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Advantages of Standing Bellows Ventilators and Low-flow Techniques

To the Editor:—I agree with Dr. Graham when he states, "that the standing bellows ventilator is an inherently safer design than the hanging bellows."¹

A note of caution must be added, however. With the introduction of scavenger systems, it is possible to defeat the standing bellows as a disconnect monitor, the mechanism being transmission of the small negative pressure from the scavenging system to the ventilator. This "suction" is sufficient to keep the bellows aloft when using lightweight disposable bellows. This is more prone to happen with small tidal volumes in pediatric patients.

Once again the introduction of innovations, in this case disposable bellows and scavengers, without suitable field testing of completed anesthetic systems subjects the patient to avoidable risks.²

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Airway Management in the Parturient

To the Editor:—The "Controversies in Obstetric Anesthesia" panel at the 1982 American Society of Anesthesiologists Annual Meeting in Las Vegas once again addressed the topic of maternal mortality from asphyxia due to failed endotracheal intubation during induction of general anesthesia for cesarean section. This complication has been reported to account for up to 30% or more of maternal deaths due to anesthesia.^{1,*} Pulmonary aspiration of gastric contents is the leading cause of maternal mortality due to anesthesia.^{1,2} The methods discussed for prevention and/or treatment included proper airway evaluation, regional anesthesia, preoxygenation, Sellick's maneuver, awake intubation, and/or emergency cricothyroidotomy. I would like to suggest one additional technique that may serve to attenuate this serious anesthetic problem in the parturient (or any other patient with a difficult airway and/or increased likelihood of regurgitation).

Very simply, the maneuver is to leave the tube in place if it is found to be in the esophagus or to intentionally place it there. This technique has been described earlier by Cucchiara³ to minimize tracheal aspiration but has

obviously not gained wide clinical acceptance (possibly because of the reluctance to admit one's inability to intubate the trachea). With the esophagus intubated, cuff inflated, and proximal end of the tube exiting the corner of the mouth, adequate mask ventilation may be accomplished. Intubation of the esophagus with an esophageal obturator airway is an accepted practice in emergency conditions^{4,5} when endotracheal intubation appears unlikely and something must be done to both protect the airway and allow ventilation.

The goal of intubation, whether it be tracheal or esophageal, is to provide a protected route for gas exchange with the lungs. A tube placed in the esophagus with the cuff inflated, combined with mask ventilation, can accomplish this goal safely and effectively by separating the pathways of air entry and regurgitant outflow.³ Another attempt at endotracheal intubation (with the esophageal tube in place) can follow, after subsequent oxygenation and ventilation of the patient under more controlled circumstances.

There are potential risks to this procedure, *e.g.*, esophageal trauma; perforation of the mediastinum; compression of the trachea by overinflation of the cuff. These risks are small and wane in comparison to the risk of no ventilation of and regurgitation by an obtunded patient.

* Ostheimer G: Safeguarding mother and fetus. *ASA Refresher Course Lectures No. 121*, 1982.

I firmly believe a more prevalent application of this maneuver during management of a difficult airway might decrease the maternal morbidity from asphyxia due to multiple prolonged unsuccessful attempts at endotracheal intubation at the expense of the original and primary goal of simply attaining a protected route for ventilation and oxygenation.

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A New Method for Inhalation Induction in the Child

To the Editor:—The induction of anesthesia by inhalation in a young child is often terrifying and noisy for both the patient and the anesthetist. I have been using a method that works rapidly and that diverts the child's attention from the pharmacodynamics at work. It is effective for patients from 3 through 10 years of age.

After placing the child on the operating table and before placing the mask on his face, I ask him if he can count. The child often remains sitting for the induction. I then start counting slowly with the child, while fixing his gaze with my eyes. The mask is then placed on the

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Epinephrine and Epidural Narcotics

To the Editor:—Professor Bromage and his colleagues¹ recently have demonstrated that epinephrine added to epidural morphine solutions enhances the effectiveness of the narcotic when administered to volunteers, and they have raised questions about its clinical use. Our findings, in a series of 20 obstetric and gynecologic patients who received 2 mg preservative-free epidural morphine in 10 ml normal saline with the addition of freshly prepared epinephrine (5 µg/ml), were similar to those reported earlier by Bromage *et al.*² in that there was no significant prolongation of pain relief postoperatively, when compared with epinephrine-free solutions. The mean duration of analgesia was 15.7 ± 8.2 h (\pm SD) following plain morphine (20 patients) and 14.6 ± 10.0 h

child's face while counting. Although children have various numeric abilities, they invariably take a breath in between each number. The patient drifts off to sleep quietly, calmly, and as quickly as one, two, three.

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after epinephrine-containing solutions had been used. However, the side effects following the addition of epinephrine were exactly as described in the volunteers for Bromage *et al.*,¹ being "more frequent, more severe and more prolonged." In fact, the high incidence and severity of adverse effects caused us to abandon the use of epinephrine-morphine mixtures, despite excellent analgesia obtained in 95% of patients. Seventeen of the 20 patients (85%) complained of distressing symptoms, as compared with 40% after plain morphine. Persistent vomiting was the main complaint reported by 60% of patients, (30% with plain morphine) and troublesome itching in 45% (25% with plain morphine).

Bromage *et al.*¹ went on to speculate that more lipid-

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