Poor Diabetes Control Boosts Heart Failure Risk

The highest incidence of heart failure occurred in patients with a baseline HbA_{1c} level of more than 8%.

BY MITCHEL L. ZOLER
Philadelphia Bureau

ORLANDO — Higher levels of hemoglobin A_{1c} significantly boosted the risk of heart failure in patients with diabetes in an analysis of more than 1,800 patients.

This association was seen even among patients with diabetes who did not have clinically apparent coronary heart disease (CHD), suggesting that poorly controlled hyperglycemia plays a direct role in causing heart failure, Dr. Antonio Pazin-Filho said at a conference on cardiovascular disease epidemiology and prevention sponsored by the American Heart Association.

The likely mechanism for this link is an increased risk of diabetic cardiomyopathy in patients with poorly controlled hyperglycemia, said Dr. Pazin-Filho, an epidemiologist at Johns Hopkins University in Baltimore.

"The message is that patients with diabetes may benefit more if they can reach their glycemia goal," commented Dr. Peter W.F. Wilson, professor of medicine at Emory University in Atlanta. "It's another reason why tight glycemic control is important." The data also suggested that the risk of heart failure from hyperglycemia was the highest among patients treated with insulin, suggesting that diabetic patients on insulin face the biggest risk from heart failure if they cannot maintain good glycemic control, Dr. Wilson said in an interview.

The study used data collected from people in the Atherosclerosis Risk in Communities study, a prospective study of nearly 16,000 people from four communities in the United States that began in 1987. The analysis by Dr. Pazin-Filho focused on 1,827 subjects who had been diagnosed with diabetes in their examinations during 1990-1992. These patients were then followed for about 10 years, through the end of 2002. At baseline, 1,668 patients did not have CHD, and 159 did have CHD.

During follow-up, 205 of the patients without CHD developed heart failure, defined as a first hospitalization for heart failure or death because of heart failure. Incident heart failure also occurred in 50 patients who had CHD at baseline. The 205 people who developed heart failure without preexisting CHD were further divided into 118 who developed heart failure without first being diagnosed with clinically apparent CHD during follow-up, and 87 who were first diagnosed with CHD during follow-up before their heart failure appeared.

Dr. Pazin-Filho and his associates then analyzed the risk that these patients faced for developing heart failure relative to their serum level of hemoglobin A_{1c} at baseline. The results showed that among patients with diabetes who did not have preexisting CHD, the risk of later developing heart failure was significantly linked to their HbA_{1c} level. For each 1% increase in HbA_{1c} at baseline, the risk of heart failure rose by 13% in an analysis that controlled for potential confounding factors at baseline including age, gender, race, education, health-insurance status, alcohol intake, smoking status, blood pressure, and serum lipid levels.

When the analysis excluded the 87 people who developed CHD before heart failure during follow-up, the link between baseline levels of HbA_{1c} and risk for heart failure was even stronger: For every 1% increase in serum HbA_{1c}, the risk of heart failure rose by 15%, also a statistically significant effect.

However, among the patients who had preexisting CHD at baseline, the analysis showed no significant relationship between HbA_{1c} levels and the risk of developing heart failure.

"Our results support the idea that the better the glycemic control the lower the risk," Dr. Pazin-Filho said in an interview. The usual goal for patients with diabetes is a serum level of HbA_{1c} that's 7% or less; normal levels are 6% or less. In the findings reported by Dr. Pazin-Filho, the highest incidence of heart failure occurred in patients with a baseline level of more than 8%. ■

Depression Plus Diabetes Predicts Mortality in Patients With CAD

BY JONATHAN GARDNER
London Bureau

Having both type 2 diabetes and depression puts patients with coronary artery disease at greater risk of death over a 4.5-year period than does either condition alone.

That finding emerged from a study presented at the American Psychosomatic Society meeting in Budapest, Hungary.

The more severe the depressive symptoms were in those patients with both coronary artery disease and diabetes, the greater their risk of death in the follow-up period.

Having high scores on the Beck Depression Inventory increased the risk of dying during the follow-up period by 20%-30%, compared with patients with similar depression scores but without type 2 diabetes, according to investigators from Duke University, Durham, N.C.

