Stimulant Medications and Sleep for Youth With ADHD: A Meta-analysis.

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Abstract

CONTEXT:
Mixed findings exist on whether stimulant medications alter youth sleep.

OBJECTIVE:
To determine the effect of stimulant medications on sleep.

DATA STUDIES:
Studies published through March 2015 were collected via CINAHL, PsycINFO, and PubMed. References of retrieved articles were reviewed.

STUDY SELECTION:
Eligibility criteria included studies with children/adolescents who had attention-deficit/hyperactivity disorder (ADHD), random assignment to stimulants, and objective sleep measurement. Studies that did not include information about key variables were excluded.

DATA EXTRACTION:
Study-level, child-level, and sleep data were extracted by 2 independent coders. Effect sizes were calculated by using random effects models. Potential moderators were examined by using mixed effect models.

RESULTS:
A total of 9 articles (N = 246) were included. For sleep latency, the adjusted effect size (0.54) was significant, indicating that stimulants produce longer sleep latencies. Frequency of dose per day was a significant moderator. For sleep efficiency, the adjusted effect size (-0.32) was significant. Significant moderators included length of time on medication, number of nights of sleep assessed, polysomnography/actigraphy, and gender. Specifically, the effect of medication was less evident when youth were taking medication longer. For total sleep time, the effect size (-0.59) was significant, such that stimulants led to shorter sleep duration.

LIMITATIONS:
Limitations include few studies, limited methodologic variability, and lack of unpublished studies.

CONCLUSIONS:
Stimulant medication led to longer sleep latency, worse sleep efficiency, and shorter sleep duration. Overall, youth had worse sleep on stimulant medications. It is recommended that pediatricians carefully monitor sleep problems and adjust treatment to promote optimal sleep.