Reviewer’s report

Title: Percutaneous Treatment of Patients with Heart Diseases: Selection, Guidance and Follow-Up: a review

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Reviewer: Marco De Carlo

Reviewer’s report:

The review covers the role of echocardiography across the whole spectrum of structural heart diseases amenable to percutaneous interventions. The authors describe what information echocardiography can give throughout the different steps of patient screening, percutaneous intervention, post-procedural care and follow-up.

Necessarily the review is somewhat generic, giving just an overview of each specific disease, since it aims to cover such a number of different topics, describing not only the echocardiographic imaging, but also the indications, contraindications and procedural and long-term complications of each interventional technique. The manuscript lacks echocardiographic “tips and tricks” that might prove of interest for the echocardiography expert, and gives a minimal description of the indications, contraindications and results of each interventional technique to be of interest for the interventional cardiologist.

- Major Compulsory Revisions

1. The review should be substantially re-focused on echocardiography, enlarging the description of echocardiographic techniques and leaving out the description of indications, contraindications, procedural results and clinical follow-up of the percutaneous procedures.

2. Adequate image of mitral paraprosthetic leak with TEE is lacking.

3. The description of echocardiography during MitraClip implantation lacks any reference to 3D echo, which is routinely used in most centers performing this intervention, although not mentioned in the “instructions for use” from the manufacturer. The images chosen (Figure 11) are reproduced from Abbott Vascular “instructions for use” and should be replaced by personally owned images. The description of the clinical trials with the MitraClip is too brief and completely lacks any discussion, being of really little interest for the readers.

4. Regarding LAA closure, only the Amplatzer device is described.

5. Regarding TAVI, the sentence “…TEE … is indispensable for annulus measurement for SAPIEN” must be corrected. The authors do not mention the recent introduction of precise ranges of aortic annulus perimeter and area for CoreValve prosthesis selection. The subclavian approach for TAVI with the CoreValve is currently CE marked and not “off-label”. The authors omit a number of parameters that echocardiography should assess during screening for TAVI, in
addition to aortic annulus diameter, such as the width and height of the sinuses of Valsalva. There is no discussion on the relevant topic of how to assess paravalvular leak by echocardiography.

6. The Conclusions are poor. A discussion on the current and future role of echocardiography could increase the interest of the paper.

- Minor Essential Revisions

1. Figure 2: only panel C is referred to in the text; panels A and B are not specifically referred to.

2. Figure 6, 7B, 8, 13 are of low quality and should be replaced by better imaging, if available.

3. In the References there are some mistypes (e.g. #37, #39) and some page numbers are lacking (e.g. #62)

4. On page 13, correct “Figure 53” to “Figure 14”

5. The English should be improved throughout the manuscript, correcting some mistypes (e.g. maneuver, endothelializes, cords, cordal) and improving language appropriateness.

Level of interest: An article of limited interest

Quality of written English: Needs some language corrections before being published

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'