# Reverse remodelling, changes in diastolic function and their prognostic value compared to natriuretic peptides

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**Background:** Reverse remodelling (RR) is the recovery from left ventricular (LV) dilation and dysfunction in response to treatment for heart failure (HF). RR is usually associated with improved prognosis. The impact of RR on indices of diastolic function, and the relative prognostic value of RR, changes in diastolic function and natriuretic peptide levels are currently unknown.

**Methods:** We analysed data from patients with stable systolic HF (LV ejection fraction [LVEF] <50%) undergoing 2 transthoracic echocardiograms (TTE) within 12±2 months. RR was defined as a ≥15% reduction in LV end-systolic volume index (LVESVi). The follow-up started after the second TTE.

**Results:** 927 patients were evaluated (68±12 years; median LVEF 35% [interquartile interval 30–43%]; 27% women; 52% ischaemic aetiology). Patients experiencing RR (n=286, 31%) displayed more prominent positive changes in several parameters reflecting diastolic dysfunction, namely E/e' ratio, left atrial volume index (LAVi), and systolic pulmonary artery pressure (sPAP), as well as N-terminal fraction of pro-B-type natriuretic peptide (NT-proBNP; Figure). In the whole population, percent changes (Δ%) LVESVi displayed weak but significant correlations with Δ% E/e' (r=0.237, p<0.001), LAVi (r=0.316, p<0.001), and sPAP (r=0.158, p<0.001), and also with Δ% NT-proBNP (r=0.279, p<0.001). There were 123 cardiovascular deaths and 4 heart transplantations over 2.8 years (1.3–4.9). Δ% LVESVi, RR, Δ% sPAP and Δ% NT-proBNP were univariate predictors of this endpoint. In 2 multivariable models including Δ% sPAP and Δ% NT-proBNP and either RR or Δ% LVESVi, only Δ% NT-proBNP emerged as independent predictor of outcome (hazard ratio 1.01, 95% confidence interval 1.01–1.02; p<0.001).

**Conclusions:** A recovery of LV geometry is accompanied by positive modifications in several indices related to diastolic function, as well as a decrease in NT-proBNP levels. Percent changes in NT-proBNP over 12 months are stronger predictors of outcome than variations in LV geometry or sPAP.