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INVITED COMMENTARY

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The drive to replace cardiac magnetic resonance imaging (MRI) with real-time 3-dimensional echocardiography (RT3DE) is compelling and the rationale multifactorial: ultrasound is facile to use, machines are relatively inexpensive and portable, and there are no contraindications to chest wall echocardiography.

Marsan and colleagues [1] from Leiden have admirably accomplished the imaging of 60 patients with left ventricular (LV) aneurysms by multiple modalities. One remarkable result of the study is the low rate of acquisitions unsuitable for RT3DE analysis, 8.3% (5 of 60 patients), which was comparable to the fraction of patients unable to undergo MRI (5%). Presumably, transesophageal RT3DE would further improve image quality and the proportion of patients in whom imaging is adequate to assess LV geometry and function. One significant shortcoming of RT3DE not addressed by the authors is the electrocardiographic gating necessary to obtain full volume images and the resulting inability to acquire such images in patients with atrial fibrillation.

The importance of LV shape description leading up to surgical ventricular reconstruction (SVR) is unconfirmed. Dor and colleagues [2] have advocated strenuously for the preeminence of MRI for the evaluation of LV aneurysm, but there are little hard data to show the incremental contribution of MRI to 2-dimensional echocardiography, contrast ventriculogram, and radionuclide ventriculography with regard to patient selection or operative strategy [3]. For instance, DiDonato and colleagues [4] demonstrated no difference in outcome depending on shape or degree of the LV aneurysm as determined by MRI; any difference in mortality was likely explained by differences in the degree of associated mitral regurgitation (owing to LV dilatation). In contrast, there are some data supporting the use of conventional echocardiography and gated radionuclide ventriculography to stage LV aneurysms and—possibly—predict response to SVR [5].

The current study convincingly demonstrates a remarkable coincidence between RT3DE and cardiac MRI in patients with LV aneurysms. The reported results have important implications for laboratory and clinical studies focused on the pathogenesis and treatment of LV remodeling after myocardial infarction. The application of these findings to the SVR procedure is less obvious but may be important. The recently published results of the Surgical Treatment for Ischemic Heart Failure (STICH) trial cast considerable doubt on the generalized efficacy of SVR [6]. In light of the sobering STICH results, continued application of the SVR procedure likely should be limited to clinical protocols designed to identify subgroups of patients who might derive significant benefit from the operation. Such

an approach is essential to the welfare of our patients and the credibility of our specialty. On the basis of the results of this study, RT3DE may indeed be the imaging modality of choice for the detailed and disciplined studies that will be required to establish the place of SVR in the surgical therapeutic armamentarium for heart failure.

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