

Brain function in obstructive sleep apnea: results from the Brain Resource International Database.

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Obstructive sleep apnea (OSA) is expected to impair vigilance and executive functioning, owing to the sensitivity of the prefrontal cortex to the effects of sleep fragmentation and intermittent hypoxia. Studies examining the pattern of cognitive dysfunction show variable results, with the heterogeneity in part due to small sample sizes in current studies and little consistency of the tests used. We examined a group of fifty subjects from the Brain Resource International Database (BRID), predicted to have OSA on the basis of the Multivariable Apnea Prediction Index, and compared them with 200 matched controls. On electrophysiological tests, the OSA group showed reduced eyes closed alpha power, increased auditory oddball N100 and P200 amplitude, but reduced N200 and P300 amplitude. The latency to P300 was not significantly different between groups, but latencies to N200 and P200 were prolonged in the OSA group. Performance testing of the executive function found that verbal interference and the switching of attention were impaired in the OSA group. We have demonstrated that a diagnostic algorithm based on apnea symptoms and demographic factors can be used to select a group with likely OSA manifesting deficits in information processing and executive function.

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