letters

TO THE EDITOR

Please submit letters for the Editor's consideration within three weeks of receipt of the Journal. Letters should ideally be limited to 350 words, and can be submitted on disk or sent by email to: Clinicalmedicine@rcplondon.ac.uk

Weaning from mechanical ventilation

Editor – We read Moonsie and Davidson's concise review of weaning from mechanical ventilation (*Clin Med* September/October 2005, pp 445–8) and feel the points below should be noted.

Although assessment of respiration during a spontaneous breathing trial (SBT) may be a good predictor of successful extubation, studies show that this practice is associated with a re-intubation rate of 13–19%.[1] In the UK, this method of patient assessment is not commonly applied and other strategies may be associated with a lower re-intubation rate.[2] Re-intubation may be an independent adverse prognostic factor in intensive care unit patients.[3]

Regarding non-invasive ventilation following extubation as a weaning strategy, the paper by Ferrer *et al*[4] cited by the authors involved patients, predominantly with chronic obstructive pulmonary disease (COPD), who failed SBTs for three consecutive days. Non-invasive ventilation (NIV) led to fewer days on ventilatory support in comparison to un-extubated control patients who had persistent SBTs.[4] However, another larger study of patients, predominantly *without* COPD, who *passed* SBTs but then developed acute respiratory failure following extubation, demonstrated that NIV as respiratory support may be associated with increased mortality.[1] The message is that NIV may be a useful weaning tool in extubated patients with respiratory failure and COPD, but may not be successful for other patients with respiratory failure following extubation. Furthermore, this weaning strategy may be dangerous.

In addition, interesting new research has been published regarding 'knowledge-based systems for automatic ventilatory management'. These ventilators automatically decrease the level of ventilatory assistance and aim to facilitate weaning based on defined physiological parameters. Early results show that these systems may detect patients suitable for weaning earlier than current practice,[5] but larger trials are awaited.

TAMSIN GREGORY
SHO in Anaesthetics, Southampton General Hospital

JULIUS CRANSHAW
Consultant in Anaesthetics and Intensive Care Medicine, Royal Bournemouth Hospital

References

1 Esteban A, Frutos-Vivar F, Ferguson ND, Arabi Y *et al*. Noninvasive positive-pressure ventilation for respiratory failure after extubation. *N Engl J Med* 2004;**350**:2452–60.
2 Walsh TS, Dodds S, MacArdle F. Evaluation of simple criteria to predict successful weaning from mechanical ventilation in intensive care patients. *Br J Anaesth* 2004;**92**:793–9.
3 Evans T. International Consensus Conferences in Intensive Care Medicine: non-invasive positive pressure ventilation in acute respiratory failure. *Intensive Care Med* 2001;**27**:166–78.
4 Ferrer M, Esquinas A, Arancibia F, Bauer TT *et al*. Noninvasive ventilation during persistent weaning failure: a randomised controlled trial. *Am J Respir Crit Care Med* 2003;**168**:70–6.
5 Bouadma L, Lellouche F, Cabello B, Taille S *et al*. Computer driven management of prolonged mechanical ventilation and weaning; a pilot study. *Intensive Care Med* 2005;**31**:1446–50.

In response

Dr Gregory and Dr Cranshaw make some useful comments. Within the space constraint, however, we were unable to cover all aspects of weaning. With reference to alternative weaning strategies referred to by the correspondents, the paper quoted was an unblinded observational audit of daily screening using criteria similar to those assessed by the SBT.[1] The study was performed in a unit without an established weaning protocol and 89 out of 293 (30%) patients did not achieve ventilator independence compared to 20% complications (including re-intubation or prolonged ventilation) in the Ely study.[2] We remain unconvinced that a protocol for weaning changes practise, over and above educational support to nurses, in a general purpose UK intensive care unit (ICU). Our study of outcomes in patients, referred to a regional weaning centre,[3] our use of non-invasive ventilation (NIV) was to enable decannulation of tracheostomised slow-wean patients and not as an alternative way to support spontaneous breathing. In the ICU, however, extubation of patients with chronic obstructive pulmonary disease (COPD) onto NIV can be effective.[4] We accept that in non-COPD post-extubation failure, a prolonged trial of NIV is contra-indicated as in this situation NIV use may increase mortality.[5]

