Reference

1. Pittman JE, Sheng H, Pearlstein R, Brinkhous A, Dexter F, Warner DS: Comparison of the effects of propofol and pentobarbital on neurologic outcome and cerebral infarct size after temporary focal ischemia in the rat. ANESTHESIOLOGY 1997, 87:1139–44

(Accepted for publication May 5, 1998.)

Anesthesiology
1998; 89:799

In Reply:—Dr. Tommasino raises the issue whether a different statistical analysis might offer a different conclusion regarding the relative effects of propofol and pentobarbital on neurologic outcome from transient middle cerebral artery occlusion in the rat. We agree that visual inspection of figure 2 in Pittman *et al.* suggests this possibility.[1] However, the statistical test (Mann–Whitney U test-Wilcoxon's rank sum) used to compare neurologic scores between groups was chosen *a priori.* This decision was, in retrospect, quite reasonable. Our study[1] was not designed to detect a difference between groups for the correlation between infarct volume and neurologic score. Therefore, we recommend that no conclusions be drawn from these values. Nevertheless, as requested, for propofol, Kendall's $\tau = 0.51$ (95% confidence interval, 0.21 to 0.81) and, for pentobarbital, Kendall's $\tau = 0.31$ (95% confidence interval 0.01 to 0.60). Perhaps the correlation is better for the propofol group. But, because our experiment was not designed to test differences in correlation between the two groups, we truly do not know. The data presented in figure 2 of Pittman *et al.*[1] suggest, however, that a more comprehensive approach to the neurologic examination may be of value in defining potential differences among groups. This is being explored in our laboratory and by other groups.

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(Accepted for publication May 5, 1998.)

Anesthesiology
1998; 89:799–800

A Method for Measuring Carbon Dioxide at the Tracheal Stoma

To the Editor:—End-tidal carbon dioxide monitoring is a standard used during general anesthesia and monitored anesthesia care. Nasal cannulas commonly are used to deliver supplemental oxygen and to sample carbon dioxide for the monitoring of respiratory rate and rhythm in patients undergoing sedation for surgical procedures. Monitoring end-tidal carbon dioxide in patients with tracheal stomas may be difficult when using standard tracheal collar oxygen supplementation because no adaptation for the carbon dioxide sample line is readily available. We present a device for the monitoring of carbon dioxide in patients with tracheal stomas who are undergoing operative procedures that necessitate intravenous sedation.

Taking a standard tracheal collar, a 6-inch piece of corrugated oxygen tubing, a BODAI suction safe swively endotracheal suction connector (Sontek Medical, Hingham, MA), and an 8-French pediatric suction catheter, we fabricated a simple device to monitor carbon dioxide at the tracheal stoma (fig. 1). The pediatric suction catheter is placed through the BODAI suction device and threaded into the corrugated tubing until it rests at the skin edge of the tracheal stoma. The end-tidal carbon dioxide sample line is attached

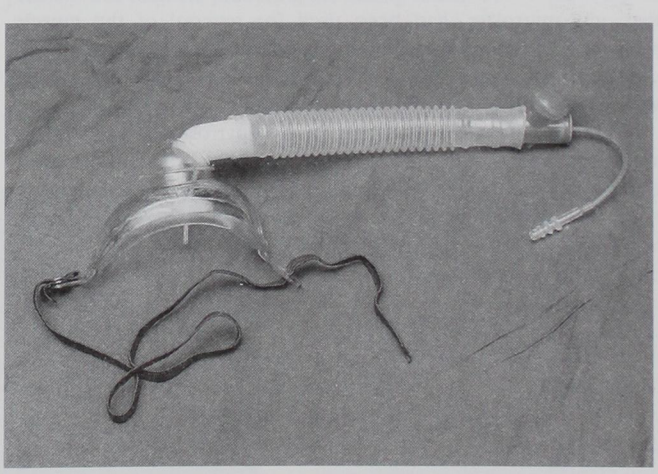

Fig. 1. Assembled airway equipment.

directly to the proximal end of the pediatric suction catheter, and end-tidal carbon dioxide is measured, producing a wave form that effectively monitors respiratory rate and rhythm. Supplemental oxygen is delivered to the patient by attaching the breathing circuit to the swivel arm of the BODAI suction connector. We found that increasing the flow of supplemental oxygen through the breathing circuit does not affect the carbon dioxide waveform, as long as the tip of the suction device rests at the skin edge of the tracheal stoma.

