Sleep Characteristics in Children with Attention Deficit Hyperactivity Disorder: Systematic Review and Meta-Analyses.

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Abstract

STUDY OBJECTIVES:
Sleep disturbances have been associated with attention deficit hyperactivity disorder (ADHD), but such relationship is still unclear. The results from the studies conducted do not provide enough evidence to support a sleep physiology inherent to ADHD. This study tries to determine if that sleep physiology really exists by comparing children with ADHD and control children in some sleep parameters.

METHODS:
A search was conducted in several databases (Web of Science, Scopus, Pubmed and PsycINFO), and a manual search, to retrieve all the articles available from 1987 until March 2014. Of 8,678 non-duplicate studies retrieved, 11 studies met the inclusion and methodological quality criteria. Two meta-analyses were performed with eight of those studies, depending on data provided by them: polysomnographic or actigraphic. A fixed-effects model, and the standardized mean difference (SMD) as the index of effect size, were used in both meta-analyses.

RESULTS:
Significant differences were found only in the meta-analysis with polysomnography as outcome. Children with ADHD were found to spend more time in stage 1 sleep than controls (pooled SMD = 0.32, 95% CI = 0.08-0.55, p-value = 0.009).

CONCLUSIONS:
Although few differences in sleep between children with ADHD and controls have been found in this review, further studies are required on this matter. Those studies should consider some variables discussed in this review, in order to obtain useful and reliable conclusions for research and clinical practice. Particularly, the influence of assessment criteria and ADHD subtypes in the sleep characteristics of children with ADHD should be addressed.