

Fatal lithium toxicity with therapeutic levels – a case report

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Key words

lithium toxicity – therapeutic levels of lithium

Abstract. For nearly five decades now, lithium has been used as a drug for treatment of bipolar affective disorder [1]. Adverse effects of lithium have been reported, but still lithium continues to be an effective prophylactic agent for bipolar disorder. Serious and fatal toxicity can occur with levels of lithium considered to be in the therapeutic range [2, 3, 4, 5, 6]. We are reporting a patient who was on lithium for bipolar disorder and was admitted with a history of sudden collapse following vomiting, and sinus bradycardia with ST-T changes. The patient expired with levels of lithium being within therapeutic range.

Introduction

Following Cade's original work 50 years ago supporting the role of lithium in the treatment of "psychotic excitement", now recognized as Bipolar Affective Disorder (BAD) [1], lithium carbonate has become a widely used pharmaceutical.

Lithium is an alkaline metal having a narrow therapeutic index. Time and again adverse effects of Lithium are reported and still Lithium continues to be an effective prophylactic agent for bipolar affective disorder. Lithium toxicity can present as acute, acute-on-chronic and chronic clinically. Acute intoxication of lithium present as vomiting, profuse diarrhea, coarse tremor, ataxia, coma, convulsions, confusion, cranial nerve palsy, focal deficits and death. Serious neurotoxicity in association with levels of lithium considered to be in the usual therapeutic range, however, is rare but has been reported in the literature [2, 3, 4, 5, 6].

Cardiac toxicity manifests as Sinus bradycardia, sino-atrial block, 1st degree atrial block and hypotension [7, 8]. The risk of CNS toxicity increases when lithium is combined with haloperidol.

High doses of haloperidol depress cardiac repolarization, manifesting as prolonged QT interval which increases the risk of torsades de pointes and cardiac arrest [13]. When considering the severity of lithium toxicity, most texts refer to neurological, gastrointestinal, cardiac, and renal manifestations as well as the serum lithium concentration, although there is little to document a relationship between any of these and any objective measure of morbidity. While some authors have suggested that serum lithium correlates closely to severity of toxicity at least in chronic poisoning, most accept that the relationship is not close and that lithium levels have a very limited role in the assessment of a poisoned patient [9].

We are reporting this case since there is history of sudden collapse and sinus bradycardia with ST-T changes in a patient who was on lithium for bipolar disorder but still having serum lithium levels within normal therapeutic levels.

Case description

Mr. K.B. a 21-year-old patient, who was a student, diagnosed as a case of bipolar affective disorder for the past 3 years on tab lithium 300 mg, tab serenace 10 mg, and tab pacitane 2 mg, was on regular follow up with psychiatrist. The patient's mother gave history of vomiting sudden in onset, preceded by vague chest pain before dinner. The patient was taken to the nearby company hospital, where he was intubated because he was in respiratory failure and reached our hospital 2 hours later.

There was no history of any other drug or deliberate lithium over dosage, headache, syncope, fever, or seizures. No history of pen-

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