

Acute lithium overdose is generally benign in lithium naïve individuals. Significant neurotoxicity rarely develops, providing renal function is adequate.

Toxicity / Risk Assessment

In acute ingestions in lithium naïve individuals:

- < 25 grams – minor gastrointestinal symptoms
- > 25 grams – more severe gastrointestinal symptoms
- Gastrointestinal symptoms include nausea, vomiting, abdominal pain and diarrhoea
- Neurological features rarely develop unless there is renal impairment, untreated dehydration or Na⁺ depletion
- If neurological toxicity develops, it is delayed

In acute ingestions in patients on therapeutic lithium:

- Risk of neurotoxicity is dose related and more likely with:
 - Acute / chronic renal impairment
 - Significant fluid depletion
 - Na⁺ depletion

Neurological features of lithium toxicity :

Mild : ataxia, hyperreflexia, tremor,

Severe: confusion, somnolence, myoclonus, seizures, coma

(tremor may be present at therapeutic concentrations)

Other features of lithium toxicity :

Cardiac conduction abnormalities

Management

Good supportive care is the mainstay of management

Decontamination: Activated charcoal is **not** indicated

- Whole bowel irrigation may be indicated in large ingestions (> 50 g) of slow-release/enteric-coated preparation (discuss with Clinical Toxicologist)
- Replace fluid loss with **Normal Saline** – preferred over Hartman’s solution because of > Na⁺ content
- Cease any nephrotoxic medications (ACEIs, NSAIDs, diuretics) and optimize renal function
- Monitor electrolytes and fluid status
- **Serum lithium concentrations do not correlate well with clinical toxicity in acute ingestions**, and may rise to > 5 mmol/L. Serum concentrations (e.g. performed 4-6 hourly) are useful to confirm exposure and to monitor progress

Haemodialysis should be considered (discuss with Clinical Toxicologist)

- Neurological features (coma, seizures, confusion) or dysrhythmias **regardless** of lithium concentration
- Persistently high or rising serum lithium concentrations >5 mmol/L
- Lithium concentration > 4 mmol/L with renal impairment
- Continue till lithium concentration < 1 mmol/L

Disposition

- Continuous cardiac monitoring is not required in absence of co-ingestants and a normal ECG
- Discharge pending mental health assessment if patients have no neurological toxicity and a decreasing lithium concentrations