Preoxygenation to improve patient safety

Sir,

I read with interest Mirza and Cameron's article 'The tracheostomy tube change: a review of techniques' (vol 62(3), 2001, p. 158). Overall this was useful and informative, especially the tables relating cannula or endotracheal tube connector size to suction catheter for use in exchange. Many intensive care units will find this useful for safe tracheostomy change.

However, I have to take issue with one statement as it compromises patient safety. The authors advocate the use of 100% oxygen for several minutes when embarking on a tracheostomy tube change in a difficult patient to increase the oxygen reserve. While this is certainly advisable in the difficult patient, it should be extended to all patients regardless of anticipated difficulty.

Anaesthetists are well aware of the value of preoxygenation in increasing patient safety at times when the airway is potentially compromised. Nunn (1993) states that with preoxygenation, the body's store of oxygen in the lungs (functional residual capacity) can be increased from 450 ml to 3000 ml, with that stored in blood rising from 850 ml to 950 ml. Based on average oxygen consumption, Nunn states that the time for a fall in PaO_2 to lead to loss of consciousness would be 90 seconds on air but approximately 8 minutes after breathing 100% oxygen for a few minutes.

This clearly increases the margin of safety for any airway procedure should problems arise. Preoxygenation is a standard component of routine and emergency induction of anaesthesia. Predictive tests to identify patients with difficult airways will help but also have a significant false negative identification. Preoxygenation allows extra airway manipulation time if problems do arise and has undoubtedly saved lives.

The authors admit to both anticipated and unexpected difficulties at the time of tube change leading to excessive delay in tracheostomy tube replacement. Not preoxygenating, a simple and quick procedure, before tube exchange in the unexpected difficult cases could be fatal.

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Nunn JF (1993) *Nunn's Applied Respiratory Physiology.* 4th edn. Butterworth-Heinemann, Oxford

Sir,

We readily concur that it is reasonable to administer oxygen to all patients before their first tracheostomy tube change. When the tracheostomy is not the sole airway or the operator is satisfied with the tracheostomy then preoxygenation may not be deemed to be necessary.

We thank Dr Evans for his interest in our paper and for the important point which he has raised.

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Airline travel and DVT: a cautionary tale

Sir,

Concerned by media suggestions of an association between airline travel and deep vein thrombosis (DVT), a man was performing gentle exercises on a journey from Australia to the UK. He sustained a twisting injury to the ankle when the aircraft encountered turbulent air and X-ray subsequently demonstrated a fracture of the ankle (*Figure 1*). This was treated by plaster splintage.

During treatment he developed pain and swelling of the calf and required Doppler investigation for DVT. This fortunately proved negative. Clearly DVT is not the only possible complication to be considered when flying.

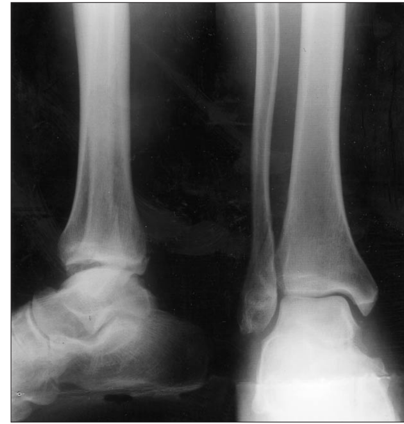

Figure 1. X-ray showing fractured ankle.

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Notice

The authors of *Producing a Multimedia CD-ROM* (Vol 62(8), 2001, p. 492) are keen for feedback on their project. Any comments should be sent to Mira Vogel, Research Fellow, Academic Department of Health Care of Older People, 1st Floor Alderney Building, Royal London Hospital (Mile End), Bancroft Road, London E1 4DG, e-mail mira.vogel@thht.org, telephone 020 7377 7000 x4770.

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