Effect of vitamin D supplementation as adjunctive therapy to methylphenidate on ADHD symptoms: A randomized, double blind, placebo-controlled trial.


Abstract

OBJECTIVES:
Previous studies have shown that serum levels of vitamin D were lower in attention deficit hyperactivity disorder (ADHD) children compared to healthy controls. The aim of the study was to determine the effect of vitamin D supplementation as adjunctive therapy to methylphenidate on symptoms of children with ADHD.

METHODS:
Sixty-two children aged 5-12 years with a diagnosis of ADHD based on DSM-IV criteria were randomly assigned into two groups to receive either 2000IU vitamin D or placebo in addition to methylphenidate for 8 weeks. Symptoms severity was assessed by Conner's Parent Rating Scale-Revised[S] (CPRS), ADHD rating scale-IV (ADHD-RS), and Weekly Parent Ratings of Evening and Morning Behavior (WPREMB) at weeks 0, 4, and 8. Serum levels of 25(OH)D were measured at baseline and after 8 weeks. Anthropometric variables, dietary intake, physical activity, sun exposure, and side effects were assessed.

RESULTS:
Fifty-four participants completed the trial. After 8 weeks of supplementation, serum levels of 25(OH)D significantly increased in the vitamin D group. ADHD symptoms decreased significantly in both groups (P < 0.05). Evening symptoms and total score of WPREMB scale were significantly different at weeks 4 and 8 between the two groups (P = 0.013, 0.016, respectively), but no differences were found in symptoms by CPRS and ADHD-RS scales.

DISCUSSION:
Vitamin D supplementation as adjunctive therapy to methylphenidate improved ADHD evening symptoms. Future research is needed to clarify vitamin D effects as monotherapy in ADHD and its mechanism. The trial was registered in www.irct.ir is (IRCT201404222394N10).