

Epilepsy

Alaa Hamza Hermis



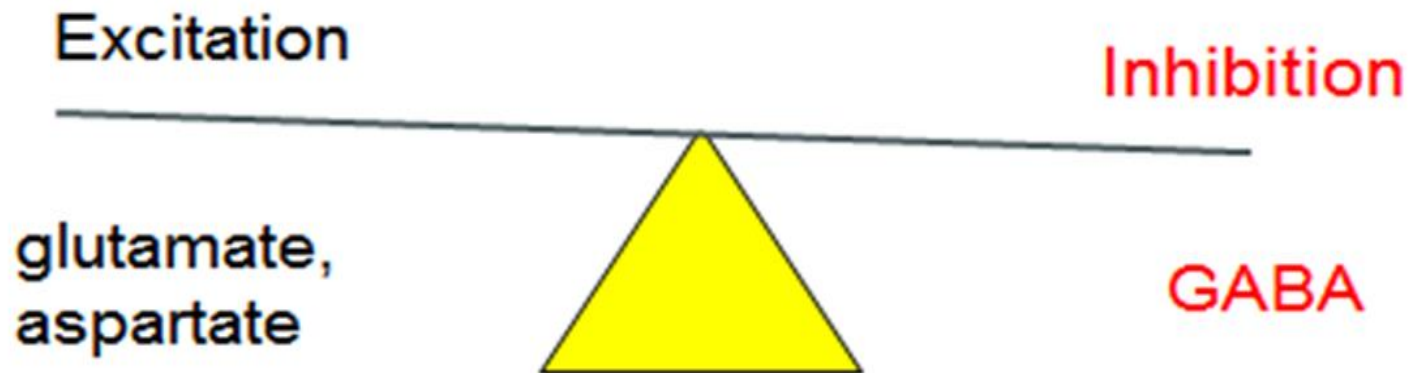
Definition

Epilepsy is a central nervous system (neurological disorder) in which brain activity becomes abnormal, causing seizures or periods of unusual behavior, sensations, and sometimes loss of awareness



Pathophysiology

Normal CNS Function



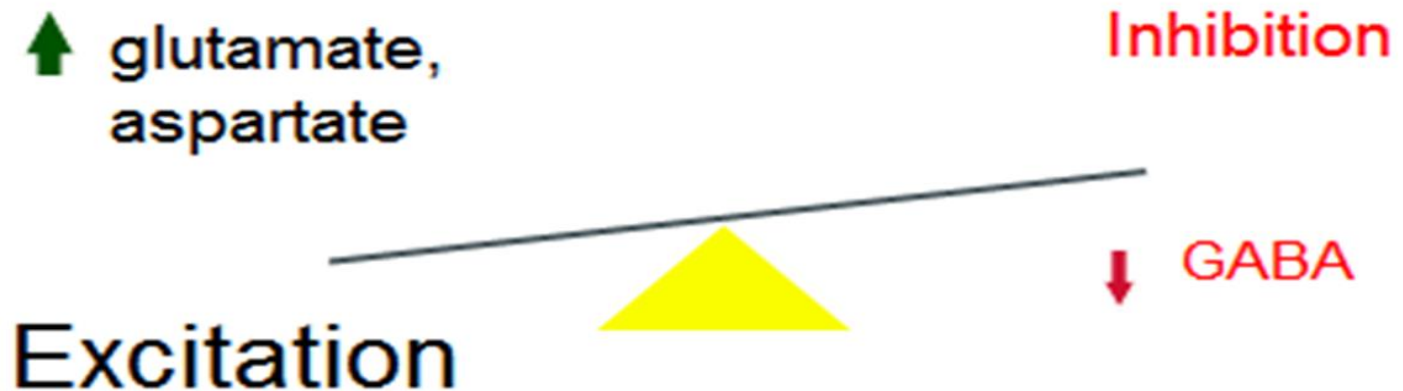
Pathophysiology

Cellular Mechanisms of Seizure Generation

- ♦ Excitation (too much)
 - Ionic—inward Na^+ , Ca^{++} currents
 - Neurotransmitter—glutamate, aspartate
- ♦ Inhibition (too little)
 - Ionic—inward Cl^- , outward K^+ currents
 - Neurotransmitter—GABA

