Three-dimensional echocardiography is more technically challenging than two-dimensional echocardiography and this is of particular importance in the CRT patient. Image acquisition requires a significant breath hold which is often difficult for the heart failure patient. Several regular cardiac beats are required and this is not always possible due to the presence of ectopy or atrial fibrillation. The large ventricular volumes seen in CRT patients means there is often incomplete capture of the dilated ventricular apex or anterior wall. Image analysis is highly dependent on image quality which is often problematic in heart failure patients. Indeed 25% of patients were excluded in the study by Krenning et al. due to poor 3D image quality. Low temporal and spatial resolution may also preclude accurate measurement of mechanical timing.

Current evidence for 3D echocardiography suggests that its strength may be in the calculation of ventricular volumes and function. This technique may be of more use in the selection of patients for CRT or in gauging volumetric response when technical factors allow.

The application of any new technology to patient care requires careful validation in the clinical trial setting. Three-dimensional echocardiography requires further evaluation and validation, and probably more technological advancement, before its widespread application in CRT.

References

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doi:10.1093/eurheartj/ehn606
Online publish-ahead-of-print 23 January 2009

Survival benefit after percutaneous treatment of chronic total coronary occlusions

In their recently published paper, Valenti et al. report how successful percutaneous coronary intervention (PCI) of chronic total coronary occlusions (CTOs) was associated with a significant 2-year survival benefit in a large series of 486 patients. Improved outcome was driven by achievement of complete revascularization of patients with multivessel disease. The paper is most interesting for the selection of a very high-risk cohort: mortality at 2 years was reported at 6% vs. a staggering 16.2% (P < 0.001) after complete or incomplete revascularization, respectively. In fact, analysis of the Kaplan–Meier survival curves shown in Figure 2 reveals how most of the deaths in the group with ‘incomplete revascularization’ occurred relatively soon, during the first year of observation.

We thank Dr Guido Belli for his interest in our manuscript and for the comment.

The remarks are pertinent, but we must consider the study into the proper perspective. This is a single-centre retrospective registry with all intrinsic limits of such a study, but also the merits of a ‘real-life’ registry.

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doi:10.1093/eurheartj/ehn607
Online publish-ahead-of-print 23 January 2009

Survival benefit after percutaneous treatment of chronic total coronary occlusions: reply