tion of the patient could easily shear off the soft needle as it emerged through the end of the introducer. ... We now use a No. 19, 4-inch needle whereas before it was necessary to use a No. 18 needle. The smaller needle makes a smaller puncture hole in the dura and as a result, there is less danger of post-spinal headache from leakage of spinal fluid.”

J. C. M. C.


“In 1942 Hingson and Edwards through a familiarity with the continuous spinal anesthesia method introduced by Lemmon, first published their report on continuous caudal analgesia in obstetrics. ... It is generally agreed that the most important cause of failure is the inability to insert the needle properly into the caudal canal. We decided, therefore, to investigate the possibility of continuous spinal anesthesia. While the method has been used for some time in cesarean section, this is the first attempt, to our knowledge, to apply it to labor and vaginal delivery. This preliminary report is based on our experience in its use on fifty cases. ... Comparison between the various drugs seems to indicate the superiority of 1.5 per cent metycaine in Ringer’s solution. It has been shown that the most favorable site of injection is the first or second lumbar interspace. Premature institution of the method invariably results in prolongation or cessation of labor. The patient should be in active labor with the presenting part in mid pelvis and the cervix 2 to 4 cm. dilated, depending upon the parity. The progress of the first stage is apparently accelerated. The second stage of labor is altered, and the incidence of operative de-

livery is greatly increased. The third stage of labor proceeds normally, and the blood loss is minimal. This anesthesia is without adverse effect on the baby. We do not advocate this method as a routine procedure and urge caution in its employment. While no serious complications occurred in this series, further trial is necessary to evaluate its future place in obstetrical anesthesia.” 2 references.

J. C. M. C.


“On April 10, 1939, we administered the first continuous spinal anesthesia to a human being. Since then, we have given well over 2,000 anesthesias by this method, and in this communication we are reporting some of our observations and impressions on these cases. ... In this series of cases we have used procaine hydrochloride as the anesthetic agent, with one exception, when we used metycaine, because the patient was sensitive to procaine. Procaine was chosen deliberately, because we believe that it is the least toxic of all the drugs used for this purpose, and it has the most fleeting action of all the drugs of this nature. ... We feel that one of the most important steps in the production of a satisfactory spinal anesthesia is the administration of the proper preliminary medication. ... Our routine is to give the patient 3 gr. of nembutal the night before operation, followed by another similar dose three hours before operation. One hour before operation, a hypodermic injection of morphine sulphate gr. ¼ and scopopamine hydrobromide gr. 1/100 is given. This dos-

age is for the average good-risk adult who is not seriously ill. ... Other than the preliminary dose of ephedrine given with the procaine for skin anes-
Abstracts

Thesia, we seldom use any vaso-pressor drugs during the course of the anesthesia and operation. . . . Of course, we have patients whose blood pressure falls quite low during the course of a difficult and shocking operation, but it is treated with the thought of treating the operative shock rather than as treating low blood pressure due to spinal anesthesia. For this reason, we gave our patients intravenous glucose solution, blood, or plasma to combat this condition and rarely use the vaso-pressor drugs. . . . We believe in, and practice, the administration of oxygen throughout the anesthesia and operation. . . .

