EDITORIAL

Another Early Win for TAVI in Low-Risk Patients

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Transcatheter aortic-valve implantation (TAVI) has become the dominant, if not default, therapy for patients with severe, symptomatic aortic stenosis who are at intermediate, high, or prohibitive risk for surgical aortic-valve replacement (SAVR). Several randomized trials have shown that TAVI in patients at low surgical risk is either noninferior or superior in safety and efficacy as compared with SAVR at 1 to 2 years.[1-3] Moreover, longer-term clinical outcomes of TAVI as compared with SAVR in such patients have held up at 4 years in the Evolut Low Risk trial,[4] 5 years in the PARTNER 3 trial,[5] and 10 years in the NOTION trial.[6]

The findings of the DEDICATE trial[7] that are now presented in the *Journal* add to this database by showing excellent short-term safety and efficacy of TAVI among patients at low surgical risk. The trial investigators enrolled 1414 patients with severe aortic stenosis who were deemed by the local heart team to be at low or intermediate surgical risk and randomly assigned them to undergo either TAVI or SAVR. At baseline, the median risk of death within 30 days after the procedure was 1.8%, according to the criteria of the Society of Thoracic Surgeons–Predicted Risk of Mortality. This percentage suggests that the cohort was highly enriched with patients at low surgical risk.

The trial was carried out at 38 centers in Germany and was funded by the German Center for Cardiovascular Research and the German Heart Foundation. At 1 year of follow-up, death from any cause or fatal or nonfatal stroke in the intention-to-treat population (the composite primary outcome) occurred in 5.4% of the patients in the TAVI group and in 10.0% of those in the SAVR group (hazard ratio, 0.53; 95% confidence interval, 0.35 to 0.79; P<0.001 for noninferiority). The results of other end points of interest — including pacemaker implantation, moderate or severe paravalvular regurgitation, and valvular hemodynamics — were similar in the two groups and were within ranges seen in previous trials involving low-risk patients. Given the more rapid return to normal activity associated with TAVI, these results are a win for TAVI among patients at low surgical risk, even according to the noninferiority trial design.

How does the DEDICATE trial differ from previous studies involving similar patient populations? First, this trial was conducted without funding from industry, thereby eliminating any perception of bias that could have been introduced in the trial design and in the interpretation of the results. Second, heart teams had the opportunity to choose the TAVI device that they determined to be the most suitable for the individual patient rather than being beholden to a single platform. A greater breadth of TAVI devices is available to European operators than to U.S. operators, which allowed for a more tailored approach to device selection and may have enhanced the outcomes in the TAVI group. Third, a greater proportion of the patients were women (43%) than in the PARTNER 3 trial (31%) and the Evolut Low Risk trial (35%), which resulted in a patient cohort that was more reflective of the general population.

Should these trial results lead to the acceptance of TAVI as the default strategy for patients at low surgical risk? As encouraging as these short-term data are, much remains unknown about the longer-term outcomes in these patients. It is important to note that not all patients who are classified as being at low surgical risk are the same. Patients in previous randomized trials had

tricuspid aortic valves, and the mean age of the cohort in the current trial was 74 years. However, a large group of low-risk patients in real-world settings are in their early 60s and have bicuspid aortic valves, and these patients have yet to be studied in randomized trials. In addition, many patients with bicuspid aortic valves are not anatomically suitable for TAVI. The long-term durability of TAVI devices (10 years and beyond) is still not well understood and will require long-term follow up to understand how TAVI valves compare with SAVR valves. We also do not know the most appropriate techniques for replacing a failed TAVI valve. Given the potentially increased risk with TAVI explant surgery,[8] it will be important to understand how best to select the patient who may be a candidate for multiple TAVI procedures over their lifetime and to understand the appropriate TAVI platform for the index and subsequent TAVI procedures.

Despite these unknowns, heart teams are routinely faced with patients such as those in the DEDICATE trial who strongly preferred TAVI over SAVR because of the associated ease of recovery. In this trial, 13.4% of the patients in the SAVR group either crossed over to the TAVI group (9.8%) or withdrew from the trial (3.6%) after randomization, a proportion that may have been driven by the patients' desire to avoid surgery. These numbers compare with only 2.3% of the patients in the TAVI group who either crossed over to the SAVR group (1.7%) or withdrew from the trial (0.6%).

Although the early favorable outcomes of TAVI that were seen in the current trial are encouraging, heart teams will continue to need to balance patient preference with the current reality of the unknowns regarding the long-term outcomes of TAVI when deciding on a treatment pathway with patients. However, with each passing year, the unknowns are becoming knowns, and the future of TAVI appears to be bright.

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