Journal of the American College of Cardiology
© 2008 by the American College of Cardiology Foundation
Published by Elsevier Inc.

Vol. 51, No. 2, 2008
ISSN 0735-1097/08/$34.00

CORRESPONDENCE

Letters to the Editor

Percutaneous Aortic Valve Replacement With the CoreValve Prosthesis

We read with interest the recent article of Grube et al. (1) dealing with percutaneous aortic valve implantation. They reported the experience from 3 centers using the second and third generations of the CoreValve prosthesis (CoreValve Inc., Irvine, California) in 86 consecutive patients. The acute device success was high (88%), and the 30-day mortality was low (12%) in these surgically high-risk patients with mean pre-procedural logistic Euroscores of 21.7%. Hemodynamically, the mean transvalvular gradient dropped from 43.7 to 9.0 mm Hg with a concomitant improvement in the New York Heart Association functional class.

We would like to comment on these results and also ask for some clarifications regarding their data.

When reporting data after aortic valve implantation, one would expect to have information regarding the aortic prosthetic valve area and the rate of prosthesis–patient mismatch. One cannot be satisfied by the transvalvular gradient alone, knowing that a high proportion of patients with left ventricular systolic dysfunction were included in the study. These data are important because they will allow comparison among percutaneous valves themselves and with the surgically implanted prosthetic valves, thus improving the information given to patients.

In the same way, we regret that the post-procedural incidence and severity of perivalvular leakage were not detailed as was the case for the pre-procedural intravalvular regurgitation.

We were surprised that exclusion criteria did not include bicuspid aortic valves. In our experience, stent deployment may be impaired in bicuspid aortic stenosis (2), a condition with an incidence that can reach 50% of the surgically operated patients (3). Furthermore, in the series of Cribier et al. (4), all of the native aortic valves were tricuspid.

We were also surprised by the high rate of procedural valve dilations after valve implantations (28% of the 76 valve implantations) to achieve good stent expansions. We wonder if this high rate of subsequent dilation reflects undiagnosed bicuspid aortic stenosis.

Information regarding major bleeding is lacking (a rate of 24% has been reported in a previous study [5]). Likewise, the peripheral vascular complications and their management were not reported. One would like to know whether their incidence was dependent on the type (open [with a cut down] or closed) of vascular access during the procedure.

Atrioventricular block is a classic complication after surgical aortic valve replacement. It seems that it is also the case after percutaneous valve implantation. Data regarding this complication in the series should also be provided.

Finally, there is actually only one available size of CoreValve, with a 21-mm bioprosthesis implanted within the stent frame (2). As researchers, we do not understand how proper sizing could be achieved in patients with aortic annulus diameters ranging from 20 to 27 mm. Mismatch will inevitably lead to leaflet distortion or restriction (Rachid Zegdi, personal communication, December 2006), with a potential negative impact in the long term.

Although many points of the study require further clarification, we would like to thank the authors for their important work and contribution to this important new field of interventional therapy.

***Rachid Zegdi, MD, PhD**
Ghassan Sleilaty, MD
Antoine Lafont, MD, PhD
Jean-Noël Fabiani, MD

*Hôpital Européen Georges Pompidou
Service de Chirurgie Cardiovasculaire
20, rue Leblanc
75908 Paris
France
E-mail: rzegdi@hotmail.com

doi:10.1016/j.jacc.2007.07.089

Please note: Dr. Zegdi is a stock owner in a company (Coremove) developing a new percutaneous valve.

REFERENCES

1. Grube E, Schuler G, Buellesfeld L, et al. Percutaneous aortic valve replacement for severe aortic stenosis in high-risk patients using the second- and current third-generation self-expanding CoreValve prosthesis. J Am Coll Cardiol 2007;50:69–76.
2. Zegdi R, Khabbaz Z, Ciobotaru V, Noghin M, Deloche A, Fabiani JN. Calcific bicuspid aortic stenosis: a questionable indication for endovascular valve implantation? Ann Thorac Surg 2007. In press.
3. Roberts WC, Ko JM. Frequency by decades of unicuspid, bicuspid, and tricuspid aortic valves in adults having isolated aortic valve replacement for aortic stenosis, with or without associated aortic regurgitation. Circulation 2005;111:920–5.
4. Cribier A, Eltchaninoff H, Tron C, et al. Treatment of calcific aortic stenosis with the percutaneous heart valve. Mid-term follow-up from the initial feasibility studies: the French experience. J Am Coll Cardiol 2006;47:1214–23.
5. Grube E, Laborde JC, Gerkens U, et al. Percutaneous implantation of the CoreValve self-expanding valve prosthesis in high-risk patients with aortic valve disease. The Siegburg first-in-man study. Circulation 2006;114:1616–24.

Reply

We would like to thank Dr. Zegdi and colleagues for their interest in our article (1) and would like to address the raised questions as follows: 1) the valve area increased from 0.60 ± 0.16 cm^2 to 1.67 ± 0.41 cm^2 post-CoreValve implantation, as suggested by the marked decrease of the mean transvalvular gradient. A direct comparison of the valve areas after standard surgery versus percutaneous replacement carries a caveat. Prosthetic valves are surgically implanted and function either intra-annularly or supra-annularly, whereas the CoreValve is designed to be placed intra-annularly but function supra-annularly. Therefore, whereas the frame anchors and adapts to the annulus