



## SNS COLLEGE OF PHARMACY AND HEALTH SCIENCES

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### ANTICONVULSANTS

Anticonvulsants are also known as **antiepileptic** or **anti-seizure** drugs.

Anticonvulsants **suppress the rapid and excessive firing of neurons** which starts a seizure.

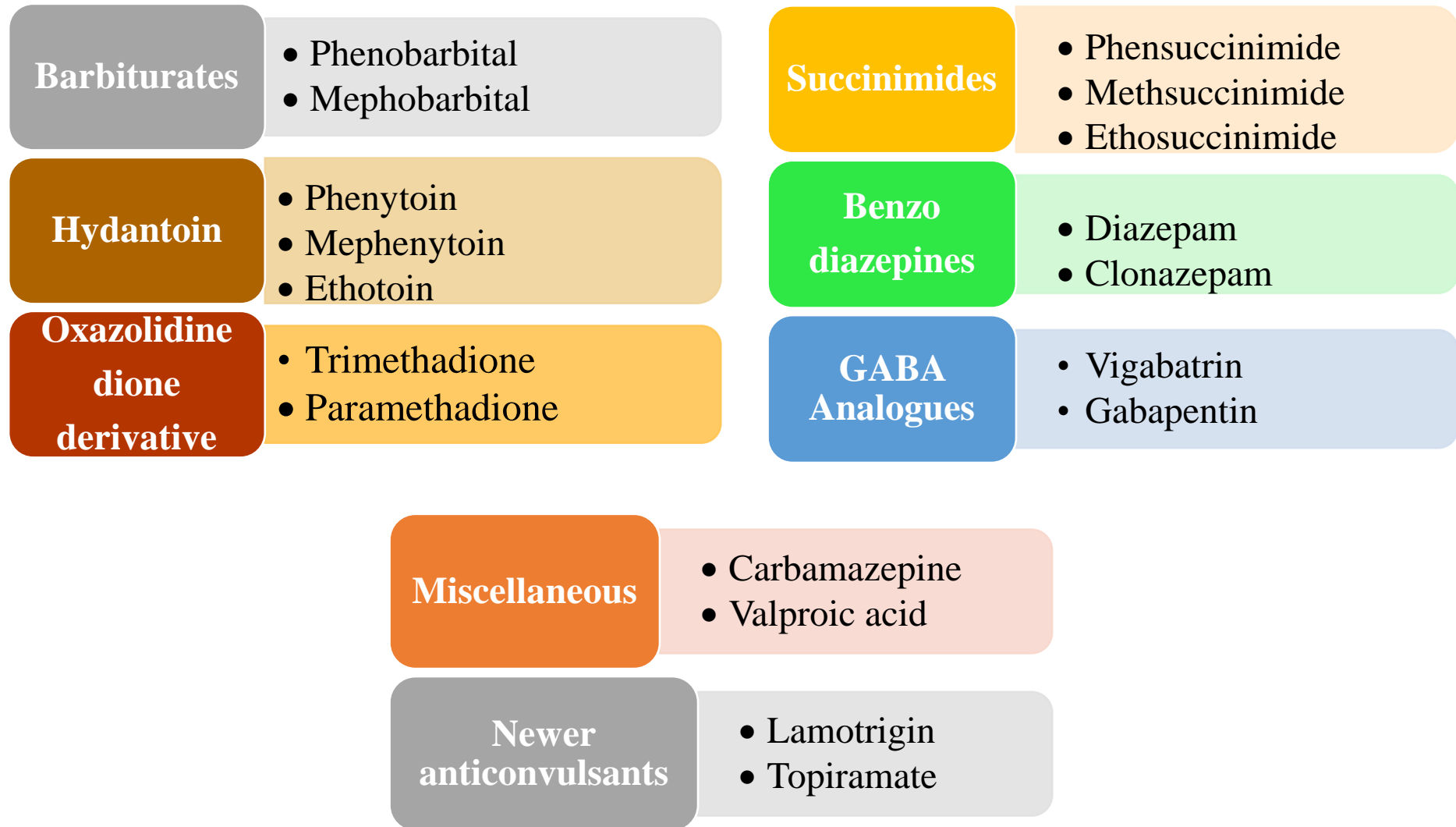
They are used for adequately **controlling and managing CNS disorders** manifested by recurrent transient attacks of disturbed brain function, producing **motor**(convulsive), **sensory**(seizure) and **psychic** sequence of events.

**Or**

Anticonvulsants are **medication** used to **control or prevent seizures (convulsions)** or **stop an ongoing series of seizures**.



