Author’s response to reviews

Title: Going beyond classic echo in aortic stenosis: left atrial mechanics, a new marker of severity

Authors:
Patrícia Alves (pat.marques.alves@gmail.com)
Ana Vera Marinho (ana.vera.marinho@gmail.com)
Rogério Teixeira (rogeriopteixeira@gmail.com)
Rui Baptista (ruibaptista@gmail.com)
Graça Castro (castro2406@gmail.com)
Rui Martins (ruimatamartins@gmail.com)
Lino Gonçalves (lgoncalv@ci.uc.pt)

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Author’s response to reviews:

Dear Editor,

We thank you for your important insights.
We elaborated a point by point rebuttal, in which we intended to answer all questions raised:

1. Overlap
We note that the current submission contains some textual overlap with other previously published works, in particular:

In the Background:
We rephrased the sentences to:
“Speckle-tracking echocardiographic (STE) analysis allows a rapid and practical assessment of the
atrial deformation profile, due to its semiautomated system and offline processing4,7.”

In the Methods
-“ Left atrial dysfunction as a determinant of pulmonary hypertension in patients with severe aortic stenosis and preserved left ventricular ejection fraction” International Journal of Cardiovascular Imaging (2017) DOI 10.1007/s10554-017-1211-2

We rephrased the section and added the reference in the section:

“ECHOCARDIOGRAPHIC DATA

Echocardiographic examination included tissue Doppler imaging (TDI) and STE analysis of LV, LA, and right ventricular (RV) functions, as previously described 6,11. We used a Vivid 7 (GE Healthcare, Horten, Norway) cardiovascular (CV) ultrasound device, with a 1.7/3.4-MHz tissue harmonic transducer. Standard echocardiographic views where obtained with 60–80 fps in 2D imaging. Echocardiographic data were analyzed offline using a specific software (EchoPAC 16.0, GE Healthcare, Horten, Norway).

AS severity
We measured aortic transvalvular peak velocities through continuous-wave Doppler, obtained peak and mean from the simplified Bernoulli equation and aortic valve area through the continuity solution equation12.

Left ventricular dimensions and function
We followed to the current recommendations13,14 to measure LV size and systolic and diastolic functions. Peak LV-GLS was assessed by STE using a 16-segment model11,15.

LA dimensions and function
Analysis of LA deformation by STE was performed on four-chamber, with three consecutive heart cycles being recorded during breath hold and a frame rate of 60–80 fps, as recommended. Automatic offline software analysis generated and averaged strain curves for each atrial segment16. P-wave onset marked the initial frame of processing. LA global strain and strain rate during systole (LA $\varepsilon_{sys}$ and SRe), early diastole (LA $\varepsilon_{e}$, SRe), and late diastole (LA $\varepsilon_{a}$, SRA) corresponding to the LA reservoir, conduit, and contractile functions, respectively, were measured4.”

https://doi.org/10.1007/s10554-017-1269-x

We added the reference (n.º 11).
Left ventricular dimensions and function
We followed to the current recommendations13,14 to measure LV size and systolic and diastolic functions. Peak LV-GLS was assessed by STE using a 16-segment model11,15.

In the Discussion

-“ Left atrium function by 2D speckle tracking in aortic valve disease” Echocardiography (2016) https://doi.org/10.1111/echo.13368

We rephrase the sentences:

“AS causes LV remodeling with decreased LV compliance, increased diastolic pressure and LA afterload. In earlier stages, LA preload is normal and augments with LA volume5. In our study, volumetric parameters did not vary according to AS severity (mAS vs sAS), while LV filling pressures (E/e’ ratio) did. This shows a gradual increase in diastolic dysfunction, consistent to the severity of AS.

LA mechanics assessment was performed through STE, which, by allowing selective analysis of myocardial layers (when compared to TDI), guarantees an optimized analysis of the LA thin myocardial layer 5,17.”

While we understand that some of this is work that you have previously published, and some of the same ideas are contained in these publications, please be aware that we cannot condone the use of text from previously published work.

Please be informed that we cannot proceed with handling your manuscript before this issue is resolved, and the sections of text in question have been reformulated. If there is overlap in the Methods section, please ensure that you summarize the methods and cite the source.

We believed we have made the adjustments required.

2. Abstract

We notice that you have presented similar work at Poster Session European Heart Journal - Cardiovascular Imaging

https://doi.org/10.1093/ehjci/jey274

Please ensure that this is cited and acknowledged in the manuscript.

We added the citation in the manuscript, methods section (study procedures):

“Preliminary data was presented by the authors at Poster Session European Heart Journal - Cardiovascular Imaging, January 2019 (10).”

3. Consent to Participate

In your “ethical approval and consent to participate” section, please confirm whether informed consent, written or verbal, was obtained from all participants and clearly state this in your manuscript. If verbal, please state the reason and whether the ethics committee approved this procedure. If the need for consent was waived by an IRB or is deemed unnecessary according to national regulations, please clearly state this, including the name of the IRB or a reference to the relevant legislation.

We added the following information

“Ethics approval and consent to participate
Since it was an observational, retrospective analysis of a previously anonymized database, informed consent was not obtained from patients. The study was approved by the ethics committee of Coimbra Hospital and University Centre.”

4. List of Abbreviations

Please rename your “Abbreviations” to “List of Abbreviation”

Adjustment done.

5. Clean manuscript

At this stage, please upload your manuscript as a single, final, clean version that does not contain any tracked changes, comments, highlights, strikethroughs or text in different colours. All relevant tables/figures/additional files should also be clean versions. Additional files should remain uploaded as separate files. Please ensure that all figures, tables and additional/supplementary files are cited within the text.

All requirements done.