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## Imaging

### LEFT VENTRICULAR LONGITUDINAL STRAIN BY SPECKLE-TRACKING ECHOCARDIOGRAPHY FOR THE DETECTION OF TREATMENT-REQUIRING REJECTION IN CLINICALLY ASYMPTOMATIC HEART TRANSPLANT RECIPIENTS

Moderated Poster Contributions

Poster Sessions, Expo North

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**Background:** Non-invasive detection of rejection is a major objective in the management of heart transplant recipients. We investigated the utility of 2-dimensional speckle-tracking echocardiography (2D-STE) for detecting allograft rejection.

**Methods:** We retrospectively evaluated 170 endomyocardial biopsy specimens from 63 heart transplant recipients. All biopsy procedures were accompanied by echocardiographic evaluation performed within 1 week before or 1 day after the date of the biopsy. The diagnosis of acute cellular rejection was based on the International Society for Heart and Lung Transplantation (ISHLT) criteria. Histological evidence of conventional ISHLT grade 1B or higher rejection was considered as treatment-requiring rejection (Group-R), while ISHLT grade 0 or 1A was classified as Group Non-R. Specimens that identified antibody-mediated rejection alone were excluded from our study. 2D-STE derived global left ventricular strain values, including longitudinal strain (LS) in apical 4-chamber views, circumferential strain (CS) and radial strain (RS) in short-axis views were compared between the two groups.

**Results:** Of 170 sets of endomyocardial biopsy and echocardiogram, 25 examinations (15%) were classified into Group R and 145 (85%) into Group Non-R. Clinical characteristics were similar between Group R and Group Non-R. Conventional and Doppler echocardiographic variables were also similar between the two groups except for posterior wall thickness ( $10.8 \pm 1.1\text{mm}$  vs.  $10.1 \pm 1.1\text{mm}$ ,  $p=0.006$ ). There was no significant difference in global RS and CS between the groups, whereas global LS was significantly more reduced in Group R than in Group Non-R ( $-13.9 \pm 3.5\%$  vs.  $-16.4 \pm 4.5\%$ ,  $p=0.01$ ). Multivariate logistic regression analysis revealed that global LS was the only independent echocardiographic parameter associated with treatment-requiring rejection ( $p=0.04$ ). The cutoff value of global LS  $-11.4\%$  was associated with treatment-requiring rejection with a sensitivity and specificity of 40% and 90%, respectively.

**Conclusion:** 2D-STE could be of clinical value for monitoring heart transplant recipients for possible treatment-requiring rejection.