

Is Heart Team Fundamental to Aortic Stenosis Transcatheter Treatment?

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Demographic projections have shown that the contingent of elderly people in Brazil will double within the next 20 years¹, with a consequent increase in the prevalence of aging-related diseases, such as degenerative aortic valve stenosis (AoS), diagnosed in 3% to 5% of the population older than 75 years^{2,3}. New modalities of treatment for AoS have been recently developed, mainly represented by the transcatheter implantation of aortic prosthesis (TAVI – Transcatheter Aortic Valve Implantation), which has become a therapeutic option for patients whose conventional surgical treatment is not feasible. In the current scenario, characterized by the high demand of the increasing elderly population, the availability of new treatment methods provides clinical expertise for the accurate diagnosis of heart valve disease, assessment of the comorbidities and risks of interventions, in addition to the rationalization of resources, considering the complexity and high costs involved in TAVI.

Clinical practice has shown that the adequate selection of the best therapeutic method for high surgical-risk AoS requires multidisciplinary medical interaction, contemplating all the patients' biopsychosocial characteristics. Thus, several medical centers have continuously incorporated the 'Heart Team' concept for decision-making. The Heart Team, a group composed by different specialists involved in managing heart valve disease, gathers opinions for the individualized analysis of those patients, from eligibility criteria and technical adequacy of the procedure to post-TAVI care. Each cardiological sub-specialty also plays particular roles in the procedure performance. The clinical cardiologist is responsible for patients' selection and indication and for pre-and post-procedure follow-up. The cardiovascular surgeon is responsible for performing the transaortic and transapical procedure, helping with the transfemoral approach, and treating possible complications. The radiologist is responsible for assessing the access path and valve diameters, and helping choosing the adequate prosthesis. The echocardiographer is responsible for the anatomical and functional characterization of the valve disease and intraoperative assessment of the adequate position of the prosthesis and post-procedure complications. The interventional cardiologist is responsible

for indicating the procedure and performing it. In addition, the Heart Team also comprises other professionals, such as nurses, physical therapists, nutritionists, and psychologists. Worldwide, there is an increasing incorporation of the Heart Team into cardiological centers, in accordance with the considerations of the last guidelines on heart valve diseases^{4,5}. There is consensus about not encouraging the performance of TAVI at sites lacking a Heart Team, which emphasizes the importance of institutional alignment with the new recommendations.

So far, TAVI indications have been restricted to subgroups of patients with AoS considered inoperable or at high surgical risk, supported by the results of the Placement of Aortic Transcatheter Valves (PARTNER) trial (cohorts B and A, respectively)^{6,7}. In cohort B, published in 2010, patients with inoperable AoS were randomized to either TAVI or standard treatment (clinical or balloon-catheter valvuloplasty), and a surprising 20% reduction in mortality in one year was observed⁶. It is worth noting that few medical interventions assessed in randomized studies have yielded similar results. Cohort A, a non-inferiority study, however, has compared TAVI with the surgical aortic valve replacement in patients at high surgical risk, and has shown similar one-year survival rates⁷. In that study, the preoperative risk has been established by use of the Society for Thoracic Surgeons (STS) score⁸. However, on daily practice the use of scores for high-risk patients has been criticized, because they have not been developed on populations submitted to TAVI, in addition to the exclusion of the clinical variables that could significantly increase morbidity and mortality. Of the risk variables for the elderly, frailty, characterized as a weakened physiological reserve⁹, still represents a challenge in preoperative assessment, despite its high prevalence (one third of patients older than 80 years) and impact on postoperative morbidity¹⁰. To define and standardize a phenotype of frailty, Fried et al⁹ have developed a score using data from the Cardiovascular Health Study (CHS) with 5,317 patients older than 65 years, and have assessed the following items: unintentional weight loss; self-reported exhaustion; weakness; slow walking speed; and low physical activity. Individuals meeting at least three of those criteria were considered frail, being at higher risk for postoperative complications, including mortality¹⁰. However, scores should be used as aiding tools (second opinion) to clinical impression rather than absolute classification tools (mathematization of Medicine)¹¹. It is worth noting that hematological changes, advanced liver and lung diseases, malnourishment, aortic calcification grade, difficult surgical approach, and surgical experience/volume of the center are characteristics rarely included in risk scores and known to have a large impact on the increase of surgical risks.

Keywords

Aortic valve stenosis / surgery; Patient care team; Heart failure.

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The increasing experience with the use of TAVI has made it safer and has encouraged widening its indications also for patients with AoS at intermediate surgical risk, classified according to the EuroSCORE II¹² and STS score⁸, in addition to those with dysfunctional aortic bioprosthesis (valve-in-valve). However, in most cases, those patients had other variables not contemplated in those scores, which added risk to surgery or even contraindicated it¹³. Ignoring the durability of the prosthesis and the possible benefit of surgical valve replacement makes the TAVI indication to that group exceptional. Therefore, the results of large ongoing randomized trials, such as the SURTAVI and PARTNER 2, are awaited to extend TAVI indication for those patients. Currently, the 2011 Brazilian and Inter-American Guidelines on Valve Diseases¹⁴, one of the first to consider TAVI as a therapeutic option for AoS, consider that procedure only to patients to whom conventional aortic prosthesis implantation is contraindicated.

In conclusion, symptomatic patients with important AoS have complex cardiac disease, which is life-threatening in the short run, in addition to frequent multiple comorbidities. Approximately 30% of those patients are not eligible for conventional cardiac surgery, due to their prohibitive surgical risk. For that subgroup of patients to benefit from a possible TAVI, careful assessment should precede decision-making.

That scenario is compounded by the scarcity of scientific data definitively guiding that question and the high heterogeneity of patients. Thus, the Heart Team undoubtedly benefits the management of those patients. So far, the message is “there is no TAVI if there is no Heart Team”^{4,11,13}.

Author contributions

Conception and design of the research, Writing of the manuscript and Critical revision of the manuscript for intellectual content: Rosa VEE, Lopes ASSA, Accorsi TADA, Lemos Neto PA, Pomerantzef PMA, Tarasoutchi F.

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