

## Letter

# Mechanical ventilation in severe asthma

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See related review by Stather and Stewart in this issue, page 581 [<http://ccforum.com/content/9/6/581>]

In their review on mechanical ventilation in severe asthma, Stather and Stewart [1] raise a concern that use of external positive end-expiratory pressure (PEEP) will result in increased total PEEP and worsened gas trapping [1]. Of critical importance to our understanding of whether application of external PEEP will be beneficial is assessment of the presence or absence of expiratory flow limitation [2,3]. When the severity of airflow obstruction is such that flow limitation is present, application of PEEP will not influence expiratory flow or upstream pressures. At the bedside, one can examine for this by noting the effect of applied external PEEP on the inflation pressure of subsequent breaths. In the absence of flow limitation, increased external PEEP will be transmitted upstream, causing parallel increases in alveolar pressure, peak airway pressure, and end-inspiratory pressure. The associated increase in lung volume will tend to moderate this rise in airway pressure. When flow limitation is present, upstream pressures are 'protected' from increases in downstream pressure (or PEEP). In this situation, inflation pressures are independent of external PEEP. Occasionally, inflation pressure may actually decrease with external PEEP. Here, the external PEEP may act to 'stent open' the central airways and allow reduction in gas trapping and reduction in end-expiratory lung volumes [4]. Examination of the effect of increasing external PEEP on inflation pressure may allow identification of those patients who might benefit from administration of external PEEP.

## Competing interests

The author(s) declare that they have no competing interests.

## References

1. Stather DR, Stewart TE: **Clinical review: Mechanical ventilation in severe asthma.** *Crit Care* 2005, **9**:581-587.
2. Mead J, Turner JM, Macklem PT, Little JB: **Significance of the relationship between lung recoil and maximum expiratory flow.** *J Appl Physiol* 1967, **22**:95-108.
3. Pride NB, Permutt S, Riley RL, Bromberger-Barnea B: **Determinants of maximal expiratory flow from the lungs.** *J Appl Physiol* 1967, **23**:646-662.
4. Qvist J, Andersen JB, Pemberton M, Bennike KA: **High-level PEEP in severe asthma.** *N Engl J Med* 1982, **307**:1347-1348.