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Heart Failure and Cardiomyopathies

ANALYSIS OF ENDOMYOCARDIAL BIOPSIES IN CARDIOMYOPATHIES: DIAGNOSTIC VALUE ON LEFT VERSUS RIGHT VENTRICULAR BIOPSY

Poster Contributions

Hall C

Sunday, March 30, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Approaches to Advanced Heart Failure: From VAD, Transplant, Palliative Care to New Percutaneous Therapies

Abstract Category: 12. Heart Failure and Cardiomyopathies: Clinical

Presentation Number: 1221-193

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Background: Endomyocardial biopsies (EMBs) are the gold standard to identify autoimmune and viral causative factors in structural heart disease. However, no clear recommendations on diagnostic value of left ventricular (LV-) versus right ventricular (RV-) EMB with regard to detecting inflammation, virus persistence, and morphological changes have been established.

Methods and Results: In this prospectively study 65 patients (47 males, 18 females) were included presenting to our hospital to evaluate a possible origin of heart failure symptoms. Coronary angiography was performed in each patient before EMB procedure. Up to 7 biopsies taken simultaneously from each ventricle were analysed. Determination of cardiac inflammatory markers did not reveal significant differences between LV- and RV-EMBs: LFA-1+ lymphocytes LV- versus RV-EMB, $P=0.7$; CD3+ cells $P=0.4$ and cell adhesion molecules, $P=0.5$. There was no difference in detection of cardiac erythrovirus genomes ($P=ns$). A number of 4 EMBs was mandatory to compensate for the procedural sampling error of EMBs in order to reliably identify an erythrovirus positive patient. Increased fibrosis was obtained by histological analysis in LV-EMBs of 18 (27.6%) patients. In contrast, only 3 (4.6%) patients with RV-EMB exhibited attenuated collagen deposition. Moreover, mRNA abundance of collagen I subtype, α -smooth muscle protein and hypertrophic phenotype of cardiac myocytes were significantly increased in LV- compared to RV-EMB ($P=0.03$), indicating better detection of matricellular remodeling.

Conclusions: Intramyocardial inflammation and presence of virus genomes can be detected in LV- und RV-EMBs with the same frequency given that a sufficient number of tissue samples have been obtained. Morphological changes, as assessed by enhanced fibrosis and hypertrophic changes are more often detected in the left ventricle.