We found this device to be simple to prepare, nonirritating to the airway, and a reliable means to deliver supplemental oxygen and to monitor end-tidal carbon dioxide in patients with tracheal stomas who require monitored anesthesia care.

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(Accepted for publication April 24, 1998.)

Anesthesiology
1998; 89:800–1

Potential Cause for Medication Administration Error

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http://www.anesthesiology.org/tocs/v89n3-TOC/cfm

To the Editor:—This correspondence is to inform the reader of a potential for drug administration error. An adult patient underwent general endotracheal anesthesia for laparoscopic cholecystectomy. The anesthetic consisted of isoflurane, oxygen, and intravenous narcotic. Neuromuscular blockade for intubation was achieved using rocuronium. At the conclusion of the operation, the patient was breathing spontaneously and had three twitches on train-of-four stimulation. The neuromuscular blockade was reversed using glycopyrrolate and neostigmine. Shortly thereafter, the patient's respiratory efforts ceased. At this point, no twitches could be elicited by train-of-four stimulation. We discovered that rocuronium, rather than glycopyrrolate, had been used for reversal of the muscle relaxant. The patient remained intubated during general anesthesia until reversal of neuromuscular blockade was possible. The patient was then extubated and had an uneventful recovery.

At our institution, the glass vials for glycopyrrolate (Robinul Injectable, Elkins-Sinn, Cherry Hill, NJ) and rocuronium bromide (Zemuron, Organon, West Orange, NJ) are approximately the same size. In addition to this problem, both vials have yellow caps covering the aspiration port (see fig. 1). Despite the brand name of rocuronium being clearly labeled on the yellow cap, we have seen the drug administered at the conclusion of an anesthetic necessitating reversal of neuromuscular blockade.

We contacted Organon regarding this problem. Although there is no substitute for constant vigilance in the practice of anesthesia, we believe that having color-coded caps and labels for different classes of medications may help to avoid serious drug administration errors.

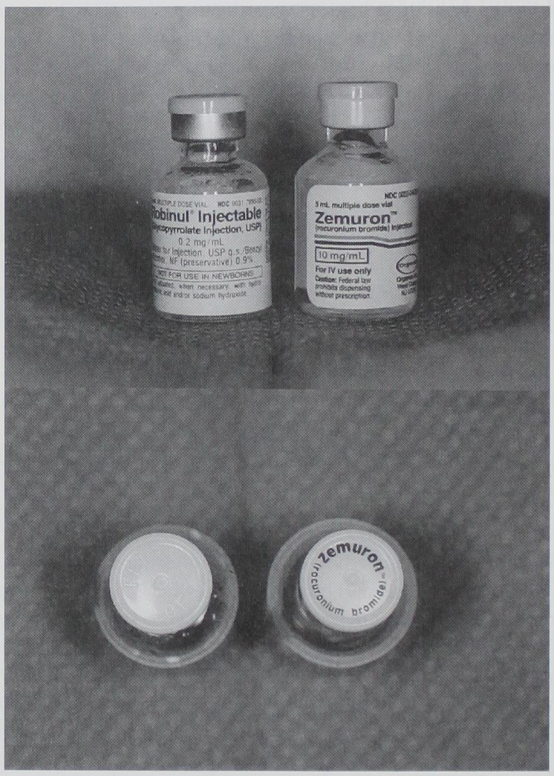

Fig. 1. Comparison of drug vials.

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