Reviewer’s report

Title: Ventilatory efficiency testing as prognostic value in patients with pulmonary hypertension

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Reviewer: Thierry Le Tourneau

Reviewer’s report:

This manuscript reports an evaluation of cardio-pulmonary exercise test (CPET) and particularly ventilation efficiency in 116 patients with pulmonary arterial hypertension (PAH) or chronic thromboembolic pulmonary hypertension (CTEPH). Authors suggest in this quite large group of PH that maximal oxygen uptake during exercise is not a good predictor of prognosis. By contrast Ve/VCO2, Vd/Vt and Ve/VCO2 slope are better predictors of prognosis.

Comments:

1. Introduction: “In this study we examine the relationship between hemodynamic parameters at rest and the ventilatory response to exercise...”: I did not find such evaluation in the result section. Please refine the objectives of your study.

2. Methods, subjects section: What is the period of inclusion of patients? Are patients consecutives?

3. Methods, CPET section: The last sentence state that a peak VO2<=14 and a Ve/VCO2 slope > 34 were selected as prognosis thresholds but you do not use these thresholds further in the manuscript. Please precise your intent or correct the sentence.

4. Univariate and multivariate Cox-model analyses (stepwise for the multivariate approach with respect to the relative small number of events) should be performed to identify the strongest parameter in predicting survival in your study. Abstract and result sections should be modified accordingly.

5. In the statistical analysis section authors state that positive and negative predictive values were calculated for the different thresholds. Please provide these values either in the text or in a table.

6. Patients are divided in survivors and non survivors in the first table. I suggest authors to provide a first table with the main characteristics of the overall group of patients, and, in the same table, baseline characteristics of patients with PAH compared with those with CTEPH.

7. During the follow-up period 29 patients died. Provide the cause of mortality in each group of patients (PAH, CTEPH).

8. Please define all abbreviations and use the same abbreviation all along the
manuscript (for instance right atrium pressure = RA in the method section, and RAP in the result section).

9. The last sentence of the conclusion in the discussion section “indices of CPET might be helpful with and without right ventricular dysfunction…” is not supported by any data in the manuscript and has to be deleted.

Level of interest: An article of importance 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