Leg Movement Activity during Sleep in Adults with Attention-Deficit/Hyperactivity Disorder

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Objectives:
To conduct a first detailed analysis of the pattern of leg movement (LM) activity during sleep in adult subjects with Attention-Deficit/Hyperactivity Disorder (ADHD) compared to healthy controls.

Methods:
15 ADHD patients and 18 control subjects underwent an in-lab polysomnographic sleep study. The periodic character of LMs was evaluated with established markers of "periodicity", i.e. the periodicity index, intermovement intervals and time distribution of LM during sleep, in addition to standard parameters such as the periodic leg movement during sleep index (PLMSI) and the periodic leg movement during sleep arousal index (PLMSAI). Subjective sleep and psychiatric symptoms were assessed using several, self-administered, screening questionnaires.

Results:
Objective sleep parameters from the baseline night did not significantly differ between ADHD and control subjects, except for a longer sleep latency (SL), a longer duration of the periodic leg movements during sleep (PLMS) in REM sleep and a higher PLMSI also in REM sleep. Data from the sleep questionnaires showed perception of poor sleep quality in ADHD patients.

Conclusions:
Leg movements during sleep in ADHD adults are not significantly more frequent than in healthy controls and the nocturnal motor events do not show an increased periodicity in these patients. The non-periodic character of LMs in ADHD has already been shown in children and seems to differentiate ADHD from other pathophysiological related conditions like restless legs syndrome (RLS) or periodic limb movement disorder (PLMD). The reduced subjective sleep quality reported by ADHD adults contrasted with the normal objective polysomnographic parameters, which could suggest a sleep-state misperception in these individuals or more subtle sleep abnormalities not picked up by the traditional sleep staging.