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Commentary: Transapical aortic valve replacement versus surgical aortic valve replacement: A fundamental touchstone!

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In the current issue of the *Journal*, Stachon and colleagues¹ investigate current treatment options in more than 25,000 patients with aortic valve stenosis. The authors have collected data derived from a nationwide database of patients undergoing either surgical aortic valve replacement (SAVR) or transapical (TA) transcatheter aortic valve replacement (TAVR) between 2014 and 2016.¹ The database included demographic data and postprocedural events during index hospitalization. The authors report in their results a reduced incidence of stroke, acute kidney injury, bleeding complications, and prolonged ventilation times in patients undergoing TA-TAVR. Although patient groups differed significantly with respect to age and other comorbidities, these imbalances were adjusted in their logistic regression model. The investigators conclude that patients younger than 75 years and those with a EuroSCORE between 4 and 9 benefit from a surgical procedure, whereas the transapical approach is favorable for patients with pre-existing renal failure.

Stachon and colleagues focus on an important issue concerning decision-making for patients with severe aortic valve stenosis. The choice of optimal treatment for these patients is mainly determined by two independent factors: (1) the individual risk profile and (2) the potential access route for transcatheter aortic valve implantation. According to current guidelines TAVR is favored for patients with increased surgical risk who are at the same time suitable for a transfemoral access.² But what if a transfemoral implantation is not suitable in a patient with increased surgical risk? In this case,

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This retrospective study analyzed current treatment strategies for patients with aortic valve stenosis who are unsuitable for transcatheter aortic valve implantation via the femoral vessels.

the heart team needs to balance the risks and benefits of AVR surgery against non-transfemoral access routes, including the transapical aortic valve implantation. Up to now, this decision is supported only by sparse evidence. Therefore, Stachon and colleagues address this important issue showing—at least for the short-term perspective—in a large patient cohort that SAVR is associated with a lower in-hospital mortality in young patients with low- to intermediate-risk profiles. Instead, transapical valve implantation is favorable for older patients with renal impairment. While the presented analysis can only provide information about the index hospital stay, a subset of patients of the Placement of Aortic Transcatheter Valves (PARTNER) 2 trial offers an outlook for the long-term period.³ The cohort of patients that were not eligible for transfemoral implantation was randomized to surgical versus transapical or transaortic valve replacement. At 5 years, the combined endpoint of death or disabling stroke was detected in 59.3% of patients in the TAVR and 48.3% of patients in the SAVR group (hazard ratio, 1.32; 95% confidence interval, 1.02-1.71; $P = .03$).

More and more patients are treated using transcatheter techniques. However, it is still important to keep in mind that greater rates of paravalvular leak and pacemaker implantation in patients undergoing TAVR negatively affect long-term survival.³

Stachon and colleagues analyze data of a huge patient cohort focusing on a fundamental touchstone for decision-making in patients with aortic valve stenosis. The authors should be congratulated for their contribution on how to

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treat patients with increased surgical risk who are unsuitable for transfemoral valve implantation.

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Commentary: Transapical aortic valve replacement: There are other fish in the sea

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The choice of treatment for patients with symptomatic aortic valve stenosis at the beginning of this new transcatheter era was controversial; however, the guidelines as well as the large numbers of prospective randomized trials are progressively clarifying the ideas around it. At the same time, the transcatheter aortic valve replacement (TAVR) technique has expanded widely in recent years, and femoral access has become the gold standard and first-choice access for TAVR procedures.¹ Nevertheless, 10% to 15% of patients still require a different access route due to unfavorable anatomy or extreme calcification of the femoral/iliac arteries.²

Transapical (TA) access was the first option at the beginning of this new TAVR era, but it was progressively overcome by the “less-invasive” femoral access, becoming an alternative second choice. Some says that the “necessity is the mother of invention,” and therefore new surgical access routes were studied to reduce the drawbacks of TA-TAVR, avoiding the chest opening (pleura and pericardium) and to possibly maintain an antegrade access to the aortic annulus. Transaortic, trans-subclavian, or transaxillary and transcarotid accesses

CENTRAL MESSAGE

Transapical access is an unconventional site for transcatheter aortic valve replacement; however, might have comparable outcomes compared with standard aortic valve replacement.

were much appreciated and became the first alternative surgical routes to percutaneous approaches.^{3,4}

In this issue of the *Journal*, Stachon and colleagues⁵ identified and compared 19,016 isolated surgical aortic valve replacement (SAVR) and 6432 TA-TAVRs performed in Germany between 2014 and 2016. The authors concluded from their analysis that patients younger than 75 years and patients at low operative risk benefit from SAVR compared with TA-TAVR and the others might have comparable or even better (in case of chronic renal failure) results. Nevertheless, the study presents several limitations that should be pointed out. First, these are 2 distinct patient populations who underwent the respective procedures largely for very specific and very different clinical reasons (logistic EuroSCORE 5.3% vs 17%).

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