Commonalities in EEG Spectral Power Abnormalities Between Women With ADHD and Women With Bipolar Disorder During Rest and Cognitive Performance.


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Abstract

While attention-deficit/hyperactivity disorder (ADHD) and bipolar disorder (BD) denote distinct psychiatric conditions, diagnostic delineation is impeded by considerable symptomatic overlap. Direct comparisons across ADHD and BD on neurophysiological measures are limited. They could inform us on impairments that are specific to or shared between the disorders and, therefore, potential biomarkers that may aid in the identification of the diagnostic boundaries. Our aim was to test whether quantitative EEG (QEEG) identifies differences or similarities between women with ADHD and women with BD during resting-state and task conditions. QEEG activity was directly compared between 20 ADHD, 20 BD and 20 control women during an eyes-open resting-state condition (EO) and a cued continuous performance task (CPT-OX). Both ADHD (t38 = 2.50, p = 0.017) and BD (t38 = 2.54, p = 0.018) participants showed higher absolute theta power during EO than controls. No significant differences emerged between the two clinical groups. While control participants showed a task-related increase in absolute theta power from EO to CPT-OX (t19 = -3.77, p = 0.001), no such change in absolute theta power was observed in the ADHD (t19 = -0.605, p = 0.553) or BD (t19 = 1.82, p = 0.084) groups. Our results provide evidence for commonalities in brain dysfunction between ADHD and BD. Absolute theta power may play a role as a marker of neurobiological processes in both disorders.