Commentary

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Commentary on Effect of Bronchoalveolar Lavage with Fiberoptic Bronchoscopy Combined with Vibration Sputum Drainage on Mechanically Ventilated Patients with Severe Pneumonia: A Prospective Randomized Controlled Trial in 286 patients

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As a new and significant technique for severe pneumonia patients, Fiberoptic bronchoscopy (FB) with bronchoalveolar lavage works by removing tracheal secretions under direct vision, to improve pulmonary function and effect of breathing [1-3]. Based on the principle of physical directional percussion vibration sputum discharge provides vertical and horizontal forces simultaneously to lose the mucus and secretions on the mucous membrane of the trachea and help the discharge of tracheal secretions [4-8]. The results showed that FB with bronchoalveolar lavage or vibration sputum discharge can reduce the pulmonary infection in severe pneumonia cases, but few studies have been done on the effect of the combination of both therapies in patients with severe pneumonia [9]. With a prospective randomized controlled clinical research method, 286 severe pneumonia cases with mechanical ventilation were selected from ICU of Hunan Provincial People's Hospital, China from January 2014 to July 2016, which were divided into control group and observation group in accordance with the random number table, 143 cases in each group, all the cases were applied the treatment that include sensitive antibiotics for infection and treatments for primary diseases and humidification, and then the patients in control group were given FB with bronchoalveolar lavage, and the cases in observation group were given vibration sputum discharge and FB with bronchoalveolar lavage. A comparison was made of the indexes in respiratory function, inflammation and curative effect and prognosis before and after the treatments between the two groups [10].

Novelty and Significance

Now there are few studies on FB with bronchoalveolar lavage combined with vibration sputum discharge. This study optimized the clinical program for diagnosis and treatment of severe pneumonia patients with mechanical ventilation and improved the nursing procedure of vibration sputum discharge. 2 h after treatment the respiratory function indexes of the patients in both groups were significantly improved, but the oxygenation indexes in the observation group were significantly higher than those in the control group, 24 h after treatments, the inflammation indexes of the patients in both groups were significantly decreased, but the indexes of WBC, PCT and CRP in the observation group were obviously lower than those in the control group ($P<0.01$). Compared with the control group, the effects of the treatments in the observation group was significantly improved, the amount of expectoration was significantly increased and the duration of mechanical ventilation and ICU stay was significantly shortened ($P<0.01$).

During mechanical ventilation the usage of sedatives or muscle relaxants, airway drying resulted in weakened cilia movements, inhibited cough reflexes and secretion retention, which could cause big accumulations of sticky secretions in the deep bronchi, blocking the airways, damaging pulmonary ventilation and ventilation function and consequently affect the prognosis of patients seriously [11-15]. When there is much sticky sputum in the lungs, sputum crust may block small airways and reduce the effect of FB with bronchoalveolar lavage, vibration, directional

percussions on the lungs can make mucus and secretion adhering to bronchial mucosal surface loose and move from small to large airways, which can obviously contribute to the clearance and movement of the sputum crust and secretion in the small airways [6-8].

Conclusion

For severe pneumonia cases with mechanical ventilation FB with bronchoalveolar lavage combined vibration sputum discharge is safer and more effective than a single method, which contributes to the improvement of respiratory function, shortens the duration of mechanical ventilation and ICU stay. In addition, this study did not show the effect of the combined therapy on 28 day mortality of the patients, which is to be confirmed by multicenter studies and a further enlargement of the sample size.

References

1 Djukanović R, Wilson JW, Lai CK, Holgate ST, Howarth PH (2012) The safety aspects of fiberoptic bronchoscopy, bronchoalveolar lavage and endobronchial biopsy in asthma. American Review of Respiratory Disease 143: 772-779.

2 Damith R, Amila R, Wijitha S (2015) Therapeutic limited bronchoalveolar lavage with fiberoptic bronchoscopy as a bridging procedure prior to total lung lavage in a patient with pulmonary alveolar proteinosis: A case report. J Med Case Rep 9: 93-93.

3 Chen S, Zou SQ, Fei LX, Chen SS (2015) Effect of bronchoalveolar lavage via fiberoptic bronchoscopy on PCT and CRP of pulmonary infection patients with mechanical ventilation in ICU. Chinese Gen Prac 18: 326-334.

4 Zhang FL (2015) Analysis of sputum drainage nursing of ICU patients after tracheotomy. China Health Standard Management 7: 215-216.

5 Morgan K, Osterling K, Gilbert R, Dechman G (2015) Effects of autogenic drainage on sputum recovery and pulmonary function in people with cystic fibrosis: A systematic review. Physiotherapy Canada 67: 319-326.

6 Quan HL, Feng SF, Bai ZQ, Wang SS (2015) The application and effect observation of mechanical vibration expectoration in patients with AECOPD mechanical ventilation. Chinese J Crit Care Med 35: 324-325.

7 Xu XY (2009) Development of vibratory sputum-ejection apparatus in clinic. Chin J Mod Nurs 15: 2339-2341.

8 Yao JK (2015) Observation of curative effect of fiber optic bronchoscopy combined with bronchoalveolar lavage in patients with ventilator associated pneumonia. China Pract Med 10: 86-87.

9 Zhang PY (2013) Care of pulmonary alveolar proteinosis treated with whole lung lavage combine with sputum excretion. Shanghai Nurs 13: 55-57.

10 Bahali K, Gedik AH, Bilgic A, Cakir E, Ustabas KF, et al. (2014) The relationship between psychological symptoms, lung function and quality of life in children and adolescents with non-cystic fibrosis bronchiectasis. Gen Hosp Psychiatr 36: 528-532.

11 Ortín A, Jiménez R, Rebollo S, Herrera L, Moreno S, et al. (2015) Outcome of patients with initial non-mechanical ventilation management in severe pneumonia. Int Care Med Exp 3: 95-95.

12 Hansen RN, Black DJ, Joish VN, Spilsbury-Cantalupo M, Sullivan SD (2015) Mortality and readmission in mechanically ventilated patients with pneumonia. Value Health 18: 169-170.

13 Park S, Cho YJ, Lee YJ (2015) Clinical impact of early bronchoscopy in mechanically ventilated patients with aspiration pneumonia. Int Care Med Exp 3: 388-388.

14 Kaya H, Rider KEB, Amdur RL, Wulf-Gutierrez M, Smith JA, et al. (2015) The effect of race on long term mortality in mechanically ventilated patients. Heart Lung 44: 321-326.

15 Yusheng Y, Chengping H (2015) Influential factors for mechanical ventilation offline in patients with severe pneumonia. Journal of Central South University 40:107-111.