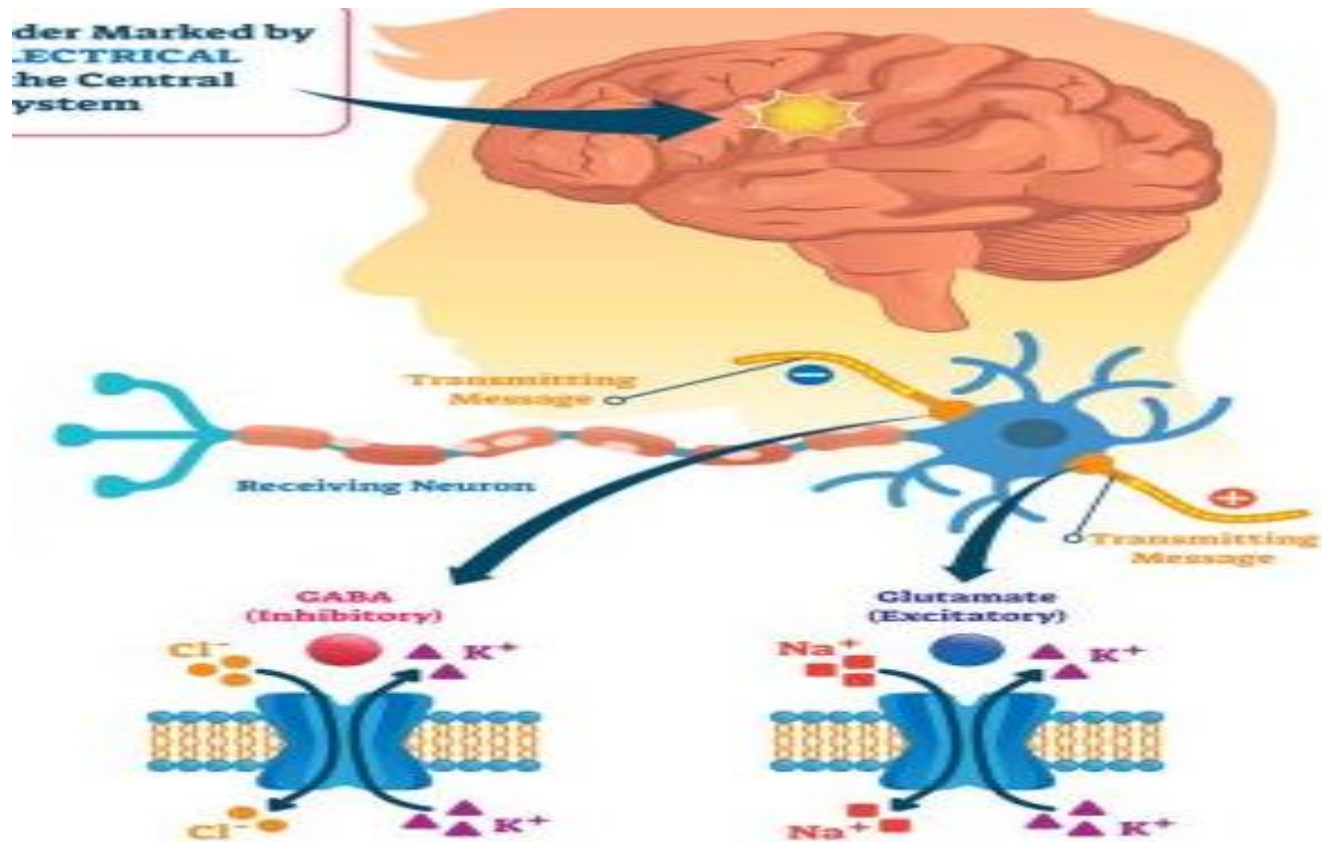
Pathophysiology

Hyperexcitability reflects both increased excitation and decreased inhibition



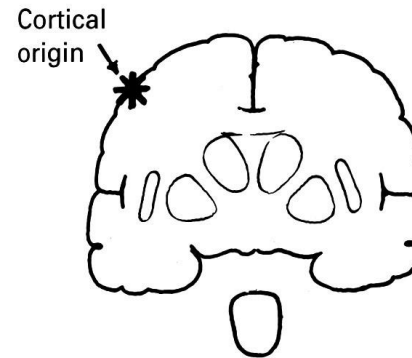
Modified from White, 2001

Pathophysiology

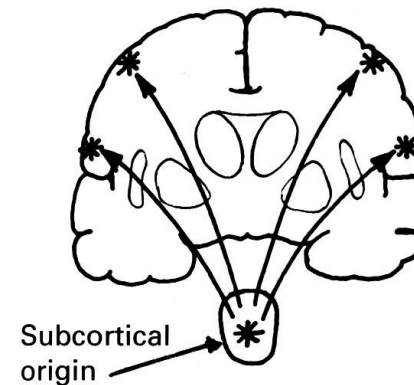


Classification

- **Focal seizures** – *account for 80% of adult epilepsies*
 - Simple partial seizures
 - Complex partial seizures



