

Hypothyroidism Induced Mania: A Case Report

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Abstract

INTRODUCTION

Hypothyroidism is associated with myriad of medical, neurological as well as psychiatric symptoms. There is classic association of depression with hypothyroidism and of mania occurring with hypothyroidism. Only few cases of mania associated with hypothyroidism are reported. This is the first case of mania associated with hypothyroidism in Nepalese patient. We report a case of 30-year-old female with symptoms of mania induced by primary hypothyroidism. She had no previous history of psychiatric disorder but her father was diagnosed depression. Psychosocial factors contributed to non-compliance of Tablet. Levo thyroxine. She was successfully managed with Tablet. Aripiprazole, thyroxine replacement, family therapy and psycho education sessions. Therefore, clinicians should be aware to assess thyroid function in patients presenting with mania, especially females with first episode. We should also evaluate for mania symptoms in cases of hypothyroidism. Psycho education of patient and family play vital role in the treatment process.

KEYWORDS

Mania, hypothyroidism, stress, thyroid function test, mood disorder

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INTRODUCTION

Thyroid dysfunction has been associated with psychiatric disorders such as affective disorder, anxiety disorder, psychosis, and disturbance of cognition.¹ However, there are few reports of hypothyroidism and new onset mania.¹ Here, we present a case of thirty-year-old female with acute onset mania induced by hypothyroidism.

CASE DESCRIPTION

A 33 year married female of middle socio-economic status, and well-adjusted pre-morbid personality presented in emergency department with first episode of psychiatric illness of 7 days. She had hypothyroidism for 10 years. Her thyroid function test was normal with Tablet. Levothyroxine 100mcg. She stopped Tablet. Levo thyroxine 10 days back fearing that the groom and in-laws might know about her illness. She had decrease need of sleep, over talk ativeness, over grooming, and authoritative towards her elders unlike previously after 3 days of stoppage of the medication. Furthermore, she would claim that she was the manager of a bank, and would boast that she could buy anything she wanted in the world. Her predominant mood would remain over cheerful with punctuations of irritability when her family members would scold her or confront her beliefs. She was brought to the emergency by her husband next day of her wedding. Family history revealed history of depression in first degree relatives (father). There was no history of substance use.

There was no palpable goiter or thyroid nodules. Systemic

examination was normal. Mental status examination revealed increase in productivity of speech, flight of idea, euphoric affect and delusion of grandiosity with insight of 1/5 (complete denial of illness). Clinical differential diagnoses of organic manic disorder with hypothyroidism, and mania with psychotic symptom with hypothyroidism were made. She was admitted in psychiatric ward. Routine laboratory investigations and electrocardiograph were normal. Her fT4 level was 0.67 ng/dL, fT3 was 2.64 pg/ml, and Thyroid Stimulating Hormone (TSH) level was > 100 uIU/mL. Antithyroid peroxidase and anti-thyroglobulin antibodies level were normal. Diagnosis was revised to F06.30 organic manic disorder. She was started Tablet. Levo thyroxine 100mcg OD and Tablet. Clonazepam 0.25 mg BD. Tablet. Aripiprazole was started due to obesity; optimized to 20mg OD in a week. Family therapy sessions, and psycho education session of patient were conducted. She was discharged in a week after remission of symptoms. One month follow up showed no mania symptoms.

DISCUSSION

Diagnosis of Organic Mood disorder with primary hypothyroidism was based on temporal relationship of symptoms with discontinuation of Tablet. Thyroxine, no past history of psychiatric illness, and absence of substance use.

Asher et al described "Myxedema Madness" as a chronically underactive thyroid gland that can lead to slowly progressive dementia, delirium, and hallucinations, coma or psychosis, at worse particularly in the elderly.³ Various hypotheses were explained. Hypothyroidism alters cerebral catecholamine (norepinephrine, dopamine) sensitivity.⁴ It decreases serotonin in limbic system, thereby upregulating postsynaptic DA receptors. It increases cerebral TRH, which raises level of monoamines, especially dopamine. Hence, increase in dopaminergic activity can cause mania symptoms.⁵ Recently, it has been observed that TSH activates protein kinase C (PKC). PKC inhibitors such as Tamoxifen, Lithium, Valproate have antimanic properties.⁶

As in our case, diagnoses of mania have been reported commonly among females with no past psychiatric illness,

with hypothyroidism, when Tablet. Thyroxine have been abruptly stopped.^{7,8} Combination of psychotropic medications and thyroid hormone rapidly improved her episode like in other case reports.⁹ Therefore, it is important to enquire thyroid dysfunction and monitor thyroid levels in a case of mania, especially among females. Both disorders should be monitored and treated together for improvement of the symptoms.

