

## HEART FAILURE

## SHIFT shows reversal of left ventricular remodeling with ivabradine

In a substudy of SHIFT reported at the 2011 European Society of Cardiology Congress in Paris, France, and published in the *European Heart Journal*, the heart-rate lowering drug ivabradine has been shown to reverse left ventricular (LV) remodeling in patients with heart failure (HF). The investigators believe that this effect of ivabradine “may contribute to the reduction in cardiac morbidity and mortality found in patients with HF”

Ivabradine specifically inhibits the  $I_f$  current in the sinoatrial node and, in patients with HF, has been associated with a reduction in risk of cardiovascular death or hospitalization—the primary end point of SHIFT. In this prespecified substudy, echocardiographic analysis from 411 patients was used to evaluate the effects of ivabradine on LV remodeling and function.

Compared with placebo, ivabradine (mean dose  $6.0 \pm 1.6$  mg twice daily) was associated with a reduction ( $-5.8 \pm 1.6$  ml/m<sup>2</sup>, 95% CI  $-8.8$  to  $-2.7$ ,

$P < 0.001$ ) in LV end-systolic volume index after 8 months of treatment—the primary end point of the substudy. Reductions in LV end-diastolic volume index ( $-5.5 \pm 1.8$  ml/m<sup>2</sup>, 95% CI  $-8.9$  to  $-2.0$ ,  $P = 0.002$ ), LV end-systolic volume ( $-11.2 \pm 3.0$  ml, 95% CI  $-17.1$  to  $-5.4$ ,  $P < 0.001$ ), and LV end-diastolic volume ( $-10.9 \pm 3.4$  ml, 95% CI  $-17.6$  to  $-4.2$ ,  $P = 0.001$ ) were also associated with ivabradine therapy over the same period, as was an increase in LV ejection fraction ( $2.7 \pm 0.8\%$ , 95% CI  $1.3$ – $4.2$ ,  $P < 0.001$ ).

The SHIFT investigators highlight that their substudy results are in line with those of the BEAUTIFUL trial of ivabradine in patients with stable coronary artery disease and LV systolic dysfunction.

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