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Research Article

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Management of Asymptomatic Severe Aortic Stenosis (A Report on 21 Cases)

Lehachi S*, Amirouche M, Kalkoul H and Belbcir L

Cardiology Department, Beni Messous University Hospital, Algiers, Algeria

***Corresponding author:** Lehachi S, Cardiology Department, Beni Messous University Hospital, Algiers, Algeria.

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Abstract

This study focuses on the management and outcomes of asymptomatic severe aortic stenosis (AS) cases within our institution. Among a total of 21 patients, representing 4% of all evaluated AS cases, the average age was 71 years with a gender ratio of 1.6. Comorbidities such as diabetes and renal insufficiency were common. All patients demonstrated sinus rhythm and were classified as Functional Class I according to NYHA. Echocardiographic assessments yielded key parameters (refer to table). Surgical intervention was recommended for 7 patients due to factors including left ventricular dysfunction, positive stress tests, elevated B-type natriuretic peptide levels, pronounced calcifications, and extremely severe AS.

For the remaining 14 patients, asymptomatic status was confirmed through negative stress tests or BNP measurements. These individuals were placed under regular clinical and echocardiographic surveillance every 6 months.

During a comprehensive follow-up period of 2.6 years (ranging from 6 months to 3 years), all 14 patients remained asymptomatic, with no reported cardiovascular incidents or fatalities. This study underscores the significance of tailored management strategies for asymptomatic severe AS patients and highlights the positive outcomes achievable through periodic monitoring.

Keywords: Aortic Stenosis, Echocardiographic Evaluation, Exercise Test, Therapeutic Decision, Personalized Approach

Introduction

Aortic stenosis (AS) is a prevalent valvopathy, and its occurrence becomes more common as the population ages. While the treatment for symptomatic patients is well-established, the approach to asymptomatic patients remains less defined. This study aims to illustrate the strategy employed in managing asymptomatic aortic stenosis.

Methodology

In this study conducted at the Cardiology Department of Beni Messous University Hospital, a total of 21 cases of asymptomatic severe aortic stenosis were analyzed. The study utilized a retrospective observational design, involving the examination of medical records and data from patients who met the inclusion criteria of having severe aortic stenosis without presenting any symptoms.

The diagnostic criteria for severe aortic stenosis included specific measurements obtained through echocardiography, including a reduced aortic valve area, increased mean pressure gradient, and reduced velocity across the aortic valve. Patients with these echocardiographic findings were considered eligible for the study.

The collected data encompassed various aspects, such as patient demographics, medical history, echocardiographic measurements, and any subsequent interventions or clinical outcomes. The patients were monitored over a specific duration to assess any changes in symptoms.

Statistical analysis was employed to examine the distribution of demographic characteristics, echocardiographic parameters, and clinical outcomes among the cohort of asymptomatic patients. The aim was to derive meaningful insights into the management and progression of asymptomatic severe aortic stenosis.

Results

Asymptomatic Severe Aortic Stenosis (AS) accounts for 4% of all AS cases evaluated in our department. Number of patients: 21, Average age: 71 years (58-82 years), Gender ratio: 1.6. The most frequent comorbidities are diabetes and renal insufficiency. All our patients are in sinus rhythm and in Functional Class I according to NYHA (New York Heart Association). The recorded echocardiographic parameters are as follows (see table). Surgical indication was chosen for 7 patients: for left ventricular dysfunction (3 cases), for a positive stress test (2 cases:

falsely asymptomatic patients), for positive B-type natriuretic peptide (BNP) and significant calcifications (1 case), and for very severe AS (1 case).

Among the remaining 14 patients, asymptomatic status was confirmed by a negative stress test or BNP. It was decided to subject these patients to periodic clinical and echocardiographic follow-up (Assessment every 6 months).

Follow-up and Surveillance

During a follow-up period of 2.6 years (6 months to 3 years), all 14 patients remained asymptomatic without any cardiovascular events or deaths.

