Reviewer's report

**Title:** Single Beat 3D Echocardiography for the Assessment of Right Ventricular Dimension and Function after Endurance Exercise: Intraindividual Comparison with Magnetic Resonance Imaging

**Version:** 1 **Date:** 13 January 2012

**Reviewer:** Lorenza Pratali

**Reviewer’s report:**

In this paper written by Schattke the author compared new single beat 3D echocardiography to CMR for measurement of RV dimension and function after 30Km run. The author presented two results:

first, not a novel finding in literature, good agreement for EF and less for RV volumes between 3D echo and MR;

second: the endurance exercise seems not to induce acute RV dysfunction. This findings is interesting and different to multiple studies that have demonstrated transient RV systolic dysfunction in response to marathon running using two-dimensional TTE imaging and RT3D echo (see references of this paper n 25)

The paper presents some minor and major revisions to be clarified

**Minor revisions**

- In the methods, the author, did not specify which hematological parameters were collected. The author showed the parameters only in table 5
- Methods: Section echocardiography: which parameters was evaluated in the standard echocardiography?
- In the final part of the discussion the author affirmed that all the other previously studies the RV function after endurance run was evaluated after rehydration. If we analyze i.e. the Oomah JASE 2011 publication is not specify if the subjects are studied after dehydration.

**Major revisions**

- Please add the inter-rater agreement statistic (K) for the EF, RVEDV, RVESV.
- The author affirmed that evaluate the RV function immediately after run. Maybe immediately is not the right definition because the mean HR post-run was low 76 ± 13 bpm. In the paper written by Oomah 2011 the mean value of the HR 97 ± 11 with a shorter run.

On the basis of the referred HR, the author cannot affirmed that they evaluated high heart rate subjects and that single beats 3D echo is feasible in presence of tachycardia.

- It is well known that during exercise is described exercise-induced pulmonary hypertension, with a 70% increase in pulmonary artery pressure due to increased
RV-afterload seen during a marathon. In this study the author finds a significant decrease in PVAT even the absolute value is not pathological.

Have the author any information also regarding RA-RV gradient that is normally measured or at least evaluated during a standard echocardiography?

By the way according to these results the RV afterload after run seems do not increase too much in these subjects so this could be the possible explanation of the normal RV function present in these subjects. Could be interesting divide the population study in those, that performed the echo really after the run, and those whose performed echo after CMR, and check all parameters of RV function and PVAT and check if the results on RV function should be the same.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests