

Mood *Stabilizers*

*Drug class for bipolar disorder — prevents mania & depressive episodes. Includes **Lithium** (gold standard) and anticonvulsants used off-label. System: **Neurological / Psychiatric**.*

LITHIUM • Eskalith • Lithobid

VALPROIC ACID • Depakote

CARBAMAZEPINE • Tegretol

LAMOTRIGINE • Lamictal

§ 01 Drug Overview

■ WHY WE GIVE IT

PRIMARY INDICATIONS

- **Bipolar I disorder** — acute mania & maintenance
- Mixed episodes
- Prevention of manic & depressive relapses
- Schizoaffective disorder

DRUG-SPECIFIC NICHES

- **Lithium** → classic acute mania + maintenance; ↓ suicide risk
- **Valproate** → *rapid cycling & mixed episodes* (1st-line)
- **Lamotrigine** → *bipolar depression* (1st-line)
- **Carbamazepine** → 2nd-line; also trigeminal neuralgia, seizures

§ 02

Mechanism of Action

■ HOW IT WORKS

- **Lithium:** alters Na^+ transport in neurons → stabilizes neuronal membranes → ↓ norepinephrine & dopamine release → modulates serotonin → **mood stability**
- **Valproic acid:** ↑ GABA activity + Na^+ channel blockade → CNS inhibition → dampens mania
- **Carbamazepine:** blocks voltage-gated Na^+ channels → ↓ repetitive neuronal firing
- **Lamotrigine:** blocks Na^+ channels → ↓ glutamate release → antidepressant-leaning effect

Bottom line: All four tame neuronal hyperexcitability — but through *different* ion/neurotransmitter routes. That's why side-effect profiles differ so dramatically.

§ 03

Therapeutic Effects

■ IS IT WORKING?

- ↓ racing thoughts, grandiosity, pressured speech, psychomotor agitation
- Restored sleep-wake cycle; normalized appetite
- Stable mood — no extreme highs or lows
- Improved judgment, insight, & social functioning
- Therapeutic lithium serum level maintained (see §06)

Timing trap: Lithium takes **1–3 weeks** for full effect. Acute mania is often bridged with an **antipsychotic** (e.g., olanzapine, risperidone, haloperidol) until lithium kicks in.

§ 04

Side Effects & Adverse Reactions

■ COMMON VS ■ SERIOUS

COMMON — LITHIUM

- **Fine hand tremor** (expected!)
- Polyuria & polydipsia
- Metallic taste, GI upset, N/V/D
- Weight gain, mild sedation
- Benign leukocytosis

COMMON — ANTICONSULSANTS

- **Valproate**: sedation, weight gain, hair loss, tremor
- **Carbamazepine**: dizziness, drowsiness, ataxia, N/V
- **Lamotrigine**: headache, dizziness, mild rash (watch!)

■ LETHAL — LITHIUM TOXICITY

Mild (1.5–2.0): coarse tremor, slurred speech, N/V/D, lethargy

Moderate (2.0–2.5): ataxia, confusion, hyperreflexia, muscle twitching

Severe (>2.5): seizures, coma, dysrhythmia, renal failure, **DEATH** → hemodialysis

■ DRUG-SPECIFIC LETHAL EVENTS

- **Valproate**: **HEPATOTOXICITY**, **PANCREATITIS**, thrombocytopenia, hyperammonemia
- **Carbamazepine**: **STEVENS-JOHNSON SYNDROME**, **AGRANULOCYTOSIS**, aplastic anemia, SIADH (↓Na⁺)
- **Lamotrigine**: **STEVENS-JOHNSON SYNDROME / TEN** — *any* rash = STOP DRUG

§ 05

Priority Nursing Considerations

■ ASSESS • MONITOR • HOLD • NOTIFY

→ ASSESS / MONITOR

- Baseline renal (BUN/Cr), thyroid (TSH), hepatic (LFTs), CBC, pregnancy test
- Lithium trough — 12 h after last dose; q5–7 d until stable, then q3–6 months
- Hydration, I&O, daily weights, tremor quality (fine vs coarse)
- Mental status, LOC, neuro checks every shift
- Skin — especially first 2–8 weeks of lamotrigine/carbamazepine

