

Author Response 2

Response to Reviewer's Comments:

Major Comments

(Comment 1)

P2: Abstract: "Following HFOT initiation, patients ..."

P7, L24-: Results: "In the overall population, PaCOs did not improved..."

Because these effects "during hospitalization" are not main finding of the study, the sentences in the abstract - "Following HFOT initiation, patients with baseline hypercapnia had a PaCO₂ reduction of - 0.51kPa [-1.44 to 0.1] (p=0.034)." - should be deleted.

Response to reviewer: We thank the reviewer for his comment. Accordingly, we removed the results on PaCO₂ from the abstract.

In addition, if the authors mention the effects of HFNC on PaCO₂ and PaO₂ in the results section, they should clearly describe that the data were obtained "during hospitalization" but not "at home" for the readers not to confuse.

Response to reviewer: We thank the reviewer for his comment. We have modified the results section to make it clearer for readers that ABG were performed during hospitalization. We also add in Table 1 that ABG were performed during hospitalization. The results section now reads as follow: "HFOT settings at discharge and inpatient arterial blood gas results under HFOT are summarized in table 1"

(Comment 2)

P3, L26-: Introduction: "To date, no evidence supports the use of HFOT at home." As far as I know, there are two randomized control trials which evaluated the efficacy of HFOT at home for COPD patients (PMID: 29283682, 29713153).

Nevertheless, the previous study is very interesting to me, because this study included various type of underlying respiratory disease other than COPD. To emphasize the novelty of the study, refer to the previous trials and clarify the difference between them, please.

Response to reviewer: We thank the reviewer for his comment. We have reformulated the introduction to highlight to readers the trials that evaluated the use of HFO at home. We've highlighted that they only included patients with obstructive lung disease and that the data were not sufficient. The introduction section now reads as follow.

To date, trials supporting the use of HFOT at home only included patients with obstructive lung disease. Their results suggest a benefit that need to be confirmed by larger randomized controlled trials. However, for some patients, low flow LTOT is not sufficient to allow safe return at home. In those, HFOT could be an interesting option.

(Comment 3)

P2: Abstract: "In the tHFOT group, the number of..."

P5, L50-: Methods: "Previous admissions were..."

P7, L37-: Results: "After HFOT initiation, 51..."

For the nature of the retrospective study, the number of exacerbation can not be assessed accurately in this study. The decrease of the number of admission to the hospital does not mean the true decrease of exacerbation; e.g. if the patient died or admitted to other hospital, the number of admission decrease.

*Response to reviewer: We thank the reviewer for his comment. According to reviewer's comment, we have updated how exacerbation were calculated. We have taken into account the length of follow-up. The number of exacerbation in patients that had a follow-up shorter than a year was calculated as follow: number of exacerbation/nb of days of follow-up*365. We have therefore updated the results through the manuscript. We agree that careful these finding has to be interpreted cautiously. However, given our local health care organization, we are confident that none of the patients were admitted in another hospital. Patients in our trial are too frail to travel and we are the only tertiary center in the region that can handle those patients. The methods section now reads as follow:*

*"For patients for which survival or follow-up was shorter than a year, the number of exacerbations at one year follow-up was calculated as follow: (number of admission during follow-up / number of days of follow-up)*365."*

(Comment 4)

P9, L4-: Discussion: "Our study reports..."

The discussion section contains both meaningful and meaningless findings and discussions. In addition, the methods and the findings are mixed; e.g. "the most frequent use was palliative care of..." is not the finding but the predetermined method. The authors should summarize the most worth mentioning findings in the first paragraph, and then, discuss about them in the following paragraphs.

Response to reviewer: We thank the reviewer for his comment. We have shortened the first paragraph of the discussion accordingly. We focused on our main findings. The first paragraph now reads as follow:

"Our study reports the largest cohort of patients treated with HFOT at home or in a post-acute reenablement facility. In patients with end-stage respiratory failure and high oxygen requirements, survival was poor but HFOT allowed patients to return home. In tracheostomized patients admitted for lower respiratory tract infections the use of HFOT may have lowered after HFOT initiation."

(Comment 5)

P12, L3-: Conclusion

The author's statements "It allows patients with end-stage hypoxemic lung disease to return home. Its use may be considered in tracheostomized patients with severe exacerbationsIt decreases the frequency of admission when used in tracheostomized patients. These results are achieved at a reasonable cost." is still too strong. I think that the meaning of the present study is to encourage the future studies on HFOT at home.

Response to reviewer: We thank the reviewer for his comment. We have softened the conclusion to avoid over interpretation of our data.

“HFOT is a feasible technology at home and in post-acute re-enablement facilities for patients with end-stage hypoxemic lung disease and for tracheostomized patients with severe exacerbations. Associated costs to its use are reasonable. However, further prospective clinical trials are required to assess the efficacy, the cost-efficiency of such management as well as its impact in health-related quality of life.”