The meaning of cognitive dysfunction in bipolar disorder: a risk factor or a specific form of dementia?

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Dear Editor,

Bipolar disorder (BD) is a chronic pathology with a worldwide prevalence of 2.4% in its classic presentations1. Studies show that the depressive, mania/hypomania crises are neurotoxic and cognitive impairment is present both in the acute phases as well as in euthymia. However, bipolar type I patients have more cognitive changes than type II patients, most likely due to greater toxicity of manic episodes, with greater release of inflammatory cytokines, reduction of brain-derived neurotrophic factor (BDNF), higher oxidative stress and, consequently, loss of neuroprotective mechanisms1. In this sense, more than the time of disease duration, the number of manic episodes seems to determine the exacerbation of cognitive decline, mainly in patients presenting psychotic symptoms2,3.

In BD patients, cognitive deficits are found in several domains, such as processing speed, visuospatial abilities, verbal memory and attention, with the last two being the most impaired1. Furthermore, evidence shows that these deficits are associated with total brain atrophy, enlargement of the lateral ventricles, decrease of the corpus callosum volume, and the reduction of the hippocampus, findings that are also found in neurodegenerative diseases such as dementia4-5. Besides that, according to the theory of neuroprogression in BD stage 4, there are loss of autonomy due to cognitive and functional impairment, associated with enlargement ventricle and/or white matter hyperintensities, increase of tumor necrosis factor α (TNF-α), increase of nitrotyrosine 3, decrease of BDNF, increase of interleukins 6, 10, and glutathione transferase6.

So, although several studies point to BD as a risk factor for dementia, we question whether the cognitive dysfunctions present in some of these patients are not enough to affirm that there also a “bipolar dementia”, just like it’s done in other pathologies such as Parkinson’s disease7 and epilepsy8. In fact, Parkinson’s disease, epilepsy and BD patients who develop cognitive dysfunction do not present the changes in the cerebrospinal fluid as are described in Alzheimer’s disease, such as low concentrations of beta amyloid protein and high concentrations of total and phosphorylated tau protein9. In BD, like in these diseases, there is cognitive impairment; the deficits emerge over time with the recurrence of crises and there is no evidence pointing to a related or altered specific substance, leading to neurodegeneration10.

Recognizing BD as a pathology that might cause a subtype of dementia is important to reinforce the need for adequate diagnosis and treatment, bearing in mind the loss of functionality of the patients who present cognitive deficits. Furthermore, we should remember that BD has a high comorbidity with metabolic syndrome, which may also contribute toward microangiopathy and vascular dementia scenarios, whose physiopathology is different from dementia due to neurodegeneration. Thus, we pose the following question: is BD only a risk factor for dementia or must be considerate a distinct clinical entity?

Disclosure

The authors report no conflicts of interest.

References