

Pharmacological and Non-pharmacological Management of Bipolar Disorder with Comorbid Huntington's Disease: A Case Report

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ABSTRACT

Bipolar disorder and Huntington's disease are chronic, debilitating conditions that may present during early to middle adulthood. While reports exist on managing each condition separately, data on their comorbidity is limited. We describe a case of successfully treating a patient with comorbid bipolar disorder and Huntington's disease. A 36-year-old male presented with mania, psychosis and involuntary movements. He was diagnosed with bipolar disorder type I and Huntington's disease based on the clinical features and family history. He was treated with quetiapine, valproate, lorazepam, lithium, ECT and TMS. Investigations including blood tests, CT scan and psychiatric assessment were performed. The patient's symptoms showed some improvement with treatment. However, optimization of pharmacotherapy and use of ECT/TMS as maintenance therapy were recommended to achieve better control of bipolar symptoms. Involuntary movements and gait disturbance were attributed to Huntington's disease. This case highlights the diagnostic and management challenges in comorbid bipolar disorder and Huntington's disease. Despite pharmacological and non-pharmacological treatments, coordinated multidisciplinary care should be provided. Insights from this case report may help to optimize the management in similar patients.

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Introduction

Bipolar disorder and Huntington's disease are chronic, debilitating conditions affecting millions of individuals worldwide [1]. While both disorders are managed primarily with pharmacological and non-pharmacological approaches, their complex comorbidity presents unique challenges to clinicians. Bipolar disorder is characterized by recurrent episodes of mania and depression [2]. It often begins in late adolescence or early adulthood and is associated with substantial functional impairment. Pharmacotherapy remains the first-line treatment for bipolar disorder, particularly during acute manic episodes. Electroconvulsive therapy (ECT) and transcranial magnetic stimulation (TMS) are also used as augmentative treatments, especially in refractory cases [3]. Huntington's disease is a hereditary neurodegenerative disorder caused by a defective gene. Its characteristic features include motor, cognitive and psychiatric disturbances. The progression of Huntington's disease is slow and patients typically develop the full spectrum of symptoms in their 30s and 40s [4]. Managing the symptoms with pharmacological and non-

pharmacological measures aims to improve patients' quality of life. While the association between bipolar disorder and Huntington's disease is known, there are limited reports on managing their comorbidity, especially in young adults [5].

This case report describes the challenges in treating a 36-year-old man with bipolar disorder type-I in a current manic phase with psychosis, who also had Huntington's disease. An overview of the management with pharmacotherapy, ECT, TMS and other investigations were presented. This case highlights the important considerations for treating the comorbid bipolar disorder and Huntington's disease, specifically in addressing the patient's psychiatric symptoms, motor disturbances and functional impairments. Insights from this case may help physicians optimize the management of such complex patients.

Case presentation

A 36 year old male patient presented with a primary diagnosis of bipolar affective disorder type-I currently in a manic phase with psychosis. He also had a secondary diagnosis of Huntington's disease. The patient's medical management was included with



pharmacotherapy targeting the bipolar disorder and Huntington's disease, as well as non-pharmacological treatments.

Symptoms

The patient presented with several symptoms indicative of both bipolar disorder and Huntington's disease:

Involuntary movements resembling a dance-like gait

This is a characteristic motor symptom of Huntington's disease, known as chorea. The uncontrolled, jerky movements typically start distally in the limbs and progress proximally over time.

Difficulty climbing stairs and walking properly

Gait disturbances and impaired balance are common in Huntington's disease, due to the chorea and coordination deficits. These motor impairments can progress and affect activities of daily living.

No history of seizures

Seizures are a known complication of both bipolar disorder and Huntington's disease. However, the patient did not have a history of seizures, suggesting the involuntary movements were more likely chorea rather than epileptic in origin.

Lack of concentration

Cognitive deficits, particularly impairments in attention, concentration and memory, are seen in both bipolar disorder and Huntington's disease. Determining the relative contributions of each disorder to the patient's cognitive symptoms would require further assessment.

Family History

The patient's father had Huntington's disease. Given the autosomal dominant inheritance pattern of Huntington's disease, there is a 50% chance of offspring inheriting the defective gene from an affected parent. The positive family history, in the context of the patient's clinical presentation of chorea, gait disturbance and cognitive symptoms, strongly supports the diagnosis of Huntington's disease. The young age of onset (36 years) suggests an earlier manifestation of the disease [6].

The clinical symptoms revealed features consistent with both bipolar disorder as well as Huntington's disease. However, the presence of

chorea, the absence of seizures, difficulty with balance & gait and a family history of Huntington's disease in the father indicates that the motor and cognitive symptoms were likely primarily attributable to Huntington's disease in this patient.

Investigations

The following investigations were performed to evaluate the patient's medical and psychiatric status:

Complete blood profile: A complete blood count was performed evaluating the blood cell levels, including hemoglobin, white blood cell count and platelet count. This investigation helped to rule out the medical conditions that were present along with the psychiatric symptoms.

Computed tomography (CT) scan: This investigation helped to rule out structural abnormalities in the brain that can present with psychiatric symptoms.

Renal function test: An elevated creatinine level of 1.3 mg/dL in the patient indicates mild kidney impairment, which can impact the dosing of medications like valproate and lithium.

