Epilepsy is a common neurological abnormality that affects about 0.5-1% of the population. Epilepsy is a chronic disorder characterised by recurrent seizures often accompanied by episodes of unconsciousness and/or amnesia. It is a disorder of brain function

Seizure indicates a transient alteration in behaviour because of disordered firing of groups of brain neurons. Such discharges may spread to other parts of the brain to different extents. In most of the cases, the cause is not known. It may be due to various reasons including trauma during birth process, head injury, childhood fevers, brain tumours, meningitis or drug induced.

Seizures have been classified into partial and generalised seizures.

Partial seizures account for about 60% of all epilepsies and begin focally in the cortex, i.e. they involve focal brain regions. It is classified as simple partial in which there is no impairment of consciousness and complex partial seizures with impairment of consciousness.

Simple partial seizures There is no impairment of consciousness. The manifestation depends on the site in the cortex that is activated by the seizure, e.g. if the motor cortex representing the right thumb is involved. This type of seizures lasts for 20-60 seconds.

Complex partial seizures are the most common types of epilepsy.They are characterised by purposeless movements like lipsmaking, hand wringing or swallowing that lasts for 30 sec to 2 minutes. Consciousness is impaired and may be preceded by an *aura*.

Partial with secondarily generalised seizures
Simple or complex partial seizure may evolve into a generalised seizure.

Generalised seizures Account for 40% of all epilepsies and is usually of genetic aetiology. Generalised seizures affect the whole brain.They may be:

Absence seizures (petit mal) In this, there is a sudden onset of impaired consciousness associated with staring. The person stops all on-going activities and the episode lasts for a brief period usually less than 30 sec.

Myoclonic seizures involve a sudden, brief, shock like contraction of muscles. It may be limited to a part of the body or may affect the whole body.
Atonic seizures (Drop attacks) are characterized by sudden loss of postural tone and the head may drop for a few seconds or the person may drop to the ground for no obvious reasons.

Tonic-clonic seizures (Grand mal epilepsy) is characterised by sudden loss of consciousness followed by sustained contraction of muscles throughout the body

(known as tonic phase), lasting for 1 minute and then, a series of jerks, i.e. periods of muscle contraction alternating with periods of relaxation (clonic phase) lasting for 2-4 minutes follow.
Status epilepticus is continuous or recurrent seizures of any variety without recovery of consciousness between the attacks.

CLASSIFICATION

Hydantoins	Phenytoin, mephenytoin
Barbiturates	Phenobarbitone, mephobarbitone
Deoxybarbiturate	Primidone
Iminostilbene	Carbamazepine
Succinimide	Ethosuximide
GABA transaminase *inhibitors*	Valproic acid, vigabatrin
Benzodiazepines	Diazepam, clonazepam, lorazepam, clorazepate
Newer agents	
GABA analogues	Gabapentin,vigabatrin, tiagabine.
Others	Lamotrigine, levetiracetam, felbamate, topiramate, zonisamide.

Phenytoin

Pharmacological Actions

CNS Phenytoin has good antiseizure activity and is one of the most effective drugs against generalised tonic-clonic seizures and partial seizures. It brings about its effects without causing general depression of the CNS.

Adverse Effects

1. Nausea, vomiting, epigastric pain, anorexia.
2. Nystagmus, diplopia, ataxia are common.
3. Gingival hyperplasia–Long-term administration of phenytoin can result in gingival hyperplasia particularly in children with poor oral hygiene.
4. Peripheral neuropathy.
5. Endocrine
i. Hirsutism, acne, coarsening of facial features.
ii. Hyperglycaemia – as phenytoin inhibits insulin release.
iii. decreae release of ADH.
iv. Osteomalacia, hypocalcaemia due to altered metabolism of vitamin D andinhibition of intestinal absorption of Ca^{++}.
6. Hypersensitivity–rashes, hepatic necrosis, lym-phadenopathy and neutropenia. Idiosyncratic reactions including hepatic necrosis and systemic lupus erythematosis,
.
7. Megaloblastic anaemia–because phenytoin decreases absorption and increases excretion of folates.

8. Teratogenicity–

Uses

1. Generalised tonic-clonic seizures and partial seizures (not useful in absence seizures