

## Aortic Stenosis in the Elderly: A Brazilian Perspective

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### The Brazilian cardiologist – more and more a geriatrician

With the predicted progression of the Brazilian demographic pyramid to the trapezoid shape due to the increase in the number of elderly individuals (Figure 1), the natural history of atherosclerotic aortic stenosis (AOS) tends to achieve a medical-social significance.

### The new Brazilian elderly

Scenario for 2025: 30 million elderly individuals, with a mean life expectation of 76 years with atherosclerotic AOS, around 50 cases for each cardiologist.

It is a change in the profile of the Brazilian patient with valvulopathy, which traditionally associates valvular deficiency with “rheumatic young patient” and grieves over the consequences on the labor force of the nation<sup>1</sup>.

This addition to the comorbidity of retired individuals will have an impact on the longevity maintenance policies and on the assistance&research&teaching involving raw materials such as the state-of-the-art, directive recommendations, multicenter study results, unique-patient values and the infra-structure provided by the health system.

### Statute of the elderly

It is worth mentioning parts of the Law #10741/2003:

Art. 1<sup>st</sup> – The Statute of the Elderly is instituted, aiming at regulating the ascertained rights of individuals aged 60 (sixty) years or older.

Art. 10. §1<sup>st</sup> II – The right to freedom comprehends opinion and expression.

Art. 17. To the elderly who fully retains his or her mental faculties is ascertained the right to choose the health treatment that is reputed to be the most favorable one.

Single Paragraph - Whenever the elderly is not capable of choosing, this will be carried out by:

- I – the curator, when the elderly has been interdicted;
- II – the family members, when the elderly has no curator

### Key words

Aortic valve stenosis / etiology; aged; Brazil.

or if the latter cannot be contacted in time;

III – the physician, when there is imminent risk of death and there is no time to contact the curator or the family;

IV – by the physician, when there is no known curator or family member, in which case, the doctor must contact the Public Ministry.

### Highlights

We present 10 aspects of AOS that are more frequently observed in the elderly than in young patients:

- 1) Atherosclerotic etiopathogenesis;
- 2) Associated coronariopathy;
- 3) Comorbidity that influences life and transoperative prognosis;
- 4) Inclusion heterogeneity in the doctor-patient relation;
- 5) Medical-social complexity for decision-making;
- 6) Higher risk in functional test of self-declared asymptomatic patients;
- 7) Increasing transoperative morbimortality with every decade of life;
- 8) Higher clinical dimension of risk for non-cardiac surgery;
- 9) Participation of caregiver in the anamnesis and consent;
- 10) Fewer data in the literature.

### Symptom: anamnesis or test?

The growing longevity of the Brazilian population will increase the identification of mild or moderate AOS as an “auscultation finding” or “echocardiographic finding”, preceding the subjective manifestation.

The increase in the peak velocity, the acceleration in the annual transvalvular gradient and the calcific densification<sup>2</sup> signal the worsening of the aortic lesion and include the valvular endocardial aging in the list of causes of cerebral vascular failure, coronary failure or diastolic heart failure.

For some<sup>3</sup>, the subjectivity by the anamnesis of the asymptomatic and symptomatic state of the elderly is a reductionist appreciation of the indicator for decision-making. They claim the possibility that the elderly declares him or herself to be asymptomatic, either due to presenting limited activity or because he or she dissimulates in order not to be submitted to the valvular surgery<sup>4</sup>. They recommend the objectivity of a technical marker to guarantee that the patient with AOS is “truly asymptomatic” when he or she reaches 80% of the predicted cardiac frequency without presenting symptoms<sup>3</sup>.

