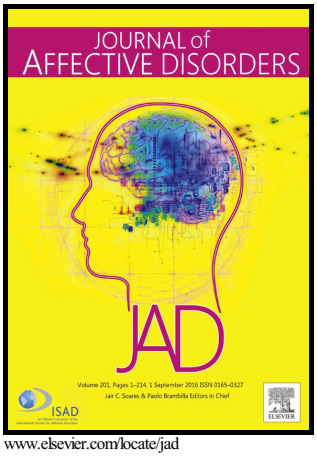

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Lithium, Stress, and Resilience in Bipolar Disorder: Deciphering this Key Homeostatic Synaptic Plasticity Regulator

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Abstract

BACKGROUND

Lithium is the lightest metal and is the only mood stabilizer that has been used for over half a century for the treatment of bipolar disorder (BD). As a small ion, lithium is omnipresent, and consequently, its molecular mechanisms and targets are widespread. Currently, lithium is a crucial pharmacotherapy for the treatment of acute mood episodes, prophylactic therapy, and suicide prevention in BD. Besides, lithium blood level is the most widely used biomarker in clinical psychiatry. The concept of stress in BD characterizes short- and long-term deleterious effects at multiple levels (from genes to behaviors) and the ability to establish homeostatic regulatory mechanisms to either prevent or reverse these effects. Within this concept, lithium has consistently shown anti-stress effects, by normalizing components across several levels associated with BD-induced impairments in cellular resilience and plasticity.

METHODS

A literature search for biomarkers associated with lithium effects at multiple targets, with a particular focus on those related to clinical outcomes was performed. A complete revision of the manuscript is now presented. It is now included that "An extensive search of the published literature using PubMed, Medline and Google Scholar was performed. Example search terms included lithium, plasticity, stress, efficacy, and neuroimaging. Articles