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The "Double Loaded" LV: High Prevalence of Hypertensive LVH Preceding the Development of Severe Aortic Stenosis

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Et al.

THE "DOUBLE LOADED" LV: HIGH PREVALENCE OF HYPERTENSIVE LVH PRECEDING THE DEVELOPMENT OF SEVERE AORTIC STENOSIS

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Background: It is generally assumed that left ventricular hypertrophy (LVH) in aortic stenosis (AS) is a compensatory adaptation to chronic outflow obstruction. However the advent of TAVR has stimulated more focus on AS in older patients, most of whom have antecedent hypertension (HTN). Accordingly our aim was to investigate the interaction between HTN and AS on LV remodeling in contemporary practice.

Methods: We studied 33 consecutive patients with AV peak velocity (PV) >2.5 m/s on their initial echo and a PV of >3.5 m/s on a subsequent study performed at least 5 years later. Patients' demographics and clinical information were collected. Peak intraventricular pressure (IVP, mmHg) was defined as the sum of systolic arterial pressure and peak intraventricular gradient. Data were analyzed using descriptive statistics, paired- samples T test, and linear correlation.

Results: Of our sample (46% women, mean age of 82±11 y), 29 (88%) had a history of hypertension. The average interval between the two echo studies was 6.2±1 years. As expected, wall thickness, LV Mass, and relative wall thickness increased over time. There was no correlation between change in LV mass index (LVMi, g/m^2) and peak IVP, PV or AV MG. However change in LVMi did correlate inversely with baseline LVMi ($r= -0.37$, $p= 0.03$).

Conclusion: Most patients seen in our practice with severe AS have antecedent hypertension and LVH. LVH worsens in parallel with worsening severity of AS. Remodeling in these patients features increasing concentric remodeling of the LV, rather than LV dilation. Given these findings, we speculate that regression of LVH to normal will not be effected by AVR because LVH proceeded hemodynamically severe AS. Strict control of blood pressure might be of equal importance in preventing and ameliorating pressure overload in these patients.

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