

## Reply to Repossini and Bisleri

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We appreciate Repossini and Bisleri's interest in our report [1, 2]. Their comments are, in fact, in good agreement with our findings, which suggest that observation of root anatomy, correct sizing and symmetric implantation must be given particular attention with the use of Freedom SOLO stentless valves. Criteria for patient selection as well as relative and absolute contraindications for the use of the Freedom SOLO stentless valves have recently been reviewed in detail [3]. Indeed, patients with bicuspid aortic valve must be considered unsuitable because of the missing commissure landmark and coexisting aortic-wall pathology, which may cause subsequent sinotubular junction (STJ) dilatation and potentially lead to regurgitation. Although the Freedom SOLO valve provides some tolerance to mismatch between the annulus and the STJ because of a large coaptation surface [4], implantation should be limited in enlarged aortas and those with severe mismatch between the annulus and the STJ diameter.

It is difficult to support the hypothesis of annulus shrinkage after ~7.5 years solely on the basis of an assumed risk of intra-annular implantation. In contrast to the author's view, a hypothesized relationship between incorrect implantation and need for reoperation is not generally supported by *post hoc* analyses of the available transoesophageal echocardiography (TOE) records on positioning at the time of initial surgery. Furthermore, gross root/prosthesis calcifications were not limited to cases with small annuli or small valve sizes [5].

Other authors have reported single cases of prosthesis dysfunction with nearly identical findings as in our series, without evidence for a causal link to difficulties in the initial operation [6]. Whereas single cases of valve failure may suggest a simple explanation, the cause(s) for multiple valve failures, and occurrence after years of function may rather be multifactorial and remain speculative.

Being aware that a single-centre experience reporting complications years after implantation must share the limitation of representing a selection of patients, our observations were aimed to serve as a useful contribution to help improve long-term outcomes. We agree that more studies, data and case reports from other institutions are warranted for a final conclusion on the durability of the Freedom SOLO valve.

## REFERENCES

- [1] Repossini A, Bisleri G. Freedom SOLO: avoiding pitfalls to avoid premature failures? *Eur J Cardiothorac Surg* 2015; doi:10.1093/ejcts/ezv214.
- [2] Stanger O, Bleuel I, Reineke S, Banz Y, Erdoes G, Tevaearai H *et al*. Pitfalls and premature failure of the Freedom SOLO stentless valve. *Eur J Cardiothorac Surg* 2014; doi:10.1093/ejcts/ezu473.
- [3] Stanger O, Tevaearai H, Carrel T. The Freedom SOLO bovine pericardial stentless valve. *Res Rep Clin Cardiol* 2014;5:1–13.
- [4] Scharfshwerdt M, Sievers HH, Hussein A, Kraatz EG, Misfeld M. Impact of progressive sinotubular junction dilatation on valve competence of the 3F Aortic and Sorin Solo stentless bioprosthetic heart valves. *Eur J Cardiothorac Surg* 2010;37:631–4.
- [5] Caprili L, Fahim AN, Zussa C, Cristell DM. Very early malfunction of a large stentless aortic valve. *Eur J Cardiothorac Surg* 2009;36:417–8.
- [6] Giordano V, Hermens JA, Wajon EM, Grandjean JG. Rare prosthesis failure after aortic valve replacement with a Freedom Solo. *Interact CardioVasc Thorac Surg* 2011;12:273–5.

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