



Figure. Prevalences by thromboembolic risk scales in the OFRECE, AFABE, and Val-FAAP studies.

2 population-based studies (Figure). These data are, we believe, relevant because they show that the level of risk in the population with atrial fibrillation is very similar to that of the populations included in clinical trials with new oral anticoagulants. In addition, an increasing body of evidence suggests that thromboembolic risk, as measured with these scales in the population without a diagnosis of atrial fibrillation, is associated with the onset of events.⁴

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Available online 10 May 2014

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Specific Modeling and Quantification of the Aortic Valve



Modelo de cuantificación específico de la válvula aórtica

To the Editor,

I read with great interest the article “New Quantitative Model of Aortic Valve in PreTAVI Patients.”¹ The authors implemented a new, specialized software (Auto Valve Analysis, Siemens; California, United States) to evaluate transcatheter aortic valve implantation. Although the authors focused only on aortic annulus, this novel software can provide more accurate and additional information to the interventional cardiologist.

For patients presenting with severe aortic stenosis and at high risk for surgery transcatheter aortic valve implantation, this is an alternative therapy.^{2,3} Coronary obstruction due to the displacement of the calcified native valve leaflets over the coronary ostia, especially in the setting of lower-lying coronary ostium and shallow sinus of Valsalva, is a life-threatening complication of

transcatheter aortic valve implantation. The combination of a relatively low-lying coronary artery ostium and a large native aortic valvar leaflet can obstruct the flow. Therefore, it is essential to assess the relation between ostia and leaflet position before the procedure. Additionally, the width of the sinus of Valsalva should be assessed. Aortography, computed tomography, and transesophageal echocardiography are used to evaluate the annulo-ostial distance and width of sinus of Valsalva. With the advent of the automated quantitative modeling of the aortic root from 3D-transesophageal echocardiography (Auto Valve Analysis, Siemens), leaflet anatomy (leaflet length and height), annulus to coronary ostia distance, and height and width of sinus of Valsalva can be measured. Besides the assessment of aortic annulus to determine the ideal implant valve size, the position of the coronary arteries relative to the aortic leaflets (annulus-leaflet-ostia relationship) can be assessed by this novel software.^{4,5}

The aortic annulus is formed by joining the basal attachment points of the leaflets within the left ventricle.⁶ The shape of the annulus is noncircular, may be oval or elliptical shape, and with calcification becomes nonhomogenous. The noncircularity of

the aortic annulus and the presence of dense calcium limit the applicability of two-dimensional imaging in estimating the annulus diameter for valve sizing. This has led to a great debate over the choice for measuring optimal diameter. However, this novel software determines the dimensions of the aortic annulus, including maximum and minimum diameter, perimeter, and cross-sectional area.

Prospective studies are necessary to show the feasibility and the impact on transcatheter aortic valve implantation procedures.

FUNDING

Gonenc Kocabay is the recipient of a research grant funded by the European Association of Cardiovascular Imaging.

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Available online 2 May 2014

Specific Modeling and Quantification of the Aortic Valve. Response



Modelo de cuantificación específico de la válvula aórtica. Respuesta

To the Editor,

We appreciate the comments on our publication.¹ Although the purpose of our article was simply to introduce this new imaging software, we agree with these authors that the software provides additional information to that provided by aortic annulus assessment.

As this author highlight, this information helps to improve our knowledge of cardiac structures and may contribute to more accurate preoperative assessment of patients undergoing transcatheter aortic valve replacement and to avoiding potential complications. With this objective, other novel automated multidetector computed tomography imaging software was applied in candidates for transcatheter aortic valve replacement; this novel software permitted reliable, reproducible and automated assessment of the aortic root dimensions and spatial relations with the surrounding structures.² In addition to the static measurements, aortic annulus tracking throughout the cardiac cycle can be analyzed with the software in order to assess its function and changes in distinct pathological conditions.

Furthermore, this software can also be applied to the mitral valve and the aortic-mitral junction. With respect to the mitral valve, the annulus area and diameters, the intercommissural distance, and the length and height of the leaflets can be analyzed by this program and, as with the aortic valve, the mitral annulus can also be tracked throughout the cardiac cycle. Concerning mitro-aortic valvular physiology, the anatomic relationship between the 2 valves leads to synchronous and reciprocal behavior. In the last year, Tsang et al³ studied aortic-mitral coupling in patients with severe aortic stenosis undergoing

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transcatheter aortic valve replacement. Their findings showed the importance of considering the mitral-aortic complex as a single structure at the time of clinical assessment.⁴

More studies are needed to determine the impact of all this information in daily clinical practice, but there is no doubt that this software opens a new horizon for imaging-based knowledge of cardiac anatomy and physiology.

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Available online 9 May 2014

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