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:

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
? 3rd 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