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Left ventricle myocardial deformation (strain) pattern in severe aortic valve stenosis. AMY-TAVI study.

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PURPOSE.

To study left ventricular (LV) myocardial deformation in patients with severe symptomatic aortic stenosis (AS), through the analysis of the Regional and Global Longitudinal Strain (GLS), as well as the phenotypic pattern of peak systolic longitudinal strain represented in the bull's eye.

METHODS.: A total of 42 patients with severe symptomatic AS were prospectively and consecutively included. Conventional morphological and functional parameters were analyzed, along with LV strain parameters and the strain pattern phenotype using two-dimensional speckle-tracking echocardiography. Indices derived from strain accepted as suggestive of cardiac amyloidosis were calculated (RELAPS: relative apical sparing: defined using the equation (average apical LS/(average basal LS + mid-LS); Ejection Fraction strain ratio (EFSR= LVEF/GLS). Scintigraphy with technetium pyrophosphate99 and blood protein electrophoresis were performed in all patients for the diagnosis / exclusion of cardiac amyloidosis.

RESULTS.

The mean age was 80 ± 7 years, and 52% were women. The mean aortic valvular area was 0.6 ± 0.1 cm² and the left ventricular ejection fraction (LVEF) was $56 \pm 16\%$. 19 patients (45.2%) presented a pattern of relative apical sparing of LV longitudinal strain (RELAPS > 1); and 16 patients (38%) showed an EFSR > 4.1. Cardiac amyloidosis was excluded in all patients. In the univariate analysis, RELAPS > 1 was significantly associated with higher degree of LV hypertrophy, lower LV end-diastolic volume, and greater myocardial contraction fraction.

CONCLUSIONS.: In our series, patients with severe symptomatic AS have with high frequency a "relative apical sparing" longitudinal strain pattern and Ejection Fraction Strain Ratio similar to those described in cardiac amyloidosis. Our results suggest that the classic patterns of cardiac amyloidosis are common in patients with severe AS in the absence of said pathology, findings that we believe may have important clinical implications.

Abstract 1024 Figure. Peak systolic LS patterns in severe AS

