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REPLY

We appreciate the supportive data provided by Van Norman and Posner regarding an enhanced risk in these patients with coronary artery disease who underwent percutaneous transluminal coronary angioplasty (PTCA) prior to noncardiac surgery (NCS). In contrast to the study cited in their letter (1), our study (2) covered a later time period (1996 to 1998) and included only patients who had undergone coronary stent implantation within six weeks of NCS. Although our conclusions are similar, that there is a paradoxical increase in risk, we found this risk to be demonstrated only in those patients whose NCS occurred within two weeks of stent implantation.

Hence, their suggestion that NCS be postponed 40 to 90 days after coronary intervention may not be applicable to stented patients.

Albert E. Raizner, MD
Grzegorz Kaluza, MD, PhD
Houston, Texas

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Reduced Global Myocardial Thallium Uptake—An Important Marker of Severe Coronary Artery Disease

We read with interest the study by Kwok et al. (1). Their study examines a cohort of patients with a single abnormal territory on thallium perfusion imaging, but in whom 26% are shown to have severe three-vessel or left main disease (3VLMD) on angiography. The authors present the clinical concern that individuals with a single territory defect rather than those with multiterritory disease will be less likely to be referred for angiography and therefore be denied potential revascularization and improved long-term outcome.

The report, therefore, highlights the importance of clinical and exercise variables for identifying 3VLMD, and the results would support the rationale for performing perfusion imaging with exercise stress rather than pharmacologic methods wherever possible.

Regarding the thallium imaging itself, however, an important radionuclide marker of severe disease that would have strongly affected the model was not employed. It is accepted that insufficient stress or the presence of collateral blood supplies may produce small defects. Of more concern is whether severe 3VLMD limits the flow to all territories, thereby reducing global myocardial thallium uptake. Two possibilities may result: either one artery will harbor the most critical lesion, thereby producing a single territory perfusion defect relative to the other abnormal territories, or rarely, an apparently normal scan may be produced due to perfectly symmetrical, proximal three-vessel disease. To identify these possibilities, a simple estimate of global myocardial thallium uptake can be the discriminatory factor (2). Rather than simply comparing myocardial and lung thallium uptake, a ratio of left ventricular thallium counts (minus background region) compared with administered injection dose (calculated as the difference between presyringe and postsyringe counts over 10 s) could be expressed. This method in a group of 90 patients undergoing diagnostic coronary angiography increases sensitivity for detecting three-vessel disease from 77% with perfusion scoring alone to 95% with the myocardial uptake score included, with no reduction in specificity (3). In a concluding remark, the authors also express enthusiasm for future ECG gating of images. We have demonstrated that this will notably increase sensitivity and specificity for patients with coronary disease (4).

William Keeble, MRCP
William Martin, PhD
Ian Hutton, MD, FRCP, FESC, FACC
Department of Medical Cardiology
Queen Elizabeth Building
Glasgow Royal Infirmary
Glasgow
G31 2ER
United Kingdom

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REPLY

We appreciate the interest by Keeble et al. in our study concerning T1-201 scintigraphic abnormalities in patients with severe coronary artery disease (CAD) (1). Certainly inadequate exercise is a potential cause for limited perfusion abnormalities in patients with severe disease, because the development of blood flow heterogeneity is restricted. We doubt that the method proposed by Keeble et al. in estimating global thallium uptake would alter our findings (2,3). The ratio of left ventricular thallium activity to injected thallium-201 counts in the syringe will offer little new data, because the injected dose for all patients was the same (4 mCi). More importantly, the impact of individual body configuration on gamma camera photon detection for thallium-201 is large. We have previously shown (4) that detected thallium activity varies threefold to fourfold in normal myocardium even in patients of similar weight (and therefore cannot be confidently estimated). It is this factor (among others) that precludes estimates of absolute myocardial blood flow with conventional radionuclide techniques. The article by Keeble et al. showed a two-fold variability in normal volunteers for their method of estimation of global thallium-201 uptake (2). Perhaps the method proposed was helpful in improving