Delayed circadian rhythm phase: a cause of late-onset attention-deficit/hyperactivity disorder among adolescents?

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Abstract

Late-onset attention-deficit/hyperactivity disorder (ADHD) has been a topic of significant debate within our field. One question focuses on whether there may be alternative explanations for the onset of inattentive and/or hyperactive symptoms in adolescence. Adolescence is a developmental period associated with a normative circadian rhythm phase delay, and there is significant overlap in the behavioral and cognitive manifestations and genetic underpinnings of ADHD and circadian misalignment. Delayed circadian rhythm phase is also common among individuals with traditionally diagnosed ADHD, and exposure to bright light may be protective against ADHD, a process potentially mediated by improved circadian timing. In addition, daytime sleepiness is prevalent in late-onset ADHD. Despite these converging lines of evidence, circadian misalignment is yet to be considered in the context of late-onset ADHD - a glaring gap. It is imperative for future research in late-onset ADHD to consider a possible causal role of delayed circadian rhythm phase in adolescence. Clarification of this issue has significant implications for research, clinical care, and public health.