Reviewer’s report

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

Version: 0 Date: 20 Aug 2018

Reviewer: Maurizio Galderisi

Reviewer's report:

This study aimed to determine LA contractile, conduit and reservoir function by 2D strain imaging in patients with mild arterial hypertension and paroxysmal AF; to assess LA contractile, conduit and reservoir functions' relation with LV diastolic dysfunction (DD) parameters. The results of the study demonstrate that patients with paroxysmal AF and hypertension have decreased reservoir, conduit and pump LA functions even in the absence of echocardiographic signs of LV DD. With increasing number of parameters showing LV DD, LA conduit and reservoir functions decrease while contractile does not change. The authors conclude that LA conduit and reservoir functions decrease earlier than the diagnosis of LV DD can be established according to the guidelines in patients with primary arterial hypertension and AF.

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

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

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.

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.

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

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

Level of interest
Please indicate how interesting you found the manuscript:

An article of importance in its field

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?

If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

No conflict of interest
I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal