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EDITORIAL COMMENT

Wise decisions, good results☆

Decisões acertadas, bons resultados

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Transcatheter valve aortic implantation (TAVI) is undoubtedly one of the most notable advances in the treatment of heart disease. Its results have been repeatedly confirmed in randomized trials comparing TAVI with conventional surgical aortic valve replacement and in registries, in patients with varying degrees of surgical risk (moderate, high, very high or prohibitive), and it will presumably continue to play an important role in the near future. There are, however, certain aspects of the technique that need to be improved in order to obtain even better results. Problems of vascular access due to the need for much larger sheaths than those usually employed in interventional cardiology are among the main causes of morbidity, mortality and prolonged hospitalization in these patients.

There have been important publications on this subject,[1–3] as well as presentations at conferences of works from various centers.

The main causes of vascular complications of TAVI are generally identified as the sheath-to-iliofemoral artery ratio (SIFAR), vessel size,[4] calcification of the vessel wall as measured by the calcium score, vessel tortuosity and the presence of plaques on the wall,[5] operator experience and expertise,[6,7] procedure time, and patient characteristics, particularly female gender.

The study by Fonseca et al. published in this issue of the *Journal* presents results from a group who pioneered TAVI in Portugal and have accumulated considerable experience in the technique.[8] It covers the period 2007-2014 and analyzes device implantation using self-expandable and balloon-expandable valves of various generations.

The authors examine vascular complications in the first 140 patients treated by a transfemoral approach, divided into two groups, the first 50% of transfemoral TAVI procedures since the center began operating and the remainder, in order to analyze the effect of the learning curve. Patients were assessed before the procedure by contrast-enhanced multidetector computed tomography imaging, in accordance with current guidelines. The results are based on the Valve Academic Research Consortium-2 classification of vascular complications.[9]

The authors analyzed all the above-mentioned risk factors for vascular complications but SIFAR was the only parameter that showed a statistically significant correlation. This is undoubtedly due in part to the expertise and training of the operators, which should be borne in mind by those working in other centers that perform this intervention.

There is no obvious reason why other traditional risk factors showed no significant relation with vascular complications, particularly wall calcification, severity of aortic stenosis and vessel tortuosity. This may be a result of the strict selection criteria, which excluded patients that in other centers would be treated by TAVI.[8] It would be interesting to know the percentages of patients treated by other methods. The different devices used (self-expandable and

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balloon-expandable valves) also do not appear to have had a significant effect on complication rates, even considering the (small) differences in sheath diameters.[10]

Finally, it is noteworthy that the number and severity of vascular complications observed in this study were well within the ranges recorded in published trials and registries,[11,12] which is further evidence of the high quality of the authors' work.

Conflicts of interest

The author has no conflicts of interest to declare.

References

1. Van Mieghem NM, Tchetche D, Chieffo A, et al. Incidence, predictors, and implications of access site complications with transfemoral transcatheter aortic valve implantation. Am J Cardiol. 2012;110:1361.
2. Webb JG, Chandavimol M, Thompson CR, et al. Percutaneous aortic valve implantation retrograde from the femoral artery. Circulation. 2006;113:842–50.
3. Genereux P, Webb JG, Svensson LG, et al. Vascular complications after transcatheter aortic valve replacement: insights from the PARTNER (Placement of AoRTic TraNscathetER Valve) trial. J Am Coll Cardiol. 2012;60:1043–52.
4. Hayashida K, Lefèvre T, Chevalier B, et al. Transfemoral aortic valve implantation new criteria to predict vascular complications. JACC Cardiovasc Interv. 2011;4:851–8.
5. Sinning JM, Horack M, Grube E, et al. The impact of peripheral arterial disease on early outcome after transcatheter aortic valve implantation: results from the German Transcatheter Aortic Valve Interventions Registry. Am Heart J. 2012;164:10210.
6. Wolak A, Gransar H, Thomson LE, et al. Aortic size assessment by noncontrast cardiac computed tomography: normal limits by age, gender, and body surface area. JACC Cardiovasc Imaging. 2008;1:200–9.
7. Hayashida K, Lefèvre T, Chevalier B, et al. True percutaneous approach for transfemoral aortic valve implantation using the Prostar XL device: impact of learning curve on vascular complications. JACC Cardiovasc Interv. 2012;5:207–14.
8. Fonseca P, Almeida J, Bettencourt N, et al. Incidence and predictors of vascular access site complications following transfemoral aortic valve implantation. Rev Port Cardiol. 2017;36:747–53.
9. Kappetein AP, Head SJ, Généreux P, et al. Updated standardized endpoint definitions for transcatheter aortic valve implantation: the Valve Academic Research Consortium-2 (VARC-2) consensus document. J Am Coll Cardiol. 2012;60:1438–54.
10. Tchetche D, Dumonteil N, Sauguet A, et al. Thirty-day outcome and vascular complications after transarterial aortic valve implantation using both Edwards Sapien and Medtronic CoreValve bioprostheses in a mixed population. EuroIntervention. 2010;5:659–65.
11. Toggweiler S, Gurvitch R, Leipsic J, et al. Percutaneous aortic valve replacement: vascular outcomes with a fully percutaneous procedure. J Am Coll Cardiol. 2012;59:113–8.
12. Généreux P, Head SJ, Van Mieghem NM, et al. Clinical outcomes after transcatheter aortic valve replacement using valve academic research consortium definitions: a weighted meta-analysis of 3,519 patients from 16 studies. J Am Coll Cardiol. 2012;59:2317–26.