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Neurobehavioral correlates of sleep-disordered breathing in children.

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The effects of sleep-disordered breathing (SDB) on neurobehavioral function were examined in two matched groups of children from the general population. Thirty-five children with polysomnographically confirmed SDB were matched for ethnicity, age, gender, maternal educational attainment, and maternal smoking, to healthy children with no evidence of SDB. Children with SDB had significantly lower mean scores on the Differential Ability Scales for General Conceptual Ability (similar to IQ) and for the Non-verbal Cluster. On the neuropsychology assessment battery (NEPSY), children with SDB scored significantly lower than the control group on the attention/executive function domain and two subtests within that domain, one measuring visual attention and the other executive function. In addition, children with SDB scored significantly lower than the controls on one subtest from the NEPSY language domain: Phonological Processing. This subtest measures phonological awareness, a skill that is critical for learning to read. No differences in behavior, as measured by the Child Behavior Checklist (CBCL) or the Conners' Parent Rating Scale, were found between the two groups. Using a novel algorithm to assess sleep pressure, we found that children with SDB were significantly sleepier than controls. Furthermore, total arousal index was negatively correlated with neurocognitive abilities, suggesting a role for sleep fragmentation in pediatric SDB-induced cognitive dysfunction.

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