Reviewer's report

**Title:** The limited usefulness of real-time 3-dimensional echocardiography in obtaining normal reference ranges for right ventricular volumes

**Version:** 1  **Date:** 10 June 2009

**Reviewer:** Rosa Sicari

**Reviewer's report:**

This is an interesting study addressing an important methodological issue. RT3D echocardiography has been proposed as the breakthrough technology for the assessment of volumes, which compare with a high correlation to CMR as the gold standard. In the present study authors do compare the 2D and 3D measurements showing a high intraobserver variability in 3D measurements both with on-line and off-line packages and with blinded and unblended operators.

There are a few issues that authors should address:

1. 2D has major limitations for the assessment of RV function and volumes. Please address.
2. In line with the previous comment, it does not appear appropriate to compare 2D with 3D without a gold standard such as CMR. Please address.
3. 3D was performed by one observer due to his expertise, therefore providing only the intraobserver variability. It would be important to know the inter-observer variability because this is a major flaw of the study design.
4. No Bland-Altman analysis has been performed. Please provide.
5. Several studies are raising limitations of volume measurements with RT3D when compared with CMR. Please discuss and extend the discussion also to RV.
6. Clinical and practical implications of the present results should be stated more clearly. Which is the clinical indication for RT3D, in which patients etc.
7. Please upload clips of sample cases (there is no space limit)

**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