quartile (those who had an AHI of less than 7), patients in the highest quartile (those with an AHI at least 46) had 4.6 times the risk of developing diabetes. Patients who were in the second and third quartile had intermediate hazard ratios, and the trend was statistically significant.

When the degree of hypoxia as measured by oxygen saturation was added to the multivariate analysis, OSA alone no longer emerged as a significant predictor of the development of type 2 diabetes, whereas hypoxia conferred a 2.9-fold increase in risk.

This indicates that at least some of the risk that was conferred by OSA can be explained by hypoxia.

The exact link between OSA, hypoxia, and type 2 diabetes remains unknown, Dr. Botros said, but there is evidence that sleep apnea activates the body's fight-or-flight response.

This increase in risk for diabetes is independent of obesity, age, hypertension, race, and gender.

DR. BOTROS

This in turn triggers a cascade of events including the production of high levels of cortisol, which has been tied to the development of insulin resistance and glucose intolerance. If these prediabetic conditions are left untreated, it can lead to the development of full-blown diabetes.

"Our next step will be to determine whether the treatment of sleep apnea can improve an individual's diabetic parameters and consequently the negative health affects of diabetes," Dr. Botros said in a prepared statement. ■

No Improvement In Mortality in Diabetic Women

BY ELIZABETH MECHCATIE
Senior Writer

Despite marked drops in all-cause and cardiovascular mortality in men with diabetes between 1971 and 2000, no such improvements were seen in women with diabetes in those periods, a study has shown.

"The improvements seen in men suggest that the improvements in diabetes care are working on longevity as well," Edward W. Gregg, Ph.D., the study's lead author, said in a statement issued by the American College of Physicians. "But the finding in women is concerning and means we may need to explore whether different approaches are needed to improve health outcomes for women with diabetes." Dr. Gregg is acting chief of the epidemiology and statistics branch of the division of diabetes translation at the Centers for Disease Control and Prevention in Atlanta.

The study analyzed data on about 20,000 people from three consecutive National Health and Nutrition Examination Surveys (NHANES), which examined the health of nationally representative cohorts of U.S. residents, between 1971-1975, 1976-1980, and 1988-1994. The authors also followed up mortality in participants in 1986, 1993, and 2000 for the three surveys. Participants were aged 35-74 years at baseline.

Data from three time periods, which included follow-up, were compared: 1971-1986, 1976-1992, and 1988-2000. The study was conducted to determine if all-cause and cardiovascular disease (CVD) mortality had dropped in diabetes patients, and to determine whether differences in mortality between diabetes patients and those without diabetes had narrowed. The study will appear in the August 7, 2007, print edition of the Annals of Internal Medicine, and was posted at www.annals.org on June 18.

All-cause mortality in diabetic men went from 42.6 to 24.4 annual deaths per 1,000 persons between 1971-1986 and 1988-2000, a statistically significant 43% drop. During these periods, CVD mortality dropped from 26.4 to 12.8 annual deaths per 1,000 persons, which was not quite statistically significant.

But in women with diabetes, neither all-cause mortality nor CVD mortality improved between these periods. In addition, the difference in all-cause mortality between female diabetes patients and women without diabetes increased from 8.3 to 18.2 annual deaths per 1,000 persons. In men, however, the absolute difference in all-cause mortality in those with and without diabetes dropped from 23.6 annual deaths per 1,000 persons in 1971-1986 to 12.8 annual deaths per 1,000 persons in 1988-2000. The difference in CVD mortality between male diabetes patients and men without diabetes dropped from 16.8 to 8.1 annual deaths per 1,000 persons between these two periods.

The authors cited gender differences in coronary heart disease pathophysiology, less aggressive treatment of women, and more negative outcomes after revascularization and hospitalization for CVD in women as some reasons for the data. ■