IMAGES IN CARDIOLOGY.....

doi: 10.1136/hrt.2003.022426

Mechanical resynchronisation in biventricular pacing illustrated by real time transthoracic three dimensional echocardiography

A 74 year old man with dilated cardiomyopathy and right bundle branch block underwent implantation of a biventricular pacemaker for treatment of severe heart failure. When reviewed six weeks later his New York Heart Association functional class had improved from III to I. Using the Sonos 7500 Live 3D system, a real time transthoracic three dimensional echocardiogram was performed in the presence and absence of biventricular pacing. Full volume acquisitions of the left ventricle were obtained from both scans and processed using the TomTec 4D LV analysis v1.1 software. This software provides both a three dimensional model of the left ventricle as well as quantitative volumetric measurements throughout the cardiac cycle and can derive volumes represented by each echocardiographic myocardial segment (upper and lower panels). The mechanical resynchronisation of left ventricular contraction during biventricular pacing is readily apparent. Three dimensional echocardiography may have a role in optimising biventricular pacing in treating heart failure and requires further study.

S Kapetanakis
M Cooklin
M J Monaghan

mark.monaghan@kingsch.nhs.uk

4D LV analysis showing regional left ventricular volumes throughout the cardiac cycle, in the absence of biventricular pacing. Mechanical dyssynchrony is demonstrated by the line chart, which represents volumes corresponding to each myocardial segment during the cardiac cycle.

4D LV analysis in the presence of optimised biventricular pacing. Synchronisation of regional contractions is evident in the line chart, with each segmental volume reaching a minimum at the same point in the cardiac cycle.