-
- **Generalised seizures**



Absence

- brief loss of consciousness
- rapid eye-blinking which lasts for 3-5 second
- It occurs at age 3-5 years a

Absence Seizures (Petit Mal)



Between seizures patient normal



Seizure: vacant stare, eyes roll upward, eyelids flutter (3/sec), cessation of activity, lack of response

Sudden & brief cessation in activity with rapid return to normality, may be frequent, 3Hz spike and wave

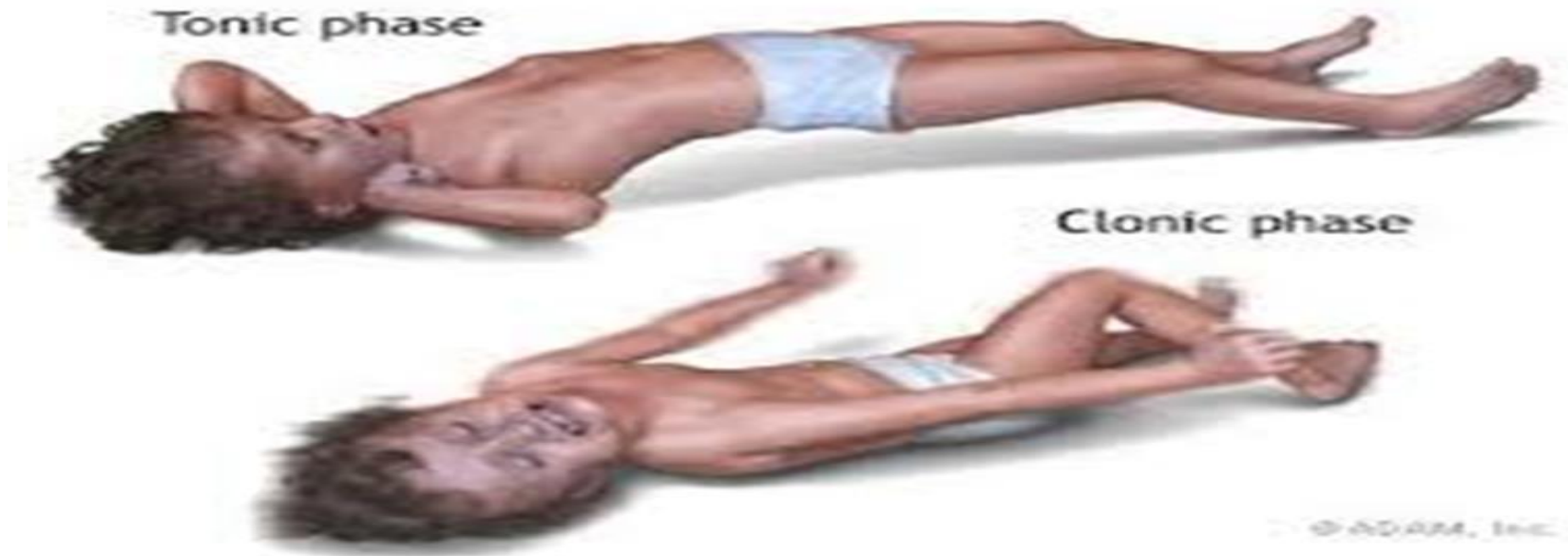
TONIC - CLONIC

➤ Tonic

- continuous contraction
- muscle stiffness

➤ Clonic

- rapid contraction and relaxation



Atonic seizures

- Sudden reduction in muscle tone
- Atonic head drop

ATONIC SEIZURE



Causes

1. Congenital anomalies or genetic disorders with brain malformations,
2. Brain infections such as meningitis, encephalitis
3. Hormonal changes
4. Alcohol and drugs of abuse
5. Hyperventilation
6. Cerebrovascular disease
7. Metabolic and toxic conditions
8. Brain tumor

Symptoms of Intractable Epilepsy



Staring into space



Convulsions



Stiff muscles



Blackouts



Falling



Loss of bladder
or bowel control



Biting the tongue

Sings and symptoms

1. Uncontrollable jerking movements of the arms and legs.
2. Stiffening of the body.
3. Loss of consciousness or awareness.
4. Breathing problems.
5. Loss of bowel or bladder control.