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Manual Hyperinflation Improves Alveolar Recruitment in Difficult-to-Wean Patients

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Setting the scene:

The objectives of the study are to investigate the effect of manual hyperinflation (MH) in patients with atelectasis associated with ventilation support.

What did they do?

Thirty-three patients with atelectasis due to ventilatory support were recruited at the pulmonary ICUs. This study was a two-group, prospective, randomized study lasting for 6 days. Patients were assigned to one of two groups: standard care with supplemental MH (experimental group, n _ 10) or standard care only (control group, n _ 13). Patients received MH to a peak airway pressure of 20 cm H2O by use of the resuscitator. The resuscitator was slowly compressed with both hands, and an inspiratory breath was maintained for 3 to 5 s at the end of pressing half of the resuscitator, and then completely pressing the resuscitator. Expiration was passive and unobstructed to facilitate expiratory flow with no positive end-expiratory pressure applied. Sufficient time was allowed for the resuscitator to fill completely prior to the next breath. Airway suctioning of the endotracheal tube was performed. The MH procedure was carried out at a rate of 8 to 13 Breaths/min for a period of 20 min for each session for 5 days on days 1 to 5 of the study. Patients were assessed by sputum sampling, measuring pulmonary functions, respiratory capacity and oxygenation ratio.

Takeaway message:

MH performed on patients with atelectasis from ventilation support significantly improved alveolar recruitment.