Poster Session

P890

Heart transplantation and antibody-mediated rejection: role of the strain as an early marker of cardiac dysfunction in patients with anti-HLA antibody

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Background: Antibody-mediated rejection of the transplated heart is essentially diagnosed through endomyocardial biopsy whereas clinical elements, anti- Human Leukocite Antigens (HLA) antibody and graft dysfunction are supplementary components. Over the years, several studies have tried to define early diagnostic markers, but to date a univocal consensus has not been achieved.

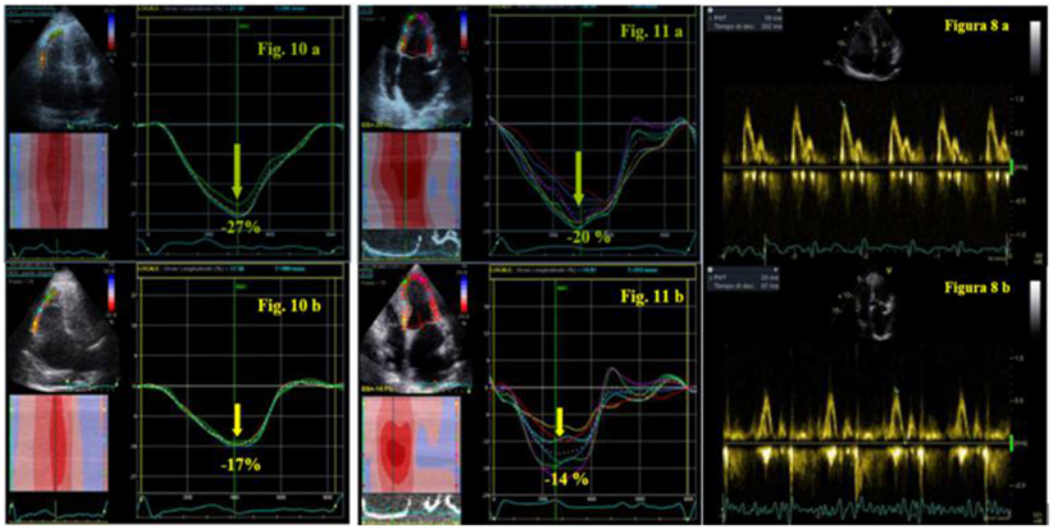
Purpose: The aim of the study was to identify though a non-invasive technique, such as transthoracic echocardiography, early signs of impaired cardiac function in heart transplanted patients, in presence of anti-HLA antibodies but without any histological sign of antibody-mediated rejection, assessed through endomyocardial biopsy.

Methods: In the study 29 heart transplanted patients were enrolled, and they were divided into two groups 'HLA+' (15 patients) and 'HLA-' (14 patients), based on the presence and the absence of circulating anti-HLA antibodies, respectively. None of the patients had evidence of either coronary allograft vasculopathy or antibody-mediated rejection, attested by endomyocardial biopsy. Each patient underwent through echocardiographic exam, within one month from the biopsy, analysing standard parameters of both systolic and diastolic function, together with strain analysis of right and left ventricle (RV and LV) and left atrium (LA).

Results: Clinical and demographic characteristics did not different significantly between the two groups, and neither did standard echocardiographic parameters. The only significant parameter that show a statistically significant different was Deceleration Time of E wave (DecT E), which resulted to be lower in the 'HLA+' group. Regarding strain analysis, peak atrial longitudinal strain was significantly different between HLA+ and HLA- patients (10,9 ± 5,6 vs 14,9 ± 4,5; $p < 0.005$), whereas peak atrial contraction strain did not. The study attested a strong difference of both LV global longitudinal strain (- 20,2 ± 5,9 vs - 23,2 ± 3,3; $p < 0.005$) and RV strain between the two analysed subsets (-16,9 ± 3,4 vs -19,3 ± 3,1 $p < 0.005$). The figure shows the most significant correlations found in the study, respectively RV strain (on the left), LV strain (in the middle) and DecT E (on the right), the figures on top are representative of HLA- patients, whereas the ones at the bottom are representative of HLA+ patients.

Conclusion: The presence of circulating anti-HLA antibodies seems to be correlated with a mild cardiac dysfunction, even in the absence of antibody-mediated rejection. This subtle dysfunction is not completely detectable by standard echocardiographic parameters, whereas strain analysis has showed promising results since it revealed more clearly an impaired function of both ventricles in heart transplanted HLA+ patients, with potentially important clinical repercussion.

Abstract P890 Figure.



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