## CLASSIFICATION:

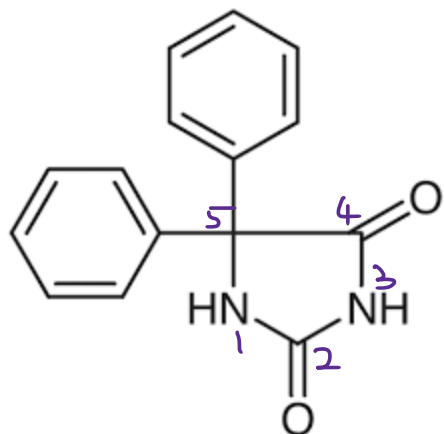


DRUG	MECHANISM OF ACTION	USES	STORAGE CONDITIONS	TYPES OF FORMULATIONS	BRAND NAMES
<b>Phenytoin</b> - Imidazolidine dione/ Hydantoin derivative	Enhances Na <sup>+</sup> channel inactivation	<ul style="list-style-type: none"> <li>- Status epilepticus</li> <li>- Myotonia</li> <li>- Trigeminal neuralgia</li> <li>- Cardiac arrhythmia</li> <li>- Generalized tonic-clonic seizures</li> <li>- Complex partial seizures</li> </ul>	<ul style="list-style-type: none"> <li>- Room temperature</li> <li>- Store in tightly closed container protected from light.</li> </ul>	<ul style="list-style-type: none"> <li>○ Capsules</li> <li>○ Tablets</li> <li>○ Oral suspension</li> <li>○ Injection</li> </ul>	<ul style="list-style-type: none"> <li>○ Phenytoin sodium</li> <li>○ Dilantin</li> <li>○ Eptoin</li> </ul>
<b>Carbamazepine</b> Dibenz azepine derivative	Enhances Na <sup>+</sup> channel inactivation	<ul style="list-style-type: none"> <li>- Epilepsy</li> <li>- Pain related to true trigeminal neuralgia</li> <li>- Tonic clonic seizure</li> <li>- Simple partial seizure</li> </ul>	<ul style="list-style-type: none"> <li>- Room temperature</li> <li>- Well closed container protected from moisture.</li> </ul>	<ul style="list-style-type: none"> <li>○ Capsules</li> <li>○ Tablets</li> <li>○ Oral suspension</li> <li>○ Mixture</li> </ul>	<ul style="list-style-type: none"> <li>○ Carbamazepine</li> <li>○ Chewtabs</li> <li>○ Carbatol</li> <li>○ Carbamazepine CR</li> </ul>
<b>Clonazepam</b> Benzodiazepine derivative	Effects of GABA are potentiated by allosteric interactions between central BDZ & GABA receptors	<ul style="list-style-type: none"> <li>- Myotonic, Myoclonic, Absence &amp; Petitmal variant seizures</li> <li>- Mania</li> </ul>	<ul style="list-style-type: none"> <li>- 15-30°C</li> <li>- Protected from light</li> </ul>	<ul style="list-style-type: none"> <li>○ Tablet</li> <li>○ Solution</li> </ul>	<ul style="list-style-type: none"> <li>○ Klonopin</li> <li>○ Rivotril</li> <li>○ Clonapam</li> <li>○ Clonapax</li> </ul>

<b>Valproic acid</b> - Fatty acid - 2 propyl pentanoic acid	Valproate ions bind and inhibit GABA transaminase enzyme and increases the concentration of GABA in brain	- Mania, Absence, Tonic-clonic & Complex partial seizure - Prophylaxis for migraine headaches.	- 15-30°C - Air tight containers - Protect from moisture.	○ Capsule ○ Oral solution ○ Injection ○ Extended release tablet	○ Valproate sodium ○ Depacon ○ Valprol-CR ○ Valparin ○ Epival
<b>Gabapentin</b> - GABA Analogue - Cyclohexane	Interact with Voltage sensitive Ca <sup>2+</sup> channels and increases synaptic concentration of GABA	- Partial seizure - Peripheral neuropathic pain	- At 4°C-stable for 6 days - Tightly closed container - Protected from moisture	○ Capsule ○ Solution ○ Tablet ○ Suspension	○ Gabarone ○ Neurontin ○ Gabapin ○ Gabantin ○ Gralise
<b>Topiramate</b> - Newer anticonvulsant	- Stimulates GABA-A receptor activity at brain non BDZ receptor sites	- Seizure - Migraine - Mood disorder	- Room temperature - Protected from light	○ Tablet ○ Capsule	○ Topamax ○ Topamax sprinkle ○ Topex ○ Topamate

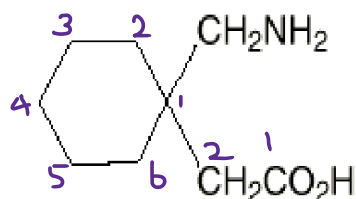
<b>Vigabatrin</b> - GABA Analogue	GABA Transaminase inhibitor	- Refractory complex partial seizure - Infantile spasms	- Oral syringes: 20-25°C - Powder: Room temperature	○ Tablet ○ Powder	○ Vigadrone ○ Sabril
<b>Lamotrigine</b> - Phenyl triazine derivative	Enhances Na <sup>+</sup> channel inactivation	- Epileptic seizure - Mania and hypomania - Depression	- Room temperature - Protected from moisture	○ Tablet	○ Lamictal

Phenytoin



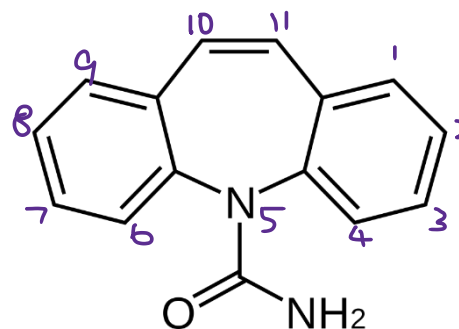
5,5- diphenyl imidazolidine  
-2,4-dione

Gabapentin



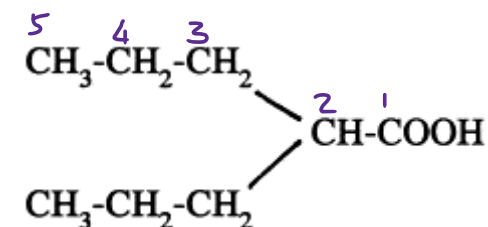
2- [1- (Amino methyl)  
cyclohexyl] acetic acid

Carbamazepine



5H-dibenzo [b,f] azepine-  
5 -carboxamide

Valproic acid



2-propyl pentanoic acid