Is Excessive Electroencephalography Beta Activity Associated with Delinquent Behavior in Men with Attention-Deficit Hyperactivity Disorder Symptomatology

Meier N.M. · Perrig W. · Koenig T.

Neuropsychobiology 2014;70:210-219
DOI:10.1159/000366487

Background/Aims: The attention-deficit/hyperactivity disorder (ADHD) shows an increased prevalence in delinquents compared to the normal population. In recent studies, a subgroup of subjects with ADHD as well as a subgroup of delinquents displayed excessive electroencephalography (EEG) beta activity, which has been associated with antisocial behavior in ADHD children. We investigated whether delinquent behavior in adults with ADHD symptomatology is related to excessive beta activity.

Methods: We compared the resting state EEGs (eyes open/closed) of delinquent and nondelinquent subjects with ADHD symptoms and those of a control group regarding EEG power spectra and topography.

Results: Delinquents with ADHD symptomatology showed more beta power at frontal, central and parietal brain regions than nondelinquents with ADHD symptoms.

Conclusion: Excessive beta power may thus represent a risk factor for delinquent behavior in adults with ADHD symptomatology. The awareness of such a risk factor may be helpful in the assessment of the risk for delinquent behavior in a psychiatric context and may provide a neurobiological background for therapeutic interventions.