

Transesophageal Echocardiography in Aortic Valve Stenosis: A Pre-Intervention “Toll”?

Antonio de Santis,¹  Francisco Monteiro de Almeida Magalhães¹

Universidade de São Paulo, Instituto do Coração,¹ São Paulo, SP – Brazil

Aortic stenosis (AS) has become one of the most relevant valve diseases in cardiology care due to its increasing prevalence, resulting from the positive relationship between the preeminently degenerative etiology and global population aging. In Brazil, we highlight an epidemiological scenario characterized by an etiopathogenic coexistence: rheumatic fever and bicuspid valve disease in younger patients and calcific (degenerative) etiology in elderly patients. Regarding the natural history, AS leads to elevated cardiovascular morbidity and mortality in its symptomatic phase, with unfavorable prognosis when it is not diagnosed correctly and without timely intervention.¹⁻⁴

Echocardiography is still a fundamental tool for diagnosis, allowing both evaluation of etiological characteristics and grading of AS severity using parameters such as aortic valve area, transvalvular pressure gradient, and peak aortic jet velocity. However, there are still questions related to the best window for acquiring echocardiographic data. Is the transesophageal window a necessary “toll” for all patients with AS for whom intervention is planned? In general, transesophageal echocardiography (TEE) has the potential to provide superior image quality to transthoracic echocardiography (TTE) in the evaluation of posterior cardiac structures close to the esophagus, for example, the mitral valve. In this case, the greater distance between these structures and the echocardiographic transducer might make evaluation through the transthoracic window difficult. However, the anterior anatomical topography of the aortic valve allows adequate analysis by TTE in most patients, thus avoiding exposure to sedation and possible complications of the transesophageal modality. Data from the literature have shown that TTE and TEE are comparable, mainly in the anatomical and etiological characterization of AS, with compatible results in estimating the valve area.¹⁻⁵ Nonetheless, there is evidence that the determination of the hemodynamic severity of AS, expressed by the transvalvular pressure gradient and aortic jet velocity, may be underestimated in TEE.⁶ Variations in blood volume and preload, conditioned by the fasting and sedation required for the exam, could justify these particularities in transesophageal evaluation.

The combination of wide availability, reasonable cost, non-invasiveness, and high accuracy make TTE a first-choice diagnostic method in the evaluation of patients with AS, without requiring routine use of pre-intervention TEE. However, it is worth noting that care practice may require supplementary examination through the transesophageal window in some situations: (i) limited and unfavorable thoracic windows, which are common in patients with obesity or patients with lung diseases and thoracic deformities; (ii) diagnostic doubt with disagreement between complementary exams and clinical assessment; (iii) suspicion of infectious endocarditis associated with AS, in which TEE also allows assessment of local complications such as fistulas and abscesses in the mitral-aortic region; (iv) association of AS with other valve diseases (multivalvular disease); (v) planning for transcatheter aortic valve replacement (TAVR), especially when there are limitations to the use of computed tomography. It is worth emphasizing that TAVR has been established as the preferred method for intervention in elderly patients with degenerative AS, requiring a detailed pre-procedure assessment using imaging methods in order to define feasibility and make it possible to choose the best type of prosthesis. Ideally, computed tomography angiography of the thoracic-abdominal aorta and ilio-femoral system with assessment of the aortic valve plane is the exam of choice for planning transcatheter intervention. However, situations where AS coexists with significant chronic kidney disease, with restricted use of iodinated contrast, may limit the use of computed tomography angiography and require transesophageal evaluation. In fact, several publications have demonstrated that TEE and computed tomography are comparable in estimating aortic valve ring measurements for TAVR.⁶

In conclusion, there is no need to perform TEE systematically in patients with AS who are candidates for intervention. Any eventual “tolls” used by some services with the routine requirement of pre-intervention transesophageal assessment for all cases of AS should be replaced by individualized indications founded on good clinical sense.

Keywords

Transesophageal Echocardiography; Aortic Valve Stenosis; Heart Valve Diseases

Mailing Address: Antonio de Santis •

Universidade de São Paulo, Instituto do Coração. Dr. Eneas Carvalho de Aguiar, 44. Postal Code: 05403-900. São Paulo, SP – Brazil
E-mail: antonio.santis@einstein.br

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