Prepotent response inhibition and reaction times in children with attention-deficit/hyperactivity disorder from a Caribbean community.


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Abstract

Impairment in inhibitory control has been postulated as an underlying hallmark of attention deficit/hyperactivity disorder (ADHD), which can be utilised as a quantitative trait for genetic studies. Here, we evaluate whether inhibitory control, measured by simple automatized prepotent response (PR) inhibition variables, is a robust discriminant function for the diagnosis of ADHD in children and can be used as an endophenotype for future genetic studies. One hundred fifty-two school children (30.9% female, 67.8% with ADHD) were recruited. The ADHD checklist was used as the screening tool, whilst the DSM-IV Mini International Neuropsychiatry Interview, neurologic interview and neurologic examination, and the WISC III FSIQ test were administered as the gold standard procedure to assert ADHD diagnosis. A Go/No-Go task using a naturalistic and automatized visual signal was administered. A linear multifactor model (MANOVA) was fitted to compare groups including ADHD status, age, and gender as multiple independent factors. Linear discriminant analysis and the receiver operating characteristic curve were used to assess the predictive performance of PR inhibition variables for ADHD diagnosis. We found that four variables of prepotent response reaction time- and prepotent response inhibition established statistically significant differences between children with and without ADHD. Furthermore, these variables generated a strong discriminant function with a total classification capability of 73, 84% specificity, 68% sensitivity, and 90% positive predictive value for ADHD diagnosis, which supports reaction times as a candidate endophenotype that could potentially be used in future ADHD genetic research.