VALPROATE / VALPROIC ACID (Depakote®, Depakene®, Depacon®)

Class: Anticonvulsant • Mood Stabilizer | System: Neurological / Psychiatric | ⚠ BLACK BOX WARNINGS ×3 | NCLEX High-Yield

⚫ **TRIPLE BLACK BOX WARNING:** (1) **HEPATOTOXICITY** – fatal hepatic failure, highest risk in children <2 yrs & polypharmacy • (2) **PANCREATITIS** – can be hemorrhagic & fatal • (3) **TERATOGENICITY** – neural tube defects (spina bifida), ↓ IQ in offspring

1 💊 Drug Overview – Indications

- **Broad-spectrum anticonvulsant** – covers most seizure types
- **Absence seizures** (1st line w/ ethosuximide)
- **Generalized tonic-clonic** seizures
- **Myoclonic & partial/focal** seizures
- **Mixed seizure disorders**
- **Bipolar disorder** – acute mania & maintenance
- **Migraine prophylaxis** (NOT in pregnancy)
- Off-label: aggression in dementia, schizoaffective

2 ⚙ Mechanism of Action

↑ **GABA** (inhibitory NT) in CNS

→ Blocks **voltage-gated Na^+ channels**

→ Blocks **T-type Ca^{2+} channels** (key for absence sz)

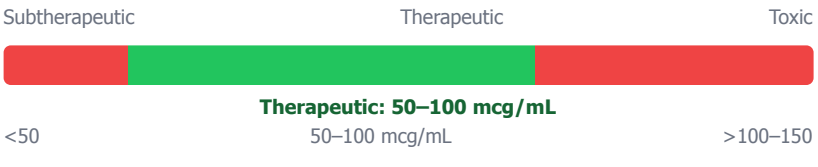
→ ↓ Neuronal excitability & firing

→ Raises seizure threshold

→ Stabilizes mood in bipolar

3 ✅ Therapeutic Effects

- ↓ seizure frequency / duration / severity
- Stable mood → fewer manic episodes
- ↓ migraine frequency
- Patient keeps a **seizure diary**



4 ⚠️ Side Effects & Adverse Reactions

✓ COMMON

- GI upset (N/V/diarrhea)
- Sedation, drowsiness
- Tremor
- Weight gain
- Alopecia (hair loss)
- Mild thrombocytopenia

🚨 SERIOUS / LIFE-THREATENING

- **Hepatotoxicity** (fatal)
- **Pancreatitis** (hemorrhagic)
- **Teratogen** – spina bifida
- **Hyperammonemia** → encephalopathy
- SJS / TEN (rare)
- Bone marrow suppression
- Suicidal ideation

5 🩺 Priority Nursing Considerations

- **Assess:** baseline LFTs, CBC, pregnancy test, mental status
- **Monitor:** LFTs, platelets, ammonia, valproate trough levels
- **HOLD** if LFTs > 3× normal, jaundice, severe abd pain, rash, platelets < 100k
- **Notify HCP:** altered mental status, bleeding/bruising, RUQ pain, pregnancy
- **Contraindications:** hepatic dz, urea cycle disorders, mitochondrial dz (POLG), pregnancy (migraine = absolute)
- **Interactions:**
  - Warfarin → ↑ bleeding
  - Lamotrigine → ↑ SJS (↓ lamotrigine 50%)
  - Carbapenems → ↓↓ valproate → **breakthrough seizures**
  - ASA → ↑ valproate levels
  - CNS depressants/ETOH → ↑ sedation

6 🧪 Labs & Diagnostics

- **Valproate level:** 50–100 mcg/mL (therapeutic) **TOXIC >100**
- **LFTs:** AST, ALT, bilirubin – hold if > 3× ULN
- **CBC + platelets:** < 100k = bleeding risk
- **Ammonia:** ↑ w/ encephalopathy (even w/ normal LFTs!)
- **Amylase / Lipase:** ↑ in pancreatitis
- **Pregnancy test** BEFORE starting
- PT/INR if on warfarin

7 Administration & Safety

- **Routes:** PO (tab, cap, sprinkles, syrup), IV
- **Give with food** – ↓ GI upset
- **DO NOT crush or chew** enteric-coated tablets
- Sprinkles: open & mix w/ soft food – **don't chew**
- **IV: infuse over 60 min** – never rapid push
- **Never stop abruptly** → status epilepticus
- Taper dose gradually when discontinuing
- Draw trough level just before next dose

