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Biomarkers of Neuroprogression in Bipolar Disorder

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In bipolar disorder (BD), illness progression has been associated with a higher number of mood episodes and hospitalizations, reduced interepisode intervals, poorer response to treatment, and cognitive/ functional impairment. The term 'neuroprogression' has been proposed to describe the pathological rewiring of the brain that takes place when clinical and cognitive deterioration occurs in the context of the progression of BD. Accordingly, neuroprogression would correspond to the biological underpinnings of illness progression and staging in BD. In some cases of BD it is possible to identify an active process of neuroprogression mediated by immune activation which includes: a) inflammation, b) changes in growth factors, c) oxidative stress and d) mitochondrial dysfunction. Recent evidence showing neuroinflammation in BD suggest that it may be associated with neuroprogressive changes such as incremental volume loss in brain, cognitive changes, and a declining likelihood of response to pharmacological and psychosocial treatments. Prompt treatment may be potentially neuroprotective and attenuate the volumetric and neurocognitive changes that emerge with chronicity. Accumulating evidence suggest that the assessment of immune activation in BD may be a means to assess illness progression. Interventions aiming at reducing immune activation in BD are currently being tested.