

REFERENCES

- 1 Malby JR, Rana NB, Amarya R, Shrestha BM. Anaesthesia training in Nepal. *Can J Anaesth* 1987; 34: 51-5.
- 2 Swar BB. An alternative to conventional oxygen cylinders. *J Nepal Med Assoc* 1986; 24: XX-XXIV.

Revised Guidelines to the Practice of Anaesthesia

To the Editor:

Having read the revised Guidelines^{1,2} and noted the new standards and techniques for patient-monitoring during anaesthesia, I must express my concern for the failure of the Guidelines to address an area of practice which in my opinion must sooner or later be regulated.

The Guidelines totally ignore the issue of fatigue and stress suffered by the anaesthetist who may continue to provide service after a prolonged period of "on-call duty." All industries today specify exactly what constitutes appropriate working hours. Union bosses would be horrified to learn of the hours worked by many of our colleagues and would call for independent enquiries into the issue of public safety and anaesthesia.

Unless the profession itself undertakes an innovative approach to the most efficient utilization of its skilled manpower, administrators and bureaucrats may further dictate our future practice.

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REFERENCES

- 1 Guidelines to the Practice of Anaesthesia as recommended by the Canadian Anaesthetists' Society. 1987. Canadian Anaesthetists Society, Toronto, Ontario.
- 2 Duncan PG. Revised Guidelines to the Practice of Anaesthesia. *Can J Anaesth* 1987; 34: 107-9.

REPLY

The Standards of Practice Committee of the Canadian Anaesthetists' Society is well aware of the influence of stress and fatigue on physician performance. Unfortunately, it is not an easy area in which to make noncontentious statements. For example, not all stresses are work related, and limited workloads would by nature be generalities, ignoring nonprofessional factors. Desirable workloads are also extremely variable both between physicians and between different points in the career of the same individual. Finally, no reliable information exists as to whether case numbers, case profiles, or hours worked should best express optimal working conditions for anaesthetists. The Guidelines were therefore limited to suggesting those elements necessary for safe practice; any debility (including fatigue)

interfering with the attainment of these principles would clearly be unacceptable.

One has to wonder why any such statement should be necessary. Surely as independent professionals, anaesthetists are capable of regulating their own life styles when patient safety is the issue. No surgeon has the right to place his patient at risk by "forcing" an anaesthetist impaired by fatigue to provide elective service post-call. No anaesthetic department should be allowed to limit its membership for economic reasons if quality of care is constrained. It is time we, individually and collectively, learned to say "no" to those who would have us violate our professional ethics in this manner. We would thereby remove the need for third parties to limit our practice in the arbitrary fashion suggested by Dr. Sheffman, and elevate the image of anaesthesia by responsible action.

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Nitrous oxide is contraindicated in endoscopic surgery

To the Editor:

In their report on trans-tracheal ventilation for laser endoscopic surgery, Ravussin *et al.*¹ use 50 per cent nitrous oxide and 50 per cent oxygen during laser resection of laryngeal lesions.

The use of nitrous oxide during laser endoscopic surgery exposes patients to an unnecessary risk of fire or explosion since nitrous oxide supports combustion.² Mixtures of nitrous oxide and oxygen support the combustion of endotracheal tubes set on fire by a CO₂ laser just as readily as 100 per cent oxygen.³

It has been recommended that the minimum concentration of oxygen which is clinically appropriate should be administered along with helium or nitrogen during laser endoscopic surgery.⁴

Endotracheal explosion was the most common serious complication of CO₂ laser surgery in a recent survey.⁵ The elimination of nitrous oxide from anaesthetic gases should lessen the occurrence of these disasters.

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REFERENCES

- 1 Ravussin P, Bayer-Berger M, Monnier P, Savary M, Freeman J. Percutaneous transtracheal ventilation for laser endoscopic procedures in infants and small children with laryngeal obstruction: report of two cases. *Can J Anaesth* 1987; 34: 83-6.
- 2 Adriani J. The chemistry and physics of anesthesia. Springfield: C.C. Thomas, 1962; 198.
- 3 Gaba DM, Hayes DM, Goode RL. Incendiary characteristics of a new laser-resistant endotracheal tube. *Anesthesiology* 1984; 61: A147.
- 4 Byles PH, Kellman RM. The hazard of nitrous oxide during laser endoscopic surgery. *Anesthesiology* 1983; 59: 258.
- 5 Fried MP. A survey of the complications of laser laryngoscopy. *Arch Otolaryngol* 1984; 110: 31-4.

