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Original article

## Conservative management in very elderly patients with severe aortic stenosis: Time to change?

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### ABSTRACT

**Background:** Despite current recommendations, a high percentage of patients with severe symptomatic aortic stenosis are managed conservatively. The aim of this study was to study symptomatic patients undergoing conservative management from the IDEAS registry, describing their baseline clinical characteristics, mortality, and the causes according to the reason for conservative management.

**Methods:** Consecutive patients with severe aortic stenosis diagnosed at 48 centers during January 2014 were included. Baseline clinical characteristics, echocardiographic data, Charlson index, and EuroSCORE-II were registered, including vital status and performance of valve intervention during one-year follow-up. For the purpose of this substudy we assessed symptomatic patients undergoing conservative management, including them in 5 groups according to the reason for performing conservative management [I: comorbidity/frailty (128, 43.8%); II: dementia 18 (6.2%); III: advanced age 34 (11.6%); IV: patients' refusal 62 (21.2%); and V: other reasons 50 (17.1%)].

**Results:** We included 292 patients aged  $81.5 \pm 9$  years. Patients from group I had higher Charlson index ( $4 \pm 2.3$ ), higher EuroSCORE-II ( $7.5 \pm 6$ ), and a higher overall (42.2%) and non-cardiac mortality (16.4%) than the other groups. In contrast, patients from group III had fewer comorbidities, lower EuroSCORE-II ( $4 \pm 2.5$ ), and low overall (20.6%) and non-cardiac mortality (5.9%).

**Conclusions:** Patients with severe symptomatic aortic stenosis managed conservatively have different baseline characteristics and clinical course according to the reason for performing conservative management. A prospective assessment of comorbidity and other geriatric syndromes might contribute to improve therapeutic strategy in this clinical setting.

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### Background

The prevalence of aortic stenosis (AS) increases with age and is especially high in the elderly [1], affecting 8% of patients aged 85 years or older [2]. The progressive aging of populations makes likely a marked increase in the impact of AS on public health during the upcoming years [3,4]. Prognosis clearly worsens when symptoms appear [5], with an impairment in quality of life and

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a high mortality in untreated patients, higher than other serious diseases such as breast, lung, or colon cancer [6]. Both surgical intervention, and more recently, transcatheter aortic valve implantation (TAVI) improve survival in this clinical setting [7–9]. Despite current recommendations [10], recent data show that symptomatic patients are commonly managed conservatively in routine clinical practice [11,12]. A conservative approach might be a reasonable option in patients with severe comorbidities and a short life expectancy [10–14]. However, little is known about the clinical profile and prognosis of symptomatic patients undergoing a conservative management in routine clinical practice [13,15,16].

The IDEAS study (*Influencia del Diagnóstico de Estenosis Aórtica Severa*) [17] is a multicenter Spanish registry, endorsed and coordinated by the Geriatric Cardiology Section of the Spanish Society of Cardiology which included consecutive patients with severe AS. This study was designed to assess the determinants of management and prognosis in these patients showing that most patients were managed conservatively (64.8%). The most common reasons for this conservative management were the absence of symptoms (29.1%) and serious comorbidities (27.4%) [17].

The aim of this substudy was to describe clinical characteristics of symptomatic patients managed conservatively from the IDEAS registry, assessing their overall mortality and its causes according to the main reason for this conservative management.

## Methods

The IDEAS registry retrospectively included consecutive patients with AS [mean aortic gradient  $\geq 40$  mmHg or aortic valve area (AVA)  $< 1$  cm<sup>2</sup> by continuity equation [10], without previous valve intervention] diagnosed by echocardiography in 48 Spanish centers in January 2014 ( $n = 726$ ) [17]. Clinical characteristics, echocardiographic data, Charlson comorbidity index [18], as well as *European System for Cardiac Operative Risk Evaluation* (EuroSCORE-II) [19] were registered. Clinical follow-up was performed in all patients at 12 months by review of medical records or by telephone contact, including vital status and requirement for valve intervention (surgical or percutaneous). Death was deemed of cardiac origin when it was due to heart failure, myocardial infarction, or sudden death.

