

LITHIUM

GENERAL INFORMATION

Lithium levels do not correlate well with clinical toxicity.
Therapeutic levels are 0.8-1.0 mmoles/L

Three possible scenarios exist:

- a. Acute – The patient (not on lithium) takes an amount of lithium at one time.
- b. Chronic – The patient does not take an intentional overdose of lithium, but, gradually accumulates increasing concentrations beyond therapeutic of the drug.
This patient is likely to be more symptomatic at lower levels.
- c. Acute on chronic – The patient is on lithium therapeutically and then takes an extra amount of the drug.

CLINICAL EFFECTS: See Poisindex.

TREATMENT (See algorithm.)

LABORATORY

Obtain serum electrolytes and Lithium level.

WHOLE BOWEL IRRIGATION

- for symptomatic patients, for unknown amounts, for > 40mg/kg
- for regular and sustained release preparations
- ≤ 6 hours post-ingestion, unknown time of ingestion, increasing lithium levels

VOLUME REPLACEMENT

Lithium intoxication can cause GI symptoms acutely with nausea and vomiting.
Chronic lithium treatment can cause diabetes insipidus which leads to renal losses.
The lithium intoxicated patient is, therefore, often dehydrated.
Rehydration to normovolemia should be instituted.

Adults: 0.9% NaCl @ 150-300 mL/hr

Children: 0.9% NaCl @ 3-6 mL/hr

Once Lithium level available, continue hydration for...

“Acute” and “acute on chronic” patients with lithium level > 2.5 mmoles/L.

“Chronic” patients with lithium level > 1.5 mmoles/L.

REFERENCE:

Timmer RT, Sands JM. “Lithium intoxication”. *J Am Soc Nephrol* 10(3):666; 1999

ALGORITHM FOR LITHIUM INTOXICATION

Lithium Intoxication?



Start IV 0.9%NaCl
Draw labs



WBI if indicated



Are there CNS, CVS, renal signs & symptoms?

? coma, convulsions, altered consciousness
 ?3° heart block, ventricular arrhythmias, ↓ BP, circulatory collapse
 ? ARF or ↑ SCr > 150 mmol/L after hydration
 Serum [Li] > 6.0 mmol/L



YES



Hemodialysis

Target [Li] < 1 mmol/L



Repeat [Li] 6 hrs post-dialysis



[Li] > 1.5 mmol/L, repeat dialysis



NO



Continue IV NS

Monitor serum lytes, [Li] q4h

Monitor CVS & neuro status q1h



Consider dialysis if...

CVS or neuro signs deteriorate

Renal function deteriorates

↑[Li] by 25% on 2 serial measurements

Acute ... [Li] > 4.0 mmol/L

Chronic ... [Li] > 2.5 mmol/L