

Case Report

Organic Bipolar Disorder: An Unusual Neuropsychiatric Sequelae following Right Frontotemporal Injury

Syed Ummar, Naveen Kumar, Shree Aarthi Ramanathan

ABSTRACT

Psychiatric disorders are common consequences of traumatic brain injury (TBI). But organic bipolar disorder is a rare entity when compared with other disorders. Here, we report this 49 year old patient with bipolar affective disorder following traumatic brain injury, its presentation and management. Though the pathophysiology of this disorder involves the interaction of factors that precede trauma (eg, genetic vulnerability and previous psychiatric history), factors that pertain to the traumatic injury itself (eg, type, extent, and location of brain damage), in our patient it showed an atypical presentation.

Key words: *Bipolar, depression, mania, divalproex sodium, head injury, trauma*

INTRODUCTION

Psychiatric disorders are a major cause of disability after traumatic brain injury (TBI).^[1] Neuropsychiatric sequelae of TBI is varied and highly individualized. Substantial psychological and neurobehavioral evidence is available to support the hypothesis that TBI is a risk factor for subsequent psychiatric disorders.^[2] The organic bipolar disorder is a rare entity when compared with organic mania or depression. Due to its rarity, its course is not well understood. Here, we report this 49-year-old patient with bipolar affective disorder following TBI.

CASE REPORT

A 49-year-old man sustained head injury 1½ years back which resulted in right temporal, frontal hemorrhagic contusions, and subarachnoid hemorrhage. After a brief period of acute confusional stage, the patient recovered. He was discharged under cover of anti-epileptics. Ten days after discharge, behavioral changes such as excessive speech, irritability, increased anger outburst, abusing others verbally, increased psychomotor activity, lability of affect, decreased sleep, and appetite were observed for a period of 1-month. He was treated

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symptomatically, details of which is not available. This was followed by decreased activity, reduced social interaction, monosyllable reply to questions asked, reduced sleep, and appetite for a period of 2 months. He was treated symptomatically outside, after which his symptoms improved. However, he had cognitive impairments which were not affecting his daily routine. After 8 months, the patient presented in emergency psychiatry department with excessive speech, authoritative behavior, increased anger outburst, predominant irritability, wandering behavior, dancing and singing songs, hyper-religiosity, grandiosity, and disturbed sleep. His past, personal and family history was noncontributory.

The examination revealed irritable mood, flight of ideas, pressured speech, increased self-esteem, over familiarity, and grandiose ideas. Computed tomography scan of the brain showed gliotic changes in the right temporal lobe and right frontal lobe. With this presentation, we made a diagnosis of organic bipolar affective disorder — current episode mania without psychotic symptoms. He was treated with tablet divalproex sodium 2 g (weight of patient = 98 kg, valproate dose = 20-30 mg/kg^[3]) and tablet haloperidol 20 mg. The patient had severe akathisia within a week of starting tablet haloperidol, which was treated with tablet trihexyphenidyl 4 mg. Gradually the tablet haloperidol was tapered and stopped. The patient was improving symptomatically. After 2 weeks, the patient had behavioral disorientation. Serum valproate levels were elevated (127 mcg/ml). So the dose of tablet divalproex sodium was reduced to 1.5g. At present, the patient is maintaining in the euthymic state on follow-up.

DISCUSSION

Our patient was diagnosed with organic bipolar affective disorder according to International Classification of Diseases-10 criteria (F06.31)^[4] secondary to TBI. This diagnosis was considered because of temporal correlation of onset of affective symptoms and TBI. A depressive disorder is the most common neuropsychiatric sequelae of TBI.^[5] Bipolar and related disorders are relatively uncommon consequences of TBI.^[6] Among other psychiatric disorders, the prevalence of organic bipolar affective disorder following head injury is 1.7%.^[7] Past, personal and family history were not significant in our patient, unlike previous study which shows that genetic vulnerability and previous psychiatry history as one of the factors that could trigger a mood disorder following a TBI.^[5] In our case report, episodes of mania and depression were short lasting when compared with the usual course of the functional bipolar affective disorder which correlated with the previous studies.^[8] An injury

on the right side is associated with manic symptoms.^[5] Similarly, the patient had right side injury which was associated with more frequent manic episodes but on the contrary he also had one depressive episode. Literature shows TBI-related affect disturbances shows frequent brief episodes of irritability and impulsive behaviors ^[5] which was evident in our patient.

