www.jmscr.igmpublication.org
Index Copernicus Value: 79.54
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v7i3.236

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Organic Bipolar Disorder: An Unusual Neuropsychiatric Sequelae Following Traumatic Brain Injury

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Introduction

Psychiatric disorders are one of the major causes of disability after traumatic brain injury (TBI).[1] First detailed report of psychiatric symptoms following traumatic brain injury (TBI) was the famous case of Phineas Gage, in 1848, a construction worker who survived an injury in which an iron bar went through his skull, seriously damaging the frontal lobe.[2] His Doctor, John Harlow, described Phineas Gage personality before head injury as socially well-adjusted and was handling responsibility well.[2] Gage became negligent, irreverent and profane, unable to take responsibility following brain injury.[2] In early 20th century systematic study on this topic was done by American psychiatrist Adolf Meyer.[3] He published comprehensive case reports about patients who presented with behavioural disturbances after head injuries and proposed a set of disorders called "traumatic insanities", which included consciousness alterations, psychosis and neurological symptoms.[3] Since then many efforts were made to understand more about sequelae of brain injury.

In spite of considerable amount of research in this domain, the scientific evidence remains inconclusive. However many previous studies were of the opinion that behavioural disturbances were common following brain injury. Although the most common mood disorder following TBI is depressive disorder,[4] some case studies havealso reported about bipolar disorder as a sequelae of TBI. Here we discuss about a middle aged male patient who presented with bipolar disorder post TBI.

Case Description

42 year old premorbidly well-adjusted married male hailing from a rural background, working as a farmer, sustained road traffic accident resulting in left parietal bone fracture with extradural haemorrhage and right frontal bone depressed fracture associated with subarachnoid haemorrhage and cerebral edema. Craniotomy and

decompression was done. Patient was discharged after 12 days with antiepileptic cover of levetiracetam 500mg BD and was on regular follow up with Neurosurgery for 1 year after which there was lack of adherence to medications.

After 1 year, over talkativeness, excessive spending, decreased sleep, episodes of anger outbursts, use of abusive language and aggressive behaviour was noticed by family members. Patient was treated at a private hospital for 3 months for the same, details of which was not available.

He presented tothe OPD with complaints of pervasive low mood, decreased interest in daily activities, frequent death wishes, decreased sleep and appetite. History of alcohol and nicotine use was in recreational pattern. On examination patient had low mood with passive suicidal ideas. No delusions or perceptual disturbance were noted. Patient had good insight and judgement. Computed tomography scan of the brain showed focal gliotic changes in right fronto parietal cortex. With this presentation, we made a diagnosis of organic bipolar affective disorder, current episode depression.

Patient was initially started on oral Escitalopram 5mg andcontrolled released tablet of Carbamazepine 200mg OD. During subsequent visit patient presented with manic symptoms, hence oral combination of Risperidone 3mg with Trihexiphendyl 2mg OD was added. Patient even on medications reported fluctuations with depressive and manic symptoms. Monitoring the patient's improvement, he was gradually stabilized on Fluoxetine 20mg ,combination of Risperidone 2mg & Trihexiphendyl 2mg OD and Carbamazepine 200mg BD. At present, the patient is maintaining in the euthymic state and on follow-up in the department of psychiatry.

Discussion

The patient was diagnosed with organic bipolar affective disorder according to International Classification of Diseases-10 criteria (F06.31) secondary to TBI.[5] This diagnosis was considered because of temporal correlation of onset of affective symptoms and TBI. Considering the absence of any other contributing factors like past history or family history of mental illness and temporal correlation, we provisionally diagnosed him as a case of organic bipolar disorder.

Bipolar and related disorders are relatively uncommon consequences of TBI.[6]The prevalence of organic bipolar affective disorder following head injury is around 1.7%.[7] Previous studies shows that genetic vulnerability and previous psychiatric history as factors that could trigger a mood disorder following a TBI.[4]Jorge et al were of the opinion that an injury on the right side of brain is associated with manic symptoms.[4] Correspondingly, the patient had right side injury which was associated with manic episodes .

Studies have shown that Carbamazepine act as mood stabilizer and the drug is recommended as one of the first choice medication in treating agitation and aggression following TBI.[8] The selective serotonin reuptake inhibitors (SSRIs) helps improve depression following TBI.[9] Effective treatment of post-TBI depression with SSRIs also reduces comorbid irritability and aggression as well as the number and perceived severity of co-occurring somatic and cognitive symptoms following injury.[10] As high possibility of the sensitizing role of brain injury for anti-depressant-induced mania, so combination of antipsychotic Risperidone and Trihexiphendyl was used.[11] 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.

Conclusion

Traumatic brain injury may cause decades lasting vulnerability to psychiatric illness in some individuals. Traumatic brain injury seems to make patients particularly susceptible to depressive episodes, bipolar affective disorders, delusional disorder, and personality disturbances .Eventhough bipolar disorder following TBI is rare, every case presenting with irritability and aggressive behaviour post TBI should be followed

up for possibility of developing bipolar disorder. Hence every case of traumatic brain injury should be assessed in detail for neuropsychiatric complications.

Keywords: Organic BPAD, Traumatic brain injury

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