contact with individual patients. The omission of patients who underwent combined procedures was unfortunate. Concomitant conditions, such as coronary disease, have a profound effect on life expectancy and thus on prosthetic choice. Interesting findings include the lower postoperative gradients in the mechanical group despite no difference in prosthetic sizes, and the fact that patients younger than 55 on warfarin did not have a significantly higher bleeding rate. The nonsignificantly higher stroke rate in patients with mechanical prostheses was unexpected and noted in the abstract. A similar higher tissue prosthetic endocarditis rate was not. For patients age <65 who undergo SAVR, there are pros and cons associated with either type of prosthesis. In the absence of a contraindication to taking warfarin, the choice must be a shared decision, based on life expectancy and a good understanding of the ongoing healthcare needs of the younger patient with either a mechanical or a tissue prosthesis.

References

Commentary: Younger patients are choosing tissue valves: Do the data match their fervor?

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Over the past 5 years, there has been renewed discussion regarding the choice of bioprosthetic or mechanical valves for those undergoing surgical aortic valve replacement (SAVR).1-4 The choice of valve prosthesis should be based on several factors, including valve durability, expected hemodynamic parameters, surgical risk, the use of long-term anticoagulation therapy and its related bleeding risk, and patient values and preferences.5 The age range that remains a gray zone is between 50 and 65 years, and data on survival for this group are divergent. For those patients younger than age 50 years, there is a demonstrable higher and earlier risk of structural valve deterioration (SVD) after bioprostheses implantation that will require a reintervention (eg, redo-SAVR or transcatheter aortic valve replacement [TAVR]). The overall predicted 15-year risk of requiring reoperation for SVD is
22% for patients aged 50 years, 30% for patients aged 40 years, and 50% for patients aged 20 years. The increased interest in bioprosthetic valves has also been spawned by the hope that a TAVR valve-in-valve procedure can be performed, although this is problematic in those with 19- or 21-mm valve needs. In contrast, the risk of lifelong anticoagulation with a vitamin K antagonist (VKA), can be an acceptable risk in the majority of patients who are compliant with their anticoagulation regimen. However, studies have shown that the incidence of major bleeding complications in patients with mechanical heart valves who take VKAs has varied from 0.34% to 1.32% per patient-year. It is possible that these rates could potentially decrease with the newest generation of mechanical valves that require lower levels of VKAs or the use of novel oral anticoagulants, as currently being evaluated in the A Perspective, Randomized, Active (Warfarin) Controlled, Parallel-Arm Clinical Trial to Determine if Participants With an On-X Aortic Valve Can Be Maintained Safely and Effectively on Apixaban (PROACT-XA) trial.

The eloquent study by Rodriguez-Caulo and colleagues adds to the growing literature in this controversial field. The Spanish Aortic Valve Multicentric Study (SPAVALVE) group is a multicenter observational study of 5215 patients who are aged 50 to 65 years undergoing SAVR for severe isolated aortic stenosis (AS) from 2000 to 2018 in 27 Spanish hospitals. An interesting finding was that the risk of reintervention decreased in patients undergoing SAVR with a biological prosthesis between 2009 and 2018 in comparison to 2000 to 2008. This difference could be attributed to improved anticalification leaflet technology and increased awareness that surgeons should implant larger or stentless valves to avoid patient–prosthesis mismatch. It would be interesting to analyze outcomes comparing mechanical versus biological SAVR with mild, moderate, or severe patient–prosthesis mismatch. Furthermore, the current study, like the majority of other surgical series, did not perform core-lab–assessed longitudinal echocardiograms for the true rates of SVD. Therefore, some patients with bioprosthetic valves may have had severe prosthetic valve disease but chose to forego further valve reintervention, putting them inappropriately in the non-SVD arm.

Currently, surgeons and cardiologists as a heart team are armed with a multitude of initial options for the treatment of severe AS requiring valve replacement, including bioprosthetic and mechanical SAVR, the Ross procedure, root replacement, and TAVR. Although the ultimate decision remains with a patient regarding his or her individual preference for a tissue or mechanical valve, it is incumbent on heart teams to provide a balanced risk and benefit scenario. Most importantly, it is imperative that for those patients younger than age 65 years, a robust discussion with the heart team about the lifetime management of AS occur; not just a discussion about the index procedure.

References