Usefulness of Pulsed Wave Tissue Doppler Imaging in Assessment of Left Ventricular Functions in Children with Beta-Thalassemia Major

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Abstract :

Objective To evaluate the changes in the LV systolic and diastolic function in children with beta-thalassemia major (β- TM) using pulsed wave tissue doppler (TD) echocardiography. Methods Clinical, conventional echo doppler and pulsed wave tissue doppler imaging parameters were compared in 40 beta-thalassemia major patients (mean age, 6.52± 3.5 y) and 25 age and sex matched normal subjects (mean age, 6.5±2.7 y). Results There were no significant statistical differences between mean fractional shortening (FS) and ejection fraction (EF) of left ventricle (LV) of the patients and control group. Children with beta-thalassemia had significantly lower E′ wave velocities measured at the left ventricular septal annulus (8.1±3.3 vs. 13±2.5, P<0.001), lateral margin of the mitral annulus (9.1±5.4 vs. 13.3±2.5, P<0.001) and lateral margin of the tricuspid annulus (9.3±3.9 vs. 13.3±2.5, P< 0.001) when compared to the control group. Furthermore children with beta-thalassemia had significantly lower E′ /A′ wave ratio at the left ventricular septal annulus (0.76±0.34 vs. 1.36±0.23), lateral margin of the mitral annulus (0.83± 0.17 vs. 1.28±0.22), and lateral margin of the tricuspid annulus ((0.90±0.27 vs. 1.26±0.23, (P<0.05) when compared to the control group. Conclusions This study showed that patients with beta thalassemia major and normal conventional echo Doppler parameters had statistically significant changes detected by pulsed wave tissue Doppler imaging.

Keywords: Left ventricular function . Doppler tissue imaging . Echocardiography . Beta-thalassemia

Indian Pediatr 2013: 80(9):721-5
DOI: 10.1007/s12098-013-1020-0