Obstructive Sleep Apnea Adversely Affects Glucose Control in Diabetes

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According to researchers, obstructive sleep apnea adversely affects glucose control in patients with type 2 diabetes.

The study "demonstrates for the first time that there is a clear, graded, inverse relationship between obstructive sleep apnea severity and glucose control in patients with type 2 diabetes," wrote lead author Renee S. Aronsohn.

The study also confirmed other reports that undiagnosed obstructive sleep apnea is very common among patients with type 2 diabetes, indicating that it is largely unrecognized additional medical risk factor in these patients.

Dr. Aronsohn and colleagues consecutively recruited patients with type 2 diabetes from outpatient clinics to participate in the study. The participants were interviewed to assess their diabetes history, medical history and medications, and level of physical activity. Height and weight measurements were also taken, and each participant's sleep/wake cycles were monitored for five days using wrist actigraphy and self-reported sleep logs. Finally, participants underwent an overnight polysomnography test for obstructive sleep apnea, and glucose control was assessed by obtaining a blood sample for hemoglobin A1c (HbA1c) measurement, the main clinical marker of glycemic control in diabetes

In total, 60 patients were included in the study's final analysis. More than three-quarters (77 percent) of participants had obstructive sleep apnea, but only five had been previously evaluated for the disease, and none were undergoing treatment. Of the study sample, 38 percent (23) were classified as having mild obstructive sleep apnea, 25 percent (15) had moderate obstructive sleep apnea and the 13 percent (8) had severe obstructive sleep apnea.

The researchers found that more severe obstructive sleep apnea was associated with poorer glucose control, implying a role more severe diabetes with potentially more complications. Relative to patients without obstructive sleep apnea, the presence of mild, moderate or severe obstructive sleep apnea significantly increased mean adjusted HbA1c values by 1.49 percent, 1.93 percent, and 3.69 percent respectively. These effect sizes are comparable to those of widely used hypoglycemic medications, meaning that having obstructive sleep apnea may negate the beneficial effects of anti-diabetic drugs.

"Our findings have important clinical implications as they support the hypothesis that reducing the severity of obstructive sleep apnea may improve glycemic control," said Dr. Aronsohn. "Thus effective treatment of obstructive sleep apnea may represent a novel and non-pharmacologic intervention in the management of type 2 diabetes."

"Physicians who manage patients with type 2 diabetes should screen their patients for obstructive sleep apnea," commented Dr. John Heffner. "At least 80 percent of their patients, if properly screened and studied, will be found to have obstructive sleep apnea, which is a treatable condition. Treating their breathing problem might improve their glycemic control and long-term complications from diabetes."

References:

1. Renee S. Aronsohn, et al. Impact of Untreated Obstructive Sleep Apnea on Glucose Control in Type 2 Diabetes. Am. J. Respir. Crit. Care Med. 2009, doi:10.1164/rccm.200909-1423OC

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M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

« Jul

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