Reviewer's report

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

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Reviewer: Albert A Varga

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The Authors of the present manuscript compared different echocardiographic modalities in assessing the aortic annulus diameter in patients undergoing TAVI (biplane mode using transesophageal echocardiography (TEE), two dimensional (2D) transthoracic echocardiography (TTE) and 2DTEE using three-dimensional (3D) TEE as reference method). They studied 50 consecutive patients who underwent TAVI. The final conclusion of the Authors was, that „Biplane mode is a method of choice due to quick post-processing without the need of expensive dedicated software”.

The investigated topic is interesting and timely, TAVI is an emerging method for the treatment of patients with aortic stenosis and high risk for surgical management. The assessment of the aortic annulus is mandatory in these patients.

My questions and comments are the following:

1. The introduction section is too long. A more concise description of the background and the aim of the study are needed.
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.
3. Was “2DTEE” “single” plane measurement?
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.
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.
6. The quality of the figures is low.
7. The Bland-Altman plots are superfluous; they do not support the understanding of the findings.
8. The English language needs an extensive revision.

**Level of interest:** An article of limited interest

**Quality of written English:** Not suitable for publication unless extensively edited

**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