

anesthesia in any form. In our experience this has never occurred, to our knowledge. . . .

"Increased peristalsis due to spinal anesthesia has been quoted as a contra-indication to its use in perforated ulcers. We have observed that spinal is particularly effective in this condition. Babcock said that clinically increased peristalsis does not occur. . . . Anemic, hypo- and hypertensive patients have not developed objectionable complications when managed expectantly. In fact, experience with hypertensive cases has led us to regard it as a specific indication for spinal anesthesia. . . . It has been mentioned that basically the patient's main objections to spinal anesthesia is that he will be keenly aware of the surgery. Ample sedation usually removes this objection. . . . General alertness, activity, reflexes and size all contribute to the evaluation of the dosage. But any of these must be considerably below average before we decrease our dosage from pentobarbital sodium grains 3, morphine grain $\frac{1}{4}$ and scopolamine grain $\frac{1}{200}$, given in the routine manner. Size is the least reliable factor. With this dosage the patient is rarely over-sedated, but frequently it is too little. . . . With adequate sedation only a small percentage of patients requires supplementary anesthesia. . . . Additional anesthesia is only on definite indications, which are interpreted as uncontrollable mental or physical distress which is detrimental to the patient's condition or the surgical procedure. . . . The term, blood pressure, is misleading and is not the true criterion of the patient's condition. We are clinically concerned with physiologic function of vital factors and blood pressure may only terminally portray dysfunction. Such symptoms as pulse rate and pressure, condition and color of skin and mucous membranes, volume and rate of

respiration and capillary fillings must all be evaluated. Low blood pressure itself may occasionally be insignificant. 'Neo-synephrine' is used routinely and is perhaps more effective when given above the zone of anesthesia. . . . Repeated use of hypertensive drugs diminishes the duration of the anesthesia and may rapidly terminate its effect if given in the latter third of its expectancy. We depend largely upon fluid, plasma or blood, as indicated after the initial injection, especially if the time element is involved. . . . Resourceful management of apprehensive conditions will greatly reduce the need of supplementation. . . .

"In our own experience there has been no immediate high spinal death. In a critical analysis of 202 surgical deaths, in which spinal was always the anesthetic, it 'might have contributed to 5.' . . . To those familiar with the procedures, it should be evident that the mortality of high spinal anesthesia is insignificant compared with that of upper abdominal surgery. It offers conditions favorable for a reduction in the surgical mortality which far overcompensates its hazard as an anesthetic. . . . We know that the surgeons with whom we are closely associated believe in this combined safety factor, that is, upper abdominal surgery under high spinal anesthesia. They not only insist upon it for their patients, but also for themselves and their relatives. We have been clinically convinced of its value and safety, and we use it as the anesthetic of choice for upper abdominal surgery." 9 references.

J. C. M. C.

MOORHEAD, J. J.: *Surgical Experience at Pearl Harbor*. J. A. M. A. 118: 712-714 (Feb. 28) 1942.

"The attack on Pearl Harbor began about 7:50 a.m., on Sunday, Dec. 7,

1941, and shortly thereafter with several civilian surgeons from Honolulu I began operating at a large military hospital. . . . The casualties were numerous, varied and severe. The majority were the result of bombing or machine gun attack. . . . Shock and hemorrhage were common, but these were surprisingly well combated by transfusion of blood or liquid plasma. . . . On arrival, the wounded were triaged (sorted) and given preliminary sedation of $\frac{1}{2}$ grain (0.03 Gm.) morphine when indicated. . . . Anesthesia was usually by gas-oxygen-ether sequence, the induction often preceded by intravenous evipal or pentothal sodium. The last named agents were often used throughout and in some cases were administered through a puncture into the transfusion or infusion tubing close to the bend of the elbow. Very few spinal, rectal or local anesthesia procedures were undertaken. . . . The state of well being of the wounded was exceptional after the first few days. Those in need of stimulation were given a transfusion. . . . Our greatest defect was inability to give better preoperative shock treatment to a larger number of the seriously wounded."

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PENDER, J. W., AND LUNDY, J. S.: *Anesthesia in War Surgery*. War Med. 2: 193-212 (Mar.) 1942.

"Since the first clinical use of ether as an anesthetic agent in 1842, some type of anesthesia has been used in the care of the wounded during most of the major conflicts. Prior to 1842 surgical technic was rather crude; in fact, in some primitive armies no treatment was attempted and the wounded were executed on the battlefield. . . . According to Dickson, the ideal anesthetic agent must be safe, portable, capable of being administered by the surgeon, rapid in action, usable with

simple apparatus, controllable, capable of being used without a supplementary anesthetic agent, without extrinsic risk, without contraindications, without serious after-effects, nonvolatile, certain of action and stable of storage. . . . Service patients usually are healthy, but frequently they are suffering from hemorrhage and shock, which, in addition to excitement, may cause them to vomit food eaten ten to twenty-four hours previously. Excessive use of tobacco, common among soldiers, may have some effect on the administration of the anesthetic agent and the frequency and severity of postanesthetic complications. Because of the increase in the speed of transportation and communication, the modern battle lines may extend from arctic to tropic climates, which necessitates the adjustment of anesthesia to the hazards of each. According to Routh, the art of inducing and maintaining general anesthesia among Europeans in the tropics has characteristics which are definitely different from those encountered in England. Because of their volatility, certain of the general anesthetic agents cannot be administered satisfactorily by the open method in hot climates. Special account may have to be taken of endemic disease, such as malaria, dysentery and scurvy, especially in relation to cardiac complications. . . .

"In war surgery the hazard of fire and explosion is increased, especially when ventilation of the operating theater is complicated by needs of blackouts and safeguards against gas. Stocks of drugs should be in multiple small depots to prevent destruction of the entire supply by a single bomb or shell. In rush periods, such as occur during and after a major battle, the disadvantage of the lack of preoperative medication may be overcome to some extent by the intravenous administration of morphine sulfate,