Reviewer’s report

Title: Estimation of Cardiac Output and Pulmonary Vascular Resistance by Contrast Echocardiography Transit Time Measurement: a Prospective Pilot Study

Version: 3 Date: 22 September 2014

Reviewer: Piotr Lipiec

Reviewer’s report:

This is an interesting and well-conducted study concerning using contrast echocardiography for the assessment of cardiac output and pulmonary vascular resistance. However, there are some issues to consider.

Major Compulsory Revisions

1. My main concern regarding presented technique is the variability in measurement of the interval between full opacification of the right and left ventricle and the interval between the peak opacification of the right and left ventricle. I am afraid that the visual estimation of the moment of peak opacification may be highly subjective. The authors presented high inter-observer and intra-observer correlation, but I believe that presenting the absolute mean differences between the observers in these measurements is necessary to support the reproducibility of these measurements.

Minor essential revisions

1. The authors observed that previously described echocardiographic methods for the determination of CO (Huntsman method) and PVR (Abbas and Haddad methods) did not correlate with RHC-determined values. I believe such findings should be discussed in the manuscript.

2. The quantitative analysis of contrast enhancement in the ventricle might increase the objectivity of measuring the time to peak opacification of the cardiac chamber. I realize it was not the included in the methodology of this study, but this aspect should be discussed in the manuscript.

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.