Reviewer's report

Title: Validation of a portable nitric oxide analyser for screening in primary ciliary dyskinesia

Version: 1 Date: 19 September 2013

Reviewer: Marieann Högman

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The study by Harris et al. has tested two NO analyzers from the same manufacturer (Aerocrine AB, Sweden). The aim was to investigate if NIOX MINO could differentiate patients with PCD from other respiratory diseases. The authors found that this hand-held NO analyzer is a promising screening tool for PCD.

Major comments

There are many papers during the last 15 years that has reported decreased values of nasal NO in PCD. The focus of this paper seems confusing. If set out to investigate whether NIOX MINO could discriminate PCD from healthy individuals or other respiratory disease the obvious method should be different.

1. With NIOX Flex and NIXO MINO at 5 mL/s sampling rate there was a decrease about 41 – 56 %, except for CSLD patients were the difference was minimal in NO production. The NO production was quite similar between the two methods with NOIX MINO. This needs explanation since you use the NIOX Flex as “golden standard”.

2. From the ATS/ERS recommendations 2005 it is stated that the flow rate should be measured. How did you ensure that the flow rates were 5 resp. 2 mL/s for both analyzers? It is also stated that the velum should be closed and any method to monitor this is acceptable. What was your method?


4. Was the patient also participating in your article in Respir Med. 2013 Mar;107(3):380-6?


6. What scientific method did you use for the focus group interviews? If scientifically correct you should have themes and statements instead of table 2. One could think that you were commercially founded by Aerocrine?

7. A group comparison should be used instead of T-test. Were the statistics done on loge-transformed values? The manuscript needs major statistical improvement. How was the cut off value determined (by GEE)?
8. Results: Why were there only 38 of 50 participants that could perform measurement at 2 mL/s compared to 5 mL/s?
9. The figures and tables do not clearly give answers to the scientific question.

Minor Comments
1. Introduction; line 8: What do you mean by scientists are required?
2. Participants: The participants should be more logical explained. The big groups first (healthy volunteers and PCD) then other respiratory disorders such as....
3. Is it really stated in the manufacturer guidelines that the patient should have long breath holds as up to 90 s? Was it a misunderstanding?
4. NO measurements: why was the highest NO recording taken and not mean value of three, as you did in your earlier publication?
5. Usability and reliability of analyzers: Last sentence should be moved into section for NO measurements.
6. Fraction of exhaled NO should be abbreviated FENO and a suffix of flow rate ex FENO0.005
7. All references by Eur Resp J are missing information.
8. Log transformed should be loge transformed
9. The manuscript needs language correction.

Level of interest: An article of limited interest

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

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests.