Obstructive Sleep Apnea Linked to Risk Of Atrial Fibrillation Before Age 65

BY JANE SALODOF MACNEIL
Senior Editor

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 did not 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.

"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 emphasized that this was a retrospective study in a referral population, and that these findings needed to be confirmed by more robust prospective investigation.

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 sleep apnea and atrial fibrillation.

In one study, Dr. Gamia, 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). It compared 39 patients with obstructive sleep apnea with a control group of 79 patients who did not undergo a sleep study. 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, in the 25 untreated apnea patients, nocturnal oxygen saturation fell to lower levels in those who had a recurrence of atrial fibrillation. ■

Will Treating Apnea 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.

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. 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 death in the general population, 46% of 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 is that 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.

"It's a double-edged sword," Dr. Somers said. "They force you to treat everybody, so you can't do the study. But until you do the study, not everybody will be treated."

Adult-Onset Asthma Boosts Women's Cardiovascular Risk

BY MITCHEL L. ZOLER
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ORLANDO — Adult-onset asthma was linked to an almost twofold increased rate of coronary heart disease or stroke in women in a study with more than 15,000 people.

The mechanism behind this association is unknown but may be explained by an increased level of systemic inflammation in women with adult-onset asthma, Stephen Onufrak and his associates reported in a poster at a conference on cardiovascular disease epidemiology and prevention sponsored by the American Heart Association.

Prior findings from other studies also supported links between asthma and atherosclerotic events, and showed that the association was strongest in women, said Mr. Onufrak, an epidemiologist at Emory University, Atlanta.

The study used data collected from 15,573 white and black persons who were enrolled in the Atherosclerosis Risk in Communities (ARIC) study during 1987-1989. The group included nearly 7,000 men, of whom 6,594 had no asthma, 227 had asthma that began during childhood, and 146 who had adult-onset asthma. Also included were more than 8,600 women, with 8,093 who had no asthma, 214 who had childhood-onset asthma, and 299 whose asthma started after they were adults.

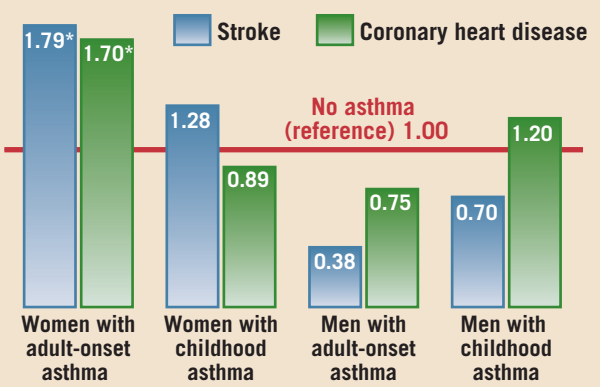
For this analysis, childhood asthma was defined as having its onset before age 21, and adult-onset asthma was defined as appearing at age 21 or after.

The researchers then analyzed the rates of incident coronary heart disease or stroke during 12-14 years of follow-up based on asthma prevalence at baseline. The hazard ratios were adjusted to account for baseline differences in several demographic and clinical variables, including age, race, body mass index, smoking history, hypertension, serum lipid levels, and physical activity.

The analyses showed that women with adult-onset asthma were 70% more likely to develop coronary artery disease and 79% more likely to have stroke, compared with women without asthma. Both of these differences were statistically significant. No significant change was seen in the hazard ratios for coronary heart disease or stroke, compared with people with no asthma, among women who had childhood asthma or among men with either adult-onset or childhood asthma. (See box.)

Another analysis focused just on the men and women who had never smoked. Again, women with adult asthma had a statistically significant twofold increased risk of coronary heart disease or stroke, compared with women without asthma. No significant differences in outcome rates were seen in women with childhood asthma or among men, the researchers reported. ■

Hazard Ratios for Coronary Heart Disease And Stroke With Asthma



*Significant difference from reference level.
Note: Based on data from 15,573 people enrolled in ARIC study.
Source: Mr. Onufrak

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