EARLY DETECTION OF IMPAIRED LEFT VENTRICULAR FUNCTION IN FIRST DEGREE RELATIVES OF PATIENTS WITH IDIOPATHIC DILATED CARDIOMYOPATHY: A STRAIN IMAGING STUDY

Poster Contributions
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Background: Cardiac deformation parameters are shown to be impaired in cardiac diseases even when ejection fraction (EF) and left ventricular (LV) diameters are normal. The aim of this study is to evaluate subclinical myocardial dysfunction with strain imaging in first-degree relatives of patients with idiopathic dilated cardiomyopathy (IDC).

Methods: Eight-five first-degree relatives of 40 cases with IDC were evaluated. Due to detection of systolic dysfunction during screening (LVEF<55%) eight subjects were excluded. The remaining 77 subjects with normal LVEF (≥55%) were compared with the age and sex matched control group (n= 86) in terms of LV deformation parameters. To eliminate the effect of aging both the patients and controls were divided into two by using an age cut-off value of 40 years. The findings of subgroups of patients were compared with age-matched control group.

Results: Patients and controls are well-matched in terms of age, gender, body surface area. In the patient group compared to the controls a statistically significant reduction was observed in EF (62 ± 5.8 vs 65.7 ± 6.3%, p < 0.001), FS (39.4 ± 6.6 vs 41.5 ± 5.5%, p=0.03), global longitudinal strain (-17.3 ± 2.2 vs -19.2 ± 2.2%, p< 0.001) and strain rate (0.94 ± 0.14 vs 1.03 ± 0.14, p<0.001), radial strain (34.5 ± 9.1 vs 42.8 ± 11.9%, p < 0.001) and strain rate (1.6 ± 0.38 vs 1.75 ± 0.29, p 0.006), circumferential strain (-16.1 ± 2.8 vs -18.3 ± 3.4%, p< 0.001) and strain rate (1.09 ± 0.24 vs 1.2 ± 0.25) and torsion (10.1 ± 5.2 vs 12.4 ± 5.8, p 0.009). In subgroup analysis, patients under 40 years of age (n=51) had significantly decreased longitudinal strain (p<0.001) and strain rate (p=0.002), radial strain and strain rate (both p<0.001), torsion (p=0.03) compared to the controls under 40 years (n=56). When patients and controls aged ≥ 40 years were compared there was a significant decrease in longitudinal strain (p=0.001) and strain rate (p=0.015) and circumferential strain (p=0.007) values in patients

Conclusions: Left ventricular deformation parameters are impaired in first-degree relatives of patients with IDC. Strain imaging might be used for early identification of subjects who are at risk for development of IDC.