Dyspnea in Diabetics Deemed 'Ominous'

BY BRUCE JANCIN
Denver Bureau

SNOWMASS, COLO. — The complaint of shortness of breath in a diabetic patient without known coronary artery disease is a red flag that should trigger an extensive cardiovascular work-up including stress myocardial perfusion imaging, Dr. George A. Beller said at a conference sponsored by the Society for Cardiac Angiography and Interventions.

Recent studies strongly suggest that exertional dyspnea in a diabetic patient may be a much more ominous symptom than exertional angina, according to Dr. Beller, professor of internal medicine and chief of the division of cardiovascular medicine at the University of Virginia, Charlottesville.

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DR. BELLER

"Whether this is an angina equivalent or a marker of silent ischemia with inducible ischemic left ventricular dysfunction reflecting more severe coronary artery disease, compared with diabetic patients presenting with angina, we really don't know yet. But I am very impressed that event rates are so much higher in diabetic patients presenting with dyspnea than angina," added Dr. Beller, a former president of the American College of Cardiology.

For example, investigators at Cedars-Sinai Medical Center in Los Angeles recently reported on 1,737 consecutive diabetic patients without known coronary artery disease (CAD) who underwent single-photon emission computed tomography (SPECT) myocardial perfusion imaging, of whom 1,430 were followed for a median of 2 years.

Objective evidence of CAD was found on SPECT in 39% of the 826 asymptomatic diabetic patients, in 44% of those with angina, and in 51% of the 151 patients with dyspnea.

The outcome was three times worse in diabetic patients with shortness of breath. The annual rate of cardiac death or nonfatal MI was 7.7% in patients with dyspnea as their predominant symptom, 3.2% in those with angina, and 2.2% in asymptomatic diabetic patients. In patients with SPECT evidence of CAD, the major event rate increased to 13.2% in patients with shortness of breath, 5.6% in those with angina, and 3.4% in asymptomatic diabetic patients (Eur. Heart J. 2004;25:543-50).

Dr. Beller noted that the importance of dyspnea also was recently underscored in nondiabetic patients. Another Cedars-Sinai study, involving 17,991 patients who underwent SPECT and were followed for a mean of 2.7 years, concluded that in patients with no known history of CAD, those with self-reported dyspnea were four times as likely to experience sudden cardiac death as asymptomatic patients and more than twice as likely to experience it as patients with typical angina (N. Engl. J. Med. 2005;353:1889-98).

But Dr. Beller focused mainly on dyspnea in diabetic patients, for two reasons: cardiovascular event rates in these patients are much higher than in nondiabetic patients, and the diabetic population is skyrocketing as a result of the obesity epidemic.

Several recent studies highlight the existence of a large number of asymptomatic diabetic patients with severe CAD. In a Mayo Clinic study of more than 4,700 diabetic patients without clinically apparent CAD referred for SPECT, 58% of the asymptomatic patients and 60% of the symptomatic ones had abnormal scans. And 20% of asymptomatic and 22% of symptomatic diabetic patients had high-risk scans involving multivessel disease and/or extensive ischemia, compared with just 13% of more than 16,000 symptomatic nondiabetic patients and 11% of more than 6,000 asymptomatic nondiabetic patients. ■

Girth, Exercise Tolerance Add to Prognostic Score

BY MITCHEL L. ZOLER
Philadelphia Bureau

DALLAS — Waist girth and exercise tolerance each gave significant prognostic information about a person's risk for cardiovascular death or coronary events that went beyond the Framingham risk score, according to data collected from more than 30,000 people.

As a result of these findings, "we're planning to incorporate waist girth and exercise tolerance into our use of the Framingham risk score," Radim Jurca, Ph.D., said at the annual scientific sessions of the American Heart Association.

Dr. Jurca and his associates assessed the prognostic role of waist girth using data collected from 33,192 men who were without symptoms of coronary heart disease or cardiovascular disease when they underwent a baseline examination at the Cooper Clinic in Dallas during 1979-2003. Waist girth was measured with a tape at the umbilicus. The men were then followed for an average of 14 years, during which time there were 624 cardiovascular deaths, 366 coronary heart disease deaths, and 680 "hard" coronary events that were either coronary deaths or nonfatal myocardial infarctions.

The researchers divided the group into tertiles of about 11,000 men each, defining groups with a waist girth of less than 89 cm, of 89-97 cm, or above 97 cm.

