LITHIUM (Eskalith, Lithobid) Fact Sheet [G]

BOTTOM LINE:
Although clinicians often try other medications first due to both the relative complexity of managing lithium as well as bias from the public, lithium, along with several second-generation antipsychotics, is FDA indicated and considered first line for treating pediatric bipolar disorder. Although it is not free from side effects, most common effects can be managed quite well.

PEDIATRIC FDA INDICATIONS:
Acute mania; bipolar disorder maintenance (7–17 years).

ADULT FDA INDICATIONS:
Acute mania; bipolar disorder maintenance.

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; **Eskalith CR, [G]:** 450 mg (scored).
- **Oral solution (lithium citrate, [G]):** 300 mg/5 mL.

PEDIATRIC DOSAGE GUIDANCE (DOSING SAME FOR IR AND ER VERSIONS; BOTH MAY BE BID OR QHS):
- <30 kg: Start 10 mg/kg/day divided BID–QID, increase by 5–10 mg/kg/day in weekly intervals to target dose 15–40 mg/kg/day divided TID–QID; max 60 mg/kg/day.
- >30 kg: Start 10–20 mg/kg/day divided BID–QID, increase by 10 mg/kg/day in weekly intervals to target dose 15–40 mg/kg/day divided TID–QID; max 60 mg/kg/day.
- Adolescents: Start 600–900 mg/day divided BID–TID, increase by 300 mg/day in weekly intervals to target dose 900–1200 mg/day divided TID–QID; max 2400 mg/day.

MONITORING: TSH, BUN/creatinine, CBC, basic metabolic panel, weight, pregnancy test, serum drug level, ECG if cardiac disease or older patient.

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; normal pressure hydrocephalus characterized by loss of bladder control, delirium, and ataxia (wet, wild, and wobbly). These side effects require immediate discontinuation and possibly dialysis to extract lithium from the patient.

MECHANISM, PHARMACOKINETICS, AND DRUG INTERACTIONS:
- Alters neuronal sodium transport.
- Eliminated by kidneys; t ½: 18–24 hours.
- Drugs that increase lithium levels: "**N**o **ACE** in the **H**ole" (**N**SAIDs, **ACE** inhibitors, and **H**CTZ); excess sweating can increase levels; low-sodium diet may increase lithium levels. Caffeine may decrease levels.

EVIDENCE AND CLINICAL PEARLS:
- Four open-label trials of lithium in pediatric bipolar disorder suggest efficacy; only one of these was monotherapy (with a 38% response rate). More recent double-blind studies did not show benefit over placebo in mania, yet lithium is FDA indicated for kids >7 years.
- Check lithium level, TSH/T4, BUN/Cr, CBC, BMP, 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. Levels should be drawn 12 hours after a dose; steady state generally reached after five days.
- 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.
- Shown to have anti-suicide effects in bipolar and unipolar mood disorders in adults.

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