"Our records show that in three cases we did not get satisfactory anesthesia. One case developed uncontrollable cough during the course of a pulmonary lobectomy. The patient was given cyclopropane during the stage of tugging on the bronchus which caused the coughing. Sensory anesthesia at this time was at the level of the hyoid bone. In the two other cases, faulty technic and a busy schedule are to blame. . . . Many of the anesthetics in this series were given by interns and relatively inexperienced anesthetists. Many of the cases in this series have been saved from being failures by the authors making new punctures after what had been thought to be a satisfactory puncture had failed to produce satisfactory anesthesia. In several cases, the patient has been repunctured after the abdomen had been opened and perfectly satisfactory anesthesia obtained. . . . The average age for this group was 35.9 years. The youngest was two days old. . . . With our increased experience with this type of anesthesia in children, we have found that it is very satisfactory. . . . The average length of the operations in this series was 50.1 minutes. The longest procedure was a subtotal pancreatectomy which required five hours and 25 minutes. The shortest procedure was about two minutes for the incision and drainage of an abscess. . . . For the operations in this series, the total dosage per case averaged 210.9 mg. The average number of injections was 2.37. The smallest dose was 20 mg. for the amputation of a toe. The largest dose given to one patient was 2200 mg. This was for a hysterectomy which required 35 minutes operating time. In general, for the average case we give an initial dose of 150 mg., which will usually give satisfactory anesthesia for any type of abdominal surgery. This is usually followed by an additional injection of 50 mg. every half hour for the remainder of the operation. However, we encounter many cases which do not require as much, and also many cases which require much larger doses. Children tolerate the drug very well, and will require relatively much larger doses than adults. . . . Our routine procedure calls for the use of a 5 per cent solution of procaine in spinal fluid. Additional doses may be prepared in sterile distilled water or normal saline solution. We have used various dilutions from 1 to 10 per cent, but have found that the 5 per cent solution is the most satisfactory. . . .

"We have had a number of cases in which the blood pressure reached, and maintained, a higher level than that before the anesthesia was begun. This, however, is an exception to the rule. . . . The incidence of headache following the use of continuous spinal anesthesia is about the same as following the use of the single-dose spinal. . . . Our incidence of headache for the entire series is 3.1 per cent. . . . We have made it a rule to use an indwelling catheter in patients who are submitted to operations which may last a relatively long time, and who are receiving intravenous during the operation. The bladder often distends dur-
ing the operation, and if not taken care of lends to encourage retention. We also use an indwelling catheter in all vaginal plastic cases. Our incidence of retention, excluding the above mentioned cases, is 3.3 per cent for the series. . . . In this series there were 45 cases which developed pulmonary complications, 27 of these were bronchopneumonia, 11 were lobar pneumonia, five were atelectasis, and two were pulmonary embolism. . . . One case developed anesthesia of the upper lip immediately following a cystoscopic examination. This persisted for two days, then disappeared completely. There was nothing unusual about the anesthesia, the level was not high, and we cannot explain this occurrence on any other basis except hysteria. There were no other incidences of any type of neurologic complications. . . . There were 22 deaths in this series of 2000 cases making a gross mortality of 1.1 per cent. The average time that elapsed between operation and death was 5.9 days. None of these were anesthetic deaths, and we do not feel that the anesthesia was a contributing factor in any of them." 20 references.

J. C. M. C.


"The present communication deals with experiments showing that the early mortality following severe thermal injury is profoundly influenced by the type of sedation and anesthesia used. In the first paper of this series the combination of nembutal and morphine used produced a good anesthesia during the injury itself, as well as a fairly prolonged sedation afterwards. Following the publication of this data, Dr. Alfred Blalock wrote that he had repeated these experiments and had observed a much lower mortality; indeed, only two deaths occurred under 24 hours in a series of 12 experiments in which a thermal stimulus of 85° to 90° centigrade for 5 to 15 seconds, up to the axilla, was employed. With a similar degree of injury, our mortality was 100 per cent. The fact that he used a smaller dose of morphine without nembutal plus a short ether anesthesia during the burn stimulus suggested that the pronounced difference in mortality might be due to the type of anesthesia used. In order to study this supposition, a series of experiments were carried out in which a somewhat more severe burn stimulus (immersion up to the axilla at 100° centigrade for 10 seconds) was employed in a series of ten experiments each; various doses of morphine in combination with nembutal or ether were used in each group. . . . Morphine increases the 24-hour mortality (up to 100 per cent) in severe experimental burns, particularly when given in large doses and with nembutal. Practically no 24-hour mortality occurred when ether alone was employed. It is inferred that large doses of morphine, when used in the absence of pain, may increase the early mortality in severe human burns." 3 references.

J. C. M. C.


"The reaction when any part of a warm-blooded animal is exposed to cold is both complex and variable according to many modifications of degree and kind. . . . The effects of a tourniquet depend on the material, breadth, tension, time and temperature. Hard or inelastic materials, such as wire, cord, fabric or stiff rubber, create troubles either by looseness or by crushing of