Reviewer's report

Title: Hemodynamic behavior of stentless aortic valves in long term follow-up

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Reviewer: Alexander Weymann

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In the manuscript entitled: Hemodynamic behavior of stentless aortic valves in long term follow-up, the authors report the long-term echocardiographic outcomes in 54 patients less than 60/61 years of age who had an AVR by a stentless bioprosthesis. Echocardiographic data showed low transvalvular pressure gradients and no relevant insufficiencies until 14 years after implantation with a sustained decrease of left ventricular mass and improvement of left ventricular function. No long-term follow-up of hemodynamic behavior is yet published for stentless bioprosthesis in younger patients, what makes this manuscript very interesting. These hemodynamic data is discussed with the long-term results regarding survival and durability of the 2013 in the Journal of Cardiothoracic Surgery published “Stentless aortic valve replacement in the young patient: long-term results”. The authors conclude that AVR with stentless bioprostheses results in a persisting excellent hemodynamic performance for 14 years after the operation, which particularly benefits patients with advanced myocardial hypertrophy or poor left ventricular function. Thus AVR with stentless bioprostheses can be an alternative to mechanical valves or valve sparing techniques in patients less than 60/61 years.

First of all, I would like to thank the authors for their unique contribution.

However, there are several aspects that I like to address:

1. Only 54 of 64 identified patients were examined. Is it possible to raise this number?
2. Why was the effective orifice area stated and not the indexed effective orifice area?
3. Were there any hemodynamic differences between the different bioprostheses?
4. The stated survival includes the hospital mortality (seen in Figure 1). Hospital mortality and long-term survival are influenced differently. Therefore, I would recommend using the long term survival (without hospital mortality).
5. The examined patients at 15 and 16 years are very low. This should be mentioned in the text.
6. Patients included in the study are sometimes referred to as under 60 and sometimes #60 years. Please clarify.

After reviewing the manuscript I think only minor changes are necessary for acceptance.

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.