



CARDIOLOGY

Sleep Disorder Plus Diabetes Equals Cardiac Events?

Studies have linked sleep disordered breathing (SDB) with type 2 diabetes and impaired glucose tolerance as well as with cardiovascular events. However, according to the researchers, none of these studies have focused on the effect of SDB on incident cardiovascular events in patients with asymptomatic type 2 diabetes without a history of cardiac disease. So, researchers from Cleveland Clinic, Case Western Reserve University, Louis Stokes Cleveland VA Medical Center, all in Cleveland, Ohio; and Menzies Research Institute of Tasmania in Hobart, Australia, filled that gap with a longitudinal (4-6 years) observational study of 834 patients at the Cleveland Clinic.

The patients had no clinical evidence of coronary artery disease (CAD), but 79% had high blood pressure (BP) and other risk factors for cardiac complications. At baseline, 188 patients were diagnosed with SDB; another 25 were diagnosed during follow-up. During the follow-up, 22 patients experienced incident

congestive heart failure (CHF), and 72 patients developed CAD. Sleep-disordered breathing doubled the risk of both and nearly tripled the rate of atrial fibrillation (AF). After adjusting for new CHF and death, the age-adjusted hazard ratios showed a strong association between SDB and both incident CAD ($P < .001$) and AF ($P = .002$).

Studies have indicated an association between type 2 diabetes and SDB, independent of obesity, the researchers note. However, they say this is the first study to show an association of SDB with an increased risk of new-onset cardiac disease in patients with type 2 diabetes. They add that this study also includes more women than other studies; a larger sample size; separation of endpoints; and an exploration of the differences between SDB and non-SDB with respect to CAD risk factors, health care access and quality, and treatment differences for existing comorbidities.

Sleep disordered breathing has also been linked to vascular endothelial changes through increased proinflammatory mediators. Studies have confirmed elevated inflammatory markers in patients with SDB regard-

less of weight. One of the mechanisms suggested for the association of SDB with cardiac events is high BP. However, in this study, while elevated systolic blood pressure (SBP) increased the risk of all incident heart failure, CAD, and AF, the baseline SBP of patients with and without SDB was similar. This suggests, the researchers speculate, that hypertension might not be a principal causal mechanism for the greater number of cardiac events.

Women were more likely than men to have incident CAD, an “unexpected” finding, but perhaps related to the selection of patients with type 2 diabetes, the researchers say. Among other results, studies have shown women to have more pronounced vasoconstriction in response to hypoxia and stress compared with that in men. Moreover, in some research, women with SDB have been found to have larger brachial artery diameters than that of women without SDB. An increased brachial diameter has been identified as a risk factor for CAD in women. ●

Source: Seicean S, Strohl KP, Seicean A, Gibby C, Marwick TH. *Am J Cardiol.* 2013;111(8):1214-1220. doi: 10.1016/j.amjcard.2012.12.053.