

Reviewer #1:

Q1: Hypothesis (specific) is missing in the introduction section of manuscript.

A1: We thank the reviewer for the suggestion, as per which, we have added a hypothesis to the introduction:

Page 5, lines 16–18: We hypothesized that HFNCO has an advantage over conventional mask oxygen in the resuscitation period of older orthopedic patients.

Q2: I would request the authors to start discussion with their outcomes and studies supporting/ conflicting the trial findings.

A2: We thank the reviewer for the suggestion. We have added this to the discussion section:

Page 12, lines 4–8: Consistent with our study, Oczkowski S et al. showed that HFNCO would lead to a higher paO_2/FiO_2 ratio and paO_2 value, but has no significant effect on $paCO_2$ value. In patients with no COVID-19, the European Respiratory Society recommends HFNCO instead of conventional nasal intubation and noninvasive ventilation for patients with hypoxic respiratory failure^[1].

Page 12, lines 23–28: There was no statistically significant difference in airway humidification between the two groups in our study. However, Wang G et al. showed in their study that the application of HFNCO in senior patients with LRTI could improve respiratory humidification, reduce the number of sputum aspirations, and improve anti-inflammatory effect^[2]. This may be due to our short observation period and the relatively simple method for evaluating airway humidification.

Q3: Lastly, I am not sure $paO_2 > 100$ (110 in traditional group VS 190 in HFO group) makes any clinical difference in relatively healthy old age patient cohort. I guess this will be important difference in sicker patients, thoracic/ cardiac surgery patients and difficult intubation patients.

A3: We agree that paO_2 makes a significant clinical difference in sicker patients, thoracic/cardiac surgery patients, and patients in whom intubation is difficult.

Takeshita Y et al. showed that HFNCO treatment can be useful for ventilator avoidance and allow quick withdrawal of oxygen administration^[3]. In this study,

four patients in the two groups had paO_2 lower than 80 mm Hg after 1 h of treatment with different oxygen administration methods. All four patients were in the conventional mask group, indicating that there were no patients with hypoxemia in the HFNCO group. Therefore, HFNCO may significantly reduce the incidence of hypoxemia, which is also the advantage of HFNCO.

This has been added to the discussion section (Page 10, line 20).

Reviewer #2

Q1: This study includes several kinds of orthopedic surgery, which may be a potential influencing factor of postoperative lung function. The author needs further clarification on this point.

A1: We did not specify the type of surgery at the time of the study because we wanted to assess the effect of clinical efficacy of high-flow nasal cannula oxygen during resuscitation after general anesthesia in older patients. Although surgical type may also affect the postoperative lung function of elderly patients, we conducted randomization during case collection, and there was no statistically significant difference between the surgical types of the two groups. This ensured consistency of data at baseline of this study. The surgical types have been added to Table 1.

Table 1. Preoperative baseline characteristics of the patients based on grouping

Characteristic	Conventional	HFNCO	P value
	mask group (n = 30)	group (n = 30)	
Age (years)	72.8 ± 5.7	72.5 ± 4.3	0.778
Sex			
Male	9 (30)	10 (33.3)	0.781
Female	21 (70)	20 (66.7)	
Weight (kg)	62.4 ± 10.5	63.1 ± 8.0	0.756
BMI	25.1 ± 3.8	25.3 ± 3.5	0.793

ASA			
II	15 (50)	21 (70)	0.114
III	15 (50)	9 (30)	
Operation type			0.320
TKA	18 (60)	13 (43.3)	
Spinal surgery	6 (20)	11 (36.7)	
Others	6 (20)	6 (20)	

Data are presented as means \pm standard deviations or *n* (%).

ASA: American Society of Anesthesiologists; BMI: body mass index; HFNCO: high-flow nasal cannula oxygen; TKA: total knee arthroplasty.

References

1. **Oczkowski S**, Ergan B, Bos L, Chatwin M, Ferrer M, Gregoretti C, Heunks L, Frat JP, Longhini F, Nava S, Navalesi P, Ozsancak Uğurlu A, Pisani L, Renda T, Thille AW, Winck JC, Windisch W, Tonia T, Boyd J, Sotgiu G, Scala R. ERS clinical practice guidelines: high-flow nasal cannula in acute respiratory failure. *Eur Respir J* 2022; 59: 2101574. [PMID: [34649974](#) DOI: [10.1183/13993003.01574-2021](#)]
2. **Wang G**, Wang H, Wang Y, Ba C. Therapeutic effects and the influence on serum inflammatory factors of high-flow nasal cannula oxygen therapy in senior patients with lower respiratory tract infections. *Technol Health Care* 2022. Epub ahead of print. [PMID: [35599514](#) DOI: [10.3233/THC-213609](#)]
3. **Takeshita Y**, Terada J, Hirasawa Y, Kinoshita T, Tajima H, Koshikawa K, Kinouchi T, Isaka Y, Shionoya Y, Tada Y, Tsushima K. High-flow nasal cannula oxygen therapy in hypoxic patients with COVID-19 pneumonia: A retrospective cohort study confirming the utility of respiratory rate index. *Respir Investig* 2022; 60: 146–153

Round 2

Specific Comments To Authors: I want to thank the authors for addressing the reviewer's initial comments. However, The hypothesis still appears quite vague - one technique has an advantage over the other appears very vague. I hope the authors will be able to address this and make it more specific and appropriate. On side note, they will need to define for the reader what they mean by having an advantage. Scientific Quality: Grade D (Fair) Language Quality: Grade B (Minor language polishing) Conclusion: Minor revision

Answer:

Thank you for your comment. This comment is very helpful to improve the quality of the manuscript. We have revised the manuscript to make the hypothesis more specific and appropriate for readers to understand: Page 5 lines 16-18 : It was hypothesized that HFNCO may improve oxygen partial pressure and reduce the incidence of postoperative hypoxemia in older patients undergoing elective orthopedic surgery.