OXFORD
UNIVERSITY PRESS

Archives
of
CLINICAL
NEUROPSYCHOLOGY

Poster Session A

B-13

SPECT Imaging Differences in Children with Attention Deficit Hyperactivity Disorder versus Children with Anxiety

Hubbard L, Amen D, Willeumier K, Taylor D, Golden C

Objective: The purpose of this study was to examine whether differences in cerebral blood flow (CBF) exist in children with attention deficit hyperactivity disorder (ADHD) verses children with anxiety while concentrating. Method: A clinical sample of 1186 children was selected. Participants included 854 male and female children diagnosed with ADHD (i.e., combined type, mostly inattentive, asymptomatic, and inattentive type) and 332 male and female children who received a diagnosis of anxiety based on DSM-IV criteria. The average age was 12.13 years ($SD = 3.54$). CBF was measured during administration of the Conners' Continuous Performance Test 2nd edition via a SPECT scan. Regions of interest (ROIs) were based on the Automated Anatomical Labeling (AAL) brain atlas. Results: Using a .05 significant level, *t*-tests indicated that children diagnosed with ADHD demonstrated greater CBF in 29 ROIs while concentrating. In ADHD children, the majority of the ROIs that demonstrated greater CBF were located in the frontal, temporal, parietal, and occipital lobes and cerebellum with the most significance displayed in the left and right hemispheres of the temporal lobe. Conclusion(s): SPECT imaging evidenced that differences exist in CBF between children diagnosed with ADHD and children diagnosed with anxiety when presented with a concentration task. The numerous ROIs associated with greater CBF indicate that ADHD children have more active frontal, temporal, parietal, and occipital lobes during concentration than children diagnosed with anxiety in the same brain areas.

Downloaded from http://acn.oxfordjournals.org/ at Johns Hopkins University on January 8, 2015

© The Author 2014. Published by Oxford University Press. All rights reserved. For permissions, please e-mail: journals.permissions@oup.com.
doi:10.1093/arclin/acu038