study by Derumeaux et al. (1) it is not possible to calculate specificity because we do not know the actual false positive rate. For instance, does an abnormal response on the dobutamine stress test in a patient with 15% coronary stenosis represent a false positive result on the dobutamine stress echocardiogram or a false negative result on the coronary angiogram? If one recalculates their data taking into account angiographic stenosis ≥50% as the reference for significant disease, different values for sensitivity, specificity and positive and negative predictive values emerge. The sensitivity, specificity and positive and negative predictive values are 100%, 77%, 50% and 100%, respectively. Thus, the recalculated estimate of high sensitivity and negative predictive value can be interpreted to suggest that dobutamine stress echocardiography is an excellent screening test for transplant coronary artery disease and is consistent with our previous report (2). Finally, it can be hypothesized that compared with angiography, dobutamine stress echocardiography is more sensitive for the small-vessel coronary disease frequently observed in heart transplant recipients but severely underestimated by coronary angiography. However, the extent to which this hypothesis is true can only be determined by large multicenter clinical studies. Evaluation in experimental models of transplant atherosclerosis may also be necessary to allow direct morphologic and histopathologic correlation of observed underestimation of angiographic findings in transplant coronary artery disease in humans.

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Reply

Akosah and Mohanty express their concern about the method we used to establish the sensitivity and specificity of dobutamine stress echocardiography in 37 heart transplant recipients (1). They thought it inconsistent that we incorporated insignificant coronary lesions as angiographically abnormal. We remind them that we clearly defined three groups of patients according to the results of quantitative coronary angiography, as follows: *group 1* = normal results on coronary angiography; *group 2* = nonsignificant coronary lesions (<50% stenosis); *group 3* = significant coronary lesions (>50% stenosis). We clearly gave the results of dobutamine stress echocardiography in each group of patients: *group 1* = 2 of 23 positive test results; *group 2* = 5 of 7 positive test results (i.e., sensitivity 71%); *group 3* = 7 of 7 positive test results (i.e., sensitivity 100%). Therefore, the overall sensitivity of dobutamine stress echocardiography was 86%, whereas that for specificity was 91%.

Dobutamine stress echocardiography is designed to detect ischemia, whereas coronary angiography detects stenosis. In a recent study, Baptista et al. (2) established from receiver–operating curves the angiographic cutoff values with the best predictive value for the development of ventricular wall motion abnormalities during dobutamine stress echocardiography in 34 patients with conventional atherosclerotic coronary lesions. They found a 52% diameter stenosis to have functional significance, with occurrence of wall motion abnormalities during dobutamine stress echocardiography. However, it is now well established that graft atherosclerosis differs from conventional atherosclerosis because of extensive, diffuse, concentric lesions related to a fibrous intimal hyperplasia that may be associated with focal stenosis (3). Therefore, coronary angiography may consistently underestimate epicardial coronary stenosis, as recently assessed by intracoronary ultrasound (4), and percent stenosis is a poor predictor of the functional significance of these diffuse coronary lesions. That is the reason why we evaluated the sensitivity of dobutamine stress echocardiography to detect ischemia in heart transplant recipients with mild lesions, usually considered nonsignificant by quantitative coronary angiography. Moreover, we recently demonstrated (5) that the positivity of dobutamine stress echocardiography in patients with mild lesions may be related to smaller diameters of apparently healthy coronary segments.

Therefore, we conclude that dobutamine stress echocardiography is the noninvasive test of choice to detect ischemia related to graft atherosclerosis, even when coronary artery lesions appear to be nonsignificant on coronary angiography.

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Preinfarction Angina as a Major Predictor of Left Ventricular Function and Long-Term Prognosis After a First Q Wave Myocardial Infarction

Anzai et al. (1) report that preinfarction angina is associated with a favorable in-hospital course and improved survival in patients with a first Q wave myocardial infarction. The presence of preinfarction