



Commentary

A commentary on “Efficacy of pulmonary rehabilitation in improving the quality of life for patients with chronic obstructive pulmonary disease: Evidence based on nineteen randomized controlled trials - A systematic review and meta-analysis” [Int. J. Surg. 73 (2020) 78–86]

ARTICLE INFO

Keywords

Pulmonary rehabilitation
Chronic obstructive pulmonary disease
Quality of life
Meta-analysis

Dear Editor,

Chronic obstructive pulmonary disease (COPD) is the fifth leading cause of death and disease burden in the world, and by 2025 it is expected to have risen to the third position [1]. It is characterized by chronic airway obstruction that is not fully reversible, and has a variety of systemic consequences causing weight loss, nutritional abnormalities and skeletal muscle dysfunction. The two worst symptoms that patients perceive are dyspnoea and fatigue. In recent years, health care practitioners have come to realize that a pulmonary rehabilitation program in the stable period is important in improving COPD [2]. Pulmonary rehabilitation is a healthy approach for patients who have trouble with breathing. The main purpose of pulmonary rehabilitation training is to formulate a pulmonary rehabilitation plan correspondingly based on the actual situation of the patient, so as to improve a patient's quality of life and exercise tolerance, and to help the patient to improve his/her symptoms of dyspnea. Furthermore, this personalized therapy plan can decrease complications, enhance endurance, increase social participation, and reduce health care budgets. Although several studies have shown that pulmonary rehabilitation as a treatment can significantly improve exercise endurance and health of elderly patients with COPD, and improve their quality of life, the results of some studies still remain controversial, probably because of small sample sizes of these studies.

A meta-analysis can enhance the statistical power and enlarge sample size by combining several published studies which can then provide more robust evidences on the topic. Dong and colleagues [3] performed a systematic review and meta-analysis to evaluate the effectiveness of pulmonary rehabilitation in improving quality of life in patients with COPD. They found rehabilitation constituted an important component in management of patients with COPD, and was beneficial in improving quality of life of these patients.

Pulmonary rehabilitation has now been accepted within the scientific community as an essential strategy in management of patients with COPD. The development of objective health-related quality of life outcome measures and demonstration of a physiological rationale for exercise training in patients with COPD have facilitated this acceptance [4]. The results from another previously reported meta-analysis [5]

supported pulmonary rehabilitation in management of patients with COPD. The results from this current meta-analysis reconfirmed these findings.

The subgroup analysis in this currently reported meta-analysis stimulates further questions on pulmonary rehabilitation. This subgroup analysis identified difference in treatment effects between hospital-based and community-based programmes, and further research should be undertaken to find out why there should be such differences in treatment outcomes. Other factors that remain uncertain include the degree of supervision, intensity of training and how long treatment effect persists. The recommendations provided by the current guidelines from the American Thoracic Society state that at least three weekly sessions are necessary for treatment effects raise further issues that require future well-designed studies to support.

Provenance and peer review

Commentary, internally reviewed.

Funding

None.

Ethical approval

Not applicable.

Research registration unique identifying number (UIN)

Not applicable.

Trial registry number

Not applicable.

<https://doi.org/10.1016/j.ijss.2021.105934>

Received 25 March 2021; Accepted 25 March 2021

Available online 2 April 2021

1743-9191/© 2021 Published by Elsevier Ltd on behalf of IJS Publishing Group Ltd.

Author contribution

Jianping Hu and Ying Long contributed to the analysis and writing of the manuscript.

Guarantor

Jianping Hu and Ying Long.

Declaration of competing interest

All authors declare that there exist no conflict of interest.

References

- [1] A. Weiss, S. Porter, D. Rozenberg, E. O'Connor, T. Lee, M. Balter, K. Wentlandt, Chronic obstructive pulmonary disease: a palliative medicine review of the disease, its therapies, and drug interactions, *J. Pain Symptom Manag.* 60 (2020) 135–150.
- [2] A. Vagvolgyi, Z. Rozgonyi, M. Kerti, G. Agathou, P. Vadasz, J. Varga, Effectiveness of pulmonary rehabilitation and correlations in between functional parameters, extent of thoracic surgery and severity of post-operative complications: randomized clinical trial, *J. Thorac. Dis.* 10 (2018) 3519–3531.
- [3] J. Dong, Z. Li, L. Luo, H. Xie, Efficacy of pulmonary rehabilitation in improving the quality of life for patients with chronic obstructive pulmonary disease: evidence based on nineteen randomized controlled trials, *Int. J. Surg.* 73 (2020) 78–86.
- [4] F. Maltais, P. LeBlanc, C. Simard, J. Jobin, C. Berube, J. Bruneau, L. Carrier, R. Belleau, Skeletal muscle adaptation to endurance training in patients with chronic obstructive pulmonary disease, *Am. J. Respir. Crit. Care Med.* 154 (1996) 442–447.
- [5] X.L. Liu, J.Y. Tan, T. Wang, Q. Zhang, M. Zhang, L.Q. Yao, J.X. Chen, Effectiveness of home-based pulmonary rehabilitation for patients with chronic obstructive pulmonary disease: a meta-analysis of randomized controlled trials, *Rehabil. Nurs.* 39 (2014) 36–59.

Jianping Hu

Department of Emergency Medicine, Affiliated Hospital of North Sichuan Medical College, Emergency Center, Suining Central Hospital, Sichuan, China

Ying Long*

Respiratory Center, Suining Central Hospital, Sichuan, 629000, China

* Corresponding author.

E-mail address: sunshine37k@sina.com (Y. Long).