Reviewer’s report

Title: Cardiovascular magnetic resonance 4D flow analysis has a higher diagnostic yield than Doppler echocardiography for detecting increased pulmonary artery pressure

Version: 0 Date: 15 Dec 2019

Reviewer: Michael Chuang

Reviewer's report:

As the authors note, the primary limitation of this study is the lack of gold standard (RHC) PAP. However, the paper is well written and clearly presented; methods appear appropriate. No significant concerns, but a few questions and suggestions.

1. Please clarify what you mean by "All [echo] results were the mean of 3 measurements." Do you mean that TR velocities were measured from three heartbeats? If so, make this unambiguous, because it is possible to (mis?)interpret this statement as TR velocities were averaged across the 3 views (PLAX, PSAX, A4C). I am assuming you used the view from which TR jet was maximal/best aligned with Doppler, but make it clear.

2. When were clinical characteristics in Table 1 acquired? At time of CMR, echo, both, or a separate time point? Was any effort made to compare, e.g. BP and HR at echo vs at CMR?

3. Eleven patients (18%) were apparently referred with indication of "acute MI". Of the diagnoses listed in Table 1, this category seems the most likely to change clinically between CMR and echo. Any idea how stable these patients were, hemodynamically (or otherwise) speaking? See also, next point (did the AMI patients tend to be in the E-C+ category?).

4. Table 3 can be thought of as a 2x2 (with E-C- in the upper left 4 squares, E+C- in the upper right, E-C+ lower left, and E+C+ in the single bottom right square). The patients of most interest are the "off diagonals" where echo and CMR are not concordant. There are zero E+C-, and 12 E-C+ patients. Do the E-C+ patients differ from the concordant patients? If so, how?
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

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