The effects of ADHD on cognitive performance.

Claesdotter E, Cervin M, Åkerlund S, Råstam M, Lindvall M.


Abstract

BACKGROUND:
Attention-deficit hyperactivity disorder (ADHD) is a common and impairing neurodevelopmental disorder. The Cambridge Neuropsychological Test Automated Battery (CANTAB) is a computerized test battery with standardized procedures and solid psychometric properties targeting multiple neuropsychological functions.

AIMS:
The aim of this study was to look at the effects of ADHD on cognitive performance using CANTAB expressed as a statistical interaction term in regression modeling.

METHODS:
We assessed 112 drug-naïve subjects (age: 7-18 years) with ADHD based on DSM IV criteria and compared them to 95 control subjects (age: 7-18 years). All participants were administered five CANTAB tasks designed to capture different aspects of executive functioning: Stockings of Cambridge (SOC), Intra/Extra dimensional shift (IED), Spatial Working Memory (SWM), Simple Reaction Time (SRT) and Stop Signal Task (SST).

RESULTS:
T-tests showed a difference between ADHD and control subjects in all cognitive measures except SOC. The majority of measures showed a non-linear effect of age. SWM strategy and SST direction errors showed a linear effect of age. ADHD diagnosis had a statistically significant effect on performance. For all tests except SOC, ADHD produced the main effect without interaction with age.

DISCUSSION:
For all CANTAB measures, ADHD diagnosis had a significant effect on performance and produced this effect without interaction with age in all tests except SOC, indicating that the developmental trajectories were parallel in both groups. The results indicate that cognitive performance is impaired in youth with ADHD and that CANTAB can be a valuable tool in the diagnostic assessment of ADHD.