Sodium Methohexital: A Clinical Study


Methohexital*, a very short-acting barbiturate, was administered to a group of patients about to undergo minor surgery. Premedication consisted of meperidine 50 mg. and atropine .4 gm. given intramuscularly. Anesthesia was induced with 1 per cent methohexital, and was maintained with .2 per cent intravenous drip. Because of the drug’s short action, smooth maintenance of anesthesia proved to be difficult with .1 per cent intravenous drip; .2 per cent drip was more successful.

Sixty-six patients in this series were compared with 50 patients of another series who received thio- pental 2.5 per cent, following the same premedication. (Methohexital proved too concentrated in 2.5 per cent solution.) About twice the amount of thiopental was required as methohexital for induction and maintenance of anesthesia. The average duration of anesthesia in the thiopental group was significantly longer than in the methohexital group.

The incidence of coughing was the same in both groups. Hiccup occurred in 12 per cent of the patients who received sodium thio- pental, and in 41 per cent of those who received methohexital. Vomiting and retching were relatively common after thiopental anesthesia, but occurred in only one patient after methohexital. Apnea followed induction with thiopental in 94 per cent of cases, but with methohexital in only 56 per cent. When apnea did appear, it lasted much longer after methohexital anesthesia.

When using methohexital a continuous drip is almost mandatory if the operation lasts for more than a few minutes. The suggestion is made that if methohexital were used as an induction agent, and afterward as a supplement to nitrous oxide, many of the objections to this agent would not apply.

* (Lilly, 25398)
A Rare Toxic Effect of Local Anesthesia with Lignocaine*


Toxic manifestations following local anesthesia with Lignocaine, as reported, include cerebral nervous system effects (stimulation of the cerebral cortex and depression of the medulla); peripheral effects (affecting cardiovascular and respiratory systems); and allergic responses. Psychiatric disturbances are rarely noted. The example cited is that of a parturient woman who, in preparation for forceps delivery, received a pudendal nerve block with 50 ml. of a 1 per cent Lignocaine solution, together with hyaluronidase. Because of bodily twitchings and slight elevation of pulse rate and blood pressure, oxygen and an intravenous barbiturate were administered. A slight twitching continued, accompanied by mental excitation, resentfulness, and signs of disorientation. Gradually the patient became relaxed and fell asleep. The next day she had recovered and remembered her mental confusion which she had been unable to control.

Toxic reactions in this instance were considered due to the addition of 1,500 units of hyaluronidase, which increased the diffusion of the anesthetic solution and may therefore have increased the rate of absorption; failure to add adrenalin to the solution, which decreased the rate of absorption by vasoconstriction; and neglecting to give sedation during labor. Possibly the disturbance started with a convulsion, a well known toxic side effect of local anesthesia. Subsequent mental changes could have been symptoms of cortical stimulation, brought on directly by the Lignocaine.

The toxic reactions described in the last paragraph could apply to a local anesthetic for any type of surgical procedure.—Ed.

* Lidocaine.
Anesthesia for the Traumatic Patient


A severely injured patient should not be rushed to the operating room without proper preparation. In case of shock, therapy should be directed toward increasing circulation and respiratory resuscitation preoperatively. Oxygen may be administered in the emergency room. Artificial respiration unless given within three minutes after cessation of breathing will not prevent permanent cerebral damage. Before attempting artificial respiration the operator must make sure the upper air passages are not obstructed. If the injury encroaches on the airway, tracheotomy under local anesthesia may be necessary, before the patient is moved. Hemorrhage, internal or external, producing shock, requires whole blood therapy; blood substitutes may be used until blood is available. Dilute vaso-pressor solutions should be used only in emergencies while waiting for blood. They may be indicated if the shock is neurogenic in origin. Pain may be relieved by local or regional anesthesia.

These precautions before surgery may be life saving. Surgery may be safely started if the pulse rate is reduced to 100 per minute or less, and the blood pressure is 90 mm. systolic, or more. As resuscitation progresses, the extent and number of injuries can be determined. Rapid physical examination should be followed by x-ray examination. The history should be obtained from the patient, a relative, or witness, and should include the circumstances of the accident, and particularly the time when the patient last had food or drink. Regurgitation and aspiration of stomach contents can be fatal. If the patient has eaten within two hours of the injury or since, the stomach must be emptied by use of a large stomach tube.

