



ELSEVIER

European Journal of Cardio-thoracic Surgery xxx (2009) xxx–xxx

 EUROPEAN JOURNAL OF
 CARDIO-THORACIC
 SURGERY

www.elsevier.com/locate/ejcts

Editorial comment

Therapeutic decisions for patients with symptomatic severe aortic stenosis Much still to do!

Keywords: Epidemiology; Aortic stenosis; Aortic valve replacement; Percutaneous aortic valve implantation

In a paper published in this issue of the Journal, van Geldorp and co-workers from Rotterdam, discuss the therapeutic decisions for patients with symptomatic severe aortic stenosis (AS) [1]. Since the publication of the results of the valve subgroup of pathologies of the EuroHeart Survey, by lung and co-workers [2,3], indicating that surgery was denied in 33% of elderly patients with severe, symptomatic AS, this has been used as the most important motivation for percutaneous aortic valve implantation (PAVI), which has since known rapid development and expansion, both in Europe and in America.

But, although the early results of PAVI have been encouraging, especially when applied to elderly patients who are extremely high risk for surgery, its application to intermediate risk patients raises many questions as the short-term results are not yet comparable to those obtained by surgical replacement of the aortic valve, which is here to stay [4]. Besides, the medium- and long-term results of PAVI are yet unknown. Conversely, interest in aortic stenosis has been renewed and many works on the prognosis and on medical and surgical therapeutic options for this pathology, showing improved outcome, were published in the past couple of years.

It is, thus, important to analyse the reasons why so many patients are denied surgery. When the results of the EuroHeart Survey were released, many surgeons, including myself, questioned their value and applicability to the general European cardiac surgery practice. The 33% figure appeared too high, certainly compared to my own experience. Arguably, the survey included a limited number of European centers, with asymmetric distribution, and many European countries and large centers were not even included. The sample was simply not reliable.

In the cohort of elderly (≥ 75 years of age) patients with severe aortic stenosis included in the survey, only 216 out of the more than 5000 surveyed, left ventricular ejection fraction (LVEF) (OR = 2.27 for ejection fraction 30–50% and 5.155 for ejection fraction ≤ 30 vs $> 50\%$, $p = 0.003$) and age (OR = 1.84 for patients age 80–85 years and 3.38 for patients age ≥ 85 years vs 75–80 years, $p = 0.008$) were significantly associated with the decision not to operate. However, the Charlson comorbidity index was not (OR = 1.72, $p = 0.14$ for index ≥ 2 vs < 2), and neurological dysfunction was the only

comorbidity significantly linked with the decision not to operate.

However, cardiac surgery has evolved to the point that low LVEF in AS is no longer a significant factor for mortality and cardiac surgeons became used to operating on octogenarians on a daily basis with excellent results. Interestingly, virtually all published series of PAVI include patients initially considered too high risk for surgery, subsequently considered not amenable for the percutaneous procedure and finally submitted to surgery, mostly with excellent results [5].

It is against this background that the series from Rotterdam, published in this issue, deserves special discussion and careful interpretation. In this paper, the authors detail a retrospective search of patients, attended in seven hospitals, who had severe aortic stenosis, to evaluate the patterns of referral for surgery or for conservative treatment. Their assumed aim was ‘to confirm the common belief that many symptomatic patients with severe aortic stenosis were not referred for aortic valve replacement’. This is a very important and timely study, because it refers to a more specific and better defined population than that of the EuroHeart Survey. Of the 255 patients initially identified, only the 179 symptomatic patients were included in the study. Of these, 42% were referred for AVR and 56% were treated conservatively. The authors found that there were many reasons for non-referral to surgery. These included a perceived too high operative risk, in one third of the cases, and underestimation of symptoms or misinterpretation of the severity of the stenosis, in another third. Patients not referred to surgery were older and had a higher EuroSCORE. The reasons were unclear in 20% of the patients. Two-year survival was 90% for the AVR group and, perhaps surprisingly, 69% for the conservative group. The authors conclude that ‘a large proportion of symptomatic patients do not undergo aortic valve replacement...’

