Echocardiography: Valve Disease

Asymptomatic severe aortic stenosis: what is the current role of exercise stress test and NT-proBNP in patient risk stratification

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Introduction: Aortic stenosis (AS) is prevalent in the elderly population. When severe and the patient is symptomatic or left ventricular dysfunction arises, the prognosis deteriorates and valve replacement (AVR) is recommended. During the asymptomatic phase regular clinical evaluation is advised to detect early onset of symptoms and/or signs of myocardial maladaptation. Due to the inherent difficulties in the evaluation of symptoms, especially in the elderly, as well as the change in prognosis when symptoms appear (even if not perceived), it is crucial to evaluate the behavior of patients with effort and signs of myocardial injury.

Methods: An observational and retrospective study that included 74 patients followed at the Cardiology Service by severe AS (aortic valve area ≤ 1cm2 and/or aortic transvalvular mean gradient ≥40mmHg), who underwent exercise stress test (EST) and NT-proBNP evaluation for risk stratification. The outcome studied was hospitalization for heart failure (HF), or referral to SV, or death during the follow-up period. Independent predictors were obtained using multivariate Cox regression.

Results: Non-progression or decrease in systolic blood pressure (SBP) in EST is the only independent predictor of a short-term adverse event (p = 0.025). This parameter, NT-proBNP levels and interventricular septal thickness (IVS) were independent predictors of a medium (two (p = 0.025; p = 0.014; p = <0.001), three (p = 0.015; p = 0.007; p = 0.001) and four years (p = 0.007; p = 0.049; p = 0.005)) and a long term adverse event (p = 0.006; p = 0.028; p = 0.005).

Conclusion: In asymptomatic patients with severe AS, no progression or decrease in SBP in EST, increased NT-proBNP levels and thickness of IVS were independent predictors of hospitalization for HF, need for VS or death in short, medium and long term.