RIGHT VENTRICULAR STRAIN AND STRAIN RATE AS A DIAGNOSTIC AND PROGNOSTIC INDICATOR IN PATIENTS WITH AMYLOIDOSIS

ACC Poster Contributions
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Background: Decreased left ventricular global strain (S) and strain rate (SR) derived by two-dimensional speckle tracking echocardiography (2D-STE) are predictors of mortality in biopsy-proven amyloid (AL) patients with normal ejection fraction. The significance of right ventricular (RV) S and SR is unknown. This study sought to assess the diagnostic and prognostic value of RV S and SR in AL patients with and without abnormal left ventricular wall thickness.

Method: A total of 140 AL and 62 control patients were evaluated by 2D-STE to assess global and regional RV mechanical wall function. Analysis of RV S and SR was performed using standard longitudinal four chamber echocardiographic view.

Results: AL patients with and without abnormal wall thickness vs. controls had decreased RV S (10.8±3% and 13.8±4.5% vs. 20.3±3.15%; p<0.0001, respectively) and SR (0.75±. 36s-1 and 0.89±. 24s-1 vs. 1.20±. 21s-1; p<0.0001, respectively). The sensitivity, specificity, and receiver operator characteristic curve with area under the curve values to detect amyloid heart disease are: 87%, 100%, and 0.92 for all comers, 89%, 91%, and 0.86 for AL patients with normal walls, and 99%, 92% and 0.99 for AL patients with abnormal walls. With a S cutoff of -12% (basal septum), there was a significant association with mortality.

Conclusion: This study is among the first to evaluate global and regional RV S and SR in AL patients. RV S and SR is a powerful diagnostic tool, with RV basal septal S significantly associated with mortality.