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Reply

We thank Dr. Nasir and colleagues for their interest in our study (1) on the prognostic value of multislice computed tomography (MSCT) coronary angiography. In our study, plaque characteristics on MSCT were demonstrated to provide prognostic information incremental to baseline characteristics. Although obstructive coronary artery disease (CAD), particularly located in the left main or left anterior descending coronary artery, was associated with the highest event rate, both nonobstructive CAD and the presence of mixed plaques were also associated with elevated event rates. In contrast, the absence of any atherosclerosis on MSCT was associated with excellent survival.

Accordingly, Dr. Nasir and colleagues question the relative prognostic merits of calcium scoring and MSCT coronary angiography. We agree with the authors that in asymptomatic patients, coronary calcium scoring has been demonstrated to provide reliable risk stratification, with risk of coronary events increasing from <1% for minimal calcium to 6.3% for extensive calcium (calcium scores >400) (2). Thus, Dr. Nasir and colleagues raise the question of whether in fact calcium scoring should be used as a gatekeeper for MSCT coronary angiography. As Dr. Nasir and colleagues propose, in individuals with low coronary calcium scores (<100), MSCT angiography may not be necessary, whereas in patients with intermediate to high calcium scores, MSCT angiography may provide incremental information. It is important to realize that most of the data concerning risk stratification with coronary calcium scoring are based on asymptomatic individuals without a history of cardiac disease. In contrast, our study was performed predominantly in symptomatic patients, including patients with a history of CAD. In these patient populations, the value of coronary calcium scoring may be substantially different. Particularly in the setting of acute coronary syndromes, noncalcified (even obstructive) plaques are frequently observed in patients without coronary artery calcium (3). Thus, absence of coronary calcium may not always reliably exclude CAD.

In our own study, although a strong trend was observed, coronary calcium did not reach significance as a predictor of events. In contrast, events occurred in 3 of 29 (10%) of patients without any coronary calcium. In these 3 patients, the MSCT study was abnormal despite the absence of coronary calcium. Moreover, 19% of patients with an event had a coronary calcium score >100. In these patients, noncalcified plaques may have been related to coronary events. Accordingly, in symptomatic patients, MSCT coronary angiography appears to provide incremental information over coronary calcium scoring. Nevertheless, we fully agree with the researchers that further investigations comparing the relative merits of these techniques are highly needed.

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