Prognostic significance and outcomes of patient-reported symptoms after valve intervention in severe aortic stenosis

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Funding Acknowledgements: None.

Background: Symptoms in patients with severe aortic stenosis (AS) are the main indication for intervention. The evolution of symptoms after intervention is unknown.

Objective: To describe the evolution of symptoms in patients with symptomatic AS undergoing valve replacement, the predictors of their persistence and their prognostic significance.

Methods: Retrospective analysis of 451 patients with symptoms attributed to severe isolated aortic stenosis (without other valvular heart disease or coronary disease), from two tertiary Spanish hospitals, who underwent aortic valve replacement. The presence of symptoms prior to intervention and the evolution of these after it, were evaluated. Clinical history, laboratory parameters, EKG, echocardiographic findings, total death, and cardiovascular death were also analyzed.

Results: Surgical aortic valve replacement was performed in 216 patients (57.8%) and percutaneous in 190 (42.1%). 133 patients had heart failure (29.5%), 287 dyspnea on effort (90.2%), 129 angina (40.5%) and 29 syncope (n=59). Symptoms disappeared after intervention in 192 patients (42.6%) and remained in 259 (57.4%): 193 dyspnea, 9 angina, 17 syncope and 60 heart failure (Picture 1). Age [OR 1.06 (1.04–1.09)], BMI [OR 1.09 (1.04-1.14)], previous heart failure [OR 1.67 (1.07-2.63)] and chronic obstructive pulmonary disease [OR 2.62 (1.27-5.40)] were independently related to persistence of symptoms. Over a median follow-up of 56 months (IQR: 40-73), 129 deaths were registered (28.6%), 48 cardiovascular (10.6%). Age [HR 1.04 (1.02-1.07), p=0.001], chronic obstructive pulmonary disease [HR 1.74 (1.11-2.71)], chronic kidney disease [HR 1.48 (1.01-2.19)], atrial fibrillation [HR 1.62 (1.15-2.32)], heart failure [HR 1.81(1.27-2.58)] and persistence of symptoms [HR 2.08 (1.35-3.21)] were independently associated to total death. However, persistence of symptoms was not associated to cardiovascular mortality (Picture 2).

Conclusions: Our work shows that symptoms putatively attributed to severe aortic stenosis may remain after valve intervention, particularly dyspnea on effort and syncope at rest. Therefore, before indicating intervention, the cause of dyspnea on effort and syncope at rest must be searched for. The persistence of symptoms was independently related to total death but not to cardiovascular death. According to these results, the recommendation of intervention based on certain symptoms, if confirmed in larger studies, should be called into question.

Symptoms before and after intervention
Kaplan-Meier survival curve

A. Total Death

- Survival probability (%)
- Symptoms: No, Yes
- Number at risk:
  - No: 192, 191, 182, 174, 166, 121, 74, 45, 23, 4
  - Yes: 259, 252, 232, 212, 201, 157, 101, 67, 29, 3
- Cumulative Death:
  - No: 0, 1, 8, 14, 19, 22, 24, 25, 27, 27
  - Yes: 0, 7, 26, 46, 57, 71, 87, 97, 100, 102
- Log Rank Test p=0.001

B. Cardiovascular Death

- Survival probability (%)
- Symptoms: No, Yes
- Number at risk:
  - No: 192, 191, 182, 174, 166, 121, 74, 45, 23, 4
  - Yes: 259, 252, 232, 212, 201, 157, 101, 67, 29, 3
- Cumulative Death:
  - No: 0, 1, 4, 5, 9, 11, 13, 13, 15, 15
  - Yes: 0, 3, 5, 12, 15, 19, 28, 30, 31, 32
- Log Rank Test p=0.077