



## **Randomised, double-blind, placebo-controlled trial of human recombinant growth hormone in patients with chronic heart failure due to dilated cardiomyopathy.**

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**BACKGROUND:** Some studies have suggested that treatment with recombinant human growth hormone (rhGH) increases left-ventricular mass and improves haemodynamic and functional status in patients with heart failure due to dilated cardiomyopathy. We did a double-blind, randomised, placebo-controlled study of rhGH in patients with chronic heart failure due to dilated cardiomyopathy.

**METHODS:** 50 patients (43 men) were randomly allocated treatment with subcutaneous rhGH (2 IU daily) or placebo for a minimum of 12 weeks. The primary endpoints were the effects on left-ventricular mass and systolic wall stress. The secondary endpoints were the effects on left-ventricular size and function. Data were analysed by intention to treat. **FINDINGS:** Patients in the rhGH group had an increase in left-ventricular mass compared with those in the placebo group (27%,  $p=0.0001$ ).

There was no significant difference in left-ventricular systolic wall stress, mean blood pressure, or systemic vascular resistance between the two groups. New York Heart Association functional class, left-ventricular ejection fraction, and distance on the 6 min walking test were unchanged. The change in serum insulin-like growth factor (IGF)-I concentrations (rhGH 77 ng/mL; placebo -19 ng/mL, GH vs placebo  $p=0.0001$ ) was significantly related to the change in left-ventricular mass ( $r=0.55$ ,  $p=0.0001$ ). **One patient in the rhGH group was withdrawn at 6 weeks because of worsening heart failure.**

**INTERPRETATION:** There is a significant increase in left-ventricular mass in patients with dilated cardiomyopathy given rhGH but this is not accompanied by an improvement in clinical status. Changes in left-ventricular mass are related to changes in serum IGF-I concentrations. Whether a longer treatment period would provide clinical benefits and decrease mortality is unknown.