The optimal tidal volume delivered by ventilator after pulmonary resection.

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摘要

Abstract

Abstract: Pulmonary function and gas exchange deteriorate after pulmonary resection. The vital capacity, tidal volume, and functional capacity decrease after pulmonary resection because of loss of effective lung volume and, therefore, affect the setting of the ventilator. Nineteen patients undergoing pulmonary resection were included in this study on the optimal tidal volume delivered by a ventilator. Five patients received mediastinal surgery or wedge resection of the lung, 4 had pneumonectomy, and 10 had lobectomy. Immediately after the pulmonary surgery, they were maintained with ventilatory support. Subsequently, a different setting of tidal volume on the ventilator was given for each patient, i.e., 6 ml/kg, 8 ml/kg, 10 ml/kg, 12 ml/kg, and 14 ml/kg. For each setting of tidal volume, a hemodynamic study was performed including cardiac output and other parameters. With the examination of Wilk's Lambda test, there was no difference in association with different settings of tidal volume on blood pressure ($F = 0.92$, $p = 0.51$), pulmonary artery pressure ($F = 0.95$, $p = 0.43$), pulmonary vascular resistance ($F = 0.24$, $p = 0.97$), systemic vascular resistance ($F = 0.42$, $p = 0.78$), and cardiac output ($F = 0.35$, $p = 0.93$) in 3 different groups of patients. It is concluded that after pulmonary resection a patient's lungs can be inflated with a tidal volume to 14 ml/kg during ventilatory support without compromise of cardiovascular performance.