Table 1: Echocardiographic Criteria

Criteria N: 21	Average
Etiology	Degenerative = 12
	Rheumatic = 6
	Bicuspidi = 3
Aortic Valve Area	0,63 cm² (0,5-0,9)
Maximal Velocity	4,75 m/s (4-6)
Mean Gradient	51 mmHg (41-72)
Left Ventricular Ejection Fraction	59% (42-70)
Global Longitudinal Strain (GLS)	-18% (-10- -22)
Left Atrial Volume	33.1ml/m² (27-50)
Mitral Profile	Type 1 : 14, Type 2 : 7

Discussion

In the therapeutic strategy for aortic stenosis (AS), current guidelines recommend aortic valve replacement (AVR), whether surgical or transcatheter, for patients with severe symptomatic AS [1, 2]. However, the management of asymptomatic patients remains controversial, and the decision to intervene requires a meticulous evaluation, including clinical and echocardiographic elements, as well as an assessment of benefits and risks for each individual.

In light of the provided results, the presented study sheds light on the approach to managing asymptomatic severe aortic stenosis. Among the 21 patients analyzed, representing 4% of the evaluated AS cases, the average age was 71 years with a predominance in degenerative etiology (12 cases). Notably, the echocardiographic parameters revealed relevant insights into the condition of the patients, including an average aortic valve area of 0.63 cm², maximal velocity of 4.75 m/s, mean gradient of 51 mmHg, left ventricular ejection fraction of 59%, and global longitudinal strain of -18%. These measurements provide crucial information for guiding clinical decisions.

In the context of therapeutic decisions, the study highlights the evolving landscape of managing asymptomatic AS. Traditionally, surgical or transcatheter intervention was reserved for symptomatic patients. However, recent research, as well as the data presented here, suggest that specific factors can be indicators of disease progression and potential symptom development. The lowered threshold for left ventricular dysfunction (LV dysfunction) to 55% and the assessment of exercise-induced dyspnea underscore the importance of a comprehensive evaluation [1, 3].

Furthermore, predictive factors for symptom development and unfavorable outcomes are discussed [1, 2]:

- Very severe AS (V-Max > 5 or 5.5 m/s, mean gradient > 60 mmHg)
- Rapid valvular disease progression (Vmax progression of 0.3 m/s/year)
- Swift calcification progression
- Elevated B-type natriuretic peptide (BNP) levels

Based on these factors, early intervention could be considered when one or more of these prognostic elements are present, particularly if surgical risk is low. On the other hand, in the absence of such factors, close clinical and echocardiographic follow-up (at least every 6 months) is recommended to promptly identify conditions that may lead to aortic valve replacement [4].

Overall, this study adds to the ongoing discussions surrounding the management of asymptomatic severe aortic stenosis. It emphasizes the need for a personalized approach, considering the evolving criteria and a thorough assessment of risks and benefits for each patient.

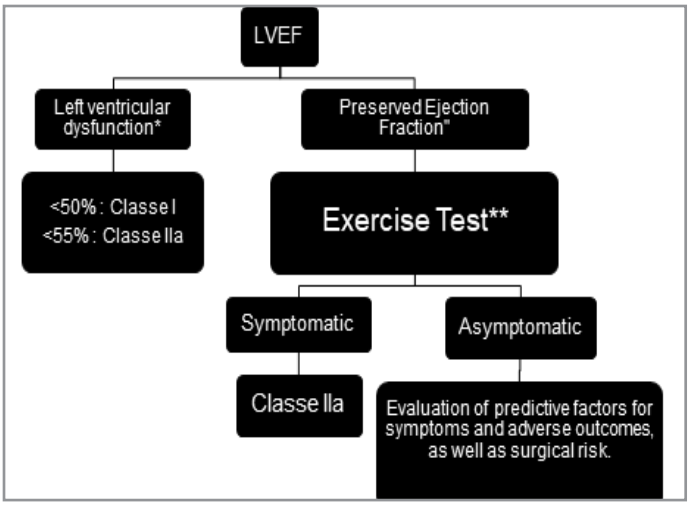

Figure 1: Algorithm for the diagnostic strategy of asymptomatic aortic stenosis

LVEF: Left Ventricular Ejection Fraction

* New threshold for left ventricular dysfunction: 55% [1]
**Search for exertional dyspnea [3]

Conclusion

In the management strategy of asymptomatic severe aortic stenosis (AS), this series strongly suggests:

- emphasizing the asymptomatic nature of patients through exercise testing,
- highlighting the absence of criteria for biological and echocardiographic severity indicative of severe AS,
- and ensuring regular cardiological follow-up.

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