Myocardial Geometry and Functions in Children on Recombinant Human Growth Hormone Therapy: from Baseline to 12th Month

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Objectives: This study was designed to investigate the effects of recombinant human growth hormone (rhGH) therapy on myocardial geometry and functions in children with idiopathic isolated growth hormone deficiency (GHD) by conventional echocardiography and tissue Doppler imaging (TDI).

Methods: Thirty patients (19 boys and 11 girls) with a diagnosis of idiopathic isolated GHD were enrolled in this study. The mean age of patients were 11.0 ± 2.6 (6.3 - 15.5) years. At baseline, 3rd, 6th and 12th month of treatment, the structure of left ventricle (LV) was assessed by conventional echocardiography, and myocardial rates and time intervals were assessed by TDI. By using these data; LV mass index (LVMI) by two different methods (LVMI1: g/m² and LVMI2: g/m².7), relative wall thickness [RWT: (IVSd+LVPWd)/LVDd] and myocardial performance index (MPI: ICT+IRT/ET) for LV, IVS and RV were calculated. Results: LVMI1, LVMI2 and RWT increased at 3rd, 6th and 12th month according to baseline (Table 1), and differences were significant for both LVMI1 and LVMI2 after 6th month, and for RWT at 12th month. There were no significant differences for MPI at LV, IVS and RV at 3rd, 6th and 12th month according to baseline (Table 2). Conclusions: The results of this study showed that the rhGH therapy changes LV mass after 6th month and LV geometry after 12th month. However it does not affect both systolic and diastolic functions of the myocardium.