

BIPOLAR DISORDER ASSOCIATED WITH PARANEOPLASTIC CEREBELLAR DEGENERATION: A case report

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SUMMARY

We Present a case report of a patient who suffers from Paraneoplastic cerebellar degeneration (PCD) secondary to which the patient, a young woman, developed Bipolar Affective Disorder.

Here we focus on the mental health aspects of this case.

Key words: paraneoplastic cerebellar degeneration - bipolar affective disorder

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Introduction

Paraneoplastic cerebellar degeneration (PCD) is a rare disorder, presenting with severe cerebellar dysfunction. Small cell lung cancer, adenocarcinoma of the breast and ovary, and Hodgkin's lymphoma are the cancers most commonly associated with PCD (Henson & Urich 1982).

Recent observations show that in addition to motor deficits, cognitive and behavioural changes can be associated with cerebellar damage. The cerebellar cognitive affective syndrome (CCAS), as described by Schmahmann and Sherman (1998), is characterised by affective disturbances and impairments in executive function, spatial cognition and language (table. 1).

Table 1. Clinical features of CCAS in adults (Schmahmann 2004)

Function	Clinical Features
Executive function	Planning, set shifting, abstract reasoning, working memory
Spatial	Visual spatial organisation and memory
Personality	Blunting of affect or disinhibited and inappropriate behaviour
Language	Agrammatism and aprosodia

We describe a patient who developed a psychiatric disorder following PCD and was diagnosed with bipolar affective disorder. Whilst the aetiology of bipolar disorder remains mysterious, case reports have described secondary mania in patients with cerebellar lesions (Yadalam et al. 1995) and neuroimaging studies have shown cerebellar abnormalities in bipolar disorder patients (Mills et al. 2005), supporting a role for the cerebellum in mood regulation.

Case Description

A 19-year-old female patient, presented with an eight week history of progressive gait and truncal ataxia, dysarthria, vertigo, nausea and vomiting. She was diagnosed with Stage Ia Hodgkin's lymphoma complicated by PCD and achieved complete remission following combination chemotherapy. There has been some subsequent improvement in her cerebellar signs however she remains dysarthric, essentially wheelchair bound and needs help with self care.

Following chemotherapy the patient was noted to have moderately severe cognitive impairment on formal testing, especially on tasks requiring visual memory, reasoning skills and perception. Her verbal IQ was 94, suggesting a moderate general deterioration of intellectual function when compared to her estimated premorbid IQ. Her verbal intelligence and visual perception significantly improved over the subsequent 2 years.

The Patient experienced recurrent episodes of altered mood in the seven years following diagnosis (fig. 1). She was diagnosed with bipolar affective disorder and eventually stabilised on imipramine and lithium.

Discussion

This presentation appears to describe a case of CCAS, in which the affective component is bipolar affective disorder, type II. The history of clear episodes of depressed and elated moods suggests a definite diagnosis of bipolar illness, rather than a non-specific reaction to the demoralisation caused by chronic ill health. This leads us to suppose that the psychiatric findings are a direct result of the neuropathology, emphasizing the role of the cerebellum in affective illness.

