

Assessment of Left Ventricular Diastolic Function and Left Atrial Deformation in Normotensive Type 2 Diabetes Without Microvascular Complications

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OBJECTIVE:

The goal of the investigation is to estimate left ventricular (LV) diastolic function in normotensive type II diabetes mellitus patient without microvascular complications and by using 2D-speckle tracking echocardiography (STE) for early discovery of LA dysfunction in those individuals.

METHODS AND RESULTS:

A total of 40 cases suffering from type 2 DM (group I) and 40 normal healthy individuals with sex and age matched were involved as the control group (group II). 2D-echocardiography, Doppler and tissue Doppler imaging were measured to evaluate LV diastolic function, measurement of peak atrial longitudinal strain (PALS) using 2D-STE. The present work confirmed that E/A ratio was significantly lowered in case group compared with control group, there were a significantly decrease in the case group than the healthy control individuals in both the average early diastolic velocity (E_m) of the septal mitral valve annulus (Septal E') and lateral mitral valve annulus

(lateral E'). The ratio (E/E') by TDI was elevated significantly ($P = 0.001$) in diabetic patients versus control group (15.92 ± 3.01 m/sec in the case group and 8.95 ± 0.99 m/sec in the healthy group). global PALS was dropped significantly ($p = 0.001$) in diabetic patients in comparison with control group, diabetic peoples with duration of 11 to 15 years had more incidence of diastolic dysfunction (DD) with increasing the grade of DD. Patients with $HbA1c \geq 7.5\%$ had more prevalence of DD with increasing the grade of DD than patients with $HbA1c < 7.5\%$ ($p = 0.014$).

CONCLUSION:

Diastolic function was impaired in diabetic patients despite absence of CAD and other features of CAD. The grade of DD increase with increased level of $HbA1c$ and duration of diabetes, impaired left atrial function in normotensive diabetic patients with preserved LV systolic function may be prone to develop microvascular complication.