→ HOLD AND NOTIFY PROVIDER

- **Lithium level > 1.5 mEq/L** OR signs of toxicity
- Dehydration, persistent V/D, fever, heavy sweating
- **ANY rash** with lamotrigine or carbamazepine
- Valproate: ↑ LFTs, abdominal pain, easy bruising, platelets < 100k
- Carbamazepine: sore throat, fever, bruising (agranulocytosis)

CONTRAINDICATIONS

- **Pregnancy** — all teratogenic (see ⚠)
- Severe renal or cardiovascular disease (lithium)
- Dehydration, sodium depletion
- Hepatic disease (valproate)
- Bone marrow suppression (carbamazepine)
- Children < 12 y for lithium

MAJOR DRUG INTERACTIONS (LITHIUM ↑↑)

- **NSAIDs** (ibuprofen, naproxen) → ↑ level → toxicity
- **Thiazide & loop diuretics** → ↑ level → toxicity
- **ACE inhibitors / ARBs** → ↑ level
- Caffeine, theophylline → ↓ level (opposite!)
- Haloperidol + lithium → rare neurotoxicity

Teratogenicity: Lithium → **Ebstein's anomaly** (cardiac). Valproate → **neural tube defects**. Carbamazepine → craniofacial/neural tube. Lamotrigine → cleft lip/palate.

§ 06

Labs & Diagnostics

■ KNOW THESE NUMBERS

DRUG	THERAPEUTIC RANGE	CRITICAL / TOXIC	MONITOR ALSO
Lithium	0.6–1.2 mEq/L <i>Maint:</i> 0.6–1.0 · <i>Acute:</i> 0.8–1.2	> 1.5 = toxic > 2.0 = severe → dialysis	BUN, Cr, Na ⁺ , Ca ²⁺ , TSH, CBC, pregnancy, urine SG
Valproic acid	50–100 mcg/mL	> 150 = toxic ↑ AST/ALT, ↓ platelets	LFTs, CBC, platelets, ammonia, amylase/lipase
Carbamazepine	4–12 mcg/mL	> 12 = toxic ANC < 1,500 = hold	CBC (weekly ×1 mo), Na ⁺ (SIADH), LFTs
Lamotrigine	No routine serum level	Rash → STOP drug	Skin assessment; slow titration schedule

Draw lithium trough: exactly 12 hours after the last dose — *before* the next AM dose.

§ 07

Administration & Safety

■ HIGH-ALERT DRUG

ROUTE & TIMING

- All oral; take **with food** to ↓ GI upset
- Consistent timing — same hour daily
- Do **NOT crush** extended-release (Lithobid, Depakote ER, Tegretol XR)
- Lithium immediate-release: divided BID–TID dosing

HIGH-ALERT PRECAUTIONS

- **Lithium** = narrow therapeutic index → HIGH-ALERT drug (ISMP)
- **Lamotrigine** → slow 6-wk titration ↓ SJS risk — *never skip steps*
- Double-check all orders & levels before administration
- Verify pregnancy status before initiation in females of childbearing age

§ 08

Patient Education

■ WHAT PATIENT MUST KNOW

DAILY SAFETY TEACHING

- Drink **2–3 L of water/day** — dehydration = toxicity
- Keep **salt intake consistent** — don't start/stop low-Na⁺ diets
- Avoid **saunas, hot tubs, strenuous exercise in heat** (fluid loss)
- No **NSAIDs** — acetaminophen OK for pain/fever
- Avoid "salt substitutes" (contain KCl — confuses sodium intake)
- Use reliable **contraception** — all teratogenic
- Never stop abruptly → relapse risk
- Keep ALL lab appointments

CALL PROVIDER / 911 IF...

Lithium: coarse/worsening tremor, slurred speech, confusion, persistent vomiting or diarrhea, unsteady gait.

Lamotrigine / Carbamazepine: ANY skin rash, mouth sores, fever, peeling skin (STOP + go to ER).

Valproate: yellow skin/eyes, dark urine, abdominal pain, vomiting, easy bruising/bleeding.

