

Reduced time in bed and obstructive sleep-disordered breathing in children are associated with cognitive impairment.

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OBJECTIVE: The purpose of this study was to determine if reduced time in bed as well as the degree of obstructive sleep-disordered breathing predicted the risk of impaired cognitive function in children with adenotonsillar hypertrophy suspected of having obstructive sleep-disordered breathing. **DESIGN:** We studied 56 children, aged 6 to 12 years, with adenotonsillar hypertrophy referred for suspected obstructive sleep-disordered breathing. Children were given a sleep diary and underwent wrist actigraphy for 6 consecutive days and nights. On day 7, the children were given general cognitive tests, memory tests, and continuous performance tests followed by attended polysomnography that night. Parents completed snoring and behavior questionnaires. **RESULTS:** Shorter mean time in bed for 6 nights and a history of nightly snoring were highly predictive of lower scores for the vocabulary and similarities cognitive function tests. Children who had a mean time in bed of 557 minutes and did not snore nightly were predicted to have vocabulary and similarities scores more than 1 standard deviation higher than children who had a mean time in bed of 521 minutes and snored nightly. Shorter mean time in bed and the log of the apnea hypopnea index also predicted lower vocabulary and similarities scores. Greater night to night variability in time in bed was significantly predictive of lower vocabulary and similarities scores, but variability was not as predictive as mean time in bed. Neither mean time in bed nor the coefficient of variation of time in bed predicted other cognitive or behavioral scores. **CONCLUSIONS:** Short or variable time in bed and nightly snoring or higher apnea hypopnea index predicted impaired vocabulary and similarities scores in children with adenotonsillar hypertrophy suspected of having obstructive sleep-disordered breathing. The degree of cognitive impairment attributable to short time in bed and obstructive sleep-disordered breathing is clinically very significant.

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