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Hyperactivity and polysomnographic findings in children evaluated for sleep-disordered breathing.

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STUDY OBJECTIVES: Children with sleep-disordered breathing (SDB) or periodic leg movements during sleep (PLMS) often have hyperactive behavior that improves when the sleep disorder is treated. Some children with SDB also have PLMS. To determine what polysomnographic features of SDB might be associated with hyperactive behavior, we studied behavior, SDB, and PLMS in a series of patients. **DESIGN:** Prospective and observational. **SETTING:** University-based sleep disorders laboratory. **SUBJECTS:** Children (n=113) aged 2 to 18 years, referred for suspected SDB. **INTERVENTIONS:** Parents completed the hyperactivity index of the Connors' Parental Rating Scale, and results were converted to age-adjusted t-scores. Children underwent laboratory-based polysomnography, with esophageal pressure monitoring when requested (n=19) by referring physicians. **RESULTS:** Children with SDB (n=59) showed high hyperactivity scores (mean 59.5+/-18.3 SD, 95% C.I. [54.7, 64.2]) but these scores were no higher than those of children without SDB (59.0+/-15.1, [54.8, 63.1]). Hyperactivity showed no significant associations with the rate of apneas and hypopneas, minimum oxygen saturation, or most negative esophageal pressure ($p>0.10$), but was associated with the presence of 5 or more PLMS per hour ($p=0.02$). The rate of PLMS showed a linear association with hyperactivity among those subjects with SDB ($p = 0.002$), but no association among those subjects without SDB ($p = 0.64$). **CONCLUSIONS:** These findings suggest that hyperactive behavior is common among children referred for suspected SDB, regardless of the presence or severity of SDB. Current observations cannot prove causality, but they are consistent with the hypothesis that PLMS may contribute to hyperactivity and SDB may act as an effect modifier.

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