INTERVENTIONAL CARDIOLOGY

TAVI—better than SAVR in high-risk patients?

Transcatheter aortic valve implantation (TAVI) is associated with faster and better recovery of left ventricular systolic function than surgical aortic valve replacement (SAVR) in high-risk individuals with severe aortic stenosis and reduced left ventricular systolic function, according to a *post-hoc* analysis published in *Circulation*. "The study participants represent one of the most challenging groups of patients in cardiovascular health care," says senior author Philippe Pibarot, who notes that not only are these individuals at increased risk of death when treated surgically but also that "the prognosis of these patients when treated conservatively is abysmal".

Over the past few years, TAVI has emerged as a potential alternative to SAVR, and Pibarot and colleagues wanted to compare the two treatments with respect to recovery of left ventricular systolic function in a high-risk group of patients. In a multicenter observational study, the investigators compared outcomes of 200 patients who underwent SAVR with that of 83 patients who underwent TAVI for aortic stenosis with reduced left ventricular systolic function (≤50% left ventricular ejection fraction [LVEF]). Despite patients undergoing TAVI having a poorer baseline risk profile (older age and more comorbidities) than those undergoing SAVR, the TAVI procedure was associated with better LVEF recovery than SAVR at hospital discharge and 1 year after the procedure—nearly three times more patients who underwent TAVI had a normalized LVEF (>50%) after 1 year. Notably, a trend towards better LVEF recovery with the transfemoral approach, as opposed to the transapical approach, was observed in the patients who underwent TAVI. As confirmed by Doppler echocardiogram, those who had the TAVI procedure also had greater increases in aortic valve area and transvalvular gradient than the SAVR group.

"The explanation for this superiority of TAVI is twofold: TAVI provides better valve hemodynamics with less incidence of prosthesis–patient mismatch and thus minimal residual stenosis, and is much less invasive than SAVR and does not require cardiopulmonary bypass," explains Pibarot.

The investigators acknowledge that further randomized controlled trials are needed to confirm the superiority of TAVI over SAVR in this specific population of vulnerable patients and that the ongoing PARTNER trial could provide important insights on this matter. Furthermore, Pibarot adds that several aspects of the TAVI procedure are unknown. He now plans to research the durability of the TAVI prostheses as well as its use in patients with left ventricular systolic dysfunction and no myocardial contractile reserve, and in those with a small aortic root.

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Original article Clavel, M. A. *et al.* Comparison between transcatheter and surgical prosthetic valve implantation in patients with severe aortic stenosis and reduced left ventricular ejection fraction. *Circulation* **122**, 1943–1951 (2010)