

## **Myocardial Mechanics in Asymptomatic Versus Symptomatic Patients with Severe Aortic Stenosis**

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Background: Symptomatic patients (pts) with severe aortic stenosis (AS) demonstrate abnormal left ventricular (LV) mechanics. We compared LV mechanics in asymptomatic and symptomatic pts with severe AS using 2-D myocardial strain imaging.

Methods: The study group included 53 pts with severe AS (aortic valve area [AVA]  $\leq 1.0\text{cm}^2$ ), normal LV ejection fraction (LVEF  $> 50\%$ ), and without segmental wall motion abnormalities. LV longitudinal and circumferential strain and rotation were measured in 21 asymptomatic pts and compared to 32 age and gender-matched pts with AS-related symptoms and to 21 normal subjects without AS.

Results: Patients with asymptomatic severe AS demonstrated less decreased longitudinal strain, higher (supernormal) apical circumferential strain, and extreme (supernormal) apical rotation, compared to symptomatic patients.

\*  $p < 0.05$ , compared to normal; †  $p < 0.05$ , compared to symptomatic pts.

Conclusions: Compensatory mechanisms of myocardial mechanics in asymptomatic pts with severe AS (increased apical circumferential strain and rotation) are lost with the appearance of symptoms. Thus, myocardial mechanics may help in the follow up of pts with severe AS and timing of valve surgery.