Monitoring Respirations with a Gauze Thread: An Ancient and Outdated Technique

To the Editor.—Forty-three years ago (when I started to do anesthesia), a wisp of cotton taped to the nose or mouth rather than a gauze thread was employed to monitor respiration during regional anesthesia. Using such an ancient technique, regardless of the patient’s ASA physical rating, but especially in those classified as a 3–5, is dangerous. Perhaps not so for Jain and Gold, but it may indeed be dangerous for other anesthetists who have not learned to interpret a thread’s movements, particularly if, as suggested, other means of monitoring (stethoscope over the sternal notch, etc.) are abandoned.

Today, maintaining adequate ventilation during regional block requires not only the careful appraisal of the rate and depth of respirations but also constant monitoring of blood pressure, pulse, and heart rate and rhythm using a blood pressure cuff, an electrocardioscope, a spirometer, and so forth. Furthermore, if there is any question as to adequacy of ventilation, arterial blood gas analysis is the most reliable method of determining it. Monitoring respirations in nonchalant manner, by observing cotton, gauze threads, and so forth, attached to the patient’s nose or by feeling respirations with a hand over the mouth and nose, is unacceptable. Doing so has given some anesthetists a false sense of security, which has led to unrecognized hypoventilation, hypoxia, and cardiac arrest, with the resultant sequelae of mild to severe encephalopathy or death.

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REFERENCES
2. ASA physical status rating (new classification of physical status). Anesthesiology 24:111, 1963
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On the Prevention of Hypoxic Accidents

To the Editor—In a recent letter to the editor, Dr. Zorab suggested that the way to prevent hypoxic accidents during anesthesia is to abolish the use of hypoxic gases such as 100% nitrous oxide on the anesthesia machine. Instead, he recommends that all gases delivered to the machine contain at least 20% oxygen. As an advocate of low-flow and closed-circle anesthesia, I must point out that this method is not foolproof. For example, it is perfectly possible to deliver 1 l/min of air to a circle system attached to a 100-kg patient. This flow will more than keep the bag full on a tight circuit, yet will produce a hypoxic mixture in the circuit. This occurs because 1 l of air provides 209 ml of oxygen, while the basal metabolic rate for oxygen in a 100-kg patient is approximately 316 ml/min. This same situation would occur with an 80/20 mixture of nitrous oxide and oxygen but would take longer to develop, because of the initial high rate of nitrous oxide uptake and the ensuing second gas effect.

Thus, a calibrated, working oxygen meter in the circuit is still the best insurance against hypoxic accidents during anesthesia and "eternal vigilance is the price of safety."

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REFERENCES
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A Simple Device for Testing Peripheral Nerve Stimulators

To the Editor—While monitoring the neuromuscular junction with a peripheral nerve stimulator (PNS) the need sometimes arises (such as when broken lead wires are suspected) to determine if the electrical stimuli are actually present at the patient electrodes. One way to confirm presence of stimuli is to feel for the pulses with one's own fingers, but this can be unpleasant or even painful.

I have found a simple alternative using an inexpensive neon lamp (type NE-2), available from most electronic parts suppliers. The lamp is touched or clipped to the ends of the lead wires (fig. 1), and it should flash with each single pulse or stay lighted with a tetric stimulus. The orange glow can be seen even in a brightly illuminated room, and the device will not harm the PNS.

A neon lamp typically fires above 95 volts dc, while most PNSs deliver a maximum voltage of about 300 volts. Hence, the test will work at all but the lowest output settings of the PNS. However, as shown in a recent report, the output voltage of a PNS drops...