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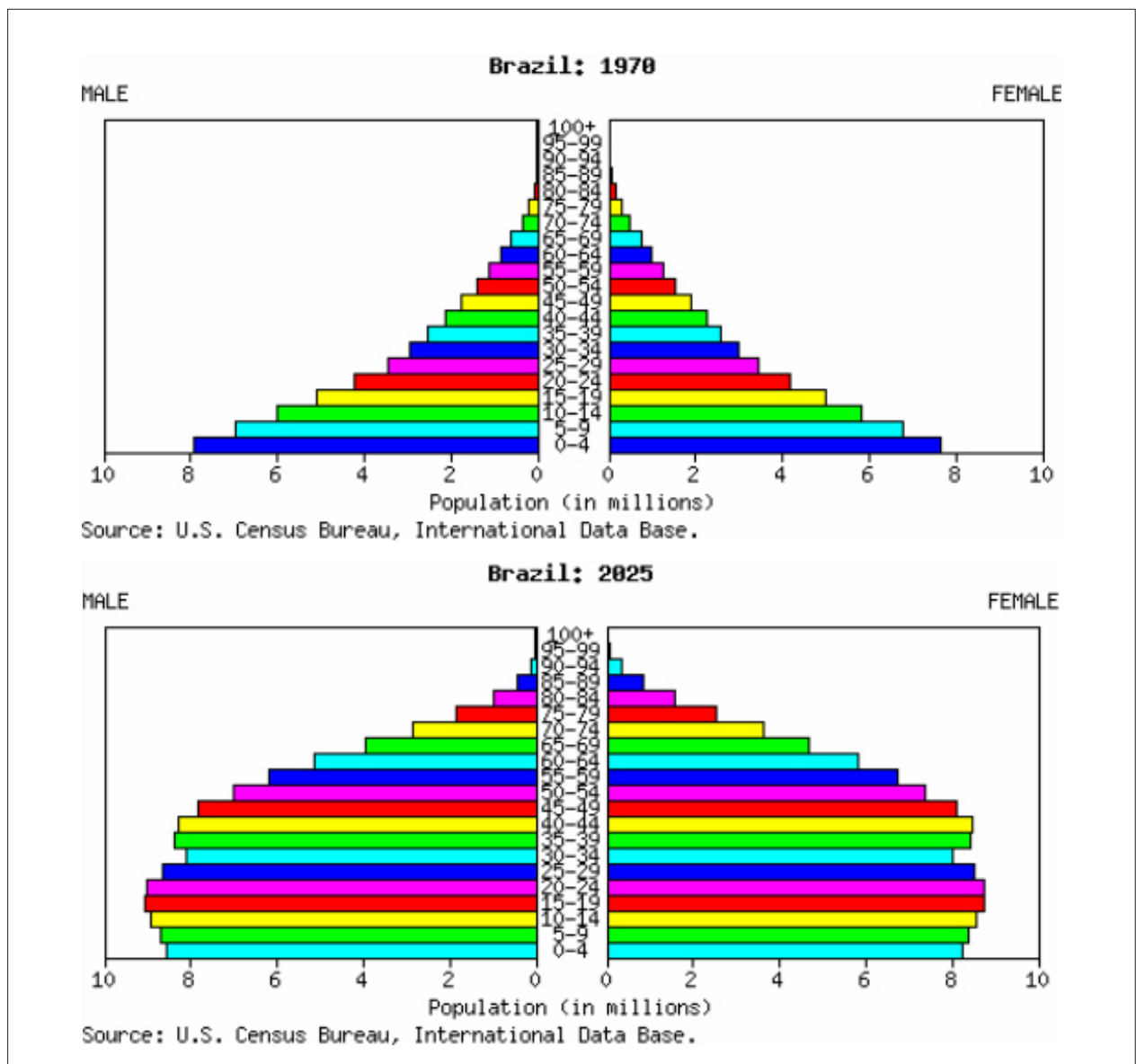


Figure 1 - Change in the Brazilian population pyramid from the 1970's to the trapezoid shape predicted for 2025.

Qualitative or quantitative adjectivations cannot be fit into the asymptomatic, lest physical analyses beyond the elderly habitual ones create a contingent of “healthy symptomatic individuals”.

One should not mistake self-evaluation by the elderly for evaluation at another level of clinical-hemodynamic correlation through external additions to the useful existing overload to preview the greater or lesser proximity of the clinical event. To suppose a declarative deceptiveness can sound like invasion of privacy. It is worth mentioning that the basis for the substitution of the aortic valve is the manifestation of symptoms, non-induced by scientific methods (Class I, level B) for all age ranges<sup>5</sup>.

