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Side effects of methylphenidate and dexamphetamine in children with attention deficit hyperactivity disorder: a double-blind, crossover trial

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Abstract

Objective: To compare the side effect profiles of methylphenidate (MPH) and dexamphetamine (DEX) in children with attention deficit hyperactivity disorder (ADHD), as well as to determine which symptoms are genuine adverse effects of stimulant medication, as opposed to aspects of the child's underlying behavioral phenotype.

Design: Double-blind, crossover study.

Setting: Pediatric teaching hospital ambulatory behavior clinic.

Subjects: A total of 125 children with ADHD with a mean age of 104.8 months.

Interventions: Subjects received DEX (0.15 mg/kg/dose) and MPH (0.3 mg/kg/dose) twice a day for 2 weeks each in a randomized order.

Outcome measures: The Barkley Side Effects Rating Scale (17 symptoms; 0 = absent, severity rated from 1 to 9) was completed by parents at baseline and at the completion of each trial fortnight.

Results: Subjects' parents reported a significantly greater mean number (8.19) and mean severity (4.08) of "side effects" before commencing the trial than during the MPH period (number 7.19; severity 3.24), but not the DEX period (number 7.64, severity 3.73). The mean severity (but not mean number) was greater on DEX than on MPH. DEX caused more severe insomnia and appetite suppression compared with the baseline rating. Appetite suppression was the only item rated more severe on MPH than at baseline. Six side effects were significantly more severe on DEX than MPH: insomnia, irritability, proneness to crying, anxiousness, sadness/unhappiness, and nightmares. None were more severe on MPH than DEX. Overall, both MPH and DEX were well tolerated by most subjects, with only four subjects discontinuing the trial period because of severe adverse effects (2 -1.6%- on each stimulant).

Conclusions: Many symptoms commonly attributed to stimulant medication are actually preexisting characteristics of children with ADHD and improve with stimulant treatment. At the doses investigated, both DEX and MPH caused appetite suppression, and DEX caused insomnia. Negative emotional symptoms were more severe on DEX than MPH.

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