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POSTER PRESENTATION

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Global circumferential left ventricular strain impairment in hypertrophic cardiomyopathy: comparison to left ventricular hypertrophy and late gadolinium enhancement

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Background

to evaluate the relationship between Left Ventricular (LV) myocardial strain, mass, wall thickness and the extent of fibrosis in hypertrophic cardiomyopathy (HCM)

Methods

Forty HCM patients and 20 matched controls underwent a comprehensive CMR including cine imaging, late gadolinium enhancement (LGE) and short axis tagging. Global peak circumferential LV strain (Ecc) was generated from tagging sequences using InTag[®]. LGE volume was quantified semi automatically using a 6SD threshold.

Results

HCM patients (50±18 years, 65% men) had normal LVEDV (149±46mL, p=0.24), LVESV (52±24mL, p=0.78) and LVEF (65±11%, p=0.38). LV mass (198±69g, p<0.001) and LV mass index (108±37g/m² p=0.002) were significantly increased, resulting in decreased LV mass/LV volume ratio (1.40±0.54, p=0.005) in HCM compared to controls. Median maximal wall thickness was 19.6 (14.4 to 32.3mm). In HCM, LGE was present in 32/40 (80%) and mean LGE mass was 4.31±4.94g.

Ecc was significantly impaired in HCM patients (-8.82±0.32 vs. -15.54±2.54%, p<0.0001)

Ecc impairment was significantly associated with increased LV mass index (r=0.51, p=0.0009), LV mass/LV volume ratio (r=0.67, p<0.0001) and LV maximal wall

thickness (r=0.51, p=0.008). Moreover, Ecc impairment was associated with increased LGE mass (r=0.39, p=0.01).

Conclusions

Global LV circumferential myocardial deformation was strongly decreased in HCM and significantly associated with LV hypertrophy and the extent of LGE.

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