The more severe the depressive symptoms were in those patients with both coronary artery disease and diabetes, the greater their risk of death.

These findings suggest that physicians should screen for and treat depression in their patients with diabetes and heart disease.

"There is some sort of synergistic effect between type 2 diabetes and depression that we don't fully understand," lead researcher Anastasia Georgiades, Ph.D., said in a written statement. "In our analysis, we controlled for factors that could influence mortality, such as heart disease severity and age. For whatever reasons, these patients were still at higher risk of dying, and future research will aim to investigate the mechanisms for this association."

The study compared 325 patients with type 2 diabetes and 582 patients without the disease during hospitalization for a coronary angiography. Their depression symptoms were rated using the Beck Depression Inventory (BDI). Approximately 25% scored at least 10 on the BDI, indicating depression, Lana Watkins, Ph.D., an investigator in the study, noted in an interview.

During the follow-up period of 4.5 years (median, 3 years), the researchers documented 135 deaths among the study participants. Among the depressed patients, 19% died, compared with 12% of those patients without depression, Dr. Watkins said.

The researchers found statistically significant associations between depressive symptoms and increased mortality and, separately, diabetes and increased mortality. The highest mortality was among patients with both diabetes and elevated BDI scores. The researchers did not publicize hazard ratios, however, because they said those statistics would overestimate the risk and create anxiety among patients.

"Patients with type 2 diabetes typically have an extensive self-care regimen involving special diet, medications, exercise, and numerous appointments with their doctor," Dr. Georgiades said in the statement. "It may be that such patients who are depressed might not be as motivated to carry out all these activities, thereby putting them at higher risk."

Physicians treating patients with heart disease and diabetes need to screen them for depression and treat as needed.

"Regular exercise has been shown to improve depression, too, so that might be an option," Dr. Watkins noted. "This could potentially improve depression and diabetes, and might be a good first choice for diabetics who would prefer not having to take additional medications." ■

Depressive Symptoms Tied To Development of CAD

BY MARY ANN MOON
Contributing Writer

Depressive symptoms appear to correlate with the development of coronary artery disease, but hostility and anxiety may not, Jesse C. Stewart, Ph.D., and his associates reported in the Archives of General Psychiatry.

Several studies have linked various negative emotions with the development of coronary artery disease in initially healthy subjects. But teasing out the relative contributions of depression, anxiety, and hostility has been difficult because they tend to overlap. Dr. Stewart and his associates of the University of Pittsburgh assessed a wide range of such symptoms in a prospective cohort study of subclinical atherosclerosis in healthy subjects aged 50-70 years.

The 324 subjects underwent ultrasonographic assessment of carotid intima-media thickness (IMT), a noninvasive measure of subclinical atherosclerosis, as well as a battery of tests evaluating emotional factors, including the Beck Depression Inventory, the Beck Anxiety Inventory, the Cooke-Medley Hostility Scale, and the State-Trait Anger Expression Inventory.

During 3-year follow-up, only mild to moderate depressive symptoms correlated with the decreasing carotid IMT that signals progression of subclinical atherosclerosis. Symptoms of anxiety, hostility, the experience of anger, and the expression of anger showed no correlation with carotid IMT change.

This suggests that depression, but not anxiety or hostility, is involved in the initiation and/or the progression of atherosclerosis. This study is the first ever to report an association between depressive symptoms and carotid IMT change, the investigators said (Arch. Gen. Psychiatry 2007;64:225-33).

The exact mechanism underlying this association is unclear, but depression is known to affect physiologic pathways also involved in atherosclerosis, such as autonomic nervous system dysfunction, hypothalamic-pituitary-adrenal axis dysregulation, inflammatory processes, and altered platelet function, they said.

A post-hoc analysis of the data showed that IMT worsening was associated with somatic-vegetative symptoms of depression such as fatigue, sleep disturbance, loss of appetite, and anhedonia, but not associated with more cognitive-affective depressive symptoms such as sadness, pessimism, discontent, or indecisiveness.

It is possible that this is attributable to a genuine physiologic link between the somatic-vegetative symptoms of depression and the process of atherosclerosis. However, it also is possible that older people such as the subjects in this study simply are more likely to report somatic-vegetative symptoms rather than emotional symptoms, the investigators noted. ■