

Uric Acid as a Potential Mediator of Cardiovascular Morbidity in Obstructive Sleep Apnea Syndrome

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Abstract

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PURPOSE: Obstructive sleep apnea (OSA) is now considered as an independent risk factor for cardiovascular (CV) disease. Although uric acid is increasingly being implicated in CV morbidity and mortality, no study attempted to determine independent role of uric acid in CV morbidity of OSA patients. We aimed to assess the role of serum uric acid as a potential mechanism of CV morbidity in a nonselected cohort of OSA patients.

METHODS: This was a cohort study in which patients who had undergone a formal sleep study for diagnosis of OSA were recruited. Included patients were grouped according to apne-hypopnea index (AHI) as mild, moderate and severe OSA. Patients with AHI<5 served as control group. Patients were interrogated as to cardiovascular morbid conditions which included prior history and an established diagnosis of coronary artery disease, cerebrovascular accident, congestive heart failure due to coronary artery disease and arrhythmias.

RESULTS: 436 OSA patients included (72 controls, 97 with mild, 75 with moderate, and 192 with severe OSA). The severe group also had higher serum uric acid level compared with the control and other OSA groups. Linear regression showed that the Ln Uric Acid was positively associated with Ln AHI score. In unadjusted logistic

regression, severe OSA was associated with higher odds of a cardiovascular event, OR= 2.81 (1.307-6.041), $p = 0.0081$ while the other categories of sleep apnea were not. However, severe OSA was no longer significant after adjusting for age, gender, diabetes mellitus status, hypertension status, BMI, and smoking, OR = 1.882 (0.826-4.287), $p = 0.1322$. Uric Acid was significantly higher in those who had a cardiovascular event even in the mild, moderate and severe OSA groups.

CONCLUSIONS: Hyperuricemia is strongly associated with cardiovascular disease in OSA patients. This strong relationship persists even after controlling for well-known traditional risk factors for cardiovascular disease.

CLINICAL IMPLICATIONS: Hyperuricemia is an independent risk factor for development of cardiovascular disease in sleep apnea.

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