

Abstract Form

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Project Title:	Endocrinopathies of Lithium: A case Report and Review of Literature

Research Category (please check one):

<input type="checkbox"/>	Original Research	<input checked="" type="checkbox"/>	Clinical Vignette	<input type="checkbox"/>	Quality Improvement	<input type="checkbox"/>	Medical Education Innovation
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Abstract

Introduction: Lithium is a commonly used psychotropic drug used to treat bipolar disorder. It is known to have multiple adverse effects on the endocrine system. It can cause endocrine disorders such as thyroid disorders, hyperparathyroidism and nephrogenic diabetes insipidus. It is very important to consider these potential endocrine abnormalities when prescribing lithium. Baseline studies and periodic monitoring is essential to prevent major complications.

Case report: A 55-year-old female presented to endocrinology clinic for an initial evaluation of hypercalcemia, incidentally noted on routine labs. She has history of bipolar disorder treated with lithium since 1992. She endorsed polyuria, polydipsia and generalized weakness for about 2 years. She developed renal calculi and has self-discontinued her lithium in August 2022. Review of her prior labs were notable for high calcium levels for the past 2 years. Laboratory studies were significant for an elevated calcium level of 11.8 mg/dL (8.4-10.2 mg/dL) with an ionized calcium level of 1.50 mg/dL (4.4-5.2 mg/dL), normal albumin of 4 g/dL (3.5-5.5 g/dL) and phosphorus of 2.8 mg/dL (3.0-4.5 mg/dL). She has normal vitamin D and kidney function. 24-h urinary calcium excretion was 241 mg (100-300 mg). Parathyroid hormone was elevated at 91 ng/L (10-60 ng/L), confirming primary hyperparathyroidism. The levels have persisted despite discontinuation of lithium for 6 months. Given her significant elevation of calcium and history of kidney stones, she was deemed a surgical candidate. Ultrasound scan of the thyroid was obtained and was found to have a solid, 1.3 x 1 x 1.5 cm, hypoechoic, taller than wide nodule with irregular borders in the left thyroid lobe. FNA biopsy was performed. Pathology is consistent with benign follicular nodule (Bethesda category 2). Sestamibi scan was obtained for pre operative localization studies, which confirmed the possibility of a right inferior parathyroid adenoma. The patient is currently awaiting parathyroidectomy.

Discussion: Lithium has been used in clinical practice as an effective treatment for bipolar disorder. Studies have shown that the incidence of hyperparathyroidism is four to six-fold higher among patients on long term lithium therapy. In patients receiving short term lithium therapy, calcium and PTH levels tend to normalize within 1-2 months after discontinuation of lithium. However, for patients on long term lithium therapy (> 10 years), the chance of reversal is very low. Surgery is indicated in those scenarios. Unilateral parathyroidectomy is recommended when preoperative localization of the lesion has been possible. Lithium also has many effects on thyroid gland. It can cause hypothyroidism, hyperthyroidism or goiter. Since the adverse effects of chronic lithium therapy on endocrine system is quite common, it is very important for physicians to have a high index of suspicion to identify these disorders and periodic monitoring of serum calcium levels and thyroid function tests should be done.