Peer Review File

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Reviewer A

I have read an interesting paper. Thank you very much. However, I believe there are several issues that need to be addressed.

Comment 1 . Have you conducted post hoc tests for the one-way analysis of variance? It seems that there are variables, such as carbon dioxide partial pressure, that do not follow a normal distribution.
Reply 1: We are sorry for this confusion. We asked Su Guansheng, a statistics expert, to double-check the original data confirm that the variable of carbon dioxide partial pressure does not follow a normal distribution. Therefore, this variable have been corrected statistically by a non-parametric test (kruskal wallis test)
Changes in the text: The statistical results are updated synchronously in table 1.

Comment 2 . The number of hours of receiving noninvasive ventilation should be included in the table.
Reply 2: Because during the phone follow-up, the exact duration of use of noninvasive ventilation cannot be provided by the patient. Patients receiving noninvasive ventilation were classified as “yes”, otherwise was classified as “no”.
Changes in the text: we have modified our text as advised (see Page 5, line 12)

Comment 3 . I understand that supervised home-based pulmonary rehabilitation can be effective. However, this study is unsupervised. What evidence is there that unsupervised home-based pulmonary rehabilitation improves compliance with long-term respiratory rehabilitation?
Reply 3: we have to admit tha there are limitations in retrospective studies. The study data was not necessarily accurate, as it was based on patient responses over the phone. But combined with our previous articles, The research results show that home Zheng’s supine rehabilitation exercise can be performed with high compliance by elderly patients with severe or extremely severe COPD.
One of our previous studies showed that ZSRE can be performed by elderly patients with the acute exacerbation of severe or extremely severe COPD with high safety and compliance and was helpful for their recovery[1].

Comment 4 . 31% discontinue respiratory rehabilitation. In this study, 42% are in the non-rehabilitation group. While it may be better than inhalation medication compliance, the adherence rate to continued pulmonary rehabilitation appears lower than reported in previous reports. It raises doubts about the effectiveness of ZSRE specificity.
Reply 4: We mentioned in the introduction of the manuscript that previous studie showed that up to 31.08% of patients withdrew from pulmonary rehabilitation, and the studie from University of London and Kingston University [2] The purpose of the study was to identify prognostic features of

chronic obstructive pulmonary disease (COPD) associated with success or failure in pulmonary rehabilitation, and compared with our study, there are great differences in both sample size and follow-up time.
Changes in the text: we have modified our text as advised (see Page 3, line 12)

Comment 5．In Table 1, 6MWD and CAT are mentioned in the notes, but there is no entry in the table.

Reply 5: We are very sorry for this confusion. The 6MWD、CAT and mMRCT are mentioned in the notes of table have been deleted.

Changes in the text: The 6MWD、CAT and mMRCT are mentioned in the notes of table have been deleted (see Page 11).

Comment 6．Why was there a tendency of decreased one-year mortality despite a higher need for noninvasive ventilation in the multiple-session rehabilitation group?"

Reply 6: One of our previous studies showed that exercise rehabilitation combined with non-invasive ventilation can significantly improve the 6-minute walking distance of COPD patients, and the rehabilitation effect is more significant[3].

Comment 7．What criteria did you use to determine adverse events?

Reply 7: Adverse events during respiratory rehabilitation included decreased hypoxemia, acute dyspnea, and arrhythmia. During hospitalization, exercise rehabilitation was routinely taught to COPD patients. Exercise is comfort-oriented instead of extreme or subextreme exercise, and exercise will be stopped, as long as the patients are suffering from low hypoxemia or heart rate above 20% of the base heart rate. One of our previous studies showed that no hypoxemia, arrhythmia or other sudden events occurred during rehabilitation exercises at both hospital and home[1] .
Changes in the text: we have modified our text as advised (see Page 5, line 25)

Comment 8．It is understandable that there are limitations in retrospective studies; however, it is essential to consider the evidence supporting that ZSRE reduces rehospitalizations.

Reply 8: Studies have shown that early pulmonary rehabilitation, initiated at the beginning of exacerbation treatment or within 3 weeks of initiation of exacerbation treatment, improves exercise capacity and HRQoL along with reductions in hospital readmissions compared with no pulmonary rehabilitation. One of our previous studies showed that ZSRE can be performed by elderly patients with the acute exacerbation of severe or extremely severe COPD with high safety and compliance and was helpful for their recovery[1].Our study shown that compared with the year prior to education and training, the number of hospitalizations in the following year was significantly increased in the non-rehabilitation group and significantly decreased in both the one-session and multiple-session groups.

Comment 9．Shouldn't factors such as family composition and educational history be adjusted for as

confounding variables when assessing the continuation of home-based exercise?

Reply 9: Thank you for this constructive comment. It is explained in the third page of the paper. Since 2014, our department has been providing routine health education for patients hospitalized because of AECOPD, including education on the etiology, symptoms, treatment, inhalation methods, prognostic factors, and ZSRE for COPD. And rehabilitation prescriptions were recorded in the hospital inpatient medical administration system for follow-up. Therefore, confounding factors such as family composition and educational history have been minimized in this study.

References

[1]Lu H, Liu N, Hu J Y, et al. The effectiveness, safety and compliance of Zheng's supine rehabilitation exercise as a rehabilitation programme among elderly patients with AECOPD[J]. The clinical respiratory journal, 2020,14(6):533-540.

[2]Garrod R, Marshall J, Barley E, Jones PW.Predictors of success and failure in pulmonary rehabilitation.Eur Respir J. 2006 Apr;27(4):788-94. doi: 10.1183/09031936.06.00130605.

[3]Ya Fei, Zeguang Zheng. The role of short-term intensive exercise in pulmonary rehabilitation of patients with chronic obstructive pulmonary disease[J]. Chinese Journal of Tuberculosis and Respiratory Diseases, 2018,41(11):899-902.

Reviewer B

1. FEV1/FVC/LAMA/LAMB/ICS should be defined upon first use in the Main Text.

Reply 1: Thank you for pointing out this. FEV1/FVC/LAMA/LAMB/ICS have been modified as suggested.

Changes in the text: see Page 7, line 2/3.

2. All the abbreviations in the tables should be defined in the explanatory legend.

Reply 2: Thank you for pointing out this. All the abbreviations are updated synchronously in table 1 and 2.