

mouth much earlier than after an exclusive inhalation anesthesia, and the postoperative use of sedatives is curtailed. . . . The blood pressure usually drops during the induction; the initial drop may reach 40 points, but during the rest of the anesthesia it remains on the normal level or stays 10 to 20 points below it. The average amount of pentothal sodium used in the reported series of major operations was 1.0 to 1.5 Gm., but in exceptional cases the total dose reached 2.5 Gm. . . . Clinical experience in 1,462 consecutive cases showed the intravenous administration of a 1 per cent solution of pentothal sodium by continuous drip to be a dependable method of anesthesia which can be employed in practically all fields of major surgery." 4 references.

J. C. M. C.

HELM, J. D., AND INGELFINGER, F. J.: *The Effect of Spinal Anesthesia on the Motility of the Small Intestine.* Surg. Gynec. & Obst. 79: 553-556 (Nov.) 1944.

"Spinal anesthesia is generally believed to stimulate intestinal motility. This effect has been noted both clinically and experimentally under a variety of conditions, but the results have not been wholly consistent. Our observations show that under actual operating conditions, spinal anesthesia has little effect on the motor activity of the intact human small intestine. . . . Balloon kymograph records of the motility of the human small intestine were taken before and during 11 abdominal operations. In patients receiving the usual preoperative medication, spinal anesthesia did not increase the ability of the small bowel to contract against a mild distending force. The results suggest that under certain conditions spinal anesthesia is not a very potent means of stimulating human small intestinal motility, and fur-

thermore that its effect on the small bowel is abolished by moderate doses of morphine and scopolamine." 23 references.

J. C. M. C.

MAGNANO, JOSEPH: *Continuous Spinal Anesthesia—Observations on 1,000 Cases.* Connecticut State M. J. 8: 743-747 (Nov.) 1944.

"Since 1928 we have used spinal anesthesia, in the Middlesex Hospital in Middletown, Conn., in over 8,197 cases. Six thousand of these cases were done under 'one dose' spinal anesthesia and 2,197 cases under continuous spinal anesthesia according to the method of William T. Lemmon. . . . It is our opinion that procaine hydrochloride (novocain or neocain) is the least toxic, both clinically and experimentally, of all drugs to produce spinal anesthesia. . . . We present at this time a report on the first 1,000 cases in which the method has been employed. In each instance the operation was begun and finished under spinal anesthesia, but in the longer procedures we had to supplement the spinal with pentothal sodium. . . . The oldest patient in this group was 90 years old. The youngest patient was 15 days old. . . . A subtotal gastrectomy required 6 hours of anesthesia. The shortest procedure took about 5 minutes for an incision and drainage of an abscess. . . . The smallest dose was 37.5 mgs. of 2½ per cent for release of volvulus in a 15 day old child. The largest dose given to any one patient was 1450 mgs. . . . In 406 appendectomies the average dose of novocain used was 157 mgs. . . . In 51 cholecystectomies, the average dose of novocain administered was 283 mgs. . . . In this series, 76 cesarean sections were done under continuous spinal. . . . The incidence of headache in this series was 5.8 per cent. . . . Urinary retention requiring catheterization occurred in 9.6 per cent of the cases in

this series. . . . There were 11 cases with pulmonary complications making an incidence of 1.1 per cent. One case had atelectasis, 8 cases had bronchopneumonia, one case had type III pneumonia, one case died of pulmonary emboli. . . . Seven of the cases in this series of 1,000 complained of backache post-operatively. This was relieved by the local application of heat. . . . There were 34 deaths among this series of 1,000 cases putting the gross mortality at 3.4 per cent. . . . In none of these deaths do we believe that the anesthetic was the direct causative factor. . . . We believe that this method of spinal anesthesia is safer and more controllable than the one dose method." 4 references.

J. C. M. C.

BIGELOW, NOLTON, AND HARRISON, IRVING: *General Analgesic Effects of Procaine*. J. Pharmacol. & Exper. Therap. 81: 368-373 (Aug.) 1944.

"During the course of an investigation on certain aspects of the local anesthesia induced by procaine, it was noted that this drug, like cocaine, may produce general analgesia, and this action is the subject of the present report. . . . Measurements of the cutaneous pain threshold were made under various conditions on 5 subjects. . . . Procaine has a general analgesic action in addition to its well-known local anesthetic properties. The maximum rise in the cutaneous pain threshold attributable to the general action of this drug after 100 to 800 mgm. injected subcutaneously is approximately equivalent to the ceiling rise observed after acetylsalicylic acid, namely, about 35 per cent of the normal threshold value. The duration of the procaine effect is, however, much shorter than the acetylsalicylic acid effect. The general analgesic action of procaine is usually more pronounced when other central effects of

the drug are also evident. The control injection of physiologic saline solution is also associated with a rise in the pain threshold, which, however, on the average is not as great as or prolonged as that observed after the smallest dose of procaine employed. The local anesthetic action of procaine after a perineural block outlasts the general analgesic action of this drug by about one hour. Variations are observed in the general analgesic effect of procaine on different occasions in the same subject independent of the dose." 9 references.

J. C. M. C.

YUDIN, S. S.: *Refrigeration Anesthesia for Amputations*. Am. Rev. Soviet Med. 2: 4-13 (Oct.) 1944.

"The author has had no experience with the use of refrigeration anesthesia at the front. The results reported below are based upon amputations performed in cases of serious railroad accidents, as well as upon a small series of thigh amputations performed from two to four months after injury. The patients were soldiers suffering from chronic septic wounds secondary to gunshot fractures. . . . From July to November 1943, 120 amputations of the extremities were performed on 106 patients at the Sklifosovski Institute. These patients may be divided into three separate groups. The largest group consisted of 92 patients injured in industrial and street car accidents. One hundred and six amputations were performed on them. . . . The anesthesia was completely effective in 81 cases and the patients did not complain during the operation. In 22 cases the anesthesia was satisfactory. The patients retained consciousness while the large nerves were being severed and the periosteum stripped. No supplementary anesthesia was needed, since the complaints were mild and were due to apprehension rather than