Reviewer’s report

Title: Relationship between peripheral airway function and patient reported outcomes in COPD: a cross-sectional study

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Reviewer: Audrey Borghi-Silva

Reviewer’s report:

The manuscript: “Relationship between peripheral airway function and patient reported outcomes in COPD: a cross-sectional study” showed that IOS measurements, especially indices of peripheral airway function, are significantly correlated with health status and dyspnea in patients with COPD and that IOS is a useful clinical tool not only for detecting pulmonary functional impairment, but also to assess the patient’s quality of daily life and well-being.

This manuscript is relevant and adds important information; however, I have some suggestions:

ABSTRACT

Background
The background text is not clear; the sentences are loose in paragraph and must be reformulated.

Results
As described it is difficult to understand the reader who is not familiar with the measures of IOS (R5-R20, X5 and R20). Please rewrite this idea more clearly

BACKGROUND

The idea of introduction is appropriate, however I have some comments:

The paragraphs are too long. The authors should fragment it without changing the original idea. In addition the authors should try to connect more ideas between paragraphs.

Is necessary to standardize the writing of the word “patient-reported” (throughout the text there is the word with or without hyphen).

Methods

Subjects
It is unclear whether the authors assessed more patients than those recruited (65) and the reasons why they were excluded. Important to add this information.

What the authors consider regular outpatient clinic attendance?

Describe uncontrolled comorbidities ....

How was the intellectual capacity the patients to answer the questions? Add criteria of exclusion.
The patients signed an informed consent to participate in the study?

Outcome measures

“Subjects underwent IOS and spirometry 15 minutes after inhaling the bronchodilators salbutamol (400µg) and ipratropium bromide (80µg)”. Written in this way (15 minutes after) appears that the measurements were made simultaneously, rewrite this expression

Statistical analysis

“Results are expressed as means±SD”. Delete “s” of means.

Was applied a test to verify normal distribution? The sample size was appropriate?

Results

Baseline characteristics

Reduce the amount of acronyms in Table 1, when not possible to create a legend

The authors should include body mass index data.

Pay attention to the table titles. Some are written in different letters compared to the text.

“Relationships between IOS measurements and objective parameters” and “Relationships between objective parameters and patients reported outcomes” The authors must explain what means “objective parameters” in this subtitle

Table 2: Correlation coefficient between IOS, pulmonary function and CT measurements. I see no need to show the table 2, the authors are showing the same data described in the text, also the table 2 does not show clearly the results, some data without significance need not be cited

The author wrote in the text……Table 3 shows the correlation coefficients between objective parameters and patient reported outcomes and in the table title……”Table 3: Correlation coefficients between pulmonary function, IOS, CT, and patient reported outcomes” is necessary to standardize to avoid confusion and facilitate the reading. Moreover, also my suggestion is that the data are shown in the text or display in the table, but only significant data, is unclear.

Because DLCO/VA, R20 and WA% showed no significant relationships with health status and dyspnea in linear regression analyses, we did not use them as independent variables in multiple regression analyses. …… this information is obvious therefore should be removed from the text. I also suggest the inclusion of graphics with the most important results.

Table 4: Results of stepwise multiple regression analyses to predict health status and dyspnea… This title is not appropriate for what it proposes. The same comments from the tab 2 and 3 also are valid for this table.

At no time did the authors discuss the strength of the correlation coefficients and if were positive or negative. Few were the correlation coefficient greater than 0.6
which I interpret as really significant. So the authors should discuss the actual data showing the data with greater force. Likewise do my comments to the results of regression, $r^2=0.27$ was one of the values obtained when the idea was to identify variables that could best predict another. This low predictive ability suggests that other factors are involved in the prediction of these data ....... authors should suggest possible factors for this........

Thus all the discussion should be rewritten based on the values of correlation and regression found not only based on statistical significance. In addition, the conclusion that presents is also not appropriate is a very strong statement on the weakness of the data presented.

I suggest to the authors to add information about study limitations.....

Finally, I think we should encourage this paper to be published only after extensive review of the results and discussion of the data found.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

This reviewer states that there was no conflict of interest related to the manuscript.