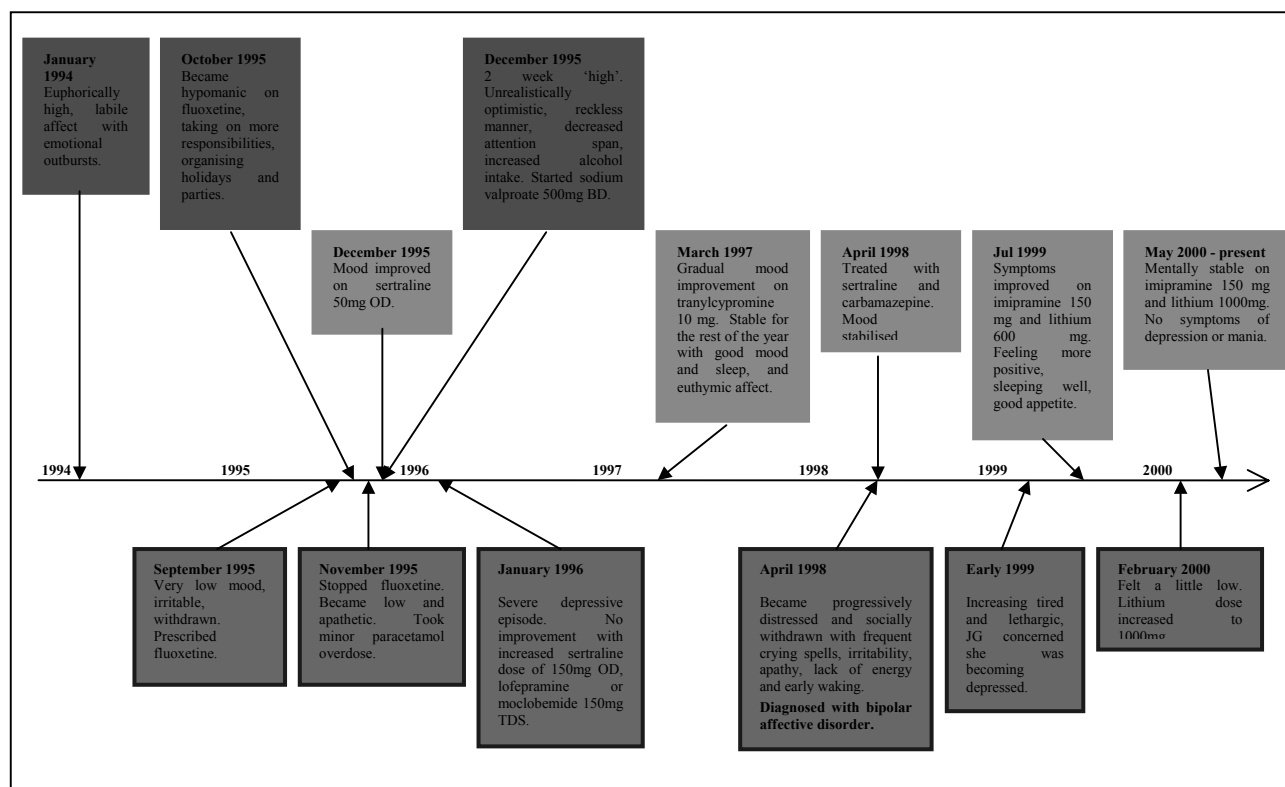


Figure 1. Psychiatric symptoms experienced by JG. Colour coding – red: manic episode, orange: euthymic, blue: depressive episode

It should be noted that a study examining psychiatric morbidity associated with degenerative cerebellar diseases found no evidence of bipolar disorder or mania in any of the 31 patients tested (Leroi et al. 2002). Furthermore, a recent review article included depression, mood instability and psychosis in the possible psychiatric components of CCAS (Schmahmann 2004), but bipolar disorder per se appears to be a more unusual variant.

Conclusion

This presentation adds to the existing literature suggesting a cerebellar role in the modulation of emotion, and emphasizes the importance of addressing psychiatric sequelae in the treatment and rehabilitation of patients with paraneoplastic cerebellar degeneration.

References

1. Henson RA And Urich H: *Cancer and the nervous system.* Oxford: Blackwell Scientific; 1982.
2. Leroi, MD. et al.: *Psychopathology in Patients with Degenerative Cerebellar Diseases: A Comparison to Huntington's Disease.* *Am J Psychiatry* 2002;159:1306-1314.
3. Mills, NP. et al.: *MRI analysis of Cerebellar Vermal Abnormalities in Bipolar Disorder.* *Am J Psychiatry* 2005;162:1530-1532.
4. Schmahmann, JD: *Disorders of the Cerebellum: Ataxia, Dysmetria of Thought and the Cerebellar Cognitive Affective Syndrome.* *J Neuropsychiatry Clin Neurosci* 2004;16:367-378.
5. Schmahmann, JD and Sherman, JC: *The Cerebellar Cognitive Affective Syndrome.* *Brain* 1998;121:561-579.
6. Yadalani, KG. et al.: *Mania in two sisters with similar cerebellar disturbance.* *Am J Psychiatry* 1985;142:1067-1069.

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