

Anesthesiology
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An Easy Way to Administer Sublingual Nifedipine

To the Editor:—A common practice in the initial management of hypertensive crisis in the emergency room and, on occasion, in the operating room and recovery room is the sublingual administration of nifedipine (Procardia®). The method employed is often less than hygienic, at times messy, and fraught with the small risk of injury to the physician who attempts puncturing the capsule with a blade or needle.

The following method is simple and convenient: A 10-mg nifedipine capsule is placed into the barrel of a 3-ml syringe and the plunger reinserted. The diameter of the barrel is such that the capsule is self-oriented longitudinally. The needle is removed (22-gauge or larger) and used to pierce the capsule *via* the syringe orifice, keeping pressure against the capsule with the plunger.

The syringe tip can then be placed sublingually and the contents of the capsule readily expelled with a somewhat firm push on the plunger. To reload, the spent capsule is easily pulled to the rear of the barrel by withdrawing the plunger.

Although a simple suggestion, this technique may be helpful to those who employ sublingual nifedipine in their practice.

ERIC C. SCHILLER, M.D.
*Department of Anesthesia
Massachusetts General Hospital
Boston, Massachusetts 02114*

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Utility of the Pulse Oximeter during Cardiopulmonary Resuscitation

To the Editor:—Monitoring during cardiopulmonary resuscitation is notoriously difficult. The electrocardiogram is often distorted due to external cardiac massage, and blood pressure measurement is neither easy nor reliable. I would like to describe a case of resuscitation of a child in which I found the presence of a pulse oximeter particularly helpful.

REPORT OF A CASE

An 11-month-old, 8 kg, otherwise healthy infant was scheduled for elective repair of a cleft palate. Induction with halothane and endotracheal intubation were accomplished without difficulty. The child was ventilated using a mixture of 40% oxygen in nitrous oxide and 1.5% halothane. Monitoring included a continuous display of the electrocardiogram, an automatic blood pressure recorder, an axillary temperature probe, a precordial stethoscope, and a pulse oximeter. Approximately 5 min after induction of anesthesia, the patient suddenly developed an asystolic cardiac arrest. External cardiac massage was immediately begun, all anesthetic agents were discontinued, and the patient was ventilated with 100% oxygen.

During resuscitation the child remained pink, but it was difficult to palpate a major peripheral pulse. The pulse oximeter, however, continued to function and indicated a saturation of more than 90%. In addition, a pulse rate was displayed that corresponded exactly to that of the external cardiac massage.

The cause of the cardiac arrest was an unintentional overdose of intravenous penicillin G potassium, whereby an excessive dose of po-

tassium was given over a short interval. The child was given calcium, epinephrine, and sodium bicarbonate; normal sinus rhythm with a satisfactory blood pressure was restored after a total of 7 min of cardiopulmonary resuscitation. The child made an uneventful recovery.

DISCUSSION

Effectiveness of cardiopulmonary resuscitation is determined by observing the pupils, noting skin color, and palpating a pulse, usually the carotid or femoral. This last factor can be particularly difficult in small children, because of the small size of the arteries and the fact that the whole body moves with chest compressions. The pulse oximeter measures oxygen saturation when the sensor is correctly positioned so that an arterial vascular bed is placed between the light source and the detector.¹ Its ability to function depends on the detection of a pulse and, as such, indirectly gives an indication of oxygen supply. The purpose of external cardiac massage and controlled ventilation with oxygen during cardiopulmonary resuscitation is to ensure adequate oxygen delivery to the vital organs. The high saturation reading during the entire episode of cardiac arrest showed that the resuscitation was effective and that it could confidently be documented as such.

V. P. S. NARANG, F.F.A.R.C.S.
Instructor
Section of Pediatric Anesthesiology
University of Michigan
Ann Arbor, Michigan 48109

REFERENCE

1. Yelderman M, New W Jr: Evaluation of pulse oximetry. *ANESTHESIOLOGY* 59:349-352, 1983

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Aerosol Delivery Devices for the Anesthesia Circuit

To the Editor:—Recent letters from Diamond¹ and from Duckett and Zebrowski² have suggested homemade devices to allow the use of pressurized aerosol canisters during anesthesia. The construction of these improvisations has the risk of introducing broken needles and glued plastic pieces into the airway. Also, as Diamond discovered, improvised devices do not accept all canister designs. Finally, these devices must be placed in the circuit for each use, then removed, to avoid leakage of anesthetic gases.

Three years ago I suggested a design that replaces the standard endotracheal-tube elbow and allows aerosol therapy. This Bronchodilator Tee[®] (Model #9056, formerly named Metered Dose Manifold; Boehringer Laboratories, Wynnwood, PA) has been commercially available for 2 yr (fig. 1). The one-piece metal elbow eliminates foreign body concerns and allows injection of the aerosol directly down the endotracheal tube. It accepts all available aerosol drug canisters and can remain in place throughout the anesthetic with the attached sealing cap preventing anesthetic gas leakage. Since the solution exists, why improvise?

GEORGE L. BUSH, M.D.
Associate Professor
Department of Anesthesiology
University of Wisconsin
Madison, Wisconsin 53792

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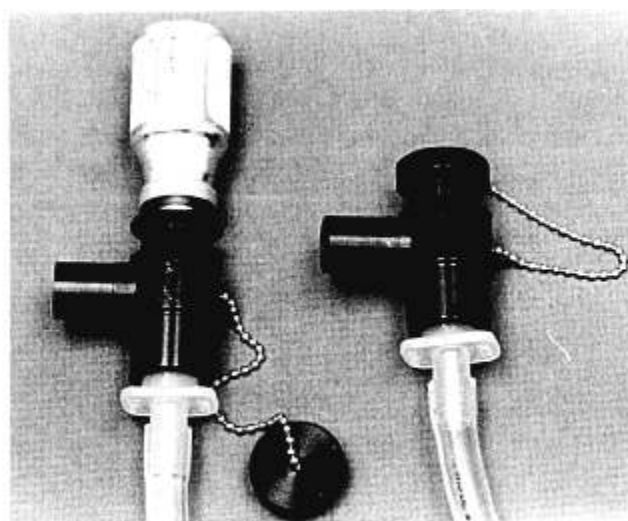


FIG. 1. The Bronchodilator Tee[®] with the drug canister and with the sealing cap in place.

REFERENCES

1. Diamond MB: Delivering bronchodilators into the anesthesia circuit (letter). *ANESTHESIOLOGY* 64:531, 1986
2. Duckett JE, Zebrowski M: A simple device for delivering bronchodilators into the anesthesia circuit (letter). *ANESTHESIOLOGY* 62:699-700, 1985

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Malignant Hyperthermia: Removal of Volatile Anesthetic Agents from the Breathing Circuit Using Activated Charcoal

To the Editor:—The depth of anesthesia in patients anesthetized with potent volatile agents can be rapidly decreased by placing a small canister of activated charcoal in the inspiratory limb of the breathing circuit.¹ The avid propensity of charcoal physically to adsorb organic vapors immediately drops the inspired concentration to a low level.

This device is also useful should an episode of malignant hyperthermia arise intraoperatively. In this situation the rapid removal of all traces of potent volatile anesthetic is essential. When the vaporizer is turned off, the patient should be hyperventilated with 100% oxygen to remove both the agent and the excessive metabolic carbon dioxide being produced. The soda lime canister, rebreathing