Reviewer's report

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

Version: 2 Date: 20 January 2012

Reviewer: Joseph Massaro

Reviewer's report:

1. Minor comment: I believe the phrase “...and to compare these parameters...” should simply “...and compare these parameters...” on page 2.

2. Minor comment: In the first sentence of the “Materials and Methods” section, I suggest changing “...consecutively included patients...” to “...included consecutive patients...”

3. Minor comment: First line of “Statistical Analysis” section: I suggest changing “The data were presented as the mean +/- standard error” to “Continuous data were presented as the mean +/- standard error; categorical data were presented as percentages of patients in each category”.

4. Minor comment: In the discussion of the distribution parameters between survivors and non-survivors, change “…no significant differences between survivors and non-survivors existed in none of hemodynamic parameters…” to “no significant differences in any of hemodynamic parameters…”

5. Major comment: The discussion of the Cox results seems awkward; specifically, the authors write “A multivariate model was constructed using this together with important...”. By “this together”, I’m assuming the authors are trying to say a full multivariate model was run, with all parameters forced in at the same time? If so, the wording should be revised accordingly.

6. Major comment: Some of the description of the statistical analysis in the methods section seems unclear to me. For example, right after the discussion of the Cox model, the authors discuss using the Wald test from logistic regression to test for “differences in odds ratios”. What is meant specifically by “differences in odds ratios”? It appears from Table 4 that what the authors simply mean is that the Wald test is used to test for the significance of odds ratios. Also, were covariates used in the logistic regressions? As another example of where re-wording of the methods section would be helpful, the authors discuss using “Kaplan-Meier” to determine if difference in survival was significant between subjects falling into “different categories”. It’s not until the results and review of the Figures that it is seen the authors, by “different categories” are referring to the Ve/CVO2 and Ve/VCO2 slope categories. This should be made more explicit in the methods section. Also, though the authors correctly present Kaplan-Meier curves, they incorrectly refer to “using Kaplan-Meier to determine if difference in survival was significant”. Please note that Kaplan-Meier is not a statistical test; the log-rank test is the appropriate terminology for statistical test used to
compare Kaplan-Meier curves. Please revise accordingly.

7. Major comment: In Table 3, the Hazard Ratios and their 95% confidence intervals should be presented, so the reader can see the direction and magnitude of the effect size (in addition to the strength of the p-values). I do not think it’s necessary to include the value of the chi-square statistic, but have no problem leaving it in.

8. Minor comment: It would be helpful if a footnote was added to Table 3 indicating the covariates for which the model was adjusted.

9. Major comment: In Table 4, I suggest the following be presented: 95% confidence intervals of the odds ratio and relative risk (I actually do not think the relative risk is necessary to present, but if the authors want to present such a relative risk, they should present the 95% CIs). Also, the corresponding p-value should be presented. The authors should also consider presenting the c-statistic (on a related comment, the authors state they assessed the compared ROC curves across the parameters in this logistic regression, but I do not see any mention of this results section).

10. Major comment: In Table 4, it is unclear (to me, at least) how the cutoffs for Ve/VCO2, AaDO2, and a-etCO2 were developed. Was there some sort of clinical support (e.g., previously used in the literature, like the cutoff used for VO2), or were the values that yielded the “best” results chosen as cutoffs. If the latter, this should be stated clearly and the exploratory of the result should be stressed, and the criteria for the definition of “best” result should be given.