Additional tests that could have aided in the case

Liver function test: Monitoring the liver enzymes is an important aspect to detect any drug-induced liver injury.

Thyroid function tests: Hypothyroidism and hyperthyroidism can be present with mood disorders, so ruling out this investigation is an important consideration.

Vitamin D level: Low vitamin D is associated with increased risk of bipolar disorder and can worsen symptoms.

A complete metabolic panel would have assessed electrolytes, kidney & liver function and as well as blood glucose & lipid levels. Abnormalities in these values can impact the treatment plan.

Psychiatric Evaluation

The Brief Psychiatric Rating Scale (BPRS) was used to assess and quantify the patient's psychiatric symptoms. The scores indicated moderate to severe manic symptoms including somatic concern, anxiety, disorganization and excitation.



Additional assessments to measure the impact of Huntington's disease on cognition and function would have been useful to guide the treatment plan. A thorough battery of medical tests and psychiatric evaluations were performed to diagnose and manage this complex case of bipolar disorder with comorbid Huntington's disease.

Differential diagnosis

Chronic schizophrenia: Psychotic symptoms can also occur in schizophrenia. However, the history of mood episodes favors bipolar disorder over schizophrenia [7].

Tourette syndrome: The involuntary movements could suggest Tourette syndrome. However, the absence of vocal tics and the presence of cognitive impairment make this less likely [8].

Wilson's disease: This inherited disorder can present with symptoms of mania, psychosis, chorea and cognitive decline. However, liver function abnormalities and dystonia are more typical [9].

Pharmacotherapy

Quetiapine 100mg: This atypical antipsychotic is indicated for the treatment of mania associated with bipolar disorder. However, the dose of 100mg is relatively low and may need up-titration to achieve better control of manic symptoms, especially the psychosis [10].

Sodium valproate 500mg: This mood stabilizer is used for mania and mixed episodes of bipolar disorder. The dose appears appropriate, though serum valproate levels should be monitored to ensure the desired therapeutic levels [11].

Lorazepam/Diazepam 2mg injection: The benzodiazepines are used as needed for acute agitation and aggression. However, significant sedation and tolerance can develop with frequent use. Non-benzodiazepine anxiolytics or antipsychotics may be more appropriate for long-term control of agitation [12].

Lithium carbonate 450mg: Lithium is another first-line treatment for mania and bipolar depression. However, given the risk of side effects and toxicity, lithium levels

should be closely monitored if this therapy is continued for long-term aspect [13].

Vitamin B12: Vitamin B12 supplements are likely indicated due to the risk of deficiencies with sodium valproate use. However, they are not directly effective for bipolar disorder symptoms [14].

Although pharmacotherapy has been initiated, optimization of doses and drug levels are required. Up-titration of quetiapine and monitoring of sodium valproate levels should be considered. Lithium levels also require close monitoring to prevent lithium toxicity and accumulation.

Non-pharmacological treatments

ECT and TMS: These are useful augmentative treatments for refractory bipolar disorder, especially in patients who cannot tolerate or do not respond adequately to medications. Both modalities may provide more sustained remission of bipolar symptoms when used as maintenance therapies. Electroconvulsive therapy and pre-transcranial magnetic stimulation (ECT/TMS) should be continued as adjunctive treatments in combination with optimized pharmacotherapy to achieve better control of bipolar symptoms [15].

Key recommendations

- *Bipolar disorder and Huntington's disease can co-occur and present diagnostic and management challenges. A thorough evaluation and optimized treatment plan targeting both conditions are needed.*
- *The manifestations of bipolar disorder and Huntington's disease can overlap, including symptoms like cognitive impairment, involuntary movements and seizures. Careful differential diagnosis is required based on the clinical presentation, family history and test results.*
- *Initial pharmacotherapy for bipolar disorder in this case included quetiapine, sodium valproate, benzodiazepines and lithium. However, optimization of doses and monitoring of drug levels are needed for more effective control of symptoms.*
- *Non-pharmacological treatments like ECT and TMS can be useful augmentative therapies for refractive*



bipolar disorder, especially when used as maintenance treatments in combination with medications.

- Medical tests and psychiatric assessments should be comprehensive to identify complications, guide treatment and monitor response. Relevant tests for these conditions include thyroid function, vitamin D, genetics, cognition and functional assessments.
- The motor and cognitive symptoms in this case were likely primarily attributable to Huntington's disease, based on the presence of chorea, absence of seizures, gait disturbance, family history and young age of onset.
- Managing both the psychiatric symptoms of bipolar disorder and the motor/cognitive deficits of Huntington's disease is essential to improve the patient's quality of life. A multidisciplinary team approach may be needed for the better management [16].

Conclusion

This case shows the difficulty of treating a young adult with both bipolar disorder and Huntington's disease. The patient was initially treated with medication and therapy, but their treatment could be improved with dose adjustments, drug level monitoring and ECT/TMS. While the patient's motor and cognitive symptoms were likely due to Huntington's disease, the bipolar disorder also contributed. A multidisciplinary approach involving psychiatry, neurology, and rehabilitation is necessary, along with frequent monitoring and education for patients and caregivers. This case highlights the need for an integrated approach to manage both disorders and calls for further research to develop guidelines for clinical practice.

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