REPLY

The letter of Dr. Sosis gives us the opportunity to repeat once more the great advantage of the transtracheal jet ventilation technique: there is no endotracheal tube in place to act as a source of fuel for combustion. Thus the first of the three following conditions required for an endotracheal fire or explosion² has been eliminated: (a) the presence of a flammable agent or material, (b) a gas mixture which supports combustion and (c) a source of ignition of sufficient energy. In a recent survey (cited by Dr. Sosis) by Fried³ on the complications due to the use of CO₂-laser reported by 210 otolaryngologists, endotracheal explosion attributed to ignition of an endotracheal tube was the commonest.^{2,4}

We fully agree that nitrous oxide also supports combustion of an endotracheal tube. For that reason, during laser surgery, we use either a red-rubber tube wrapped with aluminium tape in a 25 per cent oxygen environment without nitrous oxide, or the transtracheal jet ventilation technique, especially when the operative field has to be fully exposed.

REFERENCES

- 1 Blackburn JP. Explosions. In: Scientific Foundations of Anaesthesia. 3rd Edition. Scurr and Feldman (Eds.). Heineman medical books, London, 1982, p. 566.
- 2 Schramm VL, Mattox DE, Stoll SE. Acute management of laser-ignited intratracheal explosion. *Laryngoscope* 1981; 91: 1417-26.
- 3 Fried MP. A survey of the complications of laser laryngoscopy. *Arch Otolaryngol* 1984; 110: 31-4.
- 4 Snow JL, Norton ML, Saluja TS, Estanislao AF. Fire hazard during CO₂ laser microsurgery on the larynx and trachea. *Anesth Analg* 1976; 55: 146-7.

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Hereditary angioneurotic oedema, tracheal intubation and airway obstruction

To the Editor:

We read with interest the recent paper by Poppers,¹ in which a patient with hereditary angioneurotic oedema (HANE) underwent dental restorations and extractions under general anaesthesia. Successful tracheal intubation was performed without precipitating an acute attack. Three previous case reports of general anaesthesia with tracheal intubation were not cited by Dr. Poppers.

Hamilton *et al.* described a patient with HANE who underwent dental extractions under general anaesthesia with oral intubation.² Two units of fresh frozen plasma (FFP) were given preoperatively, and despite a history of recurrent attacks of facial swelling, one of which required a tracheostomy, there were no untoward postoperative sequelae. There is another report of a pregnant patient who required a rapid-sequence induction for urgent Caesarian section.³ FFP and chlorpheniramine were administered intraoperatively and the postoperative course was uneventful. Orotracheal intubation and halothane anaesthesia were provided for another patient undergoing parotidectomy.⁴ The patient was pretreated with ϵ -aminocaproic acid followed by a five-day postoperative course.

Life-threatening upper airway obstruction may also occur in acquired C₁ esterase deficiency, which has many similarities with HANE. Epinephrine, corticosteroids and anti-histamines do not appear to be helpful for the prophylaxis or treatment of acute attacks in either condition. Razis *et al.* describe the uneventful orotracheal intubation of a patient with acquired C₁ esterase deficiency who required laparotomy for mesenteric vein thrombosis, a recognised complication of tranexamic acid.⁵ A patient undergoing cholecystectomy has also been described.⁶ The anaesthetic technique is not mentioned but it is likely to have included tracheal intubation.

HANE is a relatively rare condition and reports describing the anaesthetic management are welcome. We agree that tracheal intubation should be avoided if at all possible,⁷ and that all patients should receive prophylactic therapy prior to surgery. Facilities for emergency tracheostomy and intensive therapy should be available. Attacks of angioedema are unpredictable but tracheal intubation may not be as hazardous as previously suggested.

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