Studies show valproate may exacerbate cognitive impairment in some patients with TBI, but it appears less likely to do so than lithium.^[9] But continuous assessment for development of treatment-related adverse effects is required. Even after starting tablet divalproex sodium in a minimal therapeutic dose with respect to body weight in our patient, he developed toxicity and behavioral disorientation within a short period of time (blood levels of valproate-127 mcg/ml). So the dose of divalproex sodium was decreased which resulted in remission of disorientation. Also with anti-psychotics tablet haloperidol 20 mg, he developed severe akathisia and extrapyramidal side effects which resolved with trihexyphenidyl and gradual tapering of haloperidol. This reflects the need for a gradual increase in dose and careful monitoring of adverse effects of drugs in patients with TBI, as head injury makes them more prone to side effects of the drugs even with minimal dosage.^[5] In particular, unopposed selective serotonin reuptake inhibitors are prescribed routinely for the treatment of posttraumatic disturbances of affect and behavioral dyscontrol syndromes, which is generally inadvisable among persons with secondary mania or mixed states. As it raises, the possibility of the sensitizing role of brain injury for anti-depressant-induced mania.^[10] Further research on long-term follow-up of patients with the organic bipolar disorder may lead to better understanding of clinical features, prognosis, and treatment.

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Conflicts of interest

There are no conflicts of interest.

REFERENCES

1. Fann JR, Katon WJ, Uomoto JM, Esselman PC. Psychiatric disorders and functional disability in outpatients with traumatic brain injuries. *Am J Psychiatry* 1995;152: 1493-9.
2. van Reekum R, Bolago I, Finlayson MA, Garner S, Links PS. Psychiatric disorders after traumatic brain injury. *Brain Inj* 1996;10:319-27.
3. Sadock BJ, Sadock VA. Kaplan & Sadock's Synopsis of Psychiatry: Behavioral Sciences/Clinical Psychiatry. 10th ed. Philadelphia: Wolter Kluwer/Lippincott Williams & Wilkins; 2007.

4. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders: Clinical Descriptions and Diagnostic Guidelines. Geneva: World Health Organization; 1992.
5. Jorge RE, Arciniegas DB. Mood disorders after TBI. *Psychiatr Clin North Am* 2014;37:13-29.
6. Silver JM, Kramer R, Greenwald S, Weissman M. The association between head injuries and psychiatric disorders: Findings from the New Haven NIMH epidemiologic catchment area study. *Brain Inj* 2001;15: 935-45.
7. Koponen S, Taiminen T, Portin R, Himanen L, Isoniemi H, Heinonen H, *et al.* Axis I and II psychiatric disorders after traumatic brain injury: A 30-year follow-up study. *Am J Psychiatry* 2002;159:1315-21.
8. Jorge RE, Robinson RG, Starkstein SE, Arndt SV, Forrester AW, Geisler FH. Secondary mania following traumatic brain injury. *Am J Psychiatry* 1993;150:916-21.
9. Dikmen SS, Machamer JE, Winn HR, Anderson GD, Temkin NR. Neuropsychological effects of valproate in traumatic brain injury: A randomized trial. *Neurology* 2000;54:895-902.
10. Dealberto MJ, Marino J, Bourgon L. Homicidal ideation with intent during a manic episode triggered by antidepressant medication in a man with brain injury. *Bipolar Disord* 2008;10:111-3.

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