Attentional Lapses of Adults with Attention Deficit Hyperactivity Disorder in Tasks of Sustained Attention

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Archives of Clinical Neuropsychology
DOI: 10.1093/arclin/acw016

Abstract

Adults with attention deficit hyperactivity disorder (ADHD) show attentional dysfunction such as distractibility and mind-wandering, especially in lengthy tasks. However, fundamentals of dysfunction are ambiguous and relationships of neuropsychological test parameters with self-report measures of ADHD symptoms are marginal. We hypothesize that basic deficits in sustaining attention explain more complex attentional dysfunction in persons with ADHD and relate to ADHD symptoms. Attentional function was analyzed by computing ex-Gaussian parameters for 3 time Blocks in a 20 min test of sustained alertness. Changes in performance across these blocks were analyzed by comparing adult persons with ADHD (n = 24) with healthy matched controls (n = 24) and correlated with neuropsychological measures of selective and divided attention as well as self-report measures of ADHD symptoms. We found a significantly steeper increase in the number of slow responses (ex-Gaussian parameter \( \tau \)) in persons with ADHD with time on task in basic sustained alertness. They also performed significantly worse in tasks of sustained selective and divided attention. However, after controlling for an increase in \( \tau \) during the alertness task, significant differences between groups disappeared for divided and partly selective attention. Increases in \( \tau \) in the sustained alertness task correlated significantly with self-report measures of ADHD symptoms. Our results provide evidence that very basic deficits in sustaining attention in adults with ADHD are related to infrequent slow responses (=attentional lapses), with changes over time being relevant for more complex attentional function and experienced ADHD symptoms in everyday life.