SMIAdviser
A Clinical Support System for Serious Mental Illness

AMERICAN PSYCHIATRIC ASSOCIATION

Lithium Toolkit

Indications:

Manic episodes of bipolar disorder, maintenance treatment of bipolar disorder

Pharmacokinetics:

TMax: Cap/Tab 0.5-3 hours, ER tab 4-12 hours, Sol 0.25-1 hour
T1/2: 24 hours
Protein Binding: N/A
Metabolism: Renal Excretion

Dosing:

Initial Dose: 600 mg administered 2-3 times daily 1800 mg/day

Providers may consider a lower initial lithium dosage to mitigate the potential for adverse drug reactions. Gradual titration from 600-900 mg daily to an average daily dose of 1800 mg provides an advantage of avoiding tolerability issues.

Maintenance Dose:

300 mg to 600 mg administered 2-3 times daily

Hepatic Impairment:

No dose adjustment

Renal Impairment:

Renal excretion of lithium is proportional to plasma concentration
GFR 10-50 mL/min: 25-50% of the usual dose
GFR <10 mL/min: 50-75% of the usual dose

Therapeutic Drug Monitoring:

Acute Mania: 1.00-1.20 mEq/L
Bipolar I Maintenance or Bipolar Depression: 0.60-0.80 mEq/L, with consideration of levels up to 1.00 mEq/L or as low as 0.40 mEq/L in select patients
Bipolar II disorder or unipolar major depressive disorder adjunctive use: 0.40-0.60 mEq/L

Steady-state concentration occurs after approximately 5 days of stable dosing

Serum concentration should be drawn: Morning as a 12-hour post-dose concentration

Monitoring Parameters:

Monitoring Parameter	Frequency
CBC with Differential	Baseline and yearly
Vital Signs	Weight at every visit, blood pressure every six months
ECG	Baseline and annually, if over 40 years or with cardiac concern
Pregnancy Test (in women of childbearing age)	Baseline, and if suspicion for pregnancy
TSH, T4 and calcium	Once or twice in the first six months, then every 6-12 months
Renal Function	EGFR at six weeks, 3 months, and every six months, 24 hour Fluid intake report at six weeks, 3 months and every six months
Serum Drug Concentration	Weekly until a stable dose is achieved, then quarterly to semi-annually
Serum Electrolytes	Baseline and annually
Other	Weight, serum calcium, urine specific gravity, urinalysis, urine output, diet

Drug Interactions:

Interacting Agent	Clinical Concern
Non-steroidal anti-inflammatory drugs (NSAIDS)	Lithium levels are increased
Angiotensin Converting Enzyme Inhibitors (ACE-I) Angiotensin II receptor blocker (ARBs)	Lithium levels are increased
Diuretics	Lithium levels are increased by thiazides and decreased by mannitol
Methylxanthines	Lithium levels may be decreased
Other	Pharmacodynamic drug interactions between lithium and other agents have been described. Most interactions are related to an increased risk of neurotoxicity. These reports are mostly limited to case reports.

How Supplied:

Carbonate:

Cap: 150 mg, 300 mg, 600 mg
ER tab: 300 mg, 450 mg
Tab: 300 mg

Citrate:

Sol: 8 meQ lithium ion (equals 300 mg carbonate/5mL)

References:

1. Lithium [package insert]. Columbus, Ohio: Roxane Laboratories, Inc. 2011.
2. Chokhawala K, Lee S, Saadabadi A. Lithium. Stat Pearls. Treasure Island (FL): StatPearls Publishing, 2024 Jan-.
3. Meyer JM, Stahl S. The Lithium Handbook. Cambridge Publishing. 2023