Abstract No. **41**
Category: **Non Invasive Imaging**
Title: **Comparison of Simultaneous Global Longitudinal Strain Assessments in Stable Heart Transplant Patients Using Two Different Echocardiography Vendors**
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Abstract:

Background: Global longitudinal strain (GLS) is a useful tool for evaluation of rejection in Heart Transplant patients (HT-P). However, controversies exist regarding its accuracy and agreement among different vendors.

Methods: During a routine echocardiographic follow-up, stable HT-P underwent simultaneous GLS analysis (done within 20 minutes) with 2 different vendors (Philips® and General Electric® -GE-). Repeated analysis of GLS of the same patient was allowed over time. We evaluated GLS agreement between Philips and GE using 3 indices of variability: mean signed difference, Bland-Altman plots (in which the mean of 2 measurements was plotted against the difference) and a pre-specified coverage probability of 2 % points (GLS variation within 2% between modalities was considered clinically acceptable).

Results: In 47 stable HT-P, a total of 66 studies were performed. Patients were mainly male (82.9%) with a mean age of 50 ± 13.6 years and most common causes for transplant included idiopathic, ischemic and chagasic cardio-myopathy. Additional characteristics of the population are presented in Table 1A. Bland-Altman comparisons between vendors for determining GLS are shown in the Figure 1. Limits of agreement between vendors were broad, ranging from -6.52% to 6.35%. The mean signed difference between GLS measured by Phillips and GE, was closest to 0, indicating no substantial GLS over or under-estimation by either vendor. However, the percentage of observations that fell within a 2% range was 44 % between vendors as shown in Table 1B. Remarkably, although the mean left ventricle ejection fraction (LVEF) was normal (55.3 ± 7.9%), the average GLS is low as measured by either vendor.

Conclusion: GLS analysis concordance with two different vendors in stable HT-P ranged within 95% CI of difference for each mean value; however ideal limits of such boundaries may be <2% points for adequate concordance. Vendors must work in improving agreement in GLS analysis due to the meaningful information it provides in HT-P and other cardio-myopathies.