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

Keywords: Bronchoalveolar lavage; Fiberoptic bronchoscopy; Vibration sputum drainage; Mechanically ventilated patients; Severe pneumonia; Randomized controlled

Received: May 12, 2017; Accepted: May 26, 2017; Published: May 31, 2017

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


