Sleep-disordered breathing patients at greater risk for atrial fibrillation

December 9 2015

Sleep-disordered breathing often predicts the development of atrial fibrillation (AF) in older men, according to U.S. researchers.

The researchers found that participants of a multicenter prospective cohort who had central sleep apnea or central sleep apnea with Cheyne-Strokes respiration, both caused by abnormal respiratory signals from the brain, were at greater risk of developing AF compared to those without central sleep-disordered breathing. The risk increased with age.

The research was published online ahead of print in the *American Journal of Respiratory and Critical Care Medicine*.

The researchers did not find a significant association between study participants with obstructive sleep apnea and AF. Obstructive sleep apnea, which is caused by blockage of the upper airway, is the most common type of sleep-disordered breathing. In the subset of patients 76 years of age and older, however, obstructive sleep apnea did predict AF, according to the researchers.

The results help identify strategies for preventing AF, a common heart condition whose prevalence is projected to increase as the population ages. Previous research had demonstrated an association between sleep-disordered breathing and AF, but the direction of the association was unclear: did sleep-disordered breathing predict increased risk for developing AF or vice versa?

"Gaining insight into the role that sleep-disordered breathing plays in AF may help researchers and clinicians develop targeted therapies that address the physiologic determinants of abnormal sleep-related breathing leading to atrial fibrillation," said senior investigator Reena Mehra MD, MS, director of sleep disorders research, at the Cleveland Clinic.

The researchers studied 842 men who were enrolled in the multicenter Outcomes of Sleep Disorders in Older Men Study (MrOS Sleep Study). The average age of the men at enrollment was 75. Men with baseline AF were excluded from further study. After an initial polysomnography test, they were followed for an average of 6.5 years. Upon follow-up, 99 patients had developed AF.

The researchers adjusted for established risk factors, including heart failure and other cardiovascular diseases, as well as for age, race, body mass index and cholesterol.

They found the following results statistically significant:

- Those with central sleep apnea were 2.58 times more likely to develop AF than those without.
- Those with central sleep apnea-Cheyne Stokes respiration were 2.27 times more likely to develop AF than those without.
- Those enrolled at age 76 and older with obstructive sleep apnea had a 22 percent increase in incident AF with each 5-unit increase in the apnea-hypopnea index.

Authors said that because the study enrolled older men, its conclusions may not apply to younger people or women. They recommend future studies incorporate echocardiography to examine changes in heart structure and function and how those changes relate to sleep-disordered

breathing and AF.

"Central sleep-disordered breathing may represent a factor for physicians to consider in the diagnosis and treatment of AF and its adverse health consequences," Mehra said. "Further investigation is needed to determine whether reversal or treatment of central sleep-disordered breathing in AF improves patient health."

Provided by American Thoracic Society