To study the characteristics of cognitive function in children with ADHD with normal and abnormal results of integrated visual and auditory continuous performance test

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18TH ICNC 2024 Footprints to the future
INTERNATIONAL CHILD NEUROLOGY CONGRESS
Cape Town, South Africa I May 6-10, 2024

Introduction

Attention deficit hyperactivity disorder (ADHD) is a common chronic neurodevelopmental disorder. The prevalence of ADHD in children and adolescents in China is 6.2%-7.0%. The widely used diagnostic criteria for children with ADHD rely on the assessment of symptoms and the judgment of problem behavior, which is highly subjective. The integrated visual and auditory continuous performance test is a neuropsychological assessment tool that assists the diagnosis of ADHD according to the attention and control ability of the subjects. Through the participation of children, the test results are quantified and the objective test results are obtained. Children with ADHD not only have impaired working memory and control ability, but also have impaired cognitive function such as task switching and attention resource allocation.

Objective

To compare the difference of cognitive function between normal and abnormal IVA-CPT in ADHD children, and to explore the influence of cognitive function on symptoms of ADHD children.

Methods

ADHD clinic of Children's Hospital Affiliated to Capital Institute of Pediatrics from January 2022 to June 2023 were selected. SNAP-IV scale, WechWecht intelligence test, IVA and cognitive function test were performed. According to the results of IVA, the ADHD children were divided into normal IVA group (TD) and abnormal IVA group (AB). SPSS23.0 software package was used to compare the differences of cognitive function between different phenotypes of ADHD children with IVA results. The correlation between cognitive function and IVA-CPT test results and symptom scores in ADHD children was analyzed.

Results

There was no significant difference in intelligence between TD group and AB group ($P > 0.05$). In the basic cognitive ability, the scores of basic reaction ability test, sequence relation test and comparison size test in TD group were better than those in AB group, and the results were statistically significant ($Z=-2.165, -2.694, -3.297$, $P < 0.05$). In the advanced cognitive function, the TD group had better short-term memory span (flashback) and Wisconsin Card Sorting Test (WCST) scores than the AB group ($Z=-2.321, -2.583$, $P < 0.05$). In the symptom assessment, the TD group had a significantly lower score of attention deficit dimension than the AB group ($Z=-2.467$, $P < 0.05$), but there was no significant difference in hyperactive impulse and optative defiant dimension ($P > 0.05$).

Conclusion

ADHD children with poor IVA-CPT results have more severe cognitive impairment, and their symptoms are also affected by the test results.

Reference

Li F, Cui Y, Li Y, et al. Prevalence of mental disorders in school children and adolescents in China: diagnostic data from detailed clinical assessments of 17,524 individuals [J]. J Child Psychol Psychiatry, 2022, 63(1): 34-46. DOI: 10.1111/jcpp.13445.

Zhao X, Hayes T, Timmons A, et al. Unpacking inequities in ADHD diagnosis: examining individual-level race/ethnicity and state-level online information-seeking patterns [J]. Adm Policy Ment Health, 2023, 50(4): 576-590. DOI: 10.1007/s10488-023-01259-w.

Scimeca LM, Holbrook L, Rhoads T, et al. Examining Conners Continuous Performance Test-3 (CPT-3) embedded performance validity indicators in an adult clinical sample referred for ADHD evaluation [J]. Dev Neuropsychol, 2021, 46(5): 347-359. DOI: 10.1080/87565641.2021.1951270.

Barkley R. Attention-deficit/hyperactivity disorder, self-regulation, and time: toward a more comprehensive theory [J]. J Dev Behav Pediatr, 1997, 18(4): 271-279.

Kofler MJ, Groves NB, Singh LJ, et al. Rethinking hyperactivity in pediatric ADHD: preliminary evidence for a reconceptualization of hyperactivity/impulsivity from the perspective of informant perceptual processes [J]. Psychol Assess, 2020, 32(8): 752-767. DOI: 10.1037/pas0000856.

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