Bipolar Disord. 2014 Aug 11. doi: 10.1111/bdi.12244. [Epub ahead of print]

An observational study of inflammation in the central nervous system in patients with bipolar disorder.

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Abstract

OBJECTIVES: The potential influence of infections and immunological changes on the aetiology and pathogenesis of bipolar disorder (BD) has been discussed. Our aim was to detect intrathecal specific antibody synthesis against the neurotropic infectious agents that have previously been linked to BD.

METHODS: Paired cerebrospinal fluid (CSF) and serum samples from 40 patients with BD were analysed using the enzyme-linked immunosorbent assay to detect the concentration of antibodies against the following neurotropic infectious pathogens: Toxoplasma gondii (T. gondii), herpes simplex virus (HSV) types 1 and 2, cytomegalovirus (CMV), and Epstein-Barr virus (EBV). The specific antibody index (AI) was calculated, and an AI > 1.4 was considered to be evidence of intrathecal specific antibody synthesis. Twenty-six patients with pseudotumour cerebri served as controls.

RESULTS: Eight out of 40 patients with BD displayed specific intrathecal antibody synthesis against at least one of the tested neurotropic agents compared to only one patient in the control group (p = 0.061, not significant). Of these eight patients with BD, no significant prevalence of any particular neurotropic pathogen was evident. Five out of 40 patients with BD showed oligoclonal bands in the CSF, suggestive of a chronic immune reaction in the central nervous system (CNS).

CONCLUSIONS: We found evidence for increased production of antibody in the CSF of individuals with BD. However, the trend for polyspecific intrathecal antibody synthesis, as well as the presence of oligoclonal bands, might indicate activation of the intrathecal humoral immune system in a subgroup of patients with BD, as it is known to be associated with autoimmune disorders of the CNS.

KEYWORDS: Toxoplasma gondii ; Epstein-Barr virus; antibodies; antibody index; bipolar disorder; cerebrospinal fluid; cytomegalovirus; herpes simplex; herpesviridae; infection; intrathecal synthesis; neurotropic agents

PMID: 25109751 [PubMed - as supplied by publisher]