Abstract: 1035

Remodeling classification system considering left ventricular volume in patients with aortic valve regurgitation: association with adverse cardiovascular outcomes

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Background: Left ventricular (LV) remodeling in the setting of aortic valve regurgitation (AR) often leads to maladaptive responses.

Purpose: To assess the prevalence and clinical implications of LV remodeling considering the LV volume as well as mass and the relative wall thickness at the time of AR diagnosis.

Methods: We retrospectively analyzed consecutive patients with moderate or severe AR. LV geometric patterns and clinical outcomes (cardiovascular death, hospitalization for heart failure or aortic valve replacement [AVR]) were evaluated.

Results: Between 2008 and 2017, 370 consecutive patients were included (age 67.3±16.1 years, 56.5% males): 296 (80.0%) had organic aetiology, 35 (9.5%) functional and 39 (10.5%) mixed; 72 (19.5%) had severe AR. Left ventricular dilatation (LV end-diastolic volume >75ml/m2) was present in 228 patients (61.6%). According to the new LV remodeling classification system, 40 (10.8%) patients had normal geometry, 14 (3.8%) concentric remodeling, 43 (11.6%) concentric left ventricular hypertrophy (LVH), 45 (12.2%) indeterminate LVH, 38 (10.3%) mixed LVH, 93 (25.1%) dilated LVH, 54 (14.6%) eccentric LVH and 43 (11.6%) eccentric remodeling. During a median follow-up of 3.46 years, 98 (26.5%) had the combined endpoint. A significant association between the combined end-point and LV dilatation (p<0.001), LV hypertrophy (p<0.001) or LV remodeling patterns (p<0.001) was found. After multivariable adjustment for age, ejection fraction, aortic stenosis and history of coronary artery disease, eccentric LVH (HR 7.93, IC 95% 1.89-33.12; p=0.005) and eccentric remodeling (HR 8.19, IC 95% 1.88-35.58, p=0.005) were associated with adverse cardiovascular outcome.

Conclusions: In patients with moderate or severe AR, applying the new LV remodeling classification system considering volume, only a minority had normal geometry. LV volume dilatation and LVH are frequent and associated with adverse outcome. Eccentric LVH and eccentric remodeling had the worst prognosis.