

Echocardiography in type II Diabetes Mellitus- A Prospective Study in Industrial Population

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The early detection of the myocardial manifestation in Diabetes Mellitus (DM) is of considerable importance, since the prognosis of patients with DM generally determined by the secondary cardiac complications. The aim of this study was to investigate whether asymptomatic patients with Type II diabetes Mellitus without apparent clinical heart disease show any detectable abnormality in Echocardiography.

Methods

Forty two diabetic patients (Average Age=35±4 years) were selected for this study. Apart from routine biochemistry and ECG, echocardiography examinations in 42 patients without known cardiac and other systemic disease and of 40 control persons of similar ages was carried out. Patients with a cardiac disease of long-term diabetic syndrome were excluded, Using M-mode echocardiography, morphological parameters and systolic time-intervals (fractional shortening; ejection fraction) were determined. Echo-Doppler indices were then measured, The maximal early and late diastolic flow velocity (VE; VA), E/A ratio, acceleration and deceleration time (DT), isovolumetric relaxation time (IVRT), LV Mass and LV end diastolic and end systolic measurements and LV ejection fraction were taken in both groups.

Result

Although there was no difference in the parameters like left atrial and left ventricular dimensions, as well as the systolic functional parameters between the two groups, the diabetic group showed a diastolic dysfunction with a reduction of the early diastolic filling (VE; 0.53 +/- 0.06 m/s vs 0.72 +/- 0.04 m/s; p<0.01) and the E/A ratio (0.9 +/- 0.15 vs 1.99 +/- 0.22; P<0.01). an increase in the atrial filling (VA; 0.76 +/- 0.05 m/s vs 0.39 +/- 0.04 m/s, P<0.01), an extension of the IVRT (129 +/- 23 ms vs 78 +/- 6 ms, p<0.01), and an increased DT (248 +/- 27 ms vs 188 +/- 8 ms, p<0.01). There was no difference in LV mass between the two groups.

Conclusion

Even young patients with Type II diabetes with a normal systolic ventricular function, suffer an impairment of diastolic function which serves as a marker of diabetic cardiomyopathy. Echocardiography should be introduced as a screening test like ECG in view of its ability to detect the abnormality at the earliest stage of the disease process.