Author’s response to reviews

Title: Left atrial strain - an early marker of left ventricular diastolic dysfunction in patients with hypertension and paroxysmal atrial fibrillation

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Author’s response to reviews:

1. The sample size is limited (n=83) for definite conclusion on this issue. However, LA strain appears to be promising in this context.

   We completely agree that drawing firm conclusion would require much larger sample size. However, our data, as well as other publications cited in the text, suggest, that LA strain can detect LA functional and possibly structural changes in hypertensive patients very early.

2. The link between atrial fibrillation and arterial hypertension should be better delineated in the "Introduction" section.

   Introduction has been improved and the link between hypertension and AF explained.

3. Feasibility and reproducibility (inter- and intra-observer variability) of LA strain shall be calculated at least in a small population by the authors in their echo-lab
Intra and interobserver variability has been counted and expressed as an intraclass correlation coefficient and an absolute difference divided by the mean of two measurements.

4. More details are needed on the recording and measurement phases of LA speckle tracking. The reference paper of ASE/EACVI (Mor Avi V et al) should be cited in this regard.

More data has been given about the measurement of LA speckle tracking and the mentioned paper has been cited.

5. Normal values of LA strain are derived by a meta-analysis of studies whereas it is much better to have normal reference values in their own echo lab by the authors, in order to keep the same speckle tracking methodology.

We agree that it would be better to compare with the normal ranges established in our lab. Unfortunately at the moment we do not have our own normal range for LA strains. On the other hand the data by a meta-analysis gives us many more patients that we could test in our lab.

6. The Discussion is not completely clear and shall be more adherent to the data collected in the study.

The discussion has been revised and now has the following chapters:

1. Methodological issues:
   a) why we chose P vs R on ECG
   b) why we analysed 12 segments
2. LA strain results and its role in hypertension and AF

3. LA strain relation with LV DD parameters – results, comparison with similar studies and possible significance

7. Some reference studies assessing the value of LA strain in atrial fibrillation shall be reported (eg, Delgado V et al Eur Heart J 2018; Galderisi M et al, AFib Euro Echo Registry, Eur Heart J Cardiovasc Imaging 2018)

All the mentioned studies and some more have been reported and cited in the text.