it was demonstrated that systemic uptake of mepivacaine 2% was higher after caudal epidural when compared to lumbar epidural administration, the difference being more pronounced for the epinephrine-containing solutions. This observation may provide an explanation for the early and complete respiratory arrest seen in our patient.

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The Measurement of Expired Oxygen as Disconnection Alarm

To the Editor—The method reported by Doctors Knaack-Steinegger and Thomson1 was long ago described as an unreliable method to detect disconnections,2 except under ideal conditions. At other times, especially when the disconnection site is covered with drapes, the anesthetic mixture collects there and is drawn back into the expiratory circuit by a falling bellows ventilator, where little loss of oxygen may be detected. With a rising bellows ventilator, flow terminates in the expiratory limb of the circuit with similar results.

Modern ventilation monitors, such as carbon dioxide monitors and exhaled volume monitors, specified for anesthesia systems by the ASTM F 29 standard,* are readily available and have proven their reliability as disconnection alarms. Users should not depend on a less-reliable device for this critical function.


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In Reply—We do agree with Dr. Spooner that users should not depend on less-reliable devices to detect disconnections within the anesthetic circuit. However, Spooner3 did not prove our method to be unreliable but only stated that not all disconnections occur under ideal circumstances and that in the case of a trachael tube disconnection under drapes, detection may not be made with an oxygen analyzer. We have data to show that our method2 is reliable, even when a disconnection occurs under drapes (table 1).

The data shown in table 1, columns I and III, were the figures that we published.2 The data shown in columns I* and III* were collected at the same time that we did the original work. In columns I* and III*, we show the data that we received when we disconnected the circle under drapes with an additional covering of a pillow to make the area even more airtight. These circumstances are somewhat difficult to standardize; therefore, we did not intend to publish these data. Nevertheless, the detection of a disconnection is reliable even under these difficult versus ideal conditions.3

The data show that the reliability of the method changes considerably when the alarm settings are not close to the expected expiratory oxygen concentration as stated in the Discussion of our paper.

We use the oxygen measurements in the expiratory limb to monitor the amount of oxygen that our patients received, not only what the machine delivers. In the same way, we use the spirometer in the expiratory limb to monitor the amount of volume that the patients re-

REFERENCES


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