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Neurocognitive effects of obstructive sleep apnea syndrome.

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The nature of the neurocognitive deficits found in obstructive sleep apnea is still debatable. What is the extent of higher executive versus alertness-based cognitive dysfunction? Are cognitive impairments caused by nighttime hypoxemia or daytime sleepiness? This paper demonstrates the importance of a sound theoretical neurocognitive framework to be able to answer these questions. A strategy to assess executive function is proposed and illustrated with well-known neuropsychological tests. It seems that the pervasive effects of decreased alertness on higher cognitive functioning were not fully taken into account in those studies in which executive dysfunction has been found and has been related to prefrontal lobe damage caused by intermittent hypoxemia. Therefore, a basal slowing in information processing, primarily due to sleepiness, may explain most of the neurocognitive deficits in sleep apnea. This conjecture appears to be in agreement with recent functional MRI studies indicating sleep loss as the primary cause of neurocognitive deficits, more so than hypoxemia.

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