Obesity, Apnea Linked to Atrial Fibrillation Risk

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SCOTTSDALE, ARIZ. — Obesity and obstructive sleep apnea are independent risk factors for atrial fibrillation in patients younger than 65 years of age, but not in older patients, according to a retrospective cohort study of 3,542 people who had sleep studies at the Mayo Clinic in Rochester, Minn.

Heart failure was the only independent predictor of new-onset atrial fibrillation for people 65 years of age and older in the study, which followed patients a mean of 4.7 years after an initial polysomnograph.

"The ability of sleep apnea to predict the development of atrial fibrillation was dependent on the age of the patient. If they were more than 65, and they were in sinus rhythm when you did the sleep study, they didn't get atrial fibrillation," Dr. Virend K. Somers, a coinvestigator, said at a meeting on sleep medicine sponsored by the American College of Chest Physicians.

None of the patients reviewed had atrial fibrillation before or at the time of the screenings, conducted from 1987 to 2003, for possible sleep disorders. All told, 133 people developed atrial fibrillation at some point after undergoing polysomnography (J. Am. Coll. Cardiol. 2007;49:565-71).

Obstructive sleep apnea was diagnosed in 2,626 people (74%), and the investigators reported it was a strong predictor (hazard ratio 2.18) of future atrial fibrillation. A total of 4.3% of patients with obstructive sleep apnea but only 2.1% without the disorder were subsequently diagnosed with atrial fibrillation.

An age-stratified analysis showed patients younger than 65 years were more vulnerable to atrial fibrillation, however, and had more risk factors. The most significant was lower oxygen levels at night (hazard ratio 3.29), but age (2.04), male gender (2.66), coronary artery disease (2.66), and body mass index (1.07) also were predictors. In older patients, heart failure had a hazard ratio of 7.68.

Why the older patients were less susceptible to atrial fibrillation is unclear, according to the authors. Dr. Somers, a professor of medicine at the Mayo Clinic, speculated that the older patients probably had undiagnosed apnea for many years.

The ability of apnea to predict the development of atrial fibrillation was age dependent. If patients were more than 65, they didn't get atrial fibrillation.

"If you have sleep apnea and you last to 65-70 years, you are going to be okay—you are going to live longer," he said. "But if you are susceptible to the damage that sleep apnea does to your cardiovascular system, you will die early on."

Dr. Somers is a consultant for Respironics and received an honorarium from the ResMed Foundation, which funded the study. He noted that it follows earlier research at the Mayo Clinic that showed an association between obstructive sleep apnea and atrial fibrillation.

In one study, he and his coinvestigators found obstructive sleep apnea was "strikingly more prevalent" (odds ratio 2.19) in atrial fibrillation patients than in general cardiology patients. About half (49%) of 151 patients who underwent electrocardioversion for atrial fibrillation had obstructive sleep apnea vs. about a third (32%) of 312 patients treated for other heart conditions (Circulation 2004; 110:364-7).

In a study of patients who underwent electrocardioversion, Dr. Somers' group found atrial fibrillation was more likely to recur if obstructive sleep apnea was not treated (Circulation 2003;107:2589-94). It compared 39 patients with obstructive sleep apnea with 79 patients who did not have the sleep disorder. Within 12 months, 82% of 27 untreated or inadequately treated apnea patients had their apnea recur, vs. 42% of 12 apnea patients treated with continuous positive airway pressure and 53% of the control group.

Dr. Somers noted that within the apnea population, risk doubled when the condition went untreated. Moreover, looking just at the 25 apnea patients who received no treatment, the investigators found nocturnal oxygen saturation fell to lower levels in patients who had a recurrence of atrial fibrillation. ■