RADIAL, CIRCUMFERENTIAL AND LONGITUDINAL STRAIN IN SUBENDOCARDIAL AND SUBEPICARDIAL LAYERS IN PATIENTS WITH AORTIC STENOSIS AND PRESERVED LEFT VENTRICULAR EJECTION FRACTION

ACC Poster Contributions
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Background: Myocardial function is heterogeneous in different myocardial layers. The aim of this study was to analyze strain in subendocardial and subepicardial layers in patients with aortic stenosis (AS) and preserved LV ejection fraction (LVEF) using speckle-tracking echocardiography.

Methods: In 29 control subjects and 27 patients with AS and preserved LVEF, parasternal short-axis and apical long-axis echocardiographic views of the left ventricle were acquired at the mid-papillary level. Radial, circumferential and longitudinal strain in subendocardial and subepicardial layers at posterior and antero-septal segments were calculated.

Results: There were no significant difference in circumferential strain in subendocardial and subepicardial layers between the control subjects and the patients with AS. Similarly, there were no significant difference in epicardial radial strain at posterior and antero-septal segments between the control subjects and the patients with AS. Compared with control subjects, AS patients had significantly decreased values of the longitudinal strain and endocardial radial strain (Figure).

Conclusion: In patient with AS and preserved LVEF, impaired longitudinal and endocardial radial strain exist although circumferential strain and epicardial radial strain are preserved. These results indicate that LV systolic function in patients with AS might be compensated by circumferential and epicardial radial shortening.