

Original Paper

Comparison of quantitative electroencephalography between normal and children with anxiety disorder

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Abstract

Background and Objective: Anxiety disorder (AD) is one of the most common children disorders. In last two decades, several studies conducted to determine the mechanisms of child anxiety disorder specifically in base of neural mechanisms. However, studies about the electrophysiology of child anxiety disorder particularly in the quantitative electroencephalography (QEEG) are less than imaging studies. This study was performed to compare the quantitative EEG between children with anxiety disorder and normal subjects.

Methods: This case- control study was done on 30 children with anxiety disorder and 30 normal healthy children with 6-7 years old. Electroencephalography was recorded for each subject. Power of 19 channel and 5 frequency bands delta, theta, alpha, beta and high beta (25-30 Hz) in the frontal, central and occipital area were recorded, respectively.

Results: There was significant difference in delta absolute power in frontal lobe, theta and beta2 absolute power in central and high beta wave in occipital area between AD and normal children ($P < 0.05$). In other words, the delta absolute power in frontal lobe and theta and beta2 absolute power in central area of brain was less in AD children in compared to normals. Also, the high beta absolute power in occipital lobe was more in AD children in compared to normals.

Conclusion: Recorded QEEG in relax time is a proper index of brain cortex metabolic activity. Therefore, low metabolic activity in particular parts of brain is determined by increasing slow waves power (delta and theta) or decreasing fast waves power (alpha and beta).

Keywords: Anxiety disorder, Quantitative electroencephalography, Frontal area, Central area, Occipital area, Child

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