

Author Response 3

Reviewer Comments to Author:

The paper is interesting regarding the use of NHF in outpatients as a palliative care, well and compact written and provide new information to the community. But the paper would benefit from changes.

Response to reviewer: We thank the reviewer for its kind comment and aimed to improve the manuscript to match reviewer's comments.

Major:

1. It is not clear why the authors present three figures regarding survival in this retrospective design. There is no control (e.g. historical) group included. For this reason survival curves are not interesting. So far statements about survival differences between tNHF and NHF are not helpful.

Response to reviewer: We thank the reviewer for his comment. We presented two survival curves in the original manuscript. We agree that there was no control group. However, we feel that figure 2 illustrates two very different use of NHF at home. We further highlight that point when discussing the cost of NHF at home. We think that Figure 2 specially for the tracheostomy group will show to readers that despite a better survival, the prognosis of these patients is poor with a 40% mortality rate at 2 years. We agree with reviewer that Figure 3 had little to data interpretation. We therefore removed it from the manuscript.

2. The authors present no data about the course of measured values. These information should be presented in an own table. The reader should know all data (ABG before NHF, at discharge, after some time, exacerbation rates before,.....) in detail.

Response to reviewer: We thank the reviewer for his comment. We agree with reviewer's comment on ABG results. We looked at these data initially. However, the quality of the data is quite low and suffers from a large heterogeneity. As we are a tertiary center, we did not have access to ABG in stable state for most of the patients. We did not include admission ABG as clinical situation was highly variable. Some patient had their admission ABG on NIV, others on HFO. Similarly, we are not confident to report exacerbation rate in the all population as some patients were not initially followed up in our center. We gave the exacerbation rate for the tracheostomized patients as we are their reference center and they were all under our care prior to HFO initiation. We apologize for not being able to provide more details on the all population, but we do not want to provide to readers inaccurate data.

Minor:

P4L34: please cite a paper regarding WOB in adults (Biselli, Delorme,...)

Response to reviewer: We thank the reviewer for his comment. We have updated the manuscript to include relevant references on WOB and NHF.

P5L12: Was the study registered?

Response to reviewer: We thank the reviewer for his question. The study was not registered in a public database such as CT.gov. However, we had agreement of the local ethic committee.

Table 1: What means mechanical ventilation? Had the patients both or were ventilated before NHF initiation?

Response to reviewer: We thank the reviewer for his question. We have clarified that the data describes patientsq previously established on home ventilation. Ventilation could have been noninvasive or invasive (trache patients). We have updated table 1 header as follow:

Previously established on home mechanical ventilation

	Prior to HFOT initiation	Arterial blood gas on discharge home HFOT settings	p
Administred FiO ₂	26 [21 – 48]	26 [21 – 39]	0.563
pH	7.44 [7.40 – 7.49]	7.44 [7.42 – 7.48]	0.657
P _a CO ₂ (kPa)	5.6 [4.4 – 6.6]	5.4 [4.9 – 6.6]	0.739
P _a O ₂ (kPa)	9.6 [7.8 – 10.9]	9.7 [8.9 – 10.7]	0.397
Bicarbonates (mmol/L)	28.3 [23.8 – 34.4]	29.4 [24.7 – 34.6]	0.392
Saturation (%)	95 [90 – 97]	95 [93 – 96]	0.214

Table 1: Its essential to know breathing rate!

Response to reviewer: We thank the reviewer for his comment. We agree that the breathing rate is highly relevant with the use of NHF as it has been shown that NHF reduces RR by approximately 2/min in several papers. Sadly, given the retrospective nature of the trial and lack of standardization on assessments when NHF was initiated we don't have reliable data on patients breathing rate. We apologise for not being able to provide those data. We agree that it would have been an interesting marker of a decrease in WOB and of increased comfort.

P7L14: What is included in chronic airway disease?

Response to reviewer: We thank the reviewer for his question. Given small sample size, we included in the chronic airway disease group patients with COPD +/- PH and patients with diffuse bronchiectasis. We have clarified that point in the methods section that now reads as follow chronic airway disease (including COPD, COPD associated with pulmonary hypertension and diffuse bronchiectasis).

