

Neurocognitive assessment of children with neurodevelopmental disorders: preliminary findings

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Pediatr Int. 2018 Jul 18.
doi: 10.1111/ped.13662.

Abstract

OBJECTIVE:

Attention-deficit/hyperactivity disorder (ADHD) is characterized by inattention and hyperactivity/impulsivity, and is often treated pharmacologically. It is necessary to use both subjective and objective assessments to diagnose and determine the efficacy of pharmacological treatment in children with ADHD; however, cognitive assessment tools for ADHD are scarce. We examined a computer-administered, brief, and repeatable cognitive assessment tool: CogHealth. The aims of this study were to use the CogHealth battery, an objective assessment tool, to compare cognitive function between children with ADHD or ADHD+Autism Spectrum Disorder (ASD) and healthy children and to assess improvements in cognitive function following pharmacological treatment.

METHODS:

We measured the cognitive function of nine children with ADHD or ADHD+ASD using CogHealth and compared the participants' results with those of 33 age-matched children from the community. Cognitive function comparisons were made before and after psychostimulant treatment with methylphenidate.

RESULTS:

We detected significant cognitive abnormalities in the children with ADHD, compared to control subjects. The children with pre-treatment ADHD exhibited significantly more errors on the detection task, and more anticipatory errors in the one card learning task, compared to control children. The children with ADHD significantly improved their accuracy on the one back test improved, and exhibited significantly fewer errors, anticipatory errors, and shorter reaction times after OROS-MPH treatment.

CONCLUSION:

The DT task is a useful neurocognitive function assessment for children with ADHD, and the OBT can measure pharmacological treatment effectiveness in children with ADHD.