

of single anesthetics are: 1. Stimuli to the central nervous system are decreased or eliminated, thus diminishing the amount of general anesthesia necessary. 2. The exhaustion caused by nervous tension of some patients under local anesthesia alone is eliminated. 3. Patients having received small doses of anesthetics respond quicker, and normal reflexes return sooner. 4. Large doses of anesthetics, especially spinal for the poor-risk patient, are extremely dangerous. 5. Shock from deep cyclopropane and ether anesthesia is eliminated. . . . Selective anesthesia for the bad-risk patient is usually based on local anesthesia. . . . Operations on the skull and brain can be carried out under many combinations of anesthetics. . . . In operations on the eye when pentothal is to be used, it is helpful to use topical anesthesia also. This seems to prevent some of the sneezing and coughing sometimes encountered. . . . When pentothal is to be used for extraction of teeth in a noninfected area, a quick injection of novocain-adrenalin solution will cut down on the bleeding, allay some of the immediate postoperative pain, and decrease the total amount of pentothal required. . . . For poor-risk patients undergoing thyroidectomy, I feel that local anesthesia again is the basic anesthesia, with the order of anesthesia reversed; that is, the local is given after the patient is unconscious. . . . If pentothal is to be used, oxygen should also be given. . . . Heavy premedication plus local anesthesia is a good form of combined anesthesia which may be satisfactorily used in the nontoxic thyroid in the placid type of individual. . . . For extra pleural thoracic surgery, heavy premedication plus local plus nitrous-oxide and oxygen give a combination which allows the use of the electro-surgical unit. . . .

“Abdominal surgery offers the greatest opportunity for various combinations of anesthetics. Local infiltration

and abdominal block form the basis for selective anesthesia in the poor-risk patient. . . . If pentothal is to be used, it is wise to give oxygen simultaneously. The addition of nitrous-oxide, not to exceed 50 or 75 per cent, will reduce the amount of pentothal necessary, and still allow good oxygenation to be carried out. Cyclopropane is better if more relaxation is desired. The adrenalin in the local anesthetic should be omitted if cyclopropane is to be used. . . . In the better-risk patient, small doses of spinal anesthesia plus cyclopropane is a very good combination for abdominal surgery.”

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“We are confronted with a problem quite different from the last war, namely, that of civilian casualties, besides the wounded soldiers. . . . Of great importance is the consideration of shock in these patients who have been subjected to loss of blood, trauma to the nervous system and tissue damage. This is treated with plasma, venoclysis, or transfusion before any anesthesia or surgery is considered. The tissues of the patient, who has recently been in shock, have already suffered impairment of function from anoxia. It is highly important that the anesthetist keep this in mind and furnish the highest possible concentration of oxygen during the operation. Preliminary preparation alleviates the fear of the anesthetic and operation. . . . These are the actual choices of anesthetics for the civilian casualty in peace time: First, intracranial injuries: If the patient is in poor condition, regional anesthesia is used supplemented with a 2½ per cent solution of pentothal sodium intravenously with oxygen. In better risk patients, intratracheal ether and oxygen are employed. Sec-

ond, in injuries involving the respiratory tract and oral cavity, including chest injuries and upper extremity surgery, intratracheal cyclopropane is used with carbon dioxide absorption. In poor risk cases, regional anesthesia and oxygen is employed. For abdominal and lower extremity operations, in good risk patients, spinal anesthesia is the anesthetic of choice. In borderline risk patients, balanced spinal anesthesia is preferred. By balanced spinal anesthesia is meant a combination of well chosen premedicating drugs followed by a minimum dose of spinal agents supplemented by a low concentration of cyclopropane with oxygen. . . . In the bad risk patient, when spinal anesthesia is contraindicated, small doses of premedicating drugs followed by gas-oxygen with or without regional anesthesia are used. . . .

"We now come to consideration of the civilian casualties in war. In general, they are treated in the same manner as the civilian casualty in peace time. . . . Morphia and barbiturates will be given at first aid stations. Cases of gas poisoning with irritation of the lungs will of necessity require regional anesthesia or 2½ per cent solution of pentothal sodium intravenously with the administration of oxygen for respiratory difficulties. No volatile inhalation anesthetic will be used in these cases. . . . For the treatment of naval personnel in the sick bay itself, the risks of explosion and the lack of help narrow the choice of anesthetics to nitrous oxide, pentothal, regional and spinal anesthesia. . . . At the battalion aid and collection stations morphia and rapid acting barbiturates will be administered for pain relief by medical officers. In the surgical trailer hospitals associated with the surgical hospital, the treatment of shock will be instituted by the anesthetist in charge. Minor emergency operations will be performed with intravenous pentothal sodium and nitrous-oxide-oxygen with

a portable carbon dioxide absorption apparatus. Spinal anesthesia may be used at this unit if a move is not anticipated within twelve hours. At the evacuation hospital, where the major part of the surgery will be carried out, cases of shock will receive the attention of the physician anesthetist in charge, and here the patient will be given essentially the same anesthetics and methods of introduction which are employed in the general hospital. . . .

"The general hospital in the zone of the interior is the final unit in the line of evacuation to which the wounded will be finally evacuated. Here the same facilities for anesthesia which exist during peace time will be available. . . . The safest anesthetic is the one with which the anesthetist is the most familiar, and that in which he has been trained. . . . Ether is the safest anesthetic in the hands of the occasional anesthetist. . . . Nitrous oxide will be most useful for short operations and as preliminary to the induction of ether. . . . According to Lundy the quick acting barbiturates administered intravenously will be used more often than any other type of anesthetic. . . . The use of cyclopropane-oxygen will be limited to the evacuation and base hospitals because of its explosive properties. . . . Regional anesthesia, either local infiltration with novocaine or plexus block, will be used wherever possible to alleviate the necessity of rendering the patient unconscious when this would react badly upon his general condition. . . . Among the U. S. forces in this war spinal anesthesia will be used more frequently than any other method in operations below the diaphragm." 3 references.

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MALLINSON, F. B.: *Anaesthesia Problems in Children*. M. Press. 208: 416-419 (Dec. 23) 1942.

"There seems to be a widespread belief amongst medical men that it is an