

LITHIUM



3

Li

Lithium
6.941

Lithium is the third element on the periodic table and the oldest mood-stabilizing drug. While the exact mechanism of action is unknown, lithium modifies sodium transport in nerve and muscle cells, is thought to alter the metabolism of neurotransmitters (specifically catecholamines and serotonin), and may alter intracellular signaling. It is used to treat **bipolar disorder, schizophrenia, and borderline personality disorder.**

Administration

Lithium is taken orally in pill, capsule, or liquid form. Dosing is titrated based on desired effect and serum level monitoring. It usually takes 5–7 days from initiation of therapy to note benefit and up to 3 weeks to achieve peak effect.

Monitoring

Lithium has a narrow therapeutic window and can cause significant adverse effects. Careful monitoring is required.

Before initiating therapy:	During lithium therapy:	
Check: Baseline kidney function Baseline thyroid function Baseline ECG (clients > 50 years old)	Check serum lithium level: every 2–3 days upon initiation every 3–6 months once stable	Repeat kidney and thyroid function testing 1–2 times per year while on lithium.
Lithium levels	Signs of lithium toxicity	
Normal: 0.6–1.2 mEq/L	1.5	2.5
Toxicity: > 1.5 mEq/L	3.5 mEq/L serum lithium	→
Risk of death: > 2.5 mEq/L	Mild	Moderate
	Nausea, vomiting, lethargy, tremor, and fatigue	Confusion, agitation, delirium, tachycardia, and hypertonia
		Coma, seizures, hyperthermia, hypotension, and death

Client Education

Common early side effects	Diet	Hydration	Drug–drug interactions
<ul style="list-style-type: none"> • GI distress (nausea, bloating, diarrhea) • Fatigue • Muscle weakness • Headache • Confusion • Memory impairment • Polyuria and thirst Help clients know what to expect. Early symptoms often resolve with time. Report if severe/persistent.	Teach clients to maintain normal dietary sodium intake. Lithium is a positively-charged ion and is processed like sodium by the kidneys. Low serum Na ⁺ causes the kidneys to retain Li ⁺ along with sodium. Li ⁺ retention can lead to toxicity.	Lithium blocks the effects of ADH, causing increased urine output (can lead to hypovolemia). Clients should increase their fluid intake.	Educate clients to consult their provider before taking drugs that affect lithium levels, including:
		Diarrhea	<ul style="list-style-type: none"> • Diuretics • NSAIDs • Antihistamines • ACE inhibitors • Metronidazole
		Diarrhea can lead to sodium loss, putting clients at risk of lithium toxicity. Clients should be alert to signs of toxicity and notify their provider of diarrheal illness.	

NOTES

