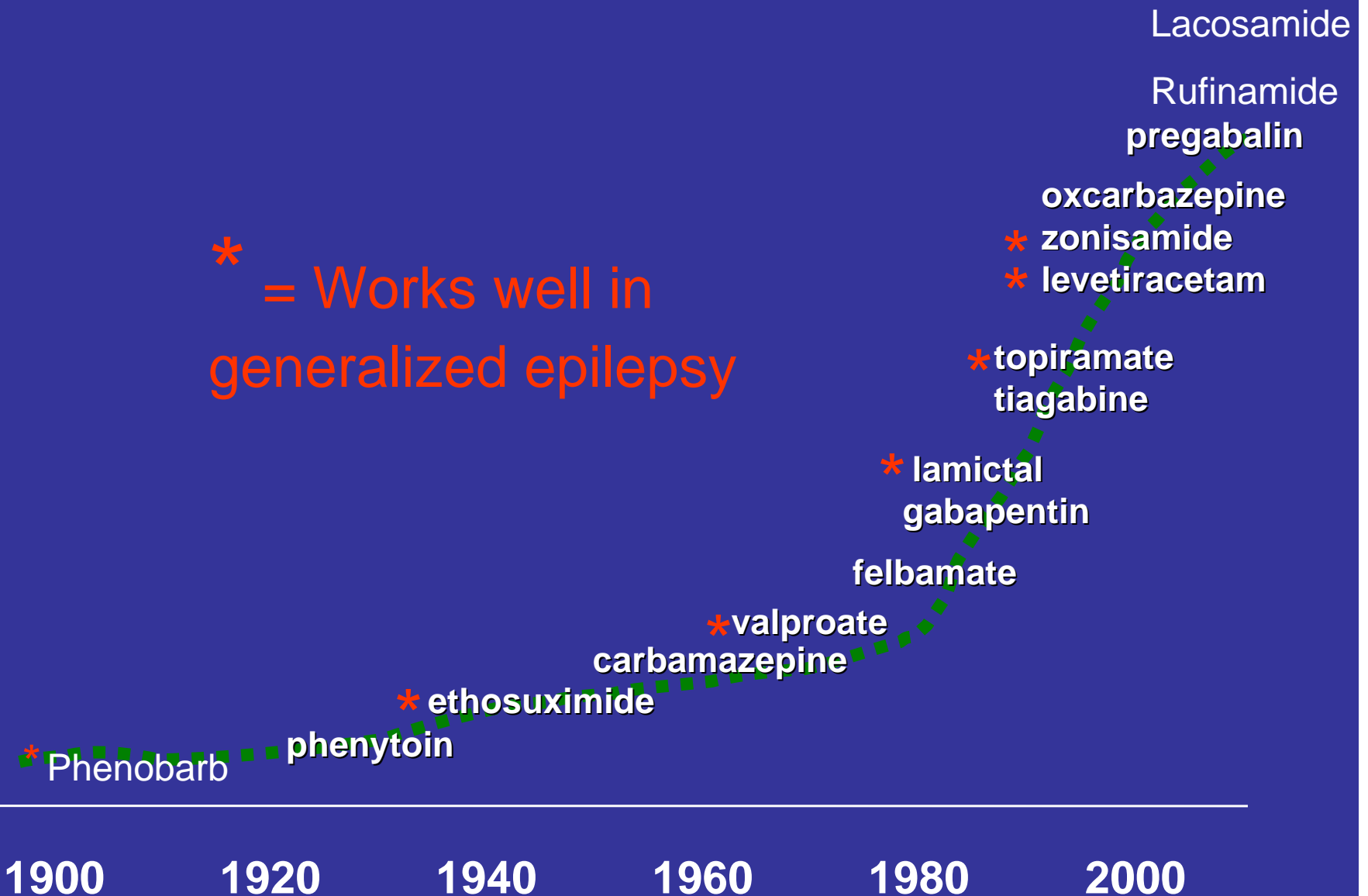


From: A. Hauser. Incidence and Prevalence. In *Epilepsy: A Comprehensive Textbook*. Ed. Engel and Pedley