If possible, the operation should be performed under local or regional anesthesia. The airway may be protected from aspiration by use of an intratracheal tube inserted under topical anesthesia before induction of general anesthesia. Less anesthetic drug is required in patients just resuscitated from shock than for the usual patient. Little or no premedication is required. If any is given, it should be slowly administered intravenously. Xylocaine is preferred, the total dose being not more than 500 mg. Local and regional anesthesia is preceded by inhalation of 50 per cent nitrous oxide and 50 per cent oxygen. Cyclopropane is a safe general anesthetic agent, but any inhalation drug can be used with which the anesthesiologist is most familiar. Intravenous barbiturates in small a-
mounts can be used with discretion. Vasopressor drugs are indicated only in tiding the patient over an emergency. Intravenous cortisone compounds exert no beneficial effects in an injured patient undergoing surgery.

Chloroprocaine (Nesacaine) - Its Relative Nontoxicity as Demonstrated by Epidural Anesthesia


The essential properties required in a drug to be used in local or regional anesthesia are: (1) low absolute and relative toxicity; (2) a high degree of potency; (3) a short latent period; (4) prolonged duration; and (5) a high degree of diffusibility.

The effectiveness of chloroprocaine as an anesthetic agent with low toxicity, was demonstrated in 2,000 cases. Used in epidural anesthesia, it proved to be a safe local or regional anesthetic agent. Its effectiveness and toxicity were compared with three other anesthetic agents: procaine, lidocaine, and hexylcaine. Procaine was inadequate in effectiveness and potency, and had a moderate degree of toxicity, when used in a 2 per cent solution. When increased to 5 per cent, relaxation was obtained with only slight toxicity. Lidocaine was ineffective in 1 per cent solution; it provided excellent relaxation, but was more toxic than the other agent in 2 per cent solution, when used epidurally. Hexylcaine proved to be a better agent, since it had one-tenth the toxicity of lidocaine (inducing convulsions less frequently).

Chloroprocaine hydrochloride (Nesacaine) required a 3 per cent concentration to be effective epidurally, but was the least toxic of the four agents. Chloroprocaine also has the usual action of a local anesthetic agent. Block conduction in the nerve is produced on contact with the "free base of the hydrochloride solution released in the alkaline tissues of the body." Convulsions occurred in only one of the 2,000 cases in which chloroprocaine was used, and were easily controlled by administration of a small amount of thiobarbiturate. Thus, chloroprocaine proved to have a higher therapeutic index than the other three agents because of its high potency and low systemic toxicity.
Evaluation of a New Oral Resuscitator for Expired-Air Artificial Ventilation

Lee, W. L., Jr., Tarrow, A. B., and Ward, R. J.

Mouth-to-mouth and other forms of expired air resuscitation have proved to be the only effective means of providing artificial ventilation. The Venti-Breather oral resuscitator has been devised to replace the inconvenient mouth-to-mouth method of providing air ventilation. Its efficiency was demonstrated by determinations of arterial carbon dioxide and oxygen content and airway pressures in five patients, with no evidence of pulmonary or cardiovascular disorders, who were awaiting minor operative procedures. A series of blood samples were obtained for determination of arterial carbon dioxide and oxygen content: first, at the beginning of the experiment; second, after sedation with Pentothal and paralysis resulting from intravenous succinylcholine; and finally, after two minutes, and eight minutes, of artificial ventilation instituted by means of the Venti-Breather. In each instance the arterial carbon dioxide and oxygen content were near control levels after two minutes of expired-air ventilation with the unit.

This simple, easily used Venti-Breather eliminates direct mouth contact, and the need to remove the resuscitator's mouth while the patient exhales; also it increases the effectiveness and ease of the procedure. The unit may be used alone, or in conjunction with accessory equipment (face masks, oral airways, and endotracheal tubes) to facilitate its use and increase its efficiency. However, institution of expired-air ventilation is possible in the absence of any of these equipment items. The unit assures an adequate tidal exchange in 100 per cent of cases, as well as reasonable arterial carbon dioxide and oxygen levels. The resuscitator unit is time-cycled, the rate being fixed by the operator. Unlike the present methods, this method does not require the use of two hands to obtain an unobstructed airway and an effective pressure seal. A few minutes of training will enable the operator to do this with one hand and use the other hand for compression of the stomach to minimize any gastric distention. With further training he can follow the pulse rate with the hand that holds the mask, by palpating the facial artery with the fifth finger, where it crosses the edge of the mandible.

It is suggested that this unit, or a similar one, with a suitable mask and three sizes of oral airways, be standardized into an expired-air resuscitation "kit" for general use.