IAN MOONSIE
Specialist Registrar

CRAIG DAVIDSON
Consultant in Intensive Care Medicine and Head of Respiratory Services

Guy's and St Thomas's Hospital, London

References

1 Walsh TS, Dodds S, MacArdle F. Evaluation of simple criteria to predict successful weaning from mechanical ventilation in intensive care patients. *Br J Anaesth*. 2004;**92**;793–9.
2 Ely EW, Baker AM, Dunagan DP, Burke HL *et al*. Effect on duration of mechanical ventilation of identifying patients capable of breathing spontaneously. *N Engl J Med* 1996;**335**:1864–9.
3 Pilcher DV, Bailey MJ, Treacher DF, *et al*. Outcomes, cost and long term survival

of patients referred to a regional weaning centre. *Thorax* 2005;**60**:187–92.
4 Ferrer M, Esquinas A, Arancibia F, Bauer TT *et al*. Noninvasive ventilation during persistent weaning failure; a randomised controlled trial. *Am J Respir Crit Care Med* 2003;**168**:70–6.
5 Esteban A, Frutos-Vivar F, Ferguson ND, Arabi Y *et al*. Noninvasive positive-pressure ventilation for respiratory failure after extubation. *N Engl J Med* 2004;**350**;2452–60 .

Clinical & Scientific letters

Letters not directly related to articles published in *Clinical Medicine* and presenting unpublished original data should be submitted for publication in this section. Clinical and scientific letters should not exceed 500 words and may include one table and up to five references.

Acute thromboembolism in medical inpatients: the need for a focus on prevention rather than cure

Venous thromboembolism (VTE) is a major cause of morbidity and mortality in medical inpatients. Autopsy studies show that approximately 75% of patients dying from pulmonary embolisms (PEs) in general hospitals were immobilised patients with medical illnesses[1] and that, overall, PEs cause or contribute to approximately 1 in 10 hospital deaths of medical patients admitted to general hospitals.[2] Thromboprophylaxis is highly effective and cost-effective, with PE being the most common, preventable cause of hospital death. Despite various current clinical guidelines, physicians fail to prescribe effective thromboprophylaxis for the majority of medical inpatients at risk of VTE. Unfortunately, the majority of clinical meetings and conferences – such as the Royal College of Physicians (RCP) conference held in April 2005 and reported recently in *Clinical Medicine* (*Clin Med* July/August 2005, pp 402–5) – have focused largely on the assessment, investigation and treatment of suspected VTE in medical patients, with limited discussion on the need for a simplified approach to VTE prophylaxis in this patient group.

The Agency for Healthcare Research and Quality has published a report entitled 'Making health care safer: a critical analysis of patient safety practices'.[3] This systematic review ranked 79 patient-safety interventions based on the strength of the evidence supporting more widespread implementation of these procedures. The highest ranked safety practice was the 'appropriate use of prophylaxis to prevent VTE in patients at risk'. During the last 30 years many studies have shown that unfractionated heparin and low-molecular-weight heparin (LMWH) are effective and safe for the prevention of venous thromboembolism in surgical patients leading to widespread use of these agents for thromboprophylaxis in such cases. Far fewer trials, however, have investigated the benefit of thromboprophylaxis in medical patients.

Despite this, several consensus groups, including the American College of Chest Physicians (ACCP)[4], the Scottish Intercollegiate Guidelines network (SIGN)[5],

Table 1. Risk factors used in the MEDENOX trial.

Risk factors required for patient inclusion in MEDENOX Trial	Additional risk factors analysed in the trial
Congestive heart failure (NYHA III and IV)	Age >75
Acute respiratory failure	Previous VTE
Acute infection	Obesity: BMI > 30 for men. >28 for women
Acute rheumatic disorders	Varicose veins
Inflammatory bowel disease	Chronic heart failure
	Chronic respiratory failure
	Immobility Independent walking <10 metres

Sub-group analysis has shown that medical patients suffering from any one of the risk factors shown in Table 1, except acute rheumatic disorders and inflammatory bowel disease due to low patient numbers, had significant relative risk reductions (from 22% to 50% ($p<0.05$) in the incidence of VTE by receiving 40mg enoxaparin SC OD compared to placebo.

Please note that the risk factors described in the PREVENT trial were similar but not identical.