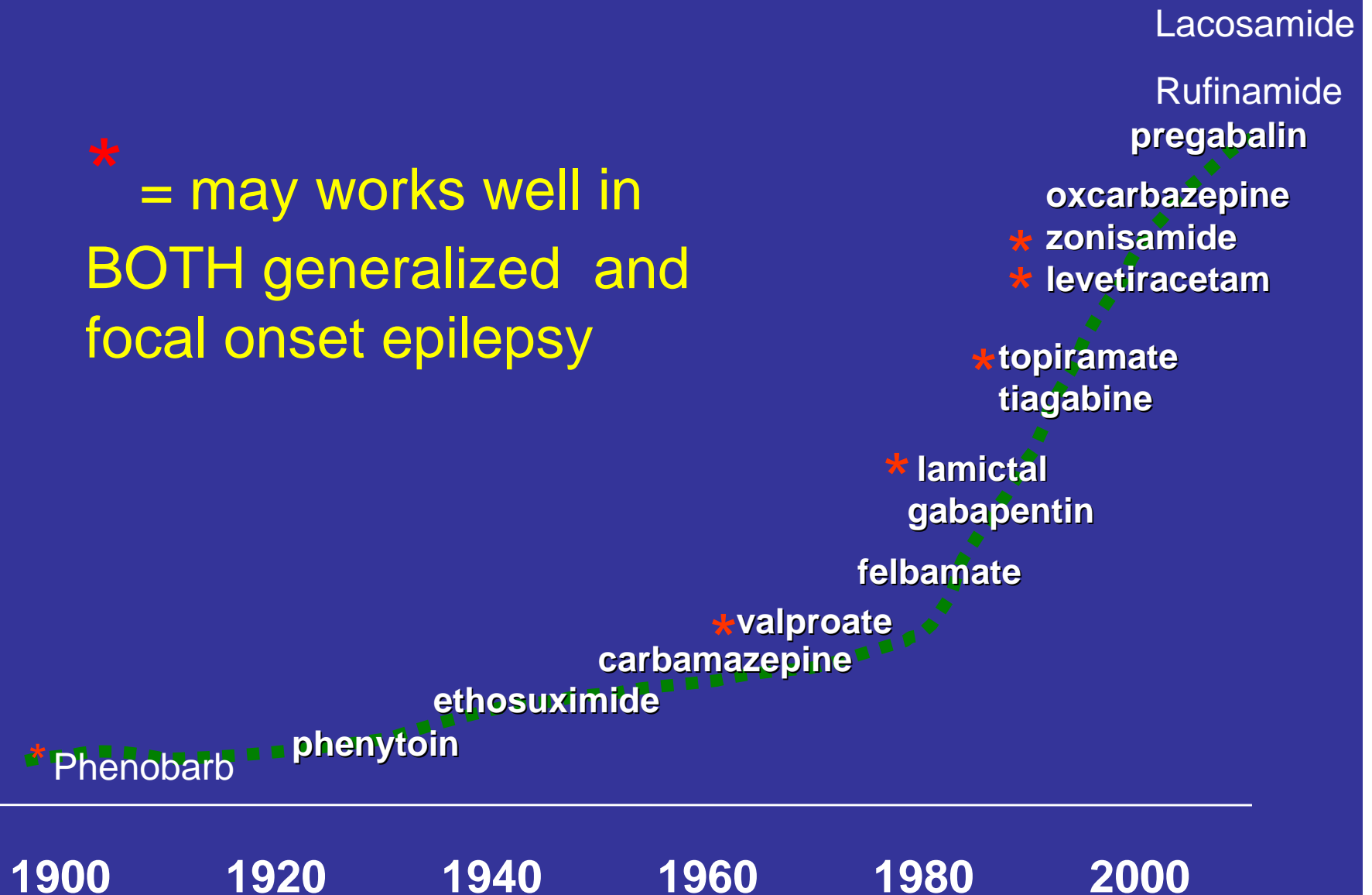
How do you treat Epilepsy?

- Education
- Medication
- Surgery
 - Resective
 - Disruptive
 - Stimulator based

* = Works well in
generalized epilepsy



* = may work well in
BOTH generalized and
focal onset epilepsy



Other ideas?

- The doable diets
- If there is a cause, address and prevent that from happening again
 - Substances
 - Strokes
 - Trauma
 - Stresses ie shift work

Other ideas?

- Eliminate the contributors
 - Sleep cycles and sleep apnea
 - Medications
 - Shift adjustments
 - Dosing meds based on seizure time
 - Choosing meds based on side effects and mechanism of action
 - Epilepsy specialists