Neurobehavioral and autonomic alterations in adults with obstructive sleep apnea

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Objective: Obstructive sleep apnea (OSA) is associated with sympathetic hyperactivity, excessive nocturnal sweating, sleepiness, and neurobehavioral cognitive alterations. However, it is not well known if cognitive consequences of OSA are independent from autonomic alterations. Thus, we assessed the association between polysomnographic, autonomic, and cognitive tests performance in OSA patients. Methods: Fifty eight OSA patients (53 male) were administered with questionnaires assessing demographic, Epworth, Beck Depression Inventory, Syndrom Kurz test (SKT), Trail Making part B (TMT-B), and Frontal Assessment Battery (FAB) tests. Spectral analysis of heart rate variability (HRV) and night sweating symptoms (NSwS) score were used to assess autonomic function. Results: Global cognitive function (SKT) was normal in mild-moderate (M-OSA) and severe (S-OSA) patients. In S-OSA patients AHI was correlated with TMT-B ($r = 0.30 \ P < 0.05$) and with FAB ($r = -0.31 \ P < 0.05$). Oxygen desaturation was correlated with TMT-B ($r = -0.45 \ P = < 0.001$) and FAB ($r = 0.29 \ P = < 0.05$). Sympathetic overactivity was correlated with oxygen desaturation: HRV ($r = -0.39 \ P < 0.05$) and NSwS score ($r = -0.49 \ P < 0.01$), but HRV and NSwS score were not correlated with TMT-B and FAB. Conclusion: Frontal cognitive dysfunction and predominance of sympathetic drive occur in OSA patients. Abnormal frontal cognitive function and sympathetic hyperactivity were related to oxygen desaturation, but not between each other. We conclude that neurobehavioral changes and autonomic imbalance in OSA patients take place independently from each other, suggesting different pathophysiological pathways. © 2014 Elsevier B.V.
Cognitive dysfunction tests
Heart rate variability
Night sweating
Obstructive sleep apnea
adolescent
adrenergic stimulation
adult
Article
autonomic dysfunction
Beck Depression Inventory
cognition
cognitive defect
correlational study
disease association
disease severity
Epworth sleepiness scale
female
Frontal Assessment Battery test
heart rate variability
human
hyperactivity
major clinical study
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neurologic examination
night sweat
night sweating symptoms score
oxygen desaturation
psychologic test
questionnaire
scoring system
sleep disordered breathing
sympathetic hyperactivity
Syndrom Kurz test
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Cognition Disorders
complication
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pathophysiology
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Neuropsychological Tests
Polysomnography
Sleep Apnea, Obstructive