8 Patient Education

- **DO NOT stop suddenly** – seizure rebound
- Report: **yellow skin/eyes, dark urine, RUQ pain, severe abd pain, bleeding, bruising, rash, confusion**
- Avoid **alcohol** (↑ sedation + hepatotox)
- **Reliable contraception** – known teratogen
- Take **folic acid** if childbearing age
- Keep all lab appointments
- Use caution driving / machinery
- Carry **medical alert ID**
- Report any **suicidal thoughts** immediately

9 NCLEX Test Traps ⚠

- **Valproate + Lamotrigine** → must ↓ lamotrigine dose 50% (↑ SJS risk)
- **Valproate + Meropenem/Carbapenem** → plummets valproate level → **breakthrough seizures** — pick a different antibiotic
- **Hyperammonemia** can occur with **NORMAL LFTs** – assess mental status, not just labs!
- **Abdominal pain on valproate** = think **PANCREATITIS**, not just GI upset
- ❌ "Take on empty stomach" → WRONG (give with food)
- ❌ "Crush the enteric-coated tab" → WRONG
- **Pregnancy + valproate for migraine** = ABSOLUTE contraindication
- **Absence seizure** drug of choice: ethosuximide *or* valproate
- **Status epilepticus**: IV lorazepam FIRST, then phenytoin / valproate
- Don't confuse with **phenytoin** (gingival hyperplasia) or **carbamazepine** (agranulocytosis, SIADH)

10 🧠 Memory Boosters

💡 "VALPROATE" – Adverse Effects

- **V** Vomiting / GI upset
- **A** Alopecia (hair loss)
- **L** Liver toxicity ⚠
- **P** Pancreatitis ⚠
- **R** Retention (weight gain)
- **O** Offspring defects (teratogen)
- **A** Ammonia ↑ (encephalopathy)
- **T** Thrombocytopenia / Tremor
- **E** Encephalopathy (CNS)

🎯 Quick Recall Patterns

- 🔑 **"Broad = Everything"** – valproate covers ALL seizure types
- 🔑 **"Liver First"** – hepatotox = #1 killer
- 🔑 **"Belly = Pancreas"** – abd pain = pancreatitis (not GI)
- 🔑 **"Baby-No"** – teratogen → spina bifida
- 🔑 **"Confused + Normal LFTs"** → check ammonia
- 🔑 **"DepaKOTE is KOTEd"** – enteric-coated, don't crush
- 🔑 **"Drops Lamo in half"** – lamotrigine dose ↓ 50%
- 🔑 **"Carb-a-pen-em kills Val"** – seizure breakthrough

🧠 CLINICAL JUDGMENT SNAPSHOT — NGN / NCJMM

⚡ #1 PRIORITY RISK WITH THIS DRUG

HEPATOTOXICITY (fatal hepatic failure) and **PANCREATITIS** — both carry Black Box Warnings. Highest hepatic risk: children < 2 yrs and polypharmacy within first 6 months of therapy.

💥 WHAT WILL HARM THE PATIENT FIRST?

The **LIVER** — symptoms often appear in the first 3–6 months. Watch for malaise, anorexia, vomiting, RUQ pain, jaundice, dark urine. **Hyperammonemic encephalopathy** may develop even with normal LFTs — altered mental status is an early red flag.

🚑 FIRST NURSING ACTION IN A TOXICITY SCENARIO

1. HOLD the drug → **2. Notify HCP** → **3. Draw STAT labs:** LFTs, ammonia, amylase/lipase, valproate level, CBC with platelets → **4. Assess mental status + abdominal exam** → **5. Prepare for possible D/C and alternative anticonvulsant** (taper if possible — never stop abruptly unless life-threatening toxicity).

✅ RECOGNIZE-ANALYZE-PRIORITIZE-TAKE ACTION (NCJMM)

Recognize cues: jaundice, RUQ pain, confusion, bruising • **Analyze:** link to hepatotox/ammonia/thrombocytopenia • **Prioritize:** airway/CNS status > bleeding > GI • **Take action:** hold drug, labs, notify, educate • **Evaluate:** trend LFTs, ammonia, sz frequency.