Apnea Linked to Atrial Fibrillation Before Age 65

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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 polysomnography.

"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 had atrial fibrillation before or at the time of the screenings, conducted in 1987-2003, 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.

"If you have sleep apnea and you last to 65-70 years without developing atrial fibrillation, 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 develop atrial fibrillation earlier on."

Dr. Somers is a consultant for Cardiac Concepts and is coinvestigator on a grant from the ResMed Foundation, which funded the study. The present study, for which the lead author is Dr. Apoor Gami, follows earlier research at the Mayo Clinic that showed an association between obstructive sleep apnea and atrial fibrillation.

In one study, Dr. Gami, Dr. Somers, and 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). 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 risk doubled in the apnea population when the condition went untreated, and in the 25 apnea patients who received no treatment, nocturnal oxygen saturation fell to lower levels in patients who had a recurrence of atrial fibrillation. ■

Does Sleep Apnea Treatment Prevent Heart Disease?

Despite presenting strong evidence of an association between obstructive sleep apnea and cardiovascular disease, Dr. Somers was careful not to say that treating the sleep disorder would prevent heart disease.

"Beyond lowering blood pressure and perhaps increasing EF [ejection fraction] in people with heart failure, treating sleep apnea has not been proven to prevent any cardiovascular end points," he said.

"We have no evidence that treating sleep apnea will prevent a cardiac death, a heart attack, a stroke, or anything," he said. "All we have now are soft end points—blood pressure, [and] heart rate."

Many markers of heart disease—notably hypertension, elevated levels of C-reactive protein, and systemic inflammation—occur with sleep apnea, according to Dr. Somers. Consequently, he maintained, it makes sense that an untreated apnea could lead to cardiovascular disease.

Moreover, in addition to his work showing a link with atrial fibrillation, he cited studies associating sleep disorders with hypertension, sudden cardiac death, and heart failure. Among these findings, he noted the following:

- ► Apnea can cause hypertension, and hypertension becomes worse if apnea is not treated (N. Engl. J. Med. 2000;342:1378-84).
- ► Obstructive sleep apnea patients were two to three times more likely to have a first-degree relative who died of a heart attack or suddenly of an unexplained cause, according to a review of 500 people by Dr. Somers and his colleagues.
- ► Although 6 a.m.-11 a.m. is the peak time for sudden cardiac deaths in the general population, 46% of the sudden cardiac deaths in people with obstructive sleep apnea occurred between midnight and 6 a.m. (N. Engl. J. Med. 2005;352:1206-14).

About 10% of heart failure patients have obstructive sleep apnea and 40% have central sleep apnea, Dr. Somers added, attributing the data to studies conducted during the 1990s. "Since then," he said, "patients are substantially fatter, and we think there are more obstructive apneas in heart failure patients than there used to be."

Although Dr. Somers believes in treating sleep disorders to prevent heart disease, he added that his colleagues in cardiology won't be convinced until cause and effect is proved.

As for randomized controlled trials providing that proof, a major obstacle emerged in a question from the audience at the meeting. Institutional review boards are not likely to approve a trial that allows a sleep disorder to go untreated because the patient is randomized to a control group.

PTSD May Be Affected by Sleep Disorders in Some Patients

SCOTTSDALE, ARIZ. — Untreated sleep-disordered breathing may perpetuate posttraumatic stress disorder over a period of weeks, months, and even years, Dr. Lois E. Krahn proposed at a meeting on sleep medicine sponsored by the American College of Chest Physicians.

"Patients have a lot of sleep complaints. They have trouble falling asleep. They have nightmares, and one very interesting finding of late is they also have a fairly high rate of obstructive sleep apnea," said Dr. Krahn, chair of the department of psychiatry and psychology at the Mayo Clinic in Scottsdale, Ariz.

In one posttraumatic stress disorder (PTSD) study cited by Dr. Krahn, subjective sleep disturbance was described as "a hallmark of PTSD" in elderly war veterans (Biol. Psychiatry 2000;47:520-5). Even though patients with untreated obstructive sleep apnea and sleep movement disorders were not included in the sample, the investigators reported finding many cases in patients screened for the study.

Dr. Krahn posited that obstructive sleep apnea may predispose some patients to wake in the middle of the night. "So that may be a feature that causes this condition [PTSD] to be perpetuated," she said.

In an interview at the meeting, she suggested ordering polysomnography when PTSD patients do not improve with therapy. They may continue to relive their trauma at night, she said.

"Their sleep wasn't terrific before this traumatic event. Now they've got nightmares. With the combination, they have a more chronic disorder."

Many psychiatric disorders overlap with sleep disorders, and can be difficult to distinguish, Dr. Krahn said. She suggested asking new sleep patients whether they are sleepy or fatigued during the day.

Patients who present only with daytime sleepiness are more likely to have a sleep disorder, according to Dr. Krahn. If the main complaint is fatigue or exhaustion, the differential diagnosis expands to a wide range of psychiatric and medical disorders.

Two key tools, she suggested, are the Epworth Sleepiness Scale and the clinical interview. Patients with obstructive sleep apnea or narcolepsy tend to score high on the Epworth; patients whose main complaint is fatigue score low.

The interview helps the physician tease out factors in daily life that might influence sleep. "If you have someone come to you with sleepiness, ask about their mood," she said, suggesting simple questions such as, "Are you sad? Are you blue? Are you able to pursue your interests?"

She also recommended asking about mood if patients present with sleepiness in winter. "There is no seasonal hypersomnia," she said, suggesting they might be suffering from seasonal affective disorder.

Similarly, Dr. Krahn noted that patients with panic disorder can have attacks during the day and at night. If attacks occur only at night, suspect sleep apnea.

People with bipolar and psychotic disorders sometimes seek help from a sleep clinic rather than a psychiatrist, according to Dr. Krahn.

To tease out bipolar disorder, Dr. Krahn suggested asking, "Have you had periods of your life where you have not needed to sleep—where you have not had more than 3 hours of sleep and you still had enough energy to function or even quite a bit of energy?"

"That is a pretty specific scenario for mania," she said, warning that bipolar patients often resist their diagnosis. "It is more socially acceptable to have insomnia than to have bipolar disorder," Dr. Krahn explained..

Psychotic disorders are often associated with insomnia, she said. Dr. Krahn also noted that many patients gain weight on the newer atypical antipsychotic drugs, which puts them at increased risk of obstructive sleep apnea. Educating these patients about continuous positive airway pressure therapy can be a challenge, she warned, describing a patient who was afraid of inhaling a poison gas. ■