Correspondence

Awareness during anesthesia

To the Editor:

All anesthesiologists will join me in extending sincere sympathy to Ms. Hoogewerf, who was aware during surgery for an ovarian cyst (Can J Anaesth 1998; 45: 821). This mishap is one of the twenty sudden occurrences which anesthesiologists most dread while they administer anesthesia. Though very rare, some physicians become so fearful of encountering such an event that they withdraw from the practice of anesthesia.

However, Ms. Hoogewerf makes the very important point that the administration of anesthesia is very difficult, and fraught with uncertainty, because we are not dealing with predictable programmable inanimate objects, but are anesthetizing people, whose condition may change with startling rapidity.

This morning I anesthetized two consecutive patients: the first required only 20% of the expected quantity of anesthetic agent and recovered within 20 mins while the family asked three times why recovery was so slow. The second patient required 100% more anesthesia than the average patient, but was adequately anesthetized and recovered normally.

We should all be grateful to your correspondent for highlighting the problems of providing anesthesia, and resolve to be aware of the difficulties and the possibility of awareness during light anesthesia.

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Concept of endotracheal intubation

To the Editor:

I read with interest the letter from Orlando R. Hung regarding the concept of endotracheal intubation.¹ The endotracheal tube (ETT) is generally placed under direct vision. When visual access to the vocal cords is not possible, a non-visual technique is then employed. However, a *non-visual* technique is not a *blind* technique.² They are *guided* techniques; efforts are always made to guide the ETT into the larynx. The guidance can be patient's breathing (either the sound or the expi-

ratory CO₂),^{3,4} or the feeling of the finger (digital intubation) within the mouth or over the neck. It also can be an introducer inserted by various means including the use of a gum elastic bougie, lighted stylet, fibreoptic scope, or retrograde wire.⁵ Employment of specially designed equipment such as a laryngeal mask airway (LMA or LMA-FASTRACH), or an oral airway intubator (Augustine guide) are other alternatives. Therefore, it would be appropriate to classify endotracheal intubation techniques into two major groups: 1. visual intubation and 2. non-visual intubation or guided intubation. Fibreoptic intubation is a type of *introducer intubation* which is a subgroup of guided intubation.⁵

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REPLY:

I must thank Dr. King for his interest in my comments. The prime objective of most Classifications in medicine is to provide a prediction of an outcome. e.g. Mallampatti classification has been used to predict difficult laryngoscopic intubation, and the American Society of Anesthesiologists classification has been used to correlate with peri-operative mortality and morbidity.¹⁻² Although the classification of intubating techniques does not have a predictive value, it may serve as a useful tool to illustrate conceptually different intubating techniques for teaching purposes. While I welcome Dr. King's

suggestion regarding grouping intubating techniques, the choice of the word "blinded" or "non-visual" is a matter of personal preference.

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No time to change

To the Editor:

We wish to describe a case where the practice of changing volatile agent after inhalation induction of anesthesia to reduce cost may have resulted in serious morbidity.

A three-year-old child was anesthetized with sevoflurane 8% in oxygen. Once asleep, the concentration of sevoflurane was reduced to 4% and nitrous oxide 60% added and intravenous access established. A laryngeal mask (LMA) was inserted with ease and isoflurane 1.5%, a less expensive anesthetic agent, was substituted for sevoflurane. The child was then positioned in the left lateral position for a caudal block. On cleaning the skin the child moved and regurgitated gastric contents resulting in laryngospasm. The arterial hemoglobin oxygen saturation (SpO_2) decreased to 83%. The LMA was immediately removed and the oropharynx cleared. Continuous positive airway pressure was applied by facemask and 1 mg·kg⁻¹ succinylcholine administered. The child was turned supine, trachea intubated and lungs ventilated, the SpO_2 returning to 99%. The caudal was successfully completed and surgery continued with no further incident.

Patients should at an adequate depth of anesthesia when using the LMA to avoid regurgitation and possible aspiration of gastric contents.¹ Switching volatile agents resulted in an inadequate depth of anesthesia as recovery from sevoflurane was faster than induction with isoflurane (blood/gas partition coefficients 0.6 and 1.4 respectively). The practice of changing volatile agents for cost savings during anesthesia should be discouraged in favour of low flow anesthesia especially when the airway is unprotected such as when using a facemask or LMA.

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REFERENCE

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The proportion of high risk preterm infants with postoperative apnea and bradycardia is the same after general and spinal anesthesia

To the Editor:

In contrast to general anesthesia, spinal anesthesia for herniorrhaphy may protect preterm infants from postoperative apnea.¹⁻⁴ In a prospective controlled study we investigated whether unsupplemented spinal anesthesia (uSA) reduces the proportion of premature infants with postoperative cardiorespiratory events compared with general anesthesia (GA).

After ethical approval patients were randomly assigned to receive uSA (11 mg·kg⁻¹ isobaric bupivacaine) 0.5% or GA (N₂O/halothane). The occurrence of events was continuously registered 12 hr pre- and 48 hr postoperatively. "Worrying" apnea - apnea > 15 sec or apnea of 10-15 sec with bradycardia (HR < 100 bpm) and - "unworrying" apnea as apnea without bradycardia lasting 10-15 sec.

Patients presented with a very low gestational age at birth (uSA: 26.9 ± 2.0 wk, n = 8; GA: 29.7 ± 3.7 wk, n = 9;) and a history of apnea and bradycardia. After the investigation of 17 patients, a similar proportion of infants with worrying apnea was observed in the uSA-group (50%) and in the GA-group (44%) (Table). The first event of worrying apnea occurred between 1 and 16 hr postoperatively. However, there were more unworrying apneas per patient in the GA-group than in the uSA-group during the first 12 hr postoperatively ($P < 0.017$).

We conclude: 1) High risk preterm infants are not protected from worrying postoperative cardiorespiratory events after uSA. 2) The postoperative respiratory pattern after GA is altered over 12 hr in contrast to uSA. 3) Irrespective of the type of anesthesia, monitoring of high risk preterm infants is indicated for at least 16 hr postoperatively.

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