Poor Glycemic Control Raises Heart Failure Risk

BY MITCHEL L. ZOLER
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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 in patients with diabetes who did not have clinically apparent coronary heart disease (CHD), which suggests that poorly controlled hyperglycemia plays a direct role in causing heart failure, Dr. Antonio Pazin-Filho, an epidemiologist at Johns Hopkins University, Baltimore, 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, he said.

"The message is that patients with diabetes may benefit more if they can reach their glycemia goal," noted Dr. Peter W.F. Wilson, professor of medicine at Emory University in Atlanta. The data also suggested the risk of heart failure from hyperglycemia was the highest in 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 and his associates focused on 1,827 subjects diagnosed with diabetes during 1990-1992. These patients were followed for about 10 years, through the end of 2002. At baseline, 1,668 patients did not have CHD and 159 did.

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.

The researchers then analyzed the risk these patients faced for developing heart failure relative to their serum level of hemoglobin A_{1c} at baseline. The results showed that in 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 Hb A_{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, in 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.

The usual goal for patients with diabetes is a serum level of HbA_{1c} of 7% or less; normal levels are 6% or less. In Dr. Pazin-Filho's findings, the highest incidence of heart failure was in patients with a baseline level of more than 8%. ■

DATA WATCH

Chronic Kidney Disease More Often Comorbid With Diabetes Than With Cardiovascular Disease

Notes: Based on data from the National Health and Nutrition Examination Survey 1999-2004. Patients may have multiple diagnoses.
Source: Centers for Disease Control and Prevention

ELSEVIER GLOBAL MEDICAL NEWS

ADA Standards of Care

BY NEIL S. SKOLNIK, M.D.

Every January, the American Diabetes Association issues its Standards of Medical Care, which codify the recommendations for the treatment of patients with diabetes. This column will review some of the basic recommendations and important new issues in this year's standards.

Screening with a fasting plasma glucose test for diabetes should be considered every 3 years in individuals who are older than 45 years and in those who are younger than 45 and who are overweight and have another risk factor for diabetes.

The general goal for patients with diabetes is defined as a glycosylated hemoglobin (HbA_{1c}) value of less than 7%. The goal for the individual patient is an HbA_{1c} as close as possible to normal (less than 6%) without significant hypoglycemia. Less stringent goals may be appropriate for patients with a history of severe hypoglycemia, those with limited life expectancies, and those in whom the long-term benefits of tight control do not outweigh the risk of hypoglycemia.

The most important addition to the recommendations regards therapy initiation. The key principle is that normoglycemia should be achieved as soon as possible by increasing doses and adding medications as rapidly as reasonable.

Upon confirmation of the diagnosis of diabetes, patients should be instructed on lifestyle modifications—primarily diet and exercise—and started on metformin, because most patients do not respond to lifestyle modifications alone. Metformin was chosen because of its cost, its low incidence of hypoglycemia, and its nonassociation with weight gain. It should be started at a dosage of 500 mg once or twice a day to minimize the gastrointestinal side effects, and then, after a week, increased to 850 or 1,000 mg before breakfast and dinner. There is little additional effect above this dosage.

If good levels of glucose control are not achieved, then additional medications should be added, preferably within 2-3 months of initiation of therapy. The recommended options are insulin, a sulfonylurea, or a thiazolidinedione. If two agents do not achieve good glucose control, the next step would depend on how far the patient is from the goal. If the HbA_{1c} is close to goal (less than 8%), consider the addition of a third oral agent. If it is not close to goal, then insulin can be considered as the next agent.

Insulin therapy should be started with bedtime intermediate-acting insulin or bedtime or morning long-acting insulin at a dosage of 10 units or 0.2 units/kg. Fasting fingerstick glucose should be checked daily, and the dosage of insulin increased by 2 units every 3 days until fasting levels are in the 70- to 130-mg/dL range. For those who are able to increase the dosage of insulin on their own, this provides a clear algorithm for doing so, and allows normal levels of glucose to be achieved sooner and more easily.

The prevention and management of diabetes complications remain important goals of management. Blood pressure should be controlled to less than 130/80 mm Hg; if medications are needed, then patients should be treated with a regimen that includes either an ACE inhibitor or an angiotensin II receptor blocker (ARB).

The LDL cholesterol goal is less than 100 mg/dL. For patients older than age 40 years, statin therapy to achieve an LDL cholesterol reduction of 30%-40%—regardless of baseline LDL cholesterol levels—is recommended. For patients with diabetes and coronary disease, using a statin to achieve a target LDL cholesterol goal of less than 70 mg/dL is an option.

Aspirin should be used at a dosage of 75-162 mg/day as primary prevention in patients older than 40 years of age, or in those younger than 40 who have additional risk factors.

All patients should be advised not to smoke. In patients who are older than 55—with or without hypertension but with some other cardiovascular risk factor—an ACE inhibitor should be considered to reduce cardiovascular risk.
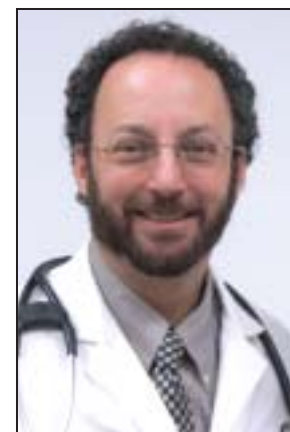
Screening for microalbuminuria with a spot sample for the albumin:creatinine ratio should be done on an annual basis, and an ACE inhibitor or an ARB should be used if microalbuminuria (more than 30 mcg/mg) is present.

Patients should also have an annual ophthalmologic exam. They should have an annual foot exam, and should be taught to examine their feet on a daily basis as well. Screening for peripheral vascular disease is now recommended.

However, cardiac stress testing of asymptomatic patients with diabetes is no longer recommended. Stress testing before beginning a vigorous exercise program is recommended, although the guidelines state that there are no data to suggest that beginning an exercise program with walking or a similar level of exercise increases the risk of a cardiac event, so patients starting a low-level exercise program are unlikely to need a stress test.

Guidelines are most useful when they are available at the point of care. A concise yet complete handheld computer version of this guideline is available for download, compliments of FAMILY PRACTICE NEWS, at www.redi-reference.com.
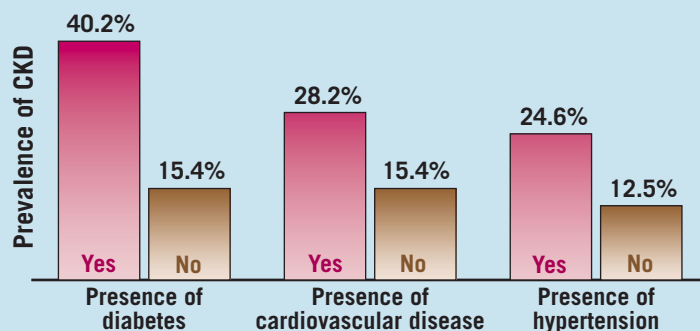
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► Palm and Pocket PC versions are available at www.diabetes.org/for-health-professionals-and-scientists/cpr.jsp.

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