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1: [Clin Nephrol.](#) 2000 Jan;53(1):25-32.

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Changes in cardiac muscle mass and function in hemodialysis patients during growth hormone treatment.

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BACKGROUND: Adult patients with chronic renal failure (CRF) often show symptoms as fatigue, wasting, and reduced working capacity with concomitant findings of reduced cardiac performance and muscle mass. This state may in part be caused by an imbalance in the somatostatin/somatomedine axis resulting in increased catabolism. During an attempt to correct this catabolic state by administration of exogenous growth hormone, cardiac muscle mass and performance were studied. **METHODS:** In a double-blind, placebo-controlled 6-month study comprising 20 adult enfeebled hemodialysis patients, 9 patients were treated with a single daily subcutaneous injection of recombinant human growth hormone (rhGH) 4 IU/m² and 11 with placebo injections. Left ventricular muscle mass (LVM) and ejection fraction (EF) were evaluated by echocardiography and the maximal working capacity (MWC) was measured by a bicycle exercise test performed before and after the treatment period. Supplementary electrocardiography (ECG) was performed before and after 6-month treatment. **RESULTS:** Median LVM increased significantly from 172 to 220 g ($p = 0.03$) in the rhGH-treated group, while an insignificant decrease was observed in the placebo group from 281 to 200 g ($p = 0.3$). The EF showed no significant changes in the two groups. MWC showed a slight, insignificant decrease in both groups. From ECG no significant ST deviations were found and no significant changes regarding B-Hb, blood pressure or pulse were observed in the two groups. Irregular heart rhythm aggravated in one patient during the first month of treatment with rhGH, but was overcome by a β -blocking agent. **CONCLUSION:** The treatment with rhGH of adult chronic hemodialysis patients for 6 months increased the left ventricular mass significantly, but without any effect on ejection fraction or maximal working capacity. No electrocardiographic signs of ischemia were associated with the increasing muscle mass and only one patient developed symptoms that might relate to ischemia. No changes in B-Hb, blood pressure or pulse were observed during the treatment period.

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