In a retrospective study done in bipolar affective disorder patient, there was significant association between family history of mood disorder in the first degree relatives and patients with hypothyroidism. This is also evident in our case. Hence, assessing and investigating both features of hypothyroidism and mood disorder in the families are necessary in a case of mood disorder with hypothyroidism.

Our case highlights psychosocial problems, and biological vulnerability contributing to mental health disturbances. Many studies have found association of stressful life events and bipolar episodes.¹⁰ In our case, marriage and stigma about illness led to discontinuation of Tablet. Thyroxine. This imparts the need to focus on psychosocial aspect during diagnosis and management to prevent relapse.¹⁰

CONCLUSION

Clinicians should be aware to assess thyroid function in patients presenting with first episode mania, especially among females. It is important to treat both disorders concurrently with focus on management of psychosocial stressors. Further research is required to understand the exact mechanism of hypothyroidism induced mania with robust methodologies.

CONFLICT OF INTEREST

None

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REFERENCE

- Larisch R, Kley K, Nikolaus S, Sitte W, Franz M, Hautzel H, et al. Depression and anxiety in different thyroid function states. *Horm Metab Res Horm Stoffwechselforschung Horm Metab*. 2004 Sep;36(9):650–3.
- Kaplan JL, Castro-Revoredo I. Severe Hypothyroidism Manifested as Acute Mania With Psychotic Features: A Case Report and Review of the Literature. *J Psychiatr Pract*. 2020;26(5):417–22.
- Asher R. Myxoedematous Madness. *Br Med J* [Internet]. 1949 Sep 10 [cited 2021 May 29];2(4627):555–62. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2051123/>
- Menon B. Hypothyroidism and Bipolar Affective Disorder: Is There a Connection? *Indian J Psychol Med* [Internet]. 2014 Apr [cited 2021 May 29];36(2):125–8. Available from: <http://journals.sagepub.com/doi/10.4103/0253-7176.130966>
- Ashok AH, Marques TR, Jauhar S, Nour MM, Goodwin GM, Young AH, et al. The dopamine hypothesis of bipolar affective disorder: the state of the art and implications for treatment. *Mol Psychiatry*. 2017 May;22(5):666–79.
- DiazGranados N, Zarate CA. A review of the preclinical and clinical evidence for protein kinase C as a target for drug development for bipolar disorder. *Curr Psychiatry Rep*. 2008 Dec;10(6):510–9.
- Kaplan JL, Castro-Revoredo I. Severe Hypothyroidism Manifested as Acute Mania With Psychotic Features: A Case Report and Review of the Literature. *J Psychiatr Pract* [Internet]. 2020 Sep [cited 2021 Jun 12];26(5):417–22. Available from: <https://journals.lww.com/10.1097/PRA.0000000000000497>
- Mahendran R. Hypomania in a patient with congenital familial hypothyroidism and mild mental retardation. *Singapore Med J*. 1999 Jun;40(6):425–7.
- Giunio Zorkin N, Golts M, Fernandes VC. Severe Hypothyroidism Presenting with Acute Mania and Psychosis: A Case Report and Literature Review. *Bipolar Disord Open Access* [Internet]. 2017 [cited 2021 May 29];03(01). Available from: <https://www.omicsonline.org/open-access/severe-hypothyroidism-presenting-with-acute-mania-and-psychosis-a-casereport-and-literature-review-2472-1077-1000116.php?aid=85128>
- Bidzińska EJ. Stress Factors in Affective Diseases. *Br J Psychiatry* [Internet]. 1984 Feb [cited 2021 May 29];144(2):161–6. Available from: <https://www.cambridge.org/core/journals/the-british-journal-of-psychiatry/article/abs/stress-factors-in-affective-diseases/B0E5EFBE36AED458D23AC2FEED5378E9>