



Is It Essential to Consider Respiratory Dynamics?

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Chronic obstructive pulmonary disease (COPD), which is marked by a fixed obstruction of the airway, is a progressive disease including emphysema and chronic bronchitis. According to data from the fourth Korea National Health and Nutrition Survey, the prevalence of COPD is 13.4% in South Korea [1]. Intensive care unit (ICU) admission is required in more than 25% of patients with COPD [2]. ICU stays of patients with lung hyperinflation are longer compared to patients without lung hyperinflation [3].

In an acute exacerbation of COPD, airway resistance rises, positive end expiratory pressure (PEEP) rises, and hyperinflation of lungs occurs. Increased lung volume by hyperinflation compresses inferior vena cava and right ventricle, therefore decreases cardiac output and blood pressure. Moreover, asymmetric lung compliance aggravates unilateral lung hyperinflation which is found in unilateral lung transplantation, fibrosis or pneumonia of a single lung [4,5]. Severe obstruction increases work of breathing and fatigue of respiratory muscles [6].

With the understanding about respiratory dynamics, the better strategies will be discussed. The uneven distribution of volume could be reduced by reducing the diameter of the airway [7]. Measurement of lung hyperinflation is integral to the assessment of physiological impairment in individuals with COPD and can effectively be targeted for treatment [8].

Recognition and successful management of the unilateral lung hyperinflation may avoid complications such as barotrauma and hypotension associated with the presence of intrinsic PEEP [9].

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