Reviewer's report

Title: Bacterial Contamination of Home Nebulizers in Children with Cystic Fibrosis and Clinical Implication on the Number of Pulmonary Exacerbations

Version: 1 Date: 01 Aug 2019

Reviewer: Reviewer 2

Reviewer's report:

"PEER REVIEWER ASSESSMENTS:

OBJECTIVE - Full research articles: is there a clear objective that addresses one or several testable research questions? (Brief or other article types: is there a clear objective?)

Yes - there is a clear objective

DESIGN - Is the current approach (including controls and analysis protocols) appropriate for the objective?

No - there are major issues

EXECUTION - Are the experiments and analyses performed with sufficient technical rigor to allow confidence in the results?

No - there are major issues

STATISTICS - Is the use of statistics in the manuscript appropriate?

No - there are issues with the statistics in the study

INTERPRETATION - Is the current interpretation/discussion of the results reasonable and not overstated?

No - there are major issues
OVERALL MANUSCRIPT POTENTIAL - Has the author addressed your concerns sufficiently for you to now recommend the work as a technically sound contribution? If not, can further revisions be made to make the work technically sound?

No - manuscript has some fundamental flaw(s)

PEER REVIEWER COMMENTS:

GENERAL COMMENTS: Unfortunately, this is a poorly written manuscript with several errors in methodology, discussion, conclusion and figures.

REQUESTED REVISIONS:

The entire manuscript needs to be reviewed closely for language use. Grammatical and syntactical problems are obscuring in many places the meaning of the sentence the authors wanted to convey.

Abstract Results: last line: These numbers are not making sense as currently written. Generally in the whole manuscript, numbers written in the text are often unclear, and without units.

Background: penultimate paragraph: "Several cohort studies" is mentioned. Please provide references for these studies to support this. (Currently, only one reference is noted.)

Methods: The statement of No Placebo in current study is superfluous, since by design, this is not a placebo controlled study.

Methods: CLSI publication needs a proper citation.
Methods: There is a serious mistake in the Statistical Analysis as currently written. If results were expressed as means with Standard deviations, this assumes that the distribution of data points was Gaussian/normal. Therefore, parametric measurements such as T-tests and ANOVA would be appropriate. Mann-Whitney U test (non-parametric) is appropriate when the data is NOT normally distributed. Please correct this error, and correct your calculations if necessary.

Description of Figure 1 in text. Please correct the spelling of 'Swab'.

Results: Nebulizer, sputum culture and Candida -- this relationship is marked as significant, but the P is above 0.05.

Discussion: Where is the antibiogram data?

Device contamination impact on clinical outcomes: If this is considered important to be discussed, there needs to be actual descriptive data showing what kind of 'exacerbations' the authors are referring to.

Last paragraph of discussion: "'Older patients'" is an unclear term. Since it refers to older children, it should be clarified, if necessary by indicating the age range.

Conclusion: poor nebulizer hygiene linked to treatment non-adherence seems to be all speculative. This needs to be clarified in the text of Conclusions. The unnecessary verbiage should be cut down by combining sentences.

Limitations: It is not at all clear how the stated factors can confound the observation of presence or absence of bacteria on home nebulizers. If these are indeed important, this needs to be discussed at the end of the discussion (or under the limitation section).
Figures 1 & 2: For Enterobacter and other organisms, the error bars seem to have gone into the negative axis. This does not make numerical or scientific sense. It is also completely unclear from the text what the percentage values in the Y-axis represent. "

**Are the methods appropriate and well described?**
If not, please specify what is required in your comments to the authors.

No

**Does the work include the necessary controls?**
If not, please specify which controls are required in your comments to the authors.

No

**Are the conclusions drawn adequately supported by the data shown?**
If not, please explain in your comments to the authors.

No

**Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?**
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

**Quality of written English**
Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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