Carnosine as Adjunctive Therapy in Children and Adolescents with Attention-Deficit/Hyperactivity Disorder: A Randomized, Double-Blind, Placebo-Controlled Clinical Trial

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ABSTRACT

Objectives:
This study aimed to investigate the efficacy and tolerability of l-carnosine as an add-on to methylphenidate in management of children with attention-deficit/hyperactivity disorder (ADHD).

Methods:
This was an 8-week, randomized, double-blind placebo-controlled study. Fifty-six drug-free children and adolescents aged 6–17 years old with a diagnosis of ADHD entered the study. The patients were randomly assigned to l-carnosine (800 mg/d in two divided doses) or placebo plus methylphenidate (0.5–1.5 mg/kg/d) for 8 weeks. Children were assessed using the Teacher and Parent ADHD Rating Scale-IV (ADHD-RS-IV) at baseline and at weeks 4 and 8 postbaseline.

Results:
Fifty patients completed the study, and all had two postbaseline measurements. Using the general linear model repeated measures, significant effect was observed for time × treatment interaction on total and inattention subscales of the Parent ADHD-RS (Greenhouse-Geisser corrected: F = 3.783, df = 1.444, p = 0.041 and F = 4.032, df = 1.600, p = 0.030). Improvements in the Teacher ADHD-RS were not significantly different between the two groups in total (Greenhouse-Geisser corrected: F = 0.200, df = 1.218, p = 0.705), as well as inattention and hyperactivity subscale scores (p = 0.956 and 0.281, respectively). The frequency of side effects was not significantly different between the two treatment arms.

Conclusions:
l-carnosine, as a supplementary medication, might be beneficial in treatment of children with ADHD. However, further investigations and different doses of l-carnosine are required to replicate these findings in children with ADHD.