Reviewer's report

**Title:** Full-root aortic valve replacement with stentless xenograft achieves superior regression of left ventricular hypertrophy compared to pericardial stented aortic valves

**Version:** 1  
**Date:** 16 November 2014

**Reviewer:** Francisco A Costa

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**Major Compulsory Revisions**

I read with interest the paper entitled “Full-root aortic valve replacement with stentless xenograft achieves superior regression of left ventricular hypertrophy compared to pericardial stented aortic valves”. The authors have shown excellent surgical outcomes with stentless xenografts and attempted to demonstrate that by using larger valves with greater EOAI would result in superior LVMI regression one year after AVR.

However, with the available data, there are some important limitations to reach this conclusion.

1. The number of patients with aortic stenosis in each group are relatively small (68 stentless X 46 stented).
2. There is no statement regarding the criteria used to select patients for using a stented vs stentless valves. Was calcification of the coronary ostia the only limitation for not using a stentless valve? Probably not. This should be clearly stated in the main text.
3. There are important differences in patient characteristics that may have influenced these results. Patient age (stented 76 years vs stentless 59 years) and gender (stented 54% females vs stentless 28% females). It is well know that these two factors have important differences regarding both the development of LVH and also for regression of LVH after AVR. In general, data from the literature tends to demonstrate that older patients and males appears to be less responsive to left ventricular mass regression after surgery.
4. In fact, if we observe the initial LVM in both groups (Figure 4), it can be clearly seen that all but one patient in the stentless group had preoperative LVMI above 120 g/m2. In the stented group, however, there are many patients with LVMI below 120 g/m2.
5. Looking at Figure 4, it appears that most of the patients who did not reverse LVMI were those with preoperative LVMI below 120 g/m2.
6. How many patients in each group were hypertensive? Obviously this can also substantially affect the results.

Although the authors have demonstrated that patients in the stentless group had
lower mean and peak gradients at 1 year, they have used EOA that were provided from the manufacturer. Why the EOA were not calculated from the echos actually performed in these patients. In my experience, EOA in patients vary widely for the same nominal valve diameter, and frequently is less than one should expect from the manufacturer specifications. I would suggest that a table containing min, max and mean values for valve gradients, EOA, and pre and post op LVMI should be added.

The above mentioned comments and suggestions should be reviewed by the authors before publication, and a paragraph on “limitations of the study” should also be included.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests.