HEART FAILURE
SMART-AV ATTEMPTS TO OPTIMIZE CRT

The SMART-AV trial has found no benefit of programmed atrioventricular (AV) delay being optimized on the basis of echocardiography or an electrocardiographic algorithm (SmartDelay®, Cardiac Pacemakers, Inc., St Paul, MN, USA) in CRT. A fixed AV delay of 120 ms was found to be just as effective as the two optimized programs at improving LV geometry and functional measures in patients with heart failure.

"We chose to undertake this research because approximately 30–40% of NYHA class III–IV patients with heart failure indicated for CRT have a limited response to the therapy," explains Dr Kenneth Ellenbogen, lead author on the report. "We sought to improve the therapy by focusing on how to best resynchronize the heart's upper and lower contractions by optimizing the AV delay."

At 6 months, reductions in LVESV (the primary end point of the study) and LVEDV were similar among patients assigned to fixed, echocardiographically optimized, and SmartDelay® optimized AV delay. Increases in LVEF and 6-min walk distance, and improvements in quality of life and NYHA class were also similar in the three treatment groups. These findings could result in "saving patients the time and cost of echocardiographically determined optimization of AV delay," highlights Dr Ellenbogen.

Interestingly, *post-hoc* subgroup analysis showed that optimization of AV delay (via both techniques) resulted in a significantly better reduction in LVESV, compared with fixed AV delay, in women. Dr Ellenbogen thus believes that optimization of AV delay in women deserves further exploration. He is also keen to further investigate AV optimization in patients who do not respond to therapy.

Bryony M. Mearns