P7L30: How do you regulated the oxygen supplementation? Was the aim to achieve the same oxygenation like before initiation of NHF? Please show the ABG data before initiation of NHF. This para should be described exactly (table).

Response to reviewer: We thank the reviewer for his comment. We have updated the methods section so that readers can understand how home HFOT settings were chosen. The methods section now reads as follow: HFOT discharge settings were established by the medical team in charge of the patient. HFOT were chosen in order to ensure sufficient oxygenation and adapted to patient's tolerance. There was not specific protocol to determines home settings.

We've also updated the results section with a table 2 that reported the results of ABG before and after home HFOT initiation. However, given the frailty of our patients no ABG on room air was performed before home HFOT initiation. The results section now reads as follow:

Arterial blood gas prior and after home HFOT initiation are reported in table 2. Table 2: Patients' arterial blood gas prior and following home HFOT therapy initiation:

	Prior to HFOT initiation	Arterial blood gas on discharge home HFOT settings	p
Administered FiO ₂	26 [21 – 48]	26 [21 – 39]	0.563
pH	7.44 [7.40 – 7.49]	7.44 [7.42 – 7.48]	0.657
P _a CO ₂ (kPa)	5.6 [4.4 – 6.6]	5.4 [4.9 – 6.6]	0.739
P _a O ₂ (kPa)	9.6 [7.8 – 10.9]	9.7 [8.9 – 10.7]	0.397
Bicarbonates (mmol/L)	28.3 [23.8 – 34.4]	29.4 [24.7 – 34.6]	0.392
Saturation (%)	95 [90 – 97]	95 [93 – 96]	0.214

P7L40: What means exacerbation in this context? Please describe!

Response to reviewer: We thank the reviewer for his comment. We have clarified in the method section how exacerbations were defined in our study. The methods sections now read as follow: Acute exacerbation was defined by a worsening of respiratory symptoms associated to a change or increase in sputum color or production and/or fever and/or abnormal chest-X-Ray. For all patients, all cause of acute dyspnea was overruled by in charge physician

P7L44: These informations are not helpful (see above).

Response to reviewer: We thank the reviewer for his comment. Our paper aims to describe how to manage the home care of extremely complex and frail patients. Although we agree that the statistical comparaisn is not relevant in that case, we think that median survival is a useful information. Indeed, this information would help physicians to organize their unit to provide such care. Moreover, as costs varies between healthcare system, we believe that time at home on high flow is useful information to calculate costs-effectiveness in other centers. As explained above, we removed Figure 3 to avoid over interpretation of our data.

P8L3: Explain the differences in the discussion section!

Response to reviewer: We thank the reviewer for his comment. The difference in the length of stay at home is obviously strongly correlated to the survival. The results on page 8 differs from survival as we report here the outcome of 51 patients that were discharged at home whereas the survival was evaluated for the 71 patients including 20 that were discharged from the acute ward to a long term facility. We have clarified the results section that now reads as follow: After HFOT initiation, 51 (72%) patients returned home and 20 (28 %) were admitted in a post-acute re-enablement unit and then a long-term care facility. For the 51 patients discharge at home, 31 (61%) were in the nHFOT group and 20 (39%) in the tHFOT group.

We've also updated the discussion to make it clearer for readers. The discussion section now read as follow:

In the nHFOT group that was discharged to home that included 31 patients, median FiO₂ was 63%. This highlights the severity of their respiratory diseases and they would not have been able to be discharged on low flow LTOT. With a median length of stay at home of 15.7 weeks, we believe that HFOT allowed these 31 patients to spend a meaningful length of time at home

P10L18: Please write limitation because not all patients had a pulmonary disease (NMD).

Response to reviewer: We thank the reviewer for his comment. We have updated the discussion to highlight that some patient had normal lung but only muscular impairment. The discussion section now reads as follow:

all characterized by a severe pulmonary disease or respiratory muscles weakness

(...)

Our study has limitations given its retrospective design and the heterogeneity of our cohort that included patients with severe respiratory disease of variable etiology and patients with muscular weakness.