

Physician Fact Sheet Courtesy of: David Binder, DDS

Relationship of Obstructive Sleep Apnea and Glucose Tolerance

Quick Facts:

1. Obstructive Sleep Apnea has been linked to metabolic dysfunction
2. Insulin resistance, glucose intolerance and type 2 diabetes are common in women with polycystic ovary syndrome

Tasali et al. Impact of Obstructive Sleep Apnea on Insulin Resistance and Glucose Tolerance in Women with Polycystic Ovary Syndrome

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Context: Insulin resistance, impaired glucose tolerance, and type 2 diabetes are common in women with polycystic ovary syndrome (PCOS). Obstructive sleep apnea (OSA) has been linked to metabolic dysfunction. We studied women with and without PCOS to determine the extent to which OSA is responsible for insulin resistance and glucose intolerance in PCOS.

Methods: In a prospective design, 52 women with PCOS and 21 women without PCOS of similar age and body mass index had an overnight polysomnogram and a 75-g oral glucose tolerance test.

Results: Twenty-nine women (56%) with PCOS had OSA compared with four controls (19%) (adjusted odds ratio 7.1; 95% confidence interval, 1.7–45.7; $P = 0.01$). PCOS women with OSA were more insulin resistant than those without OSA [homeostasis model assessment (HOMA) index 5.7 ± 0.4 vs. 3.5 ± 0.4 ; $P = 0.006$] after controlling for age, body mass index, and ethnicity. Impaired glucose tolerance was found in 16 of 29 (55%) PCOS women with OSA and only six of 23 (26%) of those without OSA (unadjusted $P = 0.049$). Insulin resistance and glucose intolerance were highly correlated with the presence and severity of OSA. Among PCOS women with normal glucose tolerance, the presence of OSA was associated with a nearly 2-fold higher fasting insulin level and HOMA index. The severity of OSA was a highly significant predictor of the fasting concentrations of glucose and insulin as well as the 2-h glucose concentration and HOMA index.

Conclusions: OSA is a highly prevalent and important determinant of insulin resistance, glucose intolerance, and type 2 diabetes in PCOS.