

I think anesthesiologists should critically re-evaluate the routine use of a nondepolarizing muscle relaxant before giving SCh for patients undergoing abdominal or thoracic surgery. The pretreatment technique may reduce myalgias after minor surgery; but it still remains to be seen if metocurine has any advantage (or disadvantage) for this group of patients.

JAY B. BRODSKY, M.D.
Assistant Professor
Department of Anesthesia
Stanford University
Medical Center
Stanford, California 94305

REFERENCES

1. Blitt CD, Carlson GL, Rolling GD, Hameroff SR, Otto CW: A comparative evaluation of pretreatment with nondepolarizing neuromuscular blockers prior to the administration of succinylcholine. *ANESTHESIOLOGY* 55:687-689, 1981
2. Baraka A: Self-taming of succinylcholine-induced fasciculations. *ANESTHESIOLOGY* 46:292-293, 1977
3. Brodsky JB, Brock-Utne JG: Does "self-taming" with succinylcholine prevent postoperative myalgia? *ANESTHESIOLOGY* 50:265-267, 1979
4. Dottori O, Löf BA, Ygge H: Muscle pains after suxamethonium. *Acta Anaesthesiol Scand* 9:247-256, 1965
5. Brodsky JB, Brock-Utne JG, Samuels SI: Pancuronium pretreatment and post-succinylcholine myalgias. *ANESTHESIOLOGY* 51:259-261, 1979
6. Churchill-Davidson HC: Suxamethonium (succinylcholine) chloride and muscle pains. *Br Med J* 1:74-75, 1954
7. Glauber D: The incidence and severity of muscle pains after suxamethonium when preceded by gallamine. *Br J Anaesth* 38:541-544, 1966
8. Craig HJL: The protective effect of thiopentone against muscular pain and stiffness which follows the use of suxamethonium chloride. *Br J Anaesth* 36:612-619, 1964
9. Lamoreaux LF, Urbach KF: Incidence and prevention of muscle pains following the administration of succinylcholine. *ANESTHESIOLOGY* 21:394-396, 1960
10. Usubiaga JE, Wikinski JA, Usubiaga LE, Molina F: Intravenous lidocaine in the prevention of post-operative muscle pain caused by succinylcholine administration. *Anesth Analg (Cleve)* 46:225-229, 1967
11. Haldia KN, Chatterji S, Kackar SN: Intravenous lignocaine for prevention of muscle pain after succinylcholine. *Anesth Analg (Cleve)* 52:849-852, 1973
12. Gupte SR, Savant NS: Post suxamethonium pains and vitamin C. *Anaesthesia* 26:436-440, 1971
13. Verma RS, Chatterji S, Mathur N: Diazepam and succinylcholine-induced muscle pains. *Anesth Analg (Cleve)* 57:295-297, 1978
14. Bryson THL, Ormston TOG: Muscle pains following the use of suxamethonium in Caesarean section. *Br J Anaesth* 34:476-480, 1962
15. Brodsky JB, Ehrenwerth J: Postoperative muscle pains and suxamethonium. *Br J Anaesth* 52:215-218, 1980
16. Weintraub HD, Heisterkamp DV, Cooperman LH: Changes in plasma potassium concentration after depolarizing blockers in anesthetized man. *Br J Anaesth* 41:1048-1052, 1969
17. Baraka A: Succinylcholine pretreatment unsatisfactory. *ANESTHESIOLOGY* 48:298, 1978

(Accepted for publication January 13, 1982.)

Life-threatening Similarity in Drug Packaging

To the Editor:—Doctors Freund and Ward reported a misadventure which stemmed from confusion due to the similarity in drug packaging of 30-ml syringes of 0.5 per cent bupivacaine and 50-ml syringes of sodium bicarbonate (44 mEq)¹ Both of these products are manufactured by Abbott Laboratories.

As you can observe in figure 1, there is also a similarity in packaging of 5-ml syringes of 2 per cent injectable lidocaine and 10-ml syringes of 1:10,000 epinephrine (0.01 per cent), which are also Abbott Laboratories products which may possibly lead to drug misadventure. The only difference in appearance between Abbott's epinephrine and lidocaine solutions in these syringes is the size of the syringe. The plastic syringe barrel, the yellow needle protective sheath, the color of the identifying let-

tering on the drug insert (piston), as well as the shape, are identical. Both lidocaine and epinephrine often are stored in the same medication box in cardiac surgical operating rooms, as well as in emergency crash carts in many hospitals. The cardboard containers in which the syringes are packaged are different in color and easily distinguished, but once they are removed from the original carton the syringe similarity can lead to misadventure. Since epinephrine and lidocaine solution are commonly stored and utilized together, misadventure might occur more frequently than with bupivacaine and sodium bicarbonate which are less commonly used at the same time. Misadventure is also probably more life-threatening with inadvertent intravenous epinephrine administration than with bupivacaine intravenously, particu-

