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Editorial

The cusp overlap technique for the Portico valve: it works!

La técnica de superposición de cúspides para la válvula Portico: ¡funciona!

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Transcatheter aortic valve implantation (TAVI) has undergone major improvements that can be ascribed to technical innovations, greater global experience, and procedural refinements.[1] The latter involves techniques for optimized valve positioning and commissural alignment. A higher prosthesis position has been shown to be associated with lower rates of permanent pacemaker implantation (PPI), irrespective of the type of prosthesis. To achieve a higher prosthesis position, the left-right 2-cusp overlap view (COV) is being increasingly used, as the left ventricular outflow tract can be viewed without foreshortening; in contrast, in the traditional 3-cusp coplanar view (3-CV), the assessment of the depth of prosthesis implantation may be hampered by parallax or foreshortening.[2] In the COV, the nadirs of the left and right coronary cusp overlap, and the noncoronary cusp is isolated. The COV can be easily obtained from preprocedural computed tomography.

There is increasing evidence that the use of the COV leads to higher device position and lower PPI rates. However, most of the data are derived from the Evolut platform, showing reduced PPI rates ranging from 6.5% to 13.1% in the COV group vs 17.8% to 30.9% in the 3-CV group.[3,4] These outcomes were confirmed by a recent meta-analysis showing a significant reduction in PPI rates with the use of the COV vs 3-CV (9.8% vs 20.6%; odds ratio, 0.43; $P < .001$).[5]

For the Portico/Navitor system (Abbott Cardiovascular, United States), only 1 short communication has compared the use of the COV and 3-CV to date. The use of the COV reduced PPI rates (COV 12.6% vs 3-CV 18.0%; $P = .15$) and the reduction was even greater when the guideline-directed indication for PPI was applied (COV 8.2% vs 3-CV 15.3%; $P = .04$).[6]

The study by Asmarats et al.[7] published in *Revista Española de Cardiología* provides another piece to the puzzle by showing the feasibility of using the COV for a self-expanding device other than the Evolut platform.[3] A total of 85 patients from 3 Spanish centers treated with the Portico FlexNav system were analyzed, including 43 retrospective patients who underwent implantation with the standard 3-CV and 42 prospective patients who underwent implantation with the COV. Patients in the COV group shoed a higher prosthesis position and lower rates of new-onset conduction disturbances, which included left bundle branch block and high-degree atrioventricular block (31% vs 58%; $P = .012$). Although the use of the COV was only associated with numerically lower rates of PPI (14.3% vs 30.2%; $P = .078$) when compared with rates for the 3-CV, consistent with the previous report by Wang et al.,[6] implantation in the COV did not impair procedural success and was safe, in particular regarding device migration, which occurred in 1 patient in each group.

Although the sample size of these studies was too low to allow detection of statistically significant differences, it may be assumed that the mitigation of conduction disturbances by means of higher prosthesis position is less pronounced with the Portico system than with the Evolut platform. While these 2 self-expanding systems share many characteristics, the opening force and the distribution of the radial outward force may differ slightly.[8] In addition, early PPI rates using the standard 3-CV were slightly lower overall for the Portico device (13.5%-19%) than for the CoreValve/Evolut platform (Medtronic, United States).[3–5,9,10]

Of note, in the present study[7], the first-generation Portico valve was used with the successor delivery system FlexNav (Abbott Cardiovascular, United States), which features an integrated sheath and allows more stable and controlled deployment of the prosthesis. Controlled deployment is an essential prerequisite for the application of the COV technique. Even though the Portico valve has been replaced by the next-generation Navitor valve in most countries, the FlexNav delivery system continues to be used.

Although further evidence—ideally derived from randomized studies with sufficient patient numbers—would be desirable to confirm efficacy and identify safety issues of using the COV for the Portico platform, it is rather unlikely that such studies will ever be conducted. Therefore, despite the limitations of retrospective data acquisition and the small sample size, Asmarats et al. provide reassuring evidence that the use of the COV during implantation of the Portico/Navitor valve in combination with the FlexNav delivery system is feasible and safe. Even though the benefit of lower PPI rates is less pronounced when the COV is used, this does not seem to come at the cost of safety, especially regarding valve embolization.

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