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Non Invasive Imaging (Echocardiography, Nuclear, PET, MR and CT)

REPLACEMENT AND INTERSTITIAL FIBROSIS BY CARDIAC MR AND DIASTOLIC DYSFUNCTION IN PATIENTS WITH DILATED CARDIOMYOPATHY

Poster Contributions

Poster Hall B1

Saturday, March 14, 2015, 3:45 p.m.-4:30 p.m.

Session Title: Non Invasive Imaging: CMR and Myocardial Tissue Characterization

Abstract Category: 18. Non Invasive Imaging: MR

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Background: Cardiac MR can be used to determine the extent of both replacement and interstitial fibrosis in patients with cardiomyopathies. We hypothesized that myocardial extracellular volume fraction (ECV) and scar burden by CMR are related to LV diastolic function in patients with dilated cardiomyopathy (DCM).

Methods: 24 DCM patients (10 males, 55±15 yrs) underwent an echocardiographic and CMR study within 49 days. Ten normal individuals (7 males, 44±20yrs) served as controls. In addition to complete cine and delayed enhancement CMR, a mid-ventricular short axis slice was acquired for T1 mapping pre and post contrast using a modified look-locker inversion recovery sequence. We also collected retrospectively invasive right heart catheterization data for nine patients.

Results: Scar was found in 58% with a median size of 1.5 (0-3) % of LV mass. ECV in DCM patients was larger than that in the control group ($p=0.004$) and T1 post contrast time was shorter ($p=0.019$). While neither E/e' ratio or pulmonary capillary wedge pressure (PCWP) was related to ECV, significant relations were observed between T1 post contrast time and LA volume index ($r=0.55$, $p=0.005$) and the ratio of LV end diastolic volume to PCWP, a surrogate of LV compliance ($r=0.698$, $p=0.036$).

Conclusion: ECV by CMR provides novel insights into the structural determinants of LV diastolic function in patients with DCM. Additional studies are needed to determine its role in the initial and subsequent evaluation of these patients after medical therapy.