§ 09

NCLEX Test Traps ⚠

■ WHERE STUDENTS LOSE POINTS

- **Onset trap:** Lithium = 1–3 wks. If the question asks what works *now* for acute mania, pick an **antipsychotic**.
- **Tremor trap:** *Fine* tremor = expected. *Coarse* tremor = **TOXICITY**. Don't reassure — assess + notify.
- **Dehydration trap:** #1 cause of lithium toxicity isn't overdose — it's **volume depletion** (V/D, sweating, fluid restriction, NPO).
- **Sodium trap:** ↓ Na⁺ → kidneys reabsorb lithium → toxicity. *Low-sodium diet* is a **WRONG** answer.
- **NSAID trap:** These are OTC — patients think they're safe. Ibuprofen/naproxen/ketorolac = ↑ lithium levels.
- **Thiazide trap:** HCTZ + lithium = toxicity. Safer antihypertensive with lithium = *loop + close monitoring* or CCB (provider decides).
- **Rash trap:** Rash on lamotrigine/carbamazepine is **NEVER** "just a rash" — it's possible **SJS / TEN**. STOP drug.
- **Lab trap:** Valproate level alone isn't enough — must also monitor **LFTs, platelets, ammonia**.
- **Pregnancy trap:** Know the defect — *Lithium = Ebstein's anomaly*, *Valproate = neural tube*.
- **Priority trap:** Safety & airway > symptom control. Choose *assess* before *medicate*.

§ 10

Memory Boosters

■ MNEMONICS & PATTERNS

"LITHIUM" TOXICITY

- **L** — Level > 1.5
- **I** — Intoxication (confusion)
- **T** — Tremor *coarse*
- **H** — Hyperreflexia
- **I** — Impaired coordination (ataxia)
- **U** — Upset GI (N/V/D)
- **M** — Muscle weakness

"SALT" — LITHIUM SAFETY

- **S** — Stable Sodium intake
- **A** — Avoid NSAIDs, thiazides, dehydration
- **L** — Levels 0.6–1.2 mEq/L
- **T** — Teratogenic (Ebstein's)

"VALPROATE"

- Vomiting + yellow eyes = **hepatotoxicity**
- Ammonia ↑ = encephalopathy

PATTERN RECOGNITION

- Any Na⁺-channel blocker (carbamazepine, lamotrigine, phenytoin) → watch for **SJS**
- Any "-pam / -azepine / -oate" used in mania → sedation + weight gain
- Lithium is a **salt** — behaves like sodium in kidneys
- Narrow therapeutic window = mandatory serum monitoring (lithium, digoxin, warfarin, phenytoin, theophylline)

§ +

Most Tested Drugs in This Class

■ QUICK COMPARISON

DRUG	FIRST-LINE FOR	#1 DEADLY RISK	KEY MONITORING	TERATOGENIC DEFECT
Lithium	Acute mania, maintenance, ↓ suicide	Toxicity (narrow window)	Level, BUN/Cr, TSH, Na ⁺	Ebstein's anomaly (cardiac)
Valproate	Rapid cycling, mixed episodes	Hepatotoxicity, pancreatitis	LFTs, platelets, ammonia, level	Neural tube defects
Carbamazepine	2nd-line; trigeminal neuralgia	SJS, agranulocytosis, SIADH	CBC, Na ⁺ , LFTs, level	Craniofacial / neural tube
Lamotrigine	Bipolar <i>depression</i>	Stevens-Johnson Syndrome	Skin assessment; slow titration	Cleft lip / palate

CLINICAL JUDGMENT

NCJMM • PRIORITY ACTION



Snapshot — Think Like the NCLEX



#1 Priority Risk

LITHIUM TOXICITY — narrow therapeutic index (0.6–1.2 mEq/L) with rapid progression to seizures, coma, renal failure, and death above 2.5.

What Harms the Patient FIRST

Volume depletion (V/D, sweating, dehydration, fluid restriction) or ↓ sodium intake → kidneys reabsorb lithium → serum level climbs → neurotoxicity *before* anyone checks the level.

FIRST Nursing Action if Toxicity Suspected

1. **HOLD** the next lithium dose.
2. Perform focused neuro assessment — LOC, tremor quality, speech, gait, DTRs.
3. Draw **STAT** lithium level, basic metabolic panel (Na⁺, BUN/Cr), ECG.
4. Protect airway; institute fall/seizure precautions.
5. Notify provider with SBAR + current level if available.
6. Anticipate: IV isotonic fluids (NS) and, if level > 2.5 or severe symptoms, **hemodialysis**.