

# Low Calcium Score May Mask CHD in Diabetics

*Even a score of 0 poses a higher atherosclerotic burden for a diabetic than a nondiabetic patient.*

BY MIRIAM E. TUCKER  
Senior Writer

WASHINGTON — Even without evidence of coronary calcium on CT, a large proportion of diabetic patients are still at risk for atherosclerosis, Liviu Klein, M.D., said at a conference on cardiovascular disease epidemiology and prevention sponsored by the American Heart Association.

"Diabetics are clearly at risk for atherosclerosis. Some people believe that CAC [coronary artery calcium] is a perfect tool for discrimination, but it's not. ... My concern is that the absence of CAC will be used as a reason not to treat," Dr. Klein, a fellow in cardiovascular epidemiology and prevention at Northwestern University, Chicago, said in an interview.

About 30% of diabetic adults aged 45 and older without clinically manifest coronary heart disease have no coronary artery calcium (CAC score of 0) on CT. No previous study compared other markers of atherosclerosis in that subgroup with those of nondiabetics without CAC. The first-ever study to do so is a part of the Multi-Ethnic Study of Atherosclerosis (MESA), a population-based cohort of 6,814 African American, white, Chinese, and Hispanic adults aged 45-84 without symptoms or history of cardiovascular disease. A total of 350 (34%) of the dia-

betic participants and 2,825 (49%) of the nondiabetic participants had CAC scores of 0 on coronary CT. Diabetic subjects were older than nondiabetics (61 vs. 57 years) and were more likely to be African American (44% vs. 28%) or Hispanic (34% vs. 23%). Average body mass index (BMI), waist circumference, and triglyceride and LDL-cholesterol levels were also higher in the diabetics than in the nondiabetics, Dr. Klein reported.

On B-mode carotid ultrasound, diabetic patients had significantly higher common and internal carotid intimal medial thickness (IMT) than did nondiabetics, before and after adjustment for age, gender, ethnicity, and traditional risk factors for atherosclerosis, including blood pressure, cholesterol level, BMI, smoking, socioeconomic status, and statin and aspirin use.

After adjustment, common carotid IMTs were 0.84 mm for the diabetics and 0.81 mm for the nondiabetics; internal carotid IMTs were 0.98 mm and 0.86 mm, respectively. Levels of intercellular adhesion molecule-1 (ICAM-1), E-selectin, interleukin-6, and C-reactive protein (CRP) were all significantly greater in the diabetic

group, indicating a greater burden of atherosclerosis, Dr. Klein said.

Mean ankle-brachial index did not differ significantly between the two groups either before or after the same adjustments, nor were there differences in levels of the plaque instability markers matrix metalloproteinase (MMP)-3, MMP-9, or soluble CD40 ligand (CD40-L).

Whether diabetic patients without a history of myocardial infarction have the same risk of CHD events as nondiabetic patients with a history of MI remains contro-

versial, despite two sets of evidence-based guidelines issued by the National Heart, Lung, and Blood Institute categorizing diabetes as a "risk equivalent" for coronary heart disease and advising that all in-

dividuals with diabetes receive intensive CHD risk factor management (JAMA 2001;285:2486-97; JAMA 2003;289:2560-72).

However, conflicting data have appeared both before and since the dissemination of those two documents (the Third Report of the National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults and the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure). One recent study, for example, found that diabetic pa-

tients without MI had a lower risk of CHD events and mortality from cardiovascular disease than did nondiabetic patients with MI, but stroke risk was similar between the two groups (Circulation 2004;109:855-60), while another suggested that 5-year survival among diabetics without CAC is similar to that of nondiabetic subjects without CAC (J. Am. Coll. Cardiol. 2004;43:1663-9).

But, according to Dr. Klein, there are multiple problems with these and similar studies.

First, they have not accounted for the fact that mean CAC differs among individuals of different races. In particular, African Americans and Hispanics have lower mean CAC values than do whites, despite having higher MI rates. "We don't really know what the calcium score means," he said. Moreover, these new data from MESA show that even if someone with diabetes has a CAC of 0 now, that person is likely to have a significantly higher atherosclerotic burden, compared with a nondiabetic. "If you wait until a diabetic has CAC, you will have missed the chance to prevent diabetes complications. ... It's not so much an issue of mortality as it is of morbidity," Dr. Klein said at the meeting, also sponsored by NHLBI.

