PublisherInfo		
PublisherName	:	BioMed Central
PublisherLocation	:	London
PublisherImprintName	:	BioMed Central

Let your ventilated patients breathe!

ArticleInfo		
ArticleID	:	4311
ArticleDOI	:	10.1186/ccf-2001-73350
ArticleCitationID	:	73350
ArticleSequenceNumber	:	22
ArticleCategory	:	Paper Report
ArticleFirstPage	:	1
ArticleLastPage	:	3
ArticleHistory	:	RegistrationDate : 2001–12–5 Received : 2001–8–17 OnlineDate : 2001–12–5
ArticleCopyright	:	Biomed Central Ltd2001
ArticleGrants	:	
ArticleContext	:	1305455

Jeremy Bewley,[Aff1]

Aff1 Bristol Royal Infirmary, UK

Keywords

Acute lung injury, adult respiratory distress syndrome, ventilation

Context

'Protective ventilation' is the practice of ventilation between the lower and upper inflection points of a static pressure/volume compliance curve. In acute lung injury (ALI) this generally results in the use of high levels of positive end-expiratory pressure (PEEP) and small tidal volumes. It has now been demonstrated to reduce mortality in patients with ALI. Does spontaneous breathing have any additional benefits?

Significant findings

'Protective ventilation' is the practice of ventilation between the lower and upper inflection points of a static pressure/volume compliance curve. In acute lung injury (ALI) this generally results in the use of high levels of positive end-expiratory pressure (PEEP) and small tidal volumes. It has now been demonstrated to reduce mortality in patients with ALI. Does spontaneous breathing have any additional benefits?

Comments

The use of airway pressure release ventilation (APRV) and reduced levels of sedation permitted spontaneous breathing. By comparison with pressure-controlled ventilation (PCV) and deeper sedation, the use of APRV was associated with lower requirements for inotropic agents and with significant and clinically important increases in respiratory system compliance, arterial oxygen tension and cardiac index. APRV also resulted in significantly shorter durations of ventilatory support and ICU stay.

This study implies that ICU ventilators should allow patients to spontaneously breathe throughout the respiratory cycle. It also raises the question of whether establishing total spontaneous breathing with support even earlier may be better - this requires further study.

Methods

Patients (*n*= 30) with severe multiple trauma were randomised to receive either APRV or PCV for the first 3 days of ventilation. Static compliance curves were measured daily with ventilatory parameters set accordingly in both groups to achieve 'protective ventilation'. Ventilation between the lower and upper inflection points with tidal volumes of 7 ml/kg was then delivered to both groups.

Additional information

The Acute Respiratory Distress Syndrome Network: **Ventilation with lower tidal volumes for acute lung injury and the acute respiratory distress syndrome.**

New Engl J Med 2000, **342**:1301-1308.

Kress JP, Pohlman AS, O'Connor MF, Hall JB: **Daily interruption of sedative infusions in critically ill patients undergoing mechanical ventilation.**

New Engl J Med 2000, **342**:1471-1477.

References

1. Putensen C, Zech S, Wrigge H, Zinserling J, Stuber F, Von Spiegel T, Mutz N: Long term effects of spontaneous breathing during ventilatory support in patients with acute lung injury. Am J Respir Crit Care Med. 2001, 164: 43-49.

This PDF file was created after publication.