GLOBAL LONGITUDINAL ECHOCARDIOGRAPHIC STRAIN IMAGING IN PEDIATRIC HEART TRANSPLANT RECIPIENTS

Poster Contributions
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Background: Evaluation of myocardial mechanics in heart transplant is important in monitoring allograft function and identifying acute rejection. Speckle tracking based global longitudinal strain (GLS) detects global and regional abnormalities and may detect rejection. This study aimed to compare GLS to other echocardiographic indices, and correlate GLS with plasma B-type natriuretic peptide (BNP).

Methods: Retrospective review of echocardiograms of pediatric transplant recipients. Imaging performed on Phillips IE33 machines, DICOM data transferred to QLAB for post-acquisition GLS calculation. Correlation between contemporaneous echocardiographic and laboratory indices performed using univariate regression.

Results: Forty seven patients (82 studies) including 10 patients with past/current rejection yielded a mean GLS value of -16.64 ± 3.3 SD. GLS strongly correlated with BNP (p=0.02), maximum thinning velocity (MTV) of the posterior wall of the left ventricle (p=0.03), and mitral inflow ‘a wave’ (p= 0.01). GLS did not correlate with baseline echo-based institutional rejection score, but demonstrated good correlation (p=0.04) when this measure was used serially on subsequent studies. GLS also correlated clinically in individual patients during rejection (Figure 1).

Conclusion: GLS correlates with BNP, MTV, and mitral inflow ‘a wave’. It can be integrated into the rejection surveillance process in pediatric heart transplant patients and is particularly useful in serial studies.

![Figure 1](image-url)