LITHIUM (Eskalith, Lithobid) Fact Sheet [G]

Bottom Line:
Lithium is the gold standard for bipolar disorder. It is more useful for euphoric mania than for mixed and rapid-cycling types of bipolar disorder, but it is effective for depressive episodes and maintenance treatment of bipolar disorder. It is also known for its antisuicide effects in bipolar and unipolar mood disorders. It is likely underprescribed due to side effect concerns—though most patients tolerate lithium quite well.

FDA Indications:
Acute mania; bipolar disorder (maintenance) in children and adults.

Off-Label Uses:
Bipolar depression; treatment-resistant depression; neutropenia; vascular headache.

Dosage Forms:
- **Capsules (lithium carbonate, [G]):** 150 mg, 300 mg, 600 mg.
- **Tablets (lithium carbonate, [G]):** 300 mg.
- **ER tablets (Lithobid, [G]):** 300 mg.
- **ER tablets (Eskalith CR, [G]):** 450 mg (scored).
- **Oral solution (lithium citrate, [G]):** 300 mg/5 mL.

Dosage Guidance:
- Start 300–600 mg QHS; gradually ↑ by 300–600 mg/day every two to three days to target serum lithium level of 0.8 mEq/L (usually 900–1200 mg/day). Can be dosed BID–TID or all QHS. Max 2400 mg/day.
- Extended-release formulations of lithium are better tolerated than immediate release.

Monitoring: Lithium level, TSH, BUN/creatinine, pregnancy test, ECG if cardiac disease.

Cost: $

Side Effects:
- Most common: Nausea/diarrhea (take with meals, split dosing, switch to ER), fine tremor (lower dose or use propranolol), polyuria/excessive thirst (dose all at bedtime), memory problems, weight gain, hypothyroidism (7%–8%; nine times more common in women), acne or worsening psoriasis, benign increase in WBC.
- Serious but rare: Chronic use may result in diminished renal concentrating ability (nephrogenic diabetes insipidus); usually reverses when discontinued, or treat with hydrochlorothiazide 25–50 mg/day or amiloride 5–10 mg twice daily. Cardiac: Bradycardia, cardiac arrhythmia, flattened or inverted T waves, sinus node dysfunction may occur rarely.
- Pregnancy/breastfeeding: Avoid if possible, especially in first trimester; safer later in pregnancy, especially at low doses. Avoid in breastfeeding.

Mechanism, Pharmacokinetics, and Drug Interactions:
- Alters neuronal sodium transport.
- Eliminated by kidneys; t ½: 18–24 hours.
- Drugs that ↑ lithium levels: "**N**o **ACE** in the **H**ole" (**N**SAIDs, **ACE** inhibitors, and **H**CTZ); excess sweating can ↑ levels; low-sodium diet may ↑ lithium levels. Caffeine may ↓ levels.

Clinical Pearls:
- Check lithium level, TSH/T4, BUN/Cr, electrolytes after one week of treatment, at one to two months, then every six to 12 months. Target levels for acute mania: 0.8–1.2 mEq/L; maintenance: 0.6–1.0 mEq/L; toxicity >1.5 mEq/L but may see signs at lower levels, especially in elderly.
- An increase or decrease of 300 mg/day will change serum level by roughly 0.25±0.1 mEq/L.
- Dehydration: Use with caution in patients with significant fluid loss (protracted sweating, diarrhea, or prolonged fever); temporary reduction or discontinuation may be necessary.
- Some evidence suggests that patients with bipolar disorder who are treated with lithium have better concentration and memory over the long term. Lithium has also been associated with reduced rate of dementia. In some patients, though, it can cause cognitive side effects like mental slowing.

Fun Fact:
The soft drink 7-Up was originally called "Bib-Label Lithiated Lemon-Lime Soda" and contained lithium until 1950.