Evidently, the number of patients who were really too high risk and, therefore, not amenable to surgery was comparatively minor. It appears that the main cause for non-referral for surgery of symptomatic patients with AS is the lack of knowledge of physicians about symptoms, severity of the disease and, especially of the results of surgery. As acknowledged by these authors, ‘interdisciplinary team discussion between cardiologists and surgeons should be

encouraged to optimize patients' selection for surgery'. I had recently made the same plea [6]. There is an increasing divorce between cardiologists and surgeons in many centers. Joint discussion of clinical cases, once a very healthy habit, has become less interesting for professionals who are increasingly involved in their other activities, leaving little or no space for regular interdisciplinary meetings where all cases are discussed, whether or not there is a final surgical indication. In the experience of the Rotterdam group, most patients who were treated conservatively were simply not referred to a surgical department. It is obvious that a better interaction between cardiologists following the patients and their surgeons is essential for a good management of these patients. This interaction, and not the referral for a procedure that is yet unproven for the generality of patients, is the solution for the problem.

In my view, one of the major problems in the equation is the inadequate use of the EuroSCORE to anticipate surgical risk. Not only is there often confusion between the additive and the logistic scores, often used indiscriminately in the publications, but it is also very well known that the EuroSCORE does not currently predict accurately the risk of AVR. After all, the EuroSCORE was not specifically developed for valve surgery. In my experience, it is usually double the STS score and even this one overestimates mortality in most experienced centers. In any case, more than half of the patients considered too high risk for surgery in the population described by van Geldorp and colleagues had a EuroSCORE <10%.

The indications for surgery and other modalities of treatment of AS are well established in the Guidelines very recently produced by both European and American cardiologists associations and also endorsed by the surgical societies, but are often not followed across Europe, and probably elsewhere, most of the times also because of lack of knowledge, which is bound to have a significant impact in the late outcome of the patients [6].

It is evident that much needs to be done and should be done to improve this unsatisfactory situation. Works such as that of van Geldorp and co-workers should constitute a stimulus to work harder for identification of the barriers that prevent patients with clear indication to reach surgery. Future guideline intervention efforts should identify and reduce these barriers to guideline compliance prior to implementation.

References

- [1] van Geldorp MWA, van Gameren M, Kappetein AP, Arabkhani B, de Groot-de Laat LE, Takkenberg JJM, Bogers JJC. Therapeutic decisions for patients with symptomatic severe aortic stenosis: room for improvement? *Eur J Cardiothorac Surg*; 2009, doi:10.1016/j.ejcts.2009.01.043.
- [2] lung B, Baron G, Butchart EG, Delahaye F, Gohlke-Bärwolf C, Levang OW, Tornos P, Vanoverschelde J, Vermeer F, Boersma E, Ravaud P, Vahanian A. A prospective survey of patients with valvular heart disease in Europe: The Euro Heart Survey on Valvular Heart Disease. *Eur Heart J* 2003;24: 1231–43.
- [3] lung B, Cachier A, Baron G, Messika-Zeitoun D, Delahaye F, Tornos P, Gohlke-Bärwolf C, Boersma E, Ravaud P, Vahanian A. Decision-making in elderly patients with severe aortic stenosis: why are so many denied surgery? *Eur Heart J* 2005;26:2714–20.
- [4] Antunes MJ. Percutaneous aortic valve implantation. The demise of classical aortic valve replacement? *Eur Heart J* 2008;29:1339–41.
- [5] Descoutures F, Himbert D, Lepage L, lung B, Détaint D, Tchetché D, Brochet E, Castier Y, Depoix JP, Nataf P, Vahanian A. Contemporary surgical or percutaneous management of severe aortic stenosis in the elderly. *Eur Heart J* 2008;29:1410–7.
- [6] Antunes MJ. Guidelines in real life. Why are they not always enforced? *Eur J Cardiothorac Surg* 2008;34:935–6 [Editorial].

Manuel J. Antunes*
 Department of Cardiothoracic Surgery,
 University Hospital, 3000-075 Coimbra, Portugal

*Corresponding author. Tel.: +351 239 400418;
 fax: +351 239 829674

E-mail address: antunes.cct.huc@sapo.pt