

no time, and there are no exceptions to this rule, must operative procedures be performed in the mouth of an unconscious patient without thoroughly packing the mouth with gauze."

J. C. M. C.

LIEBERMAN, S. L.: *Intrasternal Administration of Pentothal Sodium*. New York State J. Med. 45: 2191 (Oct. 15) 1945.

"During the New Georgia campaign in the central Solomons, a wounded Japanese prisoner was admitted to our collecting station. After several unsuccessful attempts at venipuncture, a sternal puncture was performed with a 17-gage needle. An infusion of normal saline was started. Shortly thereafter, pentothal sodium was used for induction and maintenance of surgical anesthesia for thirty minutes. A 3 per cent solution of pentothal was intermittently injected into the sternal bone marrow via the saline infusion previously set up. Induction and maintenance of anesthesia was similar in every respect to intravenous administration. The patient became drowsy within one minute of the initial injection of about 70 mg. of pentothal. . . . The patient's reaction to each pentothal injection was just as rapid as to an intravenous injection. . . . A total of 400 mg. was employed. The patient recovered from the anesthesia in the usual manner, but seemed excessively drowsy for about four hours after the operation. We attributed this to marked fatigue from three days' constant exposure in the field."

J. C. M. C.

KLENDSHOG, NIELS C., AND WITEBSKY, ERNEST: *Transfusion of O Blood*. J. A. M. A. 128: 1091-1093 (Aug. 11) 1945.

The author feels that universal type O blood should not be used indiscrimi-

nately for transfusions in patients of different blood groups. "To overcome objections to the use of group O blood with potent isoagglutinins as a universal blood, we have recommended the addition of the purified blood groups specific substances A and B as a means of reducing the isoagglutinins titers to low levels."

A series of 389 transfusions of O blood containing purified group specific substances was compared with 1,830 transfusions of homologous blood given under identical conditions. In the 389 transfusions of O blood 5 to 10 cc. of a previously standardized solution of the blood group specific substances was added to each pint of O blood before transfusion was given. A careful record was kept of the transfusion noting the temperature, pulse rate and blood pressure from six to eight hours following transfusion. When indicated an icteric index, cell count and urine analysis for hemoglobinuria was carried out. The authors found the same incidence of transfusion reactions whether homologous blood or condition universal donor blood was used. In some cases they suggested that conditioned universal blood (group O blood to which has been added A and B substances) could be used without cross-matching blood for the patient.

This conditioned blood was given to 48 patients who had all received previous transfusions of conditioned blood. The reaction rate was 6.2 per cent in this series of 48 patients who received 81 transfusions. There was no significant difference in the rate of reaction to this blood as compared to patients receiving homologous blood. The author concludes that "in spite of rigid and critical observations, no harmful effect was observed attributable to the groups specific substances employed. The addition of the purified specific substances A and B to O blood as a

means of reducing the groups isoagglutinins titers to low level can therefore be recommended as a safe and effective procedure."

M. L. B.

WIKLER, ABRAHAM: *Pain, a Discussion of Recent Progress*. Kentucky M. J. 43: 298-303 (Nov.) 1945.

"Correct interpretation of referred pain depends on an exact knowledge of the segments over which the visceral pain impulse travels, for the pain is referred to that area of the skin which is supplied by the corresponding dorsal roots. Thus pain impulses from the heart travel over the middle and inferior cardiac nerves to the corresponding cervical sympathetic ganglia but they then course backward down to the upper three thoracic sympathetic ganglia whence they join the first three thoracic dorsal roots to join the spinal cord. Successful control of the pain of angina pectoris has been reported following injection of novocaine or alcohol into, or surgical excision of, these thoracic sympathetic ganglia. Section of the corresponding dorsal roots has likewise been successful. The lung parenchyma and visceral pleura are not innervated by pain fibres, but the parietal pleura over the apex is innervated by the brachial plexus, that over the lateral portion of the base of the lung by the intercostals, while the central portion of the base is innervated by the phrenic nerve. Pain from lesions in the biliary system, the liver, stomach and small intestine have been successfully controlled by alcohol injection or surgical resection of the splanchnic nerves, although this does not hold true for the transverse and descending colon. . . . The uterine fundus is supplied by fibres which enter the spinal cord at the 11th and 12th thoracic segments. This fact has been utilized by Hingson

and Edwards in their technique of caudal analgesia for deliveries. They emphasize the necessity of injecting enough novocaine in the epidural space to insure anesthetization not only of the sacral nerves which supply the cervix but also the lower thoracic spinal nerves which supply the fundus. The rectum appears to be supplied with pain fibres from the sacral nerves. . . . 'Reverse' increase in irritability of the cerebral cortex appears to be present in the 'phantom limb' phenomenon since cases have been successfully treated by removal of the appropriate sensory areas of the cerebral cortex. . . . Pain is a nociceptive stimulus calling for defense on the part of the body. Frequently this results in muscle spasm due to reflex contraction of muscles innervated by the same or adjacent segments. Prolonged contraction of muscle, however, may itself become a source of pain, thus producing more spasm and starting the cycle over again.

"Such a process is frequently operant in headache, the scalenus anticus syndrome and low back pain. Wolf has shown that painful conditions in the sinuses, the eyes, or intracranial structures may evoke continual pain in the muscles of the head, which are interpreted as headache. Massage of these muscles or infiltration with novocaine often relieves the headache thus proving its muscular origin. Similarly, in the scalenus anticus syndrome, repeated novocaine injection of the muscles often results in complete relief which is not understandable except on the basis of reflex muscle spasm. Similar results have often been reported in cases of low back pain of obscure origin. Very recently, Kabat and others have used prostigmin in such cases. Daily intramuscular injection of 1 mg. of prostigmin with 0.4 mg. of atropine have afforded marked