

Anesthesiology  
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### Fatal Misuse of Enflurane

*To the Editor:*—The following is a report of a death consequent to topical self-treatment of herpes simplex labialis with enflurane.

A 29-year-old student nurse anesthetist had suffered from "cold sores" (herpes simplex labialis) on her lower lip for approximately 48 hours. She asked if ether might be used to treat her disease, but the Department of Anesthesia does not employ flammable anesthetics. It was suggested that the topical application of enflurane (an ether) might serve the same purpose. She obtained a full 250-ml bottle of enflurane and for the next three hours was observed with a 4 × 4 gauze to which she had applied the enflurane.

About an hour later, the student was noted to be missing. After a subsequent hour of searching, she was found in a women's rest room slumped over while sitting on a commode. Her forearms were crossed on her knees and her head rested on her forearms over her lap. The enflurane bottle she apparently had been using was empty. Cardiopulmonary resuscitation was immediately instituted but proved fruitless. Autopsy findings were normal except that appreciable amounts of enflurane were found in the skin, gastric contents, blood and lung.

It would appear likely that death in this case resulted from airway obstruction and subsequent asphyxia. Several factors may have contributed to this result. The prolonged application of enflurane may have impaired the student's judgment. Enflurane is a potent respiratory depressant, decreasing the ventilatory response to both hypercapnia and hypoxia.<sup>1-5</sup> Particularly pertinent is the finding that subanesthetic (0.1 MAC) levels of enflurane—and other anesthetics—profoundly decrease the ventilatory response to hypoxia.<sup>3</sup>

We feel that this loss should be shared with our colleagues, with the hope that it does not recur in some

other misguided or uniformed person. Part of the tragedy is that the treatment selected probably is ineffective.<sup>6</sup>

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#### REFERENCES

1. Marshall BE, Cohen PJ, Klingenstein CH, et al: Some pulmonary and cardiovascular effects of enflurane (Ethrane) anaesthesia with varying PaCO<sub>2</sub> in man. *Br J Anaesth* 43:996-1002, 1971
2. Calverley RK, Smith NT, Jones CW, et al: Ventilatory and cardiovascular effects of enflurane anesthesia during spontaneous ventilation in man. *Anesth Analg (Cleve)* 57:610-618, 1978
3. Knill RL, Manninen PH, Clement JL: Ventilation and chemoreflexes during enflurane sedation and anaesthesia in man. *Can Anaesth Soc J* 26:353-360, 1979
4. Wahba WM: Influence of airway resistance and ventilatory pattern on PaCO<sub>2</sub> during enflurane anaesthesia. *Br J Anaesth* 51:123-126, 1979
5. Wahba WM: Analysis of ventilatory depression by enflurane during clinical anesthesia. *Anesth Analg (Cleve)* 59:103-109, 1980
6. Guinan ME, MacCalman J, Kern ER, et al: Topical ether and herpes simplex labialis. *JAMA* 243:1059-1061, 1980

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### Use of Doppler for Difficult Axillary Block

*To the Editor:*—We recently used a Parks Bi-Directional Doppler to assist in performing a difficult axillary block. The patient was a 65-year-old man with renal failure scheduled for an A-V fistula in the left forearm. He was unable to lie flat on the operating table because of orthopnea and was comfortable only at 45° or more. Moderately severe arthritis prevented complete abduction and supination of his left arm. Two anesthesiologists and a vascular surgeon were unable to palpate his axillary artery after trying for 20 minutes, even though the brachial and radial arteries were easily palpable. A Doppler probe was used to locate the axillary artery. A 25-gauge scalp vein needle was then inserted adjacent and

parallel to the probe. Turbulence was detected by the Doppler probe when the needle was intra-arterial. Local anesthetic was injected on both sides of the artery in the usual manner, and an excellent block was obtained.

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