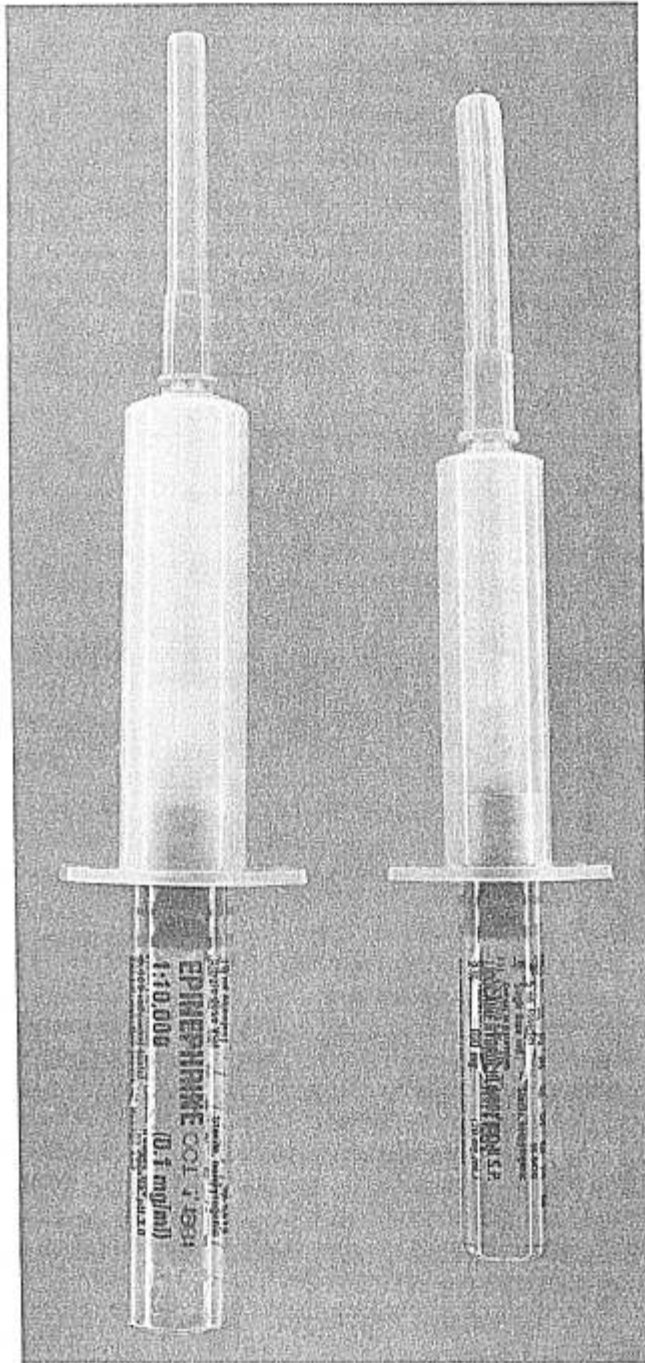


FIG. 1. Syringes of 1:10,000 epinephrine and 2 per cent injectable lidocaine which appear to be identical except for labels and size. Configuration, color, and color of lettering are identical.

larly if an anesthetic (*e.g.*, halothane) is being administered which sensitizes the myocardium to exogenous catechols.

In January 1981, we had a potential life-threatening

incident in which epinephrine solution, instead of lidocaine, was inadvertently given intravenously to treat PVCs which developed during an otherwise uneventful halothane-nitrous oxide-oxygen anesthesia for tonsillectomy in an eleven-year-old 31-kg child. In this instance 2 ml of 1:10,000 epinephrine (200 μ g), instead of 2 ml of 2 per cent lidocaine, were erroneously given intravenously as a bolus to alleviate the ventricular arrhythmia which at that time consisted of 5-10 PVCs per minute. This was followed by bigeminy and runs of multifocal ventricular extrasystoles. An additional 3 ml (300 μ g) of the same solution was given two minutes after the initial dose. This provoked short runs of ventricular tachycardia and then a continuous ventricular tachycardia of 160/min. Anesthesia was discontinued. It was then discovered that epinephrine had been mistakenly administered instead of lidocaine. Two milliliters of 2 per cent lidocaine (40 mg) was then given with prompt alleviation of the ventricular tachycardia with resumption of a sinus tachycardia at 130/min. At the end of surgery (20 min later) the pulse rate was 120/min.

Epinephrine, 500 μ g, administered within a two-minute period to a 31-kg child is 15 times the intravenous dose which produced arrhythmias with halothane in a study reported in 1965 by Katz.²

In a stressful situation this similarity of the syringes increases the potential for wrong drug administration.

One solution to minimize such confusion would be to manufacture each medication in bottles or in syringes with a different shape, color, and label. Label color coding of emergency drugs of different categories (*e.g.*, inotropes, vasoconstrictors, antiarrhythmics, bicarbonate) would also help to avoid such misadventures.

SHIGEMASA IKEDA, M.D.
Assistant Professor

JOHN F. SCHWEISS, M.D.
Professor and Chairman

*Department of Anesthesiology
St. Louis University School of Medicine
1325 South Grand Boulevard
St. Louis, Missouri 63104*

REFERENCES

1. Freund PR, Ward RJ: Drug packaging invites confusion. *ANESTHESIOLOGY* 55:87-88, 1981
2. Katz RL: Epinephrine and PCV2 cardiac rhythm and local vasoconstrictor effects. *ANESTHESIOLOGY* 26:619-623, 1965

(Accepted for publication January 15, 1982.)