EDITORIAL
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Surgical aortic valve replacement after TAVR: are we dropping a clanger or meeting a challenge?

Reemplazo protésico aórtico quirúrgico después de TAVR fallido: ¿estamos cayendo en un grave error o enfrentando un desafío?

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In August 2019, the U.S. Food and Drug Administration approved transcatheter aortic valve replacement (TAVR) for low-risk patients.[1] However, it states that "the long-term durability of transcatheter heart valves compared to surgically implanted valves has not been established. Patients, especially younger ones, should discuss available treatment options with their heart care team to select the therapy that best meets their expectations and lifestyle".[1] This new approval expanding the scope of TAVR, has increased, beyond a shadow of a doubt, the number of patients being candidates for this percutaneous approach.

Although it is true that the latest generation TAVR prostheses are expected to have greater efficiency, the sizeable growth of TAVR usage in the last years brings to the table the issue related to the unknown long-term durability of TAVR, mainly when the patient's life expectancy may turn out longer than this durability.

The reported incidence of TAVR-explant is approximately 0.5 to 2% of the series, which will most likely increase in the upcoming years due to the inclusion of low-risk TAVI and younger patients with the inherent risk of structural valve deterioration.[2] The two alternatives available to treat TAVR failure are redo-TAVR (TAVR-TAVR) or TAVR-explant (SAVR after TAVR). However, not all patients are susceptible to redo-TAVR, requiring surgical removal of TAVI (TAVR-explant). Redo-TAVR/TAVR-explant ratio has been reported as 1.19, being redo-TAVR more frequently used than TAVR-explant.[3] The main worry is that TAVR-explant is currently associated with high risk of mortality and morbidity.

With the STS database (STS ACSD) having 97% implementation among adult cardiac surgery programs in the US, this registry is highly representative of daily practice in the real world.[4] The results of post-TAVR cardiac surgery using the STS ACSD have recently been released. Between 2012 and 2023, 5,457 post-TAVR operations were registered. Of these, 54.4% were surgical aortic valve replacement (SAVR) after TAVR (TAVR-explant), and 45.5% were non-SAVR after TAVR. The net percentage increase was 4,235.3% throughout the study period, with a constant annual increase of 144.6%. This increase has grown especially since 2019, the year in which the use of TAVR was approved in patients with low surgical risk.[5]

The group of patients undergoing SAVR after TAVR (TAVR-explant) deserves special attention. The operative mortality rate was 15.8%, stroke 4.5%, renal failure 11.1%, combined mortality and morbidity 39%, and permanent

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pacemaker implantation 14.6%. Importantly of note is the high rate of need for some aortic root procedure at 28.8% (13.4% as total aortic root replacement), of which 14.8% had aortic dissection as the primary indication for reintervention. The indication for reoperation SAVR after TAVR (TAVR-explant) was due to endocarditis in 36% of cases, and structural valve deterioration in 64%. Aortic stenosis by echocardiographic study was present in 50.2% of TAVR cases with failure.[5]

In turn, among patients undergoing non-SAVR after TAVR, the most common cause of surgery was coronary artery bypass grafting (33.8%), mitral valve surgery (28.3%), tricuspid valve surgery (9.1%), and ablation procedure (6.6%).[5] Of course, these concomitant procedures seen during reintervention as non-SAVR after TAVR raise the issue of the presence of other cardiac pathologies in the process of TAVR selection, which may not have been efficiently assessed as part of the comprehensive management of TAVR patients.

The low correlation that exists between observed/expected mortality calculated through the current STS-PROM risk scores is truthfully striking. While standard SAVR represents an operative mortality of 1-2%, in SAVR after TAVR (TAVR-explant) the operative mortality rate was 15.8%. That is, the risk for mortality and major morbidity increased between 5 and 10 times. In the case of SAVR after TAVR (TAVR-explant), the EXPLANTORREDO-TAVR International Registry reported a 30-day operative mortality rate of 13.6%, and 32.4% at 1 year.[3] Hawkins et al. reported 17% of operative mortality, which was 1.7 times higher for SAVR after TAVR (TAVR-explant) patients than for redo SAVR patients.[6]

In stark contrast, current data by Narayan et al. have demonstrated that operative mortality was 3.1% for redo SAVR.[7] Survival after SAVR in low-risk patients is currently 92.5% at five years. Furthermore, when STS-PROM was lower than 1%, the survival rate was 95% at eight years.[8] These facts take special importance especially in the era of alternative catheter-based therapies.

In conclusion, SAVR after TAVR (TAVR-explant) involves challenges and special situations, as demonstrated by the fact that 28.8% of the series required some aortic root procedure.[5] In this framework, special surgical techniques to approach SAVR after TAVR (TAVR-explant) have been properly described.[2] The necessity for cardiac surgery after TAVR is becoming the fastest growing adult cardiac procedure nowadays, with increased risk for mortality and major morbidity between 5 and 10 times when compared to standard SAVR.

In this issue, Parra-Salazar et al. and Jiménez-González et al. publish two cases of SAVR after TAVR (TAVR-explant). It is very presumable that this new reality has already reached us. After analyzing the foregoing, the question arises: are we dropping a clanger or meeting a challenge?

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