



# An Un-“Li-”kely Diagnosis: The Third Element in a Case of Altered Mental Status



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## Learning Objectives

Lithium toxicity can present with nonspecific symptoms, such as diarrhea, weakness, ataxia, confusion, and somnolence; therefore, obtaining a clear history from the patient or collaterals can present a diagnostic challenge.

## Case Description

Our patient is a 55-year-old female with an extensive psych history was brought to the ED by her brother for possible overdose

### Initial presentation:

- The patient was calm and had normal neurological exam. discharged two days prior from the psychiatry service without any new medications after a tricyclic antidepressant overdose.
- Cr of 1.2 mg/dL (baseline 0.7 mg/dL)
- She was medically cleared and admitted to psychiatry service

Several hours later: transferred to the internal medicine service for management of altered mental status.

- Physical Exam: AAO x 1 and unable to follow any commands. CN intact. No neurological deficits. Muscle tone was normal, but was diffusely hyperreflexic without clonus, and her gait was ataxic. Cr of 1.44 mg/dL
- Symptoms persisted without improvement
- Med rec: quetiapine, trazodone, amitriptyline, nortriptyline, temazepam, zolpidem
- Given her persistent altered mentation, slow clinical improvement, and negative medical work up, her lithium level was checked on hospital day 3 and found to be 2.3 (Ref: 0.5-1.5mmol/L)
- Pt was prescribed lithium several years ago

Management: aggressive fluid resuscitation to assist w/ renal clearance

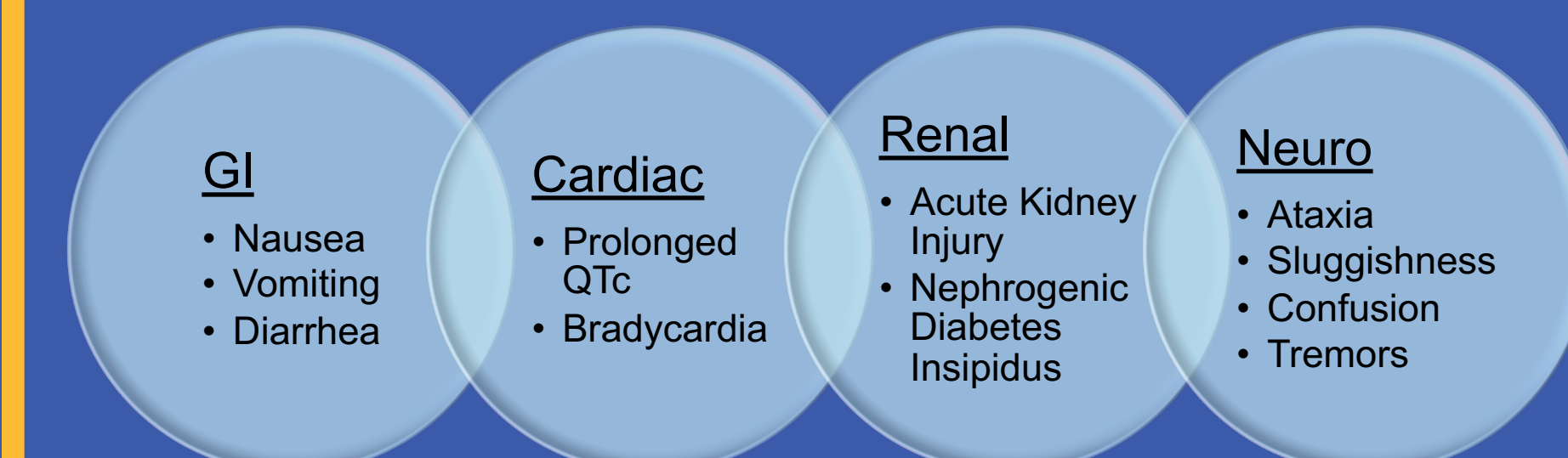
- 2 days later ➤ mental status returned to baseline
- Continued to have a slowly improving ataxic gait

## Discussion

- Lithium carbonate - a first-line mood stabilizer  
narrow therapeutic index (0.8-1.2 mEq/L)  
toxicity can present with nonspecific symptoms such as diarrhea, weakness, ataxia, confusion, and somnolence

- Lithium overdose  
the "toxic dose" of lithium is not well defined  
serum half life varies: ~12-27 hours  
chronic intoxication: ½ life can be prolonged up to 48 hours  
NMS: within ~24 hours  
Serotonin syndrome: within 6-8 hours

### Clinical findings in Lithium Toxicity



### Long-term neurologic sequelae

- When lithium toxicity leads to long term sequelae, the syndrome is called SILENT
- affects the cerebellum and brainstem
- Demyelination caused by lithium at multiple sites

## Implications

- Lithium toxicity affects the renal and CNS systems and can have long term sequelae on both systems
- The neurologic symptoms of lithium toxicity often present late (up to 40 hours after ingestion)
- Lithium is cleared by the kidneys ➤ nephrotoxic ➤ further impaired clearance ➤ further toxicity & prolonged symptoms of overdose