The actual benefit is questionable – it is not risk-free and presents adherence difficulties for the elderly – to be the base of the therapeutic actions. The indication of a stress test, on the one

hand, and having it as a criterion for the triggering of the valvular replacement, on the other hand, are not stimulated (class IIb)<sup>5</sup>.

### Quality of life for the elderly

The typical behavior of the elderly with AOS influences the self-appreciation of the quality of life. The elderly can be asymptomatic and dissatisfied with losses caused by complying with the physical restrictions, feel restrained in his or her independence for personal and professional decisions due to the perspective of a symptom at any time<sup>6</sup>. It is not unusual for the caregiver to inform that the meaning of life and the motivation of the elderly patient does not coincide with the one reported by the patient. It is a bias to be considered in the clinical reasoning, as well as the biopsychosocial modifications

## Point of View

of aging and the nosological or pharmacological effects on the elderly discernment.

### Sudden death

Sudden death and death due to heart failure have been stressed for more than 70 years as events of AOS<sup>7</sup>.

It is estimated that sudden death usually occurs to 3-10 in 1,000 patients with AOS, when the patient is symptomatic. The few cases associated to asymptomatic conditions bring doubts regarding the eventual non-disclosure of symptoms<sup>8</sup>.

Three aspects must be emphasized:

a) the lack of communication on the possibility of sudden death has been counterbalanced by its explicit disclosure in the Internet;

b) to prevent sudden death does not constitute an isolated criterion to operate on the asymptomatic individual (Class III);

c) comment by Eugene Braunwald (1929-.....)<sup>9</sup>: "...operative treatment is the most common cause of sudden death in asymptomatic patients with aortic stenosis..."

### Ideality of the valvular prosthesis

The atherosclerotic calcification prevents the benefit of valvular preservation and indicates the non-fulfilling of the attributes of prosthesis ideality<sup>10</sup>.

We recommend the bioprosthesis to the elderly, a practice that has been performed for 40 years in our institution, a current universal trend and, which, in the elderly, corresponds to recommendations class I/IIa. It is important to mention the convenience of preventing anticoagulation in the elderly patient due to the increased risk of hemorrhage caused by anatomic anomalies and the greater chance of surgical interventions.

### Prevention by statins

There is a possibility of interference in the active cell and molecular process associated to endothelial lesion, inflammation and lipid accumulation of the AOS of the elderly. Hypercholesterolemia is a recognized risk factor, along with smoking, systemic arterial hypertension and diabetes.

Five observations about the deceleration of the hemodynamic progression due to the anti-lipidic and anti-inflammatory effect of statins are worth mentioning:

- 1) Retrospective studies indicate a beneficial effect;
- 2) The prospective study SALTIRE concluded about its ineffectiveness;
- 3) The prospective study RAAVE showed benefit for

patients with hypercholesterolemia;

4) The prospective study ASTRONOMER has conclusions predicted for December 2008;

5) The prospective study SEAS has allowed the observations:

a) lack of benefit with the association simvastatin&ezetimibe in the progression of AOS;

b) warning about the non-malignancy question by the cancer diagnosis (9.9% vs. 7.0%,  $p = 0.03$ ) and related death (4.1% vs. 2.5%,  $p = 0.05$ ).

In brief, to date, the use of statins must be considered only for the accredited indications.

### Clinical or surgical treatment?

This type of decision-making regarding the elderly patient is complex and individualized, due to:

- 1) Definition of the important degree of AOS;
- 2) Absence of symptoms means careful observation regarding symptoms and left ventricular function;
- 3) Perspectives of pharmacological anti-lipidic and anti-inflammatory influence in the hemodynamic progression;
- 4) Presence of symptoms and/or ventricular function decline justify short-term surgical repair.
- 5) Definition about the reality of the coronary arteries;
- 6) High probability of multiple scoring at the operative risk score;
- 7) Perspectives of benefiting from the hemodynamic correction, due to the physical and mental consequences of aging;
- 8) Personal opinion of the elderly/caregiver;
- 9) Strong need of noncardiac surgery;
- 10) Perspectives of percutaneous technique for prosthesis implant.

### Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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