Author's response to reviews

Title: Transesophageal echocardiography measurements of aortic annulus diameter using biplane mode in patients undergoing transcatheater aortic valve implantation

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Author's response to reviews: see over
To the Editor

Please find enclosed a revised version of the paper *Transesophageal Echocardiography Measurements of Aortic Annulus Diameter Using Biplane Mode in Patients Undergoing Transcatheter Aortic Valve Implantation*. We have carefully read the comments and amended accordingly, and present below a point-by-point description of the changes made in response to the issues raised.

Please let us know how this revised version was received by the Reviewers as we are willing to make additional changes if deemed necessary. We feel that this revised version is considerably stronger and more efficient and hope that both yourself and the Reviewers will agree.

Best regards,

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Point-to-point description of changes made

**Reviewer 1:**

   The last 3 sentences at the end of discussion part maybe rewritten for better and unified clarification.

   **Response:** Thank you for your suggestions. These 3 sentences did not add constructively to the flow of the paper and have been removed in the interest of clarity.

2. Table 1 - Aortic valve area should be provided by taking BSA (cm²/m²) into consideration. Ejection fraction should be written as LV ejection fraction (LV=left ventricle)

   **Response:** These changes have been made to Table 1, please refer to the revised manuscript.

3. Figures - There are 15 figures in the manuscript but only 4 have legends. Reorganization of the figures would enhance the aesthetics of the paper with better clarify. Also in the figures, "r-values" could be accompanied by respective p values. Besides, the correlation curves and BA plots of similar pairs of variables could be put into the same fig as A, B etc as in the case of other figures. In this way all figures could be accommodated by
reducing the actual number of figs. These would be easier for the readers (and also probably for publishers). Legends should be properly given in such a case.

Response: Thank you for your comments. Since Bland-Altman and r-values are presented in table 3 we have decided to remove figure 4A-L altogether and instead show p-values in the table as suggested.

4. Limitation section could be slightly shortened.

Response: The limitation section has been shortened as suggested.

5. BP could be expanded whenever possible, especially in the figures.

Response: BP is explained in text. Since figure 4 has been removed from the revised manuscript, the use of this abbreviation is no longer needed.

Reviewer 2:

1. The introduction section is too long. A more concise description of the background and the aim of the study are needed.

Response: We have shortened the introduction section as suggested, please refer to the revised manuscript.

2. This was a retrospective study, and as far as I understood, all data were analyzed off-line. It was not easy to me to understand, how the measurements were carried out, in which sequence, and how many measurements were obtained in different planes. Please provide an exact, clear-cut description (avoiding the specification of different machines and software’s) of the different methodologies.

Response: Please refer to Material and Methods of the revised manuscript which describes how measurements were performed (off-line, by 2 different investigators, average of 3 beats). We note that this Reviewer suggests to omit details on the vendors of echocardiographs as well as software used. However, as concerns have previously been expressed that some analyses differ from vendor to vendor (see e.g. Mårtensson EJE 2011;12:467-76), we have chosen to keep these details in the revised manuscript. While we respect the opinion of this Reviewer, we believe this strengthens the manuscript. If this Reviewer is not in agreement, we would ask that this question is put to the Editorial Board for final word.

3. Was “2DTEE” “single” plane measurement?

Response: All measurements are done in single plane, measuring the sagittal aortic annulus size.
4. One of the most interesting finding of the present work is that TTE underestimated the size of the aortic root in many patients, (in 35% the aortic diameter was less than 20 mm). This part could be presented in the Results section and discussed more abundantly in the discussion. This finding could be one of the conclusions of the present work.

Response: Thank you for these comments. We agree that this finding, which may be of huge clinical importance, has not been given appropriate attention in the first version of the manuscript. Accordingly, we have amended and considerably expanded this in Abstract, Results and Discussion, please refer to the revised manuscript. In our opinion, this has strengthened the article and we are grateful for the input by this Reviewer.

5. The Discussion section should be more focused on the presentation of the current problems regarding the measurements with the available techniques (in some papers multimodality imaging is recommended), and how the present finding will improve the accuracy in comparison to other modalities.

Response: We have revised the Discussion as suggested.

6. The quality of the figures is low.

Response: Figures were uploaded as recommended by the journal (.tif files with resolution). We believe figures show representative real-world views typically obtained during routine clinical echocardiography. Hopefully this Reviewer will find the revised manuscript including figures to be of adequate quality.

7. The Bland- Altman plots are superfluous; they do not support the understanding of the findings.

Response: We have removed Figure 4 since data is presented in Table 3, please refer to Item #3 of Reviewer #1 above.

8. The English language needs an extensive revision.

Response: The re-submitted manuscript has been revised by a native English-speaker.