Differences in Resting-state Quantitative Electroencephalography Patterns in Attention Deficit/Hyperactivity Disorder with or without Comorbid Symptoms.


Abstract

OBJECTIVE:
The aim of the present study was to evaluate the role of comorbid psychiatric symptoms on quantitative electroencephalogram (QEEG) activities in boys with the attention deficit/hyperactivity disorder (ADHD).

METHODS:
All participants were male students in the second, third or fourth grade in elementary school. Therefore, there were no significant differences in age or sex. Participants with ADHD were assigned to one of three groups: pure ADHD (n=22), ADHD with depressive symptoms (n=11), or ADHD with problematic internet use (n=19). The Korean version of the Children’s Depression Inventory and the Korean Internet Addiction Self-scale were used to assess depressive symptoms and problematic internet use, respectively. Resting-state EEG during eyes closed was recorded, and the absolute power of five frequency bands was analyzed: delta (1-4 Hz), theta (4-8 Hz), alpha (8-12 Hz), beta (12-30 Hz), and gamma (30-50 Hz).

RESULTS:
The ADHD with problematic internet use group showed decreased absolute theta power at the central and posterior region compared with the pure ADHD group. However, The ADHD with depressive symptoms group showed no significant differences compared with the other groups.

CONCLUSION:
These findings will contribute to a better understanding of brain-based electrophysiological changes in children with ADHD in accordance with comorbid psychiatric symptoms.