Cardiac Structural and Functional Changes Evaluated by Echocardiography and Two-Dimensional Strain in Patients with Beta Thalassemia

By

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ABSTRACT

Background: Cardiac abnormalities are the most problematic transfusion related complications in thalassemia patients. Assessment of cardiac function in thalassemia must be routinely performed to early diagnose various functional abnormalities, and to consider required therapeutic measures.

Aim of work: The aim of this study is to evaluate echocardiographic abnormalities, including two-dimensional strain evaluation.

Patients and Methods: This study included 80 patients subdivided into two groups Group 1: 40 patients of Beta thalassemia(major and intermediate) and Group 2: control group included 40 healthy subjects with the ages and gender matched to the patient group. Both groups were subjected to detailed history, Clinical examination, laboratory investigations (CBC, lipid profile, serum ferritin) and imaging using Transthoracic Doppler echocardiography including Tissue

Doppler imaging and two dimensional Strain echocardiography.

Result: The left and right Tei index is significantly higher in thalassemic patients than those of the controls (P < 0.0001). The global strain value was significantly lower in thalassemia patients than those of the controls (p < 0.0001).

Conclusions: Tissue Doppler imaging is superior to conventional echocardiography in giving an early evidence of systolic and diastolic dysfunction asymptomatic cardiac dysfunction in thalassemia patients. Evaluation of global strain was useful in assessing cardiac functions and predicting myocardial iron overload.