ABSTRACT

From January 2004 to August 2005, a total of 82 (42 male and 40 female) newly diagnosed diabetic subjects who were not more than 3 years in duration, normotensive with normal plasma cholesterol, no urinary microalbuminuria and no ECG evidence of ischaemia after exercise with no other evidence of cardiac dysfunction were recruited out of 420 patients attending medical, cardiac and diabetic clinics. Also recruited were 80 age and sex matched control subjects, who were mainly drawn from patients relatives and hospital community. The control subjects were screened to meet the inclusion criteria.

The study populations were investigated non-invasively with M-mode, Two-dimensional and pulsed Doppler echocardiographic techniques and their systolic and diastolic indices were determined.

Diabetic subjects showed significant alteration in their left ventricular geometry with increased LV mass, 134.9± 35.5gm for diabetics and 109.2 ± 25.7gm for control, P<.0001. also IVSTD, LVPWD were significantly increased in diabetic subjects, .825 ± .12cm and .849 ± .11cm against .721 ± .10cm and .783 ± .10cm for normal control subjects respectively, P< .0001 across.
Systolic parameters were significantly depressed in diabetic subjects by 16.8%, 6.2% and 13.6% for EF, FS and VCF respectively when compared to normal control. The 13.6% depression of VCF is noteworthy since it is less subjected to vagaries of loading conditions than EF and FS.

The prevalence of impaired relaxation as evidenced by E:A ratio< 1 with prolonged IVRT and DT was 40.2% and majority of them were women implicating F:M ratio of 1.2 :1.

In the assessment of diastolic dysfunction there was little or no correlation between Em/Am ratio by M-mode and E:A ratio by Doppler means, r =.005 for diabetic and r =0.134 for control P>.05. Therefore E:A ratio by Doppler is more sensitive.

The major determinants of diastolic dysfunction as shown by multiple regression analysis were age β = - .293, P<.01 and IVRT β = -.627, P, <.0001 for the diabetics. Age β = -.432, P<.01 and IVRT β = -.378, P<.01 for normal control subjects.

Therefore, diabetes mellitus causes left ventricular dysfunction in newly diagnosed diabetic subjects.