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Autonomic dysfunction in obstructive sleep apnea is associated with impaired glucose regulation.

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INTRODUCTION: Autonomic dysfunction has been theorized to be responsible for the increased risk of cardiovascular disease in obstructive sleep apnea (OSA). Previous studies did not control for the presence of impaired glucose regulation (IGR, comprising impaired fasting glucose (IFG), impaired glucose tolerance (IGT), and diabetes) which is also associated with abnormalities in autonomic function. METHODS: Thirty-two patients were recruited for the study. Patients underwent autonomic testing consisting of heart rate response to deep breathing, valsalva maneuver, tilt-up, and quantitative sudomotor axon reflex testing. Polysomnography (PSG) and a 2-h oral glucose tolerance test were performed. Results were analyzed with logistic regression, with age, race, body mass index (BMI), and gender as covariates. RESULTS: Nineteen of 24 patients with OSA had abnormal glucose (79%, p=0.04) compared to two of nine patients without OSA. The correlation between IGR, OSA and total autonomic dysfunction was similar (p=.10 for IGR, p=0.06 for OSA). However, cardiac autonomic function was more strongly associated with IGR than OSA (p=.10 vs. 0.50). Age was a significant confounder, as glucose correlated with adrenergic autonomic dysfunction significantly when age was removed from the model (p=0.006). CONCLUSIONS: The presence of IGR may be a confounding factor in studies of autonomic function in OSA. Larger studies are needed to delineate whether OSA is directly associated with autonomic dysfunction or whether the previously described association between dysautonomia and OSA may have been due to glucose dysregulation.

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