CORRESPONDENCE

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In Reply.—Yemen is correct that standard criteria and blinding are important in comparing the effect of treatment on the time of discharge. The decision to discharge patients from the surgical wards was made by the attending surgeon. All of the medical staff taking care of the patients were scrupulously blinded to the analgesia regimen throughout the hospital stay. The discharge criteria were those commonly used for all the patients on surgical wards.

In response to de Leon-Cassola and Lema, we have explained in the Discussion of our paper why we chose the doses of bupivacaine and morphine. The risk with low doses of either parenteral or epidural morphine is insufficient relief of pain, and the potential risk of higher doses is to increase the number of severe episodes of hemoglobin oxygen desaturation.1 Because we combined bupivacaine and morphine and because all of our patients were on regular surgical wards, we used a low dose of epidural morphine (0.25 mg/h) that has been reported to be safe.2 One of the inclusion criteria was elective major abdominal surgery for cancer via a bisubcostal or large midline incision extending into the upper part of the abdomen for all patients in the study. The different types of surgery were: heptectomy, 22%; gastrectomy, 15%; pancreatectomy, 7%; colectomy, 21%; rectal surgery for cancer, 19%; cystectomy with ileoplasty, 7%; and laparotomy, 9%. Therefore, it is difficult to compare our results to those of de Leon-Cassola et al.,3 which were obtained in patients having undergone radical hysterectomy with lymph node dissection. The longest mean length of hospital stay in de Leon-Cassola et al.'s study was 14 days, which is not very different from the 18 days in our study, given that the types of surgery were different.

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Spurious Anesthesia Alarm in an Anesthetized Patient

To the Editor.—A 46-yr-old man entered the hospital for full-month dental extractions under general nasotracheal anesthesia. The patient was healthy except for a smoking history of 20 pack-yr and a hearing impediment. Fentanyl and midazolam were used for premedication. Monitoring consisted of an electrocardiogram and a skin temperature probe via a Protocol Systems, Inc. PROPAQ 106EL and blood pressure, pulse oximetry, and capnography via a North American Drager NARKOMED 3 anesthesia machine. Nasotracheal intubation was performed after an oxygenation, thiotetital, and succinylcholine induction sequence. Ventilation was mechanically controlled and anesthesia maintained with nitrous oxide, oxygen, and isoflurane.

Approximately 3 min after induction, a loud, piercing, constant, high-pitched sound was heard. The patient's blood pressure at this time was 130/74 mmHg; the hemoglobin oxygen saturation was 99%; and the capnography tracing (end-tidal carbon dioxide 36 mmHg)

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and ventilatory pressures and volumes were normal. The PROPAQ electrocardiogram revealed a normal sinus rhythm with a rate of 76 beats/min, and the skin temperature was 35.5°C. No visual alarms were seen activated on either the PROPAQ or the Drager machine. The sound was consistent in intensity and character with the audio alarm from the PROPAQ, and this machine was shut off for a few seconds without cessation of the alarm noise. The Drager machine audio alarms are pulsatile. It then was noted that a hearing aid, which the patient had worn to the operating room, had fallen out of the patient's ear and was the source of the audio alarm. The hearing aid, a WIDEX #A12197948, was turned off, and the alarm sound ceased.

The noise was produced via feedback resulting from the proximity of the hearing aid microphone and the earpiece speaker1 (the same mechanism that creates a loud high-pitched tone in an auditorium if the amplifier is not properly adjusted). Dentists ask patients to turn off hearing aids when drilling intraorally to prevent auditory damage due to acoustic feedback. Auditory communication was necessary with this patient and was the reason the patient wore the hearing aid to the operating room. We recommend turning off hearing aids after anesthesia induction to avoid the above problem.
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Laryngeal Mask Airway in the Cannot-intubate, Cannot-ventilate Situation

To the Editor—The excellent editorial by Benumof, "Laryngeal Mask Airway: Indications and Contraindications,"1,2 suggests that insertion of the laryngeal mask airway (LMA) is a reasonable maneuver to try quickly in the cannot-ventilate, cannot-intubate situation, except when local pathology of the pharynx or larynx precludes a reasonable chance of even limited gas exchange. The American Society of Anesthesiologists Task Force has included the LMA among the suggested equipment of the portable storage unit for difficult airway management.3 The following case report illustrates that the LMA may be life-saving in a scenario of inability to intubate the trachea or ventilate the patient’s lungs after induction of anesthesia.

The patient was a 50-yr-old woman who was scheduled for elective abdominal hysterectomy. Preanesthetic evaluation predicted the possibility of difficult tracheal intubation, as suggested by a receding mandible and a thyromental distance of less than 3 cm. The situation was explained to the patient, but she refused the concept of regional anesthesia or awake tracheal intubation. Equipment required for difficult airway management was prepared, and the patient was monitored by continuous electrocardiogram and pulse oximetry (SpO2). After preoxygenation for 3 min, general anesthesia was induced by propofol 2 mg · kg−1 and succinylcholine 1.5 mg · kg−1. After direct laryngoscopy, the glottis could not be visualized, and only the tip of the epiglottis could be seen. Repeated attempts of tracheal intubation using a bougie introducer failed. An oral airway was inserted, and ventilation with 100% oxygen using a tight-fitting face mask was attempted. However, it was impossible to ventilate the patient’s lungs. The SpO2 decreased to rapidly < 90%, and the electrocardiogram showed multiple ventricular extrasystoles. The oral airway was removed, and a size-3 LMA was inserted. After inflation of its cuff with 20 ml air, the LMA was connected to the anesthesia circuit, and ventilation of both lungs with 100% oxygen was achieved easily. The SpO2 increased to 100%, and normal sinus rhythm was restored. Adequate oxygenation was maintained during surgery, even though the inspired oxygen concentration was decreased to 33% oxygen in nitrous oxide. Muscle relaxation was maintained by succinylcholine infusion, and ventilation was easily controlled via the LMA throughout the surgical procedure. Recovery was uneventful.

Our experience supports previous reports that have shown that insertion of the LMA is a simple noninvasive maneuver that may rapidly restore efficient ventilation in the cannot-intubate, cannot-ventilate situation.3 Because controlled ventilation is one of the relative contraindications for LMA, flexible fiberoptic bronchoscopy and insertion of an endotracheal tube over the bronchoscope through the LMA might have been more appropriate, once the laryngeal mask has been inserted. This is particularly indicated in patients with decreased lung compliance or increased airway resistance, as well as in patients who have a high risk of regurgitation.4 Also, the LMA may be inadequate in 6% of patients with no anticipated airway difficulties,4 and hence it may fail to provide adequate gas exchange in some anesthetized paralyzed patients whose trachea cannot be intubated conventionally. Thus, whenever insertion of the LMA does not effect gas exchange quickly in a patient with a difficult airway, then other alternative techniques such as transtracheal jet ventilation should be instituted immediately.5

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