The influence of EEG-detected nocturnal centrotemporal discharges on the expression of core symptoms of ADHD in children with benign childhood epilepsy with centrotemporal spikes (BCECTS): A prospective study in a tertiary referral center.

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Abstract

Benign childhood epilepsy with centrotemporal spikes (BCECTS) is the most frequent benign focal epilepsy in childhood. Although it is described as a benign epilepsy syndrome, many studies have revealed that a significant number of patients have some degree of neuropsychological impairment. Thirty-two patients with BCECTS aged 6-11 years were included in the study. All patients (without any antiepileptic or psychiatric medication) underwent all-night EEG monitoring and complex neuropsychological testing to diagnose the presence of core symptoms of attention-deficit/hyperactivity disorder (ADHD). The spike index (number of spikes per minute) on awake and asleep EEG, age at seizure onset, family history of epilepsy, and perinatal risks were correlated with the results of neuropsychological testing. Of the 32 patients, 21 patients (65.6%) fulfilled the criteria for ADHD diagnosis. Children who were younger at epilepsy onset demonstrated lower IQ and higher attention deficit (P=0.004) and higher impulsivity (P=0.016). The occurrence of epileptiform discharges on nocturnal EEG was positively related to higher attention deficit and higher impulsivity. The findings are discussed in terms of how interictal discharges in the centrotemporal region during sleep affect the development of cognitive functions in children during critical epochs of neuropsychological development.