Valproic Acid

Valproic acid (Depakote), or valproate, is an anticonvulsant and mood-stabilizing drug that works by increasing GABA concentration and blocking Na⁺channels. It is mainly indicated for epilepsy, bipolar disorder, and migraine prophylaxis. This drug increases levels of the neurotransmitter GABA by inhibiting the enzyme GABA transaminase, which acts to break down GABA. Also, valproic acid decreases repetitive neuronal firing by blocking voltage-gated Na⁺channels, inactivating them. This medication is known for causing GI distress, as well as being hepatotoxic and sometimes leading to pancreatitis. Valproic acid is contraindicated in pregnant patients, as it is teratogenic and a folate antagonist, and can lead to neural tube defects (spina bifida).



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Indications

First Line Tonic-Clonic Seizure Treatment
First-place Tonic-clown Caesar
Valproic acid is a first line drug for tonic-clonic seizures and can also be used for absence, myoclonic and partial seizure treatment.

Bipolar Disorder
Bi-polar-bear
In addition to treating seizures, valproic acid can be used as another treatment option for manic episodes found in bipolar disorder.

Migraine Prophylaxis
Mind-rain with Purple-axes
Valproic acid may also be used for prophylaxis of migraine headaches.

Mechanism of Action

Increases GABA Concentration
Up-arrow GABA-goose
Valproic acid increases GABA concentration by inhibiting GABA transaminase, an enzyme which acts to break down GABA.

Blocks Voltage-Gated Na+ Channels
Block-guy blocking Electric-gate Salt-shaker Channel
This drug also works by suppressing repetitive neuronal activity through increased Na⁺channel inactivation; blocking and preventing Na⁺influx through fast channels.

Side Effect

GI Distress
GI with Flare-gun
Adverse effects of valproic acid include GI distress, pancreatitis, and hepatotoxicity.

Contraindication

Contraindicated in Pregnancy
Caution-tape Pregnant-woman
Valproic acid is contraindicated during pregnancy because of its teratogenic properties and association with neural tube defects in the fetus (spina bifida), as it is a folate antagonist.

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