For the purpose of this substudy, we included symptomatic patients from the IDEAS registry in whom their medical team chose a conservative management ( $n = 292$ ). Patients were divided into five subgroups according to the main reason for this conservative management: (I) comorbidities; (II) dementia; (III) advanced age; (IV) patient's refusal; and (V) other reasons/unknown. The degree of comorbidities was assessed by the Charlson index. The diagnosis of dementia was based on medical records. In patients from group V, the more common reasons were unknown and technical issues precluding TAVI. This classification was assigned by the IDEAS registry investigators after review of medical records.

Quantitative variables are expressed as mean (SD). Categorical variables are expressed as  $n$  (%). Comparisons of categorical variables were performed by Chi squared test or Fisher test where indicated. Comparisons of quantitative variables were performed by ANOVA test. Survival curves were performed by Kaplan–Meier method, assessing the statistical significance by log rank test. Analyses were performed by the statistical software SPSS 21.0.0 (IBM, Chicago, IL, USA).

## Results

We included 292 patients, with mean age  $81.5 \pm 9$  years. The main reasons for conservative management were “comorbidities” in 128 (43.8%) patients; “dementia” in 18 (6.2%); “advanced age” in 34

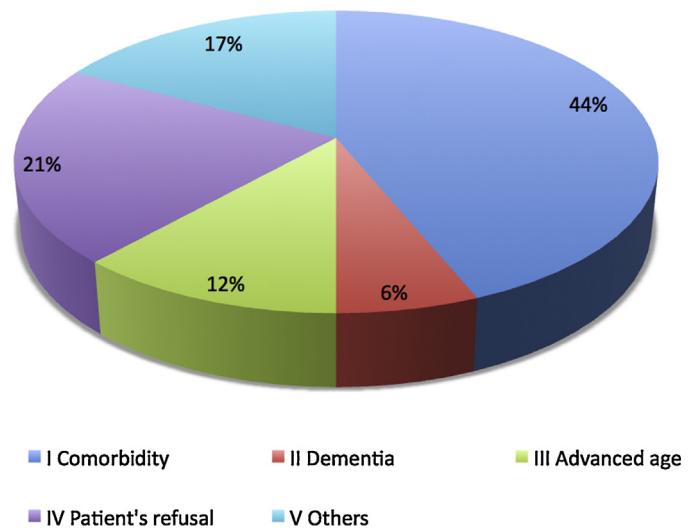


Fig. 1. Frequencies of each of the reasons for conservative management in patients with symptomatic severe aortic stenosis.

(11.6%); “patient's refusal” in 62 (21.2%) and “others” in 50 (17.1%) cases (Fig. 1).

Table 1 shows baseline characteristics, echocardiographic data, and one-year outcomes according to the reason for conservative management. Significant differences regarding baseline characteristics were observed, with a higher prevalence of comorbidities in group I (mean Charlson index 4) and a higher risk for surgery (mean EuroSCORE-II 7.5). In contrast, patients from group III had fewer comorbidities, with the lowest values of Charlson index and EuroSCORE-II. A lower mean transaortic gradient was also observed in patients from group III.

Cumulative survival according to the reason for conservative management is shown in Fig. 2. A significantly higher overall mortality was observed in group I (42.2%). The lowest mortality was observed in groups III (20.6%), IV (24.2%), and II (27.8%).

Non-cardiac causes of mortality were more common in group I (16.4%) and V (10%) as compared to the others (Table 1). Main causes of non-cardiac mortality were infections (9/33, 27.3%), neoplasms (7/33, 21.2%), and stroke (3/33, 9.1%). The most common reason for cardiac death was heart failure in all subgroups.

## Discussion

The main findings from our study are: (a) patients with symptomatic severe AS managed conservatively from our series are an heterogeneous group, with relevant differences in their baseline characteristics according to the reason for conservative management; and (b) one-year clinical outcomes were significantly different according to these reasons, with a higher mortality and higher percentage of non-cardiac mortality in patients from groups I and V as compared to the rest.

Despite the clear recommendation of intervention in symptomatic patients with severe AS [10], a considerable number of patients are managed conservatively in routine clinical practice. The information about causes for conservative management in this clinical setting is scarce. In a paper from Bach et al. [16], high risk for surgery due to comorbidities and patient's refusal for intervention were the most common reasons for conservative management in a series of 369 patients with severe AS. Paradoxically, 25% of patients undergoing conservative management had lower risk for surgery as compared to patients undergoing intervention. The PEGASO registry showed as the most common causes of conservative management a high risk for

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