As it is, fewer than 25% of diabetics receive appropriate treatment for cholesterol, hypertension, and glucose. That number could drop significantly if physicians use a CAC score of 0 on CT as a threshold for intensive treatment, he noted. ■

**CAC is not a perfect tool for discrimination.**

**'My concern is that the absence of CAC will be used as a reason not to treat.'**

## Diet + Exercise Beats Exercise Alone for Metabolic Syndrome

BY SHARON WORCESTER  
Tallahassee Bureau

ORLANDO, FLA. — Moderate-intensity exercise coupled with caloric restriction was better than exercise alone for inducing favorable changes in waist circumference in women in a recent study.

This combination approach was particularly beneficial for reducing waist circumference, which is important, because central adiposity is widely considered to be the central aspect of metabolic syndrome, Theodore J. Angelopoulos, Ph.D., said at an international conference on women, heart disease, and stroke.

Of 98 women with an average age of 43 years who were randomly assigned to either an exercise-only group or an exercise and caloric restriction group, all experienced improvements in the various components of metabolic syndrome. In addition to waist circumference, these included glucose, HDL-cholesterol and

triglyceride levels, and diastolic and systolic blood pressure, said Dr. Angelopoulos of Rippe Lifestyle Institute in Celebration, Fla., at a news conference at the meeting.

The change in waist circumference was statistically significant in both groups, with a reduction from 92 cm to 87 cm in the exercise-only group and from 90 cm to 82 cm in the diet and exercise group. This was the only component in which the difference in the exercise and caloric restriction group was significantly greater than the difference in the exercise-only group. However, the improvements in glucose levels and systolic blood pressure were significant in both groups, and the improvement in diastolic blood pressure was significant in the exercise-only group.

Women in both groups followed a typical exercise regimen recommended by the American College of Sports Medicine, and those in the exercise-plus-caloric restriction group also reduced caloric intake by 500 kcal/day. ■

## EHRs Do Not Improve Adherence To Diabetes Guidelines in Study

BY DAMIAN McNAMARA  
Miami Bureau

NEW ORLEANS — Electronic health records in primary care practices did not improve physician adherence to evidence-based diabetes guidelines, according to one study.

Researchers found that the 37 practices without electronic health records (EHRs) provided equal or better diabetes care than 17 with the technology, "but there is much room for improvement in both groups," Jesse C. Crosson, Ph.D., said at the annual conference of the Society of Teachers of Family Medicine.

Although the use of information technology is recommended to improve quality of care and reduce errors, EHR capabilities are unevenly used in primary care, Dr. Crosson said.

"My best explanation is if you add a complex information tool to a practice where people do not pay as much attention to other members of the practice, it can cause chaos and worsen things," said Dr. Crosson of the depart-

ment of family medicine at New Jersey Medical School, Newark.

Practices with a greater orientation toward patient care, characterized by relatively open scheduling and physicians who are easy to contact, are more likely to optimize use of EHRs, Dr. Crosson said. On the other hand, practices with more of a business outlook, a greater focus on money and the bottom line, and with longer wait times for patients tend to integrate them less well, he explained.

The researchers focused on type 2 diabetes because clinical care is complex and treatment guidelines are interrelated, Dr. Crosson said. He and his associates theorized that information technology might improve attainment of clinical diabetes targets.

The researchers reviewed the charts of 1,080 randomly selected diabetes patients, reflecting 20 patients each from 54 primary care practices in New Jersey and Pennsylvania. There were no significant differences between EHR and non-EHR practices in terms of number of physicians, number of examination rooms, years in

practice, or type of practice.

There were no statistically significant differences between practices with or without EHRs in head-to-head comparisons. In the multivariate analyses, however, non-EHR practices did better in assessment, medication management, and outcome targets, Dr. Crosson said. The targets were LDL cholesterol below 100 mg/dL, hemoglobin A<sub>1c</sub> below 7%, and blood pressure below 130/85 mm Hg.

Overall, 52% of participants met three out of the following five criteria: HbA<sub>1c</sub> tested in the last 6 months; microalbumin tested in last 12 months; smoking assessment documented; LDL cholesterol tested in last 12 months; and blood pressure assessed at every visit.

Limitations of the study include its retrospective design. "We were really limited to what was in the medical record. We do not have income, race, or insurance status," he said, adding that since it was not a randomized controlled trial, there may be selection biases. ■