The incidence of cardiovascular and coronary events tracked with increases in waist girth. For example, the rate of cardiovascular disease deaths during the 14 years of follow-up was about 0.010% among men in the lowest waist-girth tertile, about 0.012% among those with a girth of 89-97 cm, and about 0.020% among those in the highest tertile, a linear trend that was statistically significant after adjustment for age, examination year, and the Framingham risk score.

In a regression model that adjusted for these variables as well as family history of cardiovascular disease or diabetes, the risk of cardiovascular death rose by 17% for every 5-cm increase in waist girth, said Dr. Jurca, an exercise physiologist and epidemiologist at the Cooper Institute in Dallas. A likelihood ratio analysis showed that use of waist girth and Framingham risk score together to predict risk was significantly more effective than the Framingham risk score alone.

Similar analyses showed that waist girth also predicted the rate of coronary heart disease deaths and of hard coronary events. A 5-cm increase in girth boosted the risk of coronary deaths by 11%, and the risk of coronary events by 15%. Analyses also showed that waist girth was a significant, independent risk factor for all ages, ranging from an 18- to 39-year-old group to a group older than 50. Waist girth also was found to be a significant risk factor in all men with a body mass index that was at least 25 kg/m^2.

A similar calculation was done substituting exercise tolerance for waist girth. In this case, the study group included 12,805 women and 41,708 men who were asymptomatic at the time of their first examination during 1970-2002. They were followed for an average of 17 years.

The analysis showed that for each metabolic equivalent that exercise capacity increased, a person's risk of cardiovascular death, coronary death, or a hard coronary event was reduced by about 20%, Michael J. LaMonte, Ph.D., said in a separate report at the meeting.

This effect was statistically independent of the Framingham risk score, as well as age, examination year, family history of cardiovascular disease or diabetes, and ECG abnormalities. The impact of metabolic equivalents continued to be significant even in people who had a high Framingham risk score, with an annual risk of death of more than 2%, said Dr. LaMonte, director of epidemiology at the Cooper Institute.

So far, the researchers have not determined whether waist girth and exercise tolerance are independent or dependent variables, but they plan to run this analysis, Dr. LaMonte said. ■

Apo B Rivals Cholesterol for Predicting Coronary Heart Disease

BY MARY ANN MOON
Contributing Writer

Plasma concentration of apolipoprotein B is a slightly better predictor of coronary heart disease than is non-HDL cholesterol and a much better predictor than is LDL cholesterol, reported Dr. Tobias Pischon of the Harvard School of Public Health, Boston, and his associates.

This finding is sure to add to the controversy over which lipid measurement is the best for assessing both coronary risk and treatment efficacy. Current National Cholesterol Education Program guidelines recommend LDL cholesterol as the primary target for lipid-lowering therapy. The guidelines consider HDL cholesterol a secondary treatment target and do not consider apolipoprotein B (apo B) a target at all, the investigators said.

Apo B concentration is a measure of the particle concentration of all atherogenic lipoproteins, whereas LDL and non-HDL cholesterol levels are measures of some of the cholesterol carried by these particles. Dr. Pischon and his associates conducted what they said was the first large prospective study to directly compare these three measures as predictors of coronary heart disease (CHD) risk.

Their results indicated that apo B is the best such predictor, and also that particle concentration of atherogenic lipoproteins is more crucial than is cholesterol content in the development of CHD (Circulation 2005;112:3375-83).

The researchers used a database of more than 51,000 male health professionals who had been followed every 2 years since 1986 to identify 243 subjects who had developed CHD during a 6-year study period and 496 matched control subjects who did not develop CHD. The baseline apo B level was the best predictor of CHD (relative risk 2.98). Non-HDL cholesterol also was strongly predictive (RR 2.75), with LDL cholesterol less so (RR 2.07).

In an editorial comment accompanying the report, Dr. Allan D. Sniderman of McGill University, Montreal, said that apo B should replace LDL and non-HDL cholesterol as the measurement of choice in assessing CHD risk, noting that it has now been more extensively validated in both epidemiologic studies and clinical trials. Measurement of apo B is already standardized, automated, and inexpensive, he said (Circulation 2005;112:3366-7).

In contrast, Dr. Margo A. Denke of the University of Texas Health Science Center at San Antonio said that abandoning cholesterol testing in favor of apo B testing would be too confusing for both physicians and the public. The cholesterol content of lipoprotein particles reliably predicted CHD in every major study, whereas apo B assessments have not consistently improved that prediction, she said (Circulation 2005;112:3368-70). ■