Editorial

Onsite cardiac surgery standby during transcatheter aortic valve implantation: when and why

Marco Vola[1], Antoine Gerbay[2]

[1]Cardiovascular Surgery Unit, [2]Cardiology Unit, Saint-Etienne University Hospital, Saint-Etienne, France

Correspondence to: Marco Vola, MD, PhD. Cardiovascular Surgery Unit, Saint-Etienne University Hospital, Saint-Etienne 42055, France. Email: marco.vola@univ-st-etienne.fr.

Submitted Aug 01, 2016. Accepted for publication Aug 08, 2016.
doi: 10.21037/jtd.2016.09.60
View this article at: http://dx.doi.org/10.21037/jtd.2016.09.60

In the last 5 years, most of the awaited endpoints of transcatheter aortic valve implantation (TAVI) have been attended with regards of patients at high risk for surgery: TAVI has shown to be a reliable alternative to surgery (1,2). Moreover, in a recent analysis TAVI showed to be even superior in term of mortality and stroke (3) in an intermediate risk subset.

TAVI will continue to evolve in a positive trend due to several factors: the most relevant is the industrial progress in evolving technologies: the Sapien III (Edwards Lifesciences, Irvine, CA, USA) and other third generation devices clearly showed a drastic reduction in paravalvular leakages (4) and are now available in lower Frenching of sheaths, enabling a growing proportion of transfemoral accesses. Other factors have to be considered, probably less preeminent, like the improving of imaging and finally the growing experience of teams.

TAVI is then moving towards a technical feasibility towards a simplified transfemoral procedure with a non-intubated anesthesia (3) that can be managed in a catheterization lab rather than into an hybrid room.

In this positive trend, some further questions concerning the management of TAVI may arise, including the necessity or not of a cardiac surgery (CS) onsite during the procedure.

We read with great interest the paper from Eggebrecht and colleagues (5), questioning the necessity of an onsite CS during TAVI procedures and concluding that hospitals without onsite CS teams had similar outcomes as compared with centers with onsite CS.

The authors, reviewed data from the German Quality Assurance Registry on Aortic Valve Replacement (AQUA), between 2013 and 2014. A total of 17,919 patients treated by TAVI were included into the analysis. The article outlines that although the predicted mortality of patients treated in centers without an onsite CS (worst NYHA class and more comorbidities) was higher, there were no significant differences in periprocedural mortality, vascular complications, cerebrovascular events (2.6% *vs.* 2.3%) and myocardial infarctions (0.2% *vs.* 0.4%). On the other hand, results in non-CS centers shower higher paravalvular leaks (2.1% *vs.* 1%), pace-maker implantation (19.8% *vs.* 15.8%) and procedural times.

Some points have to be stressed. First, the analysis reveals that the role of the heart team in surgical versus TAVI indications has been formally respected. In the investigation an interdisciplinary heart team had been established at all centers since the hospitals without onsite CS support had visiting CS teams from collaborating hospitals.

Second, the overall amount of patients requiring a CS conversion after TAVI is inferior to 1%, but the distribution between the two groups (with and without CS) shows that in CS centers more patients could be treated following hard complications like annular rupture. The article shows a low cumulate incidence of such events and the problem could be considered as relative in patients at high risk for surgery with a poor life expectancy. The question becomes radically different in view of the awaited extension of TAVI into intermediate and low risk subsets. This is not just a statistical issue, but also an ethical problem: although rare, the impossibility to proceed to an immediate conversion to a CS procedure is not acceptable if a patient has been judged suitable (at intermediate or low risk) for surgical aortic valve replacement.

Moreover, we have to consider some realistic further issues. Although in the study reported by Eggebrecht and colleagues the presence of a cardiac surgeon was reported as "systematic" regarding the heart team, the absence of an onsite CS could affect the appropriateness of the transcatheter indication, progressively conducting to an indulgence towards a suboptimal result in favor of a geographic comfort for the patient avoiding a transfer from a peripheral to an high volume center with CS. The question could become delicate in some anatomical settings: for example it is known that in low and intermediate risk patients the proportion of borderline bicuspid phenotypes with a large annulus could be higher as compared to the high risk and older subsets (6) and that results of TAVI in bicuspid valves are worse, at the state of the art, as compared to tricuspid phenotypes. Also, younger patients may require a complete and "aggressive "treatment regarding the concomitant mitral and coronary artery disease: surgery still shows superior results in this setting.

In conclusion, the analysis issued by Eggebrecht and colleagues from the AQUA registry shows that TAVI is acceptable in centers without CS provided that the indication has been fixed by the heart team and limitedly to patients evaluated at high risk for surgery. When considering patients at intermediate and low risk for CS, although complications needing a conversion are rare, TAVI should ethically be authorized only in centers where an immediate conversion to CS is possible.

Acknowledgements

None.

Footnote

Provenance: This is an invited Editorial commissioned by the Section Editor Kai Zhu (Department of Cardiac Surgery, Zhongshan Hospital Fudan University, Shanghai, China).
Conflicts of Interest: The authors have no conflicts of interest to declare.

Comment on: Eggebrecht H, Bestehorn M, Haude M, *et al.* Outcomes of transfemoral transcatheter aortic valve implantation at hospitals with and without on-site cardiac surgery department: insights from the prospective German aortic valve replacement quality assurance registry (AQUA) in 17 919 patients. Eur Heart J 2016;37:2240-8.

References

1. Smith CR, Leon MB, Mack MJ, et al. Transcatheter versus surgical aortic-valve replacement in high-risk patients. N Engl J Med 2011;364:2187-98.
2. Deeb GM, Reardon MJ, Chetcuti S, et al. 3-Year Outcomes in High-Risk Patients Who Underwent Surgical or Transcatheter Aortic Valve Replacement. J Am Coll Cardiol 2016;67:2565-74.
3. Thourani VH, Kodali S, Makkar RR, et al. Transcatheter aortic valve replacement versus surgical valve replacement in intermediate-risk patients: a propensity score analysis. Lancet 2016;387:2218-25.
4. Webb J, Gerosa G, Lefèvre T, et al. Multicenter evaluation of a next-generation balloon-expandable transcatheter aortic valve. J Am Coll Cardiol 2014;64:2235-43.
5. Eggebrecht H, Bestehorn M, Haude M, et al. Outcomes of transfemoral transcatheter aortic valve implantation at hospitals with and without on-site cardiac surgery department: insights from the prospective German aortic valve replacement quality assurance registry (AQUA) in 17 919 patients. Eur Heart J 2016;37:2240-8.
6. Yousef A, Simard T, Pourdjabbar A, et al. Performance of transcatheter aortic valve implantation in patients with bicuspid aortic valve: systematic review. Int J Cardiol 2014;176:562-4.

Cite this article as: Vola M, Gerbay A. Onsite cardiac surgery standby during transcatheter aortic valve implantation: when and why. J Thorac Dis 2016;8(10):E1230-E1231. doi: 10.21037/jtd.2016.09.60

