

Measuring Baseline Regional Cerebral Blood Flow with Single-Photon Emission Computed Tomography (SPECT) in ADHD

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Objective

The aim of this study is to determine whether differences exist between children with ADHD and a healthy control group in cerebral blood flow (CBF) t-scores at baseline with no external stimuli.

Methods

The data for this study was derived from a large de-identified single-photon emission computed tomography (SPECT) database. Inclusion criteria required all individuals to be under the age of 18 and assessed for CBF. Participants in the ADHD group (n=1853, M_{age}=12.01) included individuals with a formal ADHD diagnosis. Participants with co-morbid diagnoses were included. Participants in the control group (n=38, M_{age}=11.70) were healthy individuals with no prior mental health diagnoses. Race, gender, and age were considered covariates. An ANCOVA analysis was performed using t-scores of CBF levels.

Results

The results of a univariate ANCOVA revealed no statistically significant differences between a healthy control group and an ADHD group in t-scores of CBF levels in the cerebellum, cingulum, frontal lobe, occipital lobe, parietal lobe, temporal lobe, vermis, or subcortical regions at baseline (all p-values<0.05).

Discussion

These findings contradict current literature, which has found decreased perfusion in adults with ADHD on the left side of the amygdala when compared to healthy controls and in children with ADHD in the orbitofrontal cortex and middle temporal gyrus. This disparity in findings may be due to gaps in current literature, which fail to control for gender, age, and/or race. Future studies should look at whether these results differ based on the specific subtype of ADHD are measured.

Contact Information

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