Subclinical Hypothyroidism as a Result of Quetiapine Therapy

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Dear Editor,

Quetiapine is an atypical antipsychotic drug with a favorable side-effect profile. We report a case of reversible subclinical hypothyroidism in a 27-year-old female diagnosed as bipolar disorder type I, who received quetiapine 50 mg daily for 3 months and developed hypothyroidism. However, after stopping quetiapine, her thyroid function tests were normalized.

A 27-year-old Kashmiri Muslim woman presented to our hospital with chief complaints of excessive talking, elated self-esteem, spending money more than usual and in excess of her daily needs, wearing unusual clothes, and disturbed biological function in the form of disturbed sleep and appetite for one and a half months. Her sleep pattern was irregular, sleeping for only two hours a day, and she was not meeting her domestic responsibilities. Mental status examination revealed increased psychomotor activity, elated mood with appropriate affect and pressured speech. General and physical examination was unremarkable. She denied prior history of psychiatric illness, substance abuse, or any medical comorbidity. Laboratory investigations for metabolic profile, renal function, liver function as well as workup for inflammatory and infectious conditions did not reveal any abnormalities. The thyroid function tests (thyroid stimulating hormone [TSH], free T3, and free T4), the anti-thyroid antibodies (anti-thyroid peroxidase) and thyroid gland ultrasonography were all normal. The patient was diagnosed with bipolar disorder type I. She was prescribed quetiapine 50 mg and clonazepam 0.5 mg and her symptoms resolved within a month after quetiapine initiation. The patient was regularly seen in the outpatient department and developed easy fatigability, generalized weakness and cold intolerance after 2 months into the follow-up period. She underwent a battery of tests including complete blood count, liver function tests, kidney function tests, and workup for inflammatory and infectious conditions, which were unremarkable. However, her thyroid function tests revealed a raised TSH of 8.8 mIU/ml (normal range = 4–7 mIU/ml) with normal serum free T3 (3.2 pg/mL; normal range = 1.6-5 pg/mL) and free T4 (1.4 ng/dL; normal range = 0.8-2 ng/dL) levels, performed on two occasions. Anti-thyroid antibodies were negative. An ultrasound scan of the thyroid gland was unremarkable. There was no significant history of any other drug intake. Personal and family histories of thyroid disease were unremarkable. She denied any recent history of fever, neck pain or discomfort. Based on the possible diagnosis of quetiapine-induced hypothyroidism, quetiapine was discontinued. Thyroid function tests were normalized (serum TSH = 2.8 mIU/L) after three months of therapy discontinuation and there was no recurrence of thyroid dysfunction during one year follow-up. The patient was prescribed olanzapine and clinically responded well to it.

Quetiapine is an atypical antipsychotic drug with a greater affinity for serotonin-2 receptor than for dopamine-2 (D2) receptors [1]. Quetiapine has transiently high dopamine (D2) receptor occupancy. This is possibly the reason for its low incidence of extrapyramidal side effects and prolactin elevation [2]. Sedation and weight gain also occurs with quetiapine because of histamine receptor antagonism. It causes dizziness and orthostatic side effects such as hypotension due to α1-adrenergic receptor antagonism [3]. Our case demonstrates that atypical antipsychotics may have the potential to induce hypothyroidism. Hypothyroidism related to quetiapine therapy was initially reported in a patient who was first treated with radioactive iodine [4]. In clinical trials, about 0.4% (10/2386) of patients treated with quetiapine experienced TSH elevations, and six of these subjects required thyroid hormone supplementation [5]. Our patient was clinically and biochemically euthyroid before quetiapine therapy and did not require any thyroid supplementation after cessation of quetiapine. This case suggests that quetiapine can cause hypothyroidism even at very low doses. It also highlights that every practitioner who prescribes quetiapine to his patients for various indications must look for any symptoms or signs of

hypothyroidism in them and perform thyroid function tests if clinically appropriate.

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