Effects of Methylphenidate on Sleep Functioning in Children with Attention-Deficit/Hyperactivity Disorder.

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Abstract

OBJECTIVE:
To examine the effects of stimulant medication on the sleep functioning of children with attention-deficit/hyperactivity disorder (ADHD) and identify predictors of sleep problems as a side effect of taking stimulant medication.

METHOD:
One hundred sixty-three stimulant-naïve children (72% boys) aged 7 to 11 years diagnosed with ADHD (120 with ADHD predominantly inattentive type, 43 with ADHD combined type) participated in a 4-week, randomized, double-blind, placebo-controlled trial of once-daily (long-acting) methylphenidate (MPH). Parents completed weekly side-effect ratings including an item related to sleep problems.

RESULTS:
Ten percent of patients had parent-rated sleep problems before the initiation of medication. Rates of parent-rated sleep problems during MPH titration generally increased with increasing MPH dose (placebo: 8%; low dose: 18%; medium dose: 15%; high dose: 25%). Differences emerged between children with (n = 16) or without (n = 147) preexisting sleep problems. Although 23% of children without preexisting sleep problems went on to have sleep problems at the highest MPH dose, only 37.5% of children with preexisting sleep problems still had sleep problems at the highest MPH dose. Lower weight and lower body mass index (BMI) were associated with increased sleep problems during MPH titration.

CONCLUSION:
This study demonstrated a general association between increased MPH dose and increased sleep problems in children with ADHD, particularly for children of lower weight/BMI. However, a substantial proportion of children with preexisting sleep difficulties no longer had sleep problems on the highest MPH dose, which may help explain mixed findings reported to date in studies examining the impact of MPH on sleep functioning in children with ADHD and suggests that MPH dose titration should not be avoided solely on the basis of a child's premorbid sleep problems. Future research is needed to replicate and extend these findings to more specific domains of sleep functioning and to identify differences between children with persistent or improved sleep functioning as a result of MPH use.