

Diagnostic Dilemmas Associated with Bipolar Disorder After Traumatic Brain Injury

To the Editor:

October 18, 2008

Our understanding of bipolar spectrum disorders, including the boundaries or comorbidity of the disorder, as well as the biological factors contributing to its presentation, has evolved over time.¹ An interrelationship between the behavioral and psychological symptoms of dementia and bipolar disorder has recently been proposed, highlighting the presence of potential psychiatric and neurologic comorbidity.² Clearly cognitive impairment, behavioral difficulties, and emotional changes associated with neurological damage can potentially overlap with or mimic psychiatric diagnoses, including bipolar disorder.

Traumatic brain injury (TBI) is one of the most common causes of disability in young adults. Severe TBI almost inevitably results in a rather predictable combination of cognitive impairment, emotional difficulties, behavioral change and, in many cases, poor self-awareness or insight.³ Common symptoms include irritability, poor attention, impulsivity, sexual disinhibition and impaired memory. Almost any psychiatric diagnosis can present for the first time after TBI. Furthermore, in many cases, pre-existing psychiatric problems can be accentuated by TBI. Depression and a range of anxiety disorders are particularly common after TBI. Bipolar disorder is perhaps one of the less frequently encountered new-onset mood disorders associated with a history of TBI.

A history of TBI appears to increase by 1.5 times the chances of developing bipolar disorder.⁴ Mania secondary to TBI has been reported in up to 9% of patients,⁵ however, a review of five studies found a lower prevalence of 4%.⁶

While bipolar disorder is not as common as other mood disorders or anxiety disorders after TBI, it is nevertheless a potential psychiatric complication of TBI. Furthermore, bipolar disorder can pose considerable diagnostic

challenges in a patient with a history of severe TBI. Two main difficulties arise in this situation. Disentangling symptoms common to both TBI and bipolar disorder and identifying the contribution of biological and non-biological factors underlying the presentation.

The neurologic factors contributing to bipolar disorder after TBI remains unclear. A potential coexistence between secondary mania and post-traumatic epilepsy has been suggested⁷ while others have reported left fronto-parietal haemorrhage⁸ or bilateral temporal lesions⁹ or temporal basal polar lesions in patients with bipolar spectrum disorder and TBI.⁵ In patients with bipolar disorder in the absence of TBI, a recent review of functional imaging studies proposed that networks fundamental to cognitive and emotional processing, the limbic, sub-cortical and frontal regions, were involved.¹⁰

Clearly, the pathophysiology associated with TBI has the potential to disrupt these networks. Nevertheless, factors other than biological are likely to contribute to personality, behavioral or emotional changes after TBI also, including loss of role, disturbed family or marital relations, and changes in personal identity. These need to be considered as potential contributory factors also, especially when a significant period of time since injury has elapsed.

Clinicians need to be aware of the possibility of bipolar disorder presenting after head trauma.⁹ However, making this diagnosis in the presence of TBI is complex. Many of the common symptoms of TBI, especially personality changes, such as impulsivity or sexual disinhibition, cognitive impairment related to poor attention and emotional difficulties, including irritability, can mimic the common symptoms of bipolar disorder. Perhaps one of the most pragmatic approaches then to disentangle symptomatology is to obtain a collateral, longitudinal

history from a relative of the patient.⁸ In some cases neuropsychological testing can help identify potential cognitive impairment mirroring some of the symptoms of bipolar disorder. However, where a new-onset change from usual post-TBI behavioral patterns is confirmed, including a cyclical pattern of mood disturbance, the index of suspicion for bipolar disorder should be raised. Where bipolar disorder was identified secondary to TBI, some authors have suggested treatment strategies including mood-stabilizing medication, family support, and maintaining the patient's routines⁸ or atypical antipsychotic medication,¹¹ bipolar disorder remains an under-researched, poorly understood clinical presentation after TBI that clinicians need to be aware of.

Sincerely,

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Disclosure: Dr. Coetzer does not have an affiliation with or financial interest in any organization that might pose a conflict of interest.

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Supported by an educational grant from Shire Pharmaceuticals Inc.