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Title: Effect of the level of volume-targeted ventilation on the spontaneous respiratory activity of infants born at term

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Body: Prematurely born infants frequently breathe while being mechanically ventilated. The pattern of their respiratory efforts with ventilator inflation influences outcome, in particular active expiration leading to pneumothorax. Aim: To compare patient-ventilator interactions in infants born at term at different levels of volume-targeting (VT). Methods: 15 infants, median gestational age 38 (range 34-41) weeks were studied at a median postnatal age of five days. The infants were studied at VT levels of 0, 4 and 6 ml/kg, applied in random order. Five infants were on conventional ventilation (CMV) and 10 on triggered ventilation (PTV). Oesophageal, gastric and airway pressures, flow and volume were simultaneously recorded for at least five minutes at each VT level; 50 consecutive breaths were analysed at each VT level. Results: In the infants studied on CMV, active expiration was more common at a VT level of 4 ml/kg than at VT levels of 0 and 6 ml/kg ($p<0.0001$), whereas in infants on PTV, active expiration was significantly lower at 4 ml/kg than at VT levels of 0 and 6 ml/kg ($p<0.0001$) (Table). At each VT level, the occurrence of active expiration differed significantly between ventilator modes.

	CMV	PTV	p
No VT	48	56	<0.0001
VT 4 ml/kg	77	37	<0.0001
VT 6 ml/kg	42	48	0.003

Data are presented as % of inflations associated with active expiration

Conclusion: The underlying mode of ventilation significantly influences whether low compared to higher levels of volume targeting will increase active expiration.