Prevalence of Myocardial Viability as Detected by Positron Emission Tomography in Patients With Ischemic Cardiomyopathy

To the Editor:

We read with interest the study by Auerbach et al. The authors state that “the prevalence of myocardial viability in patients with ischemic heart disease and compromised left ventricular function is unknown.” This statement is inaccurate. We published our prospective study of the prevalence of hibernating myocardium in patients with severely impaired ischemic left ventricles in December 1998. A preliminary report on our findings was published in May 1997.

Although the study by Auerbach et al confirms our finding that >50% of patients with severe left ventricular impairment and ischemic heart disease have functionally significant myocardial viability, their study does not provide the true prevalence of myocardial viability in patients with ischemic cardiomyopathy. This is because of the preselection bias that affected their tertiary center’s cohort and the lack of any data reflecting whether the patients included in the study were representative of the population with ischemic cardiomyopathy.

In our study, we used positron emission tomography to detect myocardial viability, and we used 20% of the left ventricle as the arbitrary cut off point for myocardial viability to be significant. We prospectively studied a consecutive series of all the patients under the care of one cardiologist at a primary center who had severe left ventricular impairment and coronary artery disease over a 6-month period. Thus, our results were applicable to the general population of patients with ischemic cardiomyopathy because we avoided the problem of preselection bias.

Finally, Auerbach et al state that one of the limitations of their data was its bias toward the most severely compromised patients; they then call for the determination of the prevalence of viable myocardium in patients with relatively maintained left ventricular function. We think that determining myocardial viability is pertinent when left ventricular contraction is severely impaired, because these patients will benefit most from revascularization. Patients with relatively preserved left ventricular contraction undergo revascularization on the basis of the severity of their angina and the extent of their coronary artery disease. Determining myocardial viability is not an issue in their management.

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Response

We thank Drs Al-Mohammad and Walton for their insightful comments regarding our article. This article was submitted to Circulation on November 24, 1998, which is before their article on 27 patients who underwent positron emission tomography scanning was published (December 1998). We certainly would have quoted this excellent article if it had existed at the time of our submission.

However, some disagreements exist between their findings and ours. We were unable to confirm that 50% of patients with severe left ventricular impairment and ischemic heart disease have functionally significant viability. In fact, our study concluded that the prevalence of functionally significant viability is much lower, at only ~25%. This might be explained by Al-Mohammad et al’s well-defined but fairly small study group (only 27 patients). Our cohort included 283 patients.

We do agree with Drs Al-Mohammad and Walton; we acknowledged in our article that our “findings might not apply to the general population of heart failure patients.” This is, as correctly pointed out by Al-Mohammad and Walton, because the University of California at Los Angeles is a tertiary center for heart failure patients who are evaluated for cardiac transplantation.

Finally, although assessing myocardial viability in patients with end-stage heart failure is very important, we think that patients with mild to moderately impaired ejection fractions might also benefit from revascularization, even in the absence of anginal symptoms. In fact, early revascularization might lead to regional functional improvement, which in turn might prevent progressive ventricular remodeling of the remote myocardium.
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