

tration and then falls off rapidly. There seems to be a correlation between the depth of anesthesia and the plasma level. Pentothal is degraded rapidly in the body, since very little is excreted in the urine and there is but a small amount of storage in the organs." 7 references.

F. A. M.

WIGGINS, S. C.: *General Anesthesia in the Control of Pain in Dentistry*. J. Am. Dent. A. 33: 1563-1568 (Dec. 1) 1946.

Down through modern history dentistry has been prominent in the progress of developments in the relief of pain. Horace Wells, Gardner C. Colton, and W. T. G. Morton, all dentists, contributed to the early history of anesthesia. From Morton's time the developments in relief of pain were slow. The invention of the gas machine for the administration of nitrous oxide-oxygen began a new era. The first successful apparatus was made by Karl A. Connell in 1902. The Cotton-Boothby gas-oxygen-ether sequence machine was the first successful one of its kind. J. A. Heidbrink, a dentist, in 1915 developed the first successful gas apparatus for use in the dental office.

The last twenty years have brought many advances in anesthesia. Adequate preoperative and postoperative care of all dental patients should be provided. The use of ether has decreased since the discovery of the anesthetic qualities of cyclopropane. Pentothal sodium has been a great boon as an anesthetic for short operations. Curare is a valuable adjunct to general anesthesia. A. L. Barach and E. A. Rovenstine condemned the use of nitrous oxide with insufficient oxygenation of the patient and recommended that nitrous oxide be supplied only in tanks containing 80 per cent nitrous oxide and 20 per cent oxygen.

All surgical operations on the oral cavity should be done with the patient in the Trendelenburg position. Administration of the general anesthetic agent should not be carried out in a dental office. The exception is the use of nitrous oxide-oxygen in combination with regional procaine or monocaïne. Vinethene is a rapid acting anesthetic but, since it damages hepatic tissue and causes excessive salivation it should be used with caution for not more than one-half hour and always with a high concentration of oxygen. Ethyl chloride analgesia can be used before extraction of deciduous teeth of small children. Ether used alone is probably the safest anesthetic in the hands of the inexperienced person. For difficult surgical procedures in the oral cavity ideal anesthesia can be accomplished only by intubation of the trachea.

F. A. M.

THOMAS, G. J., AND SICA, P. A.: *New Method for the Management of Spinal Analgesia*. Pennsylvania M. J. 50: 137-143 (Nov.) 1946.

Since August Bier first had cocaine solution injected into his own spinal canal to observe its effects, spinal analgesia has either been supported or denounced by surgeons and anesthetists. Spinal analgesia offers muscular relaxation and intestinal contraction which enable the surgeon to perform shock-producing operations with minimal handling of viscera. Spinal analgesia is criticized because of complications such as nausea, pallor, cold sweats, psychic shock and other undesirable after-effects that may follow its use. At St. Francis Hospital, Pittsburgh, Pennsylvania, members of the Department of Anesthesiology have studied various drugs that could be used to make spinal analgesia a valuable adjunct to surgery and anesthesia.

The use of intravenous barbiturates was found to eliminate psychic factors and other untoward effects of spinal analgesia. Prophylactic measures to maintain the patient's blood pressure included: 1. Limiting the anesthesia level to the degree required for the proposed operation. 2. Intravenous infusion. 3. Oxygen administered under slight positive pressure. 4. Subcutaneous or intramuscular administration of sympathomimetic compounds before the injection of the anesthetic drug. Neosynephrin hydrochloride was found, after extensive study, to be the drug best suited for the use in the prophylaxis and treatment of hypotension following spinal analgesia. A study was made of 1690 cases chosen at random. Three-fourths of a cubic centimeter ( $7\frac{1}{2}$  mg.) of neosynephrin hydrochloride was added to 500 cc. of 5 or 10 per cent glucose solution for intravenous administration. A solution of pentothal sodium is prepared and the two solutions are attached to a manifold which, in turn, is connected to an intravenous needle. Immediately after the injection of the spinal anesthetic an initial dose of pentothal solution is given, usually 3 cc. The neosynephrin-glucose solution is then turned on and administered at the rate of 50 or 60 drops per minute. Oxygen should be administered throughout the entire period of the spinal analgesic, especially when the patient returns to his bed. Any change in blood pressure is corrected by changing the rate of drop of parenteral solution. Should shock develop the neosynephrin-glucose solution may be continued after the completion of the operation. Neosynephrin may be used with any parenteral solution, including blood and plasma, without fear of incompatibilities. The nursing staff should be told that when neosynephrin is added to any parenteral fluid the rate of flow should not exceed 50 drops per minute for fear of raising the

blood pressure to too high a level. The drug should not be used if a patient is suffering with heart block or bradycardia. "Electrocardiographic studies were made on 16 consecutive patients who had received neosynephrin hydrochloride intravenously. The amount of neosynephrin hydrochloride varied from 5 to 15 mg. Tracings were taken one day preoperatively, immediately preoperatively, during deep anesthesia (neosynephrin was being given intravenously), and one to two days postoperatively. Electrocardiographic studies were made of patients receiving atropine, morphine, and sodium pentothal alone in order to determine the effect of these various drugs and allow for the difference in studying neosynephrin hydrochloride. The findings were as follows: 1. Atropine—stimulates S-A node and lowers the T wave. 2. Morphine—this has vagal effects characterized by slowing of the heart rate, delay in conduction, lowering of the R wave, and raising of T wave. 3. Pentothal sodium—this agent has no obvious changes involving either the conductive system or the myocardium. 4. Neosynephrin hydrochloride—in conjunction with sodium pentothal, spinal analgesia, and preanesthetic medication, showed a slowing of the rate. Sinus mechanism persisted. In many tracings, the P-R interval showed an increase, but always remained within the normal limit of 0.20 second or less. The slowing of the heart rate is due to vagal inhibition." 3 references.

F. A. M.

MARSTON, A. D.: *Anesthetics in Obstetric Practice*. Practitioner **157**: 372-378 (Nov.) 1946.

The general condition of the mother after a pain-free labor is superior to that following unassisted child-birth, because there is less psychic trauma, labor is usually shortened and the mother sleeps between pains. The