The effects of risk factors on EEG and seizure in children with ADHD.

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Abstract

Attention-deficit hyperactivity disorder (ADHD) is one of the most commonly seen developmental disorders in childhood. Its etiology, however, is not well known even though bio-psycho-social reasons have been thought to play a big role. The aims of this retrospective study are to identify the risk factors of ADHD in patients diagnosed with ADHD in childhood, analyze the relationship between clinical symptoms and risk factors to which they were exposed and determine their effects on prospective electrophysiological findings. Longitudinal cohort study of all children with ADHD treated at Ankara University Medical University during 2007-2012, with follow-up to ascertain risk factors and seizure and EEG abnormalities outcome. Multinominal univariate logistic regression analysis was used to calculate adjusted risk ratios (RRs) and 95% confidence intervals (CIs) for associations. Epileptiform discharges were found in 32 (22.9%) of the 140 ADHD patients. Of these, 71.9% had focal epileptiform discharges and 28.1% had generalized epileptiform discharges. The focal epileptiform discharges were most prevalent from the rolandic area. Among the 140 patients, 20 (14.3%) had a previous history of seizure, and all twenty had epileptiform discharges on EEG whereas none of the patients who had normal EEG had a seizure history. The rates of epileptiform discharges were significantly related to gestational age and asphyxia (RR: 1.8, 95% CI 0.3, 9.3; RR: 9.6, 95% CI 2.3, 40, respectively), whereas the rates of epilepsy were related to asphyxia but not gestational age. History of asphyxia and prematurity do seem to increase the risk of EEG abnormality in patients with ADHD. Modification of these environmental risk factors by evidence-based prevention programs may help to decrease the burden of ADHD.