atheroma throughout a segment of coronary artery of at least 30 mm in length (1). This was performed in a large cohort of subjects and includes sites that do not contain significant obstructive disease. Although one segment was studied in each subject, each epicardial coronary artery is reflected in the total cohort (i.e., this is not a study of disease limited to the left main segment). Further, the volumetric approach defines segments by the fixed anatomic presence of arterial side branches and provides a greater opportunity for precise matching and investigation of the factors that influence the natural history of atherosclerosis.

Studying atherosclerosis within the left main coronary artery, the investigators found no significant correlation between the level of low density lipoprotein (LDL) cholesterol and atheroma burden (8), in support of our findings. Interestingly, they found a significant correlation between baseline LDL cholesterol and progression of atheroma at the region studied. The degree of correlation was much greater than what has been subsequently been reported for the relationship between the degree of change in LDL cholesterol and atheroma volume in patients treated with a statin (6). Given that atherosclerosis is a complex pathological process that results from the influence of a large number of factors on the arterial wall and that there is a substantial overlap between levels of LDL cholesterol and incidence of cardiovascular disease, it would be surprising to expect anything greater than a mild correlation between these factors at most.

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doi:10.1016/j.jacc.2006.06.068

Please note: Neil Weissman, MD, acted as guest editor.

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Most Asymptomatic Diabetic Patients Will Not Benefit From Coronary Revascularization

In a study recently published in JACC, Scognamiglio et al. (1) suggest that patients with type 2 diabetes mellitus with ≤1 other risk factor should undergo routine stress imaging to diagnose asymptomatic coronary artery disease (CAD), a strategy the investigators believe will lead to early aggressive medical treatment and more favorable coronary anatomy that is more suitable for revascularization.

As cited by Scognamiglio et al. (1), the risk of major coronary events in diabetic patients is similar to that of nondiabetic patients with established coronary disease. Risk factors in these patients should be treated as aggressively as in CAD patients even without evidence of CAD on diagnostic imaging. Therefore, routine assessment of asymptomatic diabetic patients by stress imaging to clarify the need for more aggressive risk-factor modification is not warranted.

Both coronary revascularization by surgery (coronary artery bypass graft [CABG]) and percutaneous coronary intervention (PCI) differ in their influence on prognosis. Although no randomized study to date has shown PCI to improve elective patient prognosis, CABG improves survival of elective patients in 4 categories: patients with left main coronary disease; patients with 3-vessel disease and decreased left ventricular function; patients with multivessel disease involving the proximal left anterior descending artery; and patients with diabetes mellitus and multivessel disease (2). Most other patients undergo revascularization for control of symptoms. For asymptomatic patients to benefit prognostically from revascularization, one of the 4 previously mentioned indications must apply (and the procedure should be CABG), otherwise no mortality benefit should be anticipated. Revascularization, therefore, should be limited to patients who are asymptomatic or fall under 1 of the 4 previously mentioned categories. Noninvasive testing should be performed in asymptomatic diabetics only if clinical assessment suggests that they belong to a high-risk group. Only those patients with impaired cardiac function or high-risk stress imaging should undergo coronary angiography.

Early detection and aggressive modification of non–insulin-dependent diabetes mellitus and other risk factors in adherence to published guidelines (3,4) will help prevent CAD and its complications, whereas routine stress imaging and revascularization for the most part will not.

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Please note: Neil Weissman, MD, acted as guest editor.
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REPLY

In their letter, Drs. Rott and Leibowitz correctly reported the current indications to myocardial revascularization in type 2 diabetic (DM2) patients, and they concluded that an aggressive diagnostic approach (like that used in our study) (1) may not be useful. Unfortunately, they do not take into account that previous results with percutaneous coronary intervention or aorto-coronary artery bypass have been obtained applying an old, bankrupt diagnostic approach to ischemic heart disease (IHD) in DM2 patients. In fact, in the past 20 years, cardiovascular mortality (mainly due to IHD) increased by 40% to 50% in diabetic patients, whereas in the same period of observation, major cardiovascular disease mortality in the nondiabetic population was reduced by about 30% (2). The poor results of myocardial revascularization procedures in DM2 patients are largely caused by the extension of atherosclerotic involvement of coronary artery disease (CAD) at the moment of diagnosis. The current American Diabetes Association guidelines (3,4) do not allow for the identification of a population of diabetic patients with a high prevalence of CAD but only those DM2 patients with advanced atherosclerosis involving multiple coronary vessels. Similar results may be obtained by applying the suggestion reported by Drs. Rott and Leibowitz in their letter: “Noninvasive testing should be performed in asymptomatic diabetics only if clinical assessment suggests that they belong to a high-risk group.” But all diabetic patients belong to a high-risk group for cardiovascular mortality!

In an autopsy study, Goraya et al. (5) showed that, among diabetic decedents without clinical CAD, almost three-fourths had high-grade atherosclerosis and more than one-half had multivessel coronary disease. Moreover, Haffner et al. (6) showed that diabetic patients who have not had a previous myocardial infarction (MI) have outcomes similar to those of patients without diabetes who have had a prior MI. In light of these statements we applied to DM2 patients a diagnostic approach similar to one that is currently applied in nondiabetic patients with clinical manifestation of CAD. The diagnostic approach we proposed in our study (1) allowed us to identify an early phase of CAD in asymptomatic diabetic patients, and the favorable anatomy of coronary vessels (with the high prevalence of one-vessel disease) has the potential to improve results of revascularization procedures and the rate of cardiac events in asymptomatic diabetic patients.

Finally, in our opinion, we must not be resign...