doses and euphoria reappeared. He became dyspneic and felt faint and dizzy. The use of the drug was discontinued and has been avoided since. Although habituation resulted, true addiction apparently did not develop. 5 references.

F. A. M.

LUNDY, J. S., AND PENDER, J. W.: *Supportive Measures for the Anesthetized Patient During Operation.* Kansas City Med. J. (Jan.-Feb.) 1947.

Supportive measures for the anesthetized patient may well be employed in the preoperative period and continued in the postoperative period. A large bore needle with a stilet may be placed in a vein after induction of anesthesia. The size of the superficial veins ordinarily is increased after anesthesia is started. In cases in which there is or has been a considerable loss of blood, there is no better substitute than blood itself. The amount of blood loss is often underestimated by the surgical team. The use of universal donor's blood in an emergency is felt to be justified without the precautions considered necessary in cases of elective surgery. The Rh factor should be determined, if possible, before transfusion. In an extreme emergency one must use the blood which is available.

Dextrose and salt solutions are commonly used because they are readily available. It is the opinion of the internists, who are particularly interested in renal function, that patients probably do better with a 5 per cent solution of dextrose in distilled water than with dextrose in physiologic salt solution.

Electrolyte solutions may, if there is a considerable loss of blood, dilute the blood and make control of bleeding difficult. Vasopressors tend to increase the loss of blood. Plasma has been beneficial but large quantities are seldom indicated except in the treatment of extensive burns. A 6 per cent solution of acacia in physiologic salt solution may prove beneficial when there has been little loss of blood. Gelatin of large molecular size has been a valuable therapeutic agent in some cases. A 6 per cent solution of dextran in physiologic salt solution has been used in over 200 cases. The blood pressure seems to be well maintained when blood loss has not been excessive. Untoward reactions to dextran, the preparation called "macrose," have been reported.

Vasopressor agents have been useful in some instances. Elevation of the blood pressure before the closure of the operative wound will permit detection and control of bleeding and thus avoid subsequent re-opening of the wound. Ephedrine in doses of 25 to 75 mg. has been satisfactory in raising blood pressure in most instances. Fifty mg. of oenethyl hydrochloride has been found to be equivalent to 25 mg. of ephedrine. Very small doses of neosynephrin usually produce elevation of the blood pressure. Vasopressor drugs may be given in single, concentrated doses or may be added to the intravenous infusion.

Quiet breathing helps reduce the blood loss during anesthesia. Oxygen is a simple supportive measure in any degree of shock.

Convulsions which may occur during anesthesia may be controlled by the intravenous injection of a small dose (3 to 5 cc. of pentothal sodium) of a barbiturate. A small dose of curare intravenously may also relieve the convulsion.

Pentothal sodium and crystalline d-tubocurarine were administered to patients with poliomyelitis to facilitate manipulation when rigidity was present. The dose required to overcome the rigidity was surprisingly

small. Curare and pentothal sodium combined in the same syringe have been used. The precipitate that forms when curare and pentothal sodium are mixed together depends on the purity of the preparation of curare, and on the quantity of curare introduced into the solution of pentothal sodium. A table giving the maximum quantities of the different preparations of curare, which can be added to 10 cc. of a 2.5 per cent solution of sodium pentothal without producing a precipitate, accompanies the original article. 1 reference.

F. A. M.

MAZZOLA, V. P.: *Sodium Pentothal Anesthesia in Major Obstetrics and Gynecologic Surgery. Preliminary Report of 300 Cases.* Am. J. Obst. & Gynec. 53: 207–213 (Feb.) 1947.

Pentothal sodium is the agent used when speaking of intravenous anesthesia. This method has displaced other methods of anesthesia in many fields of surgery. Some of the contraindications of intravenous anesthesia are: some of the drugs have been condemned as dangerous and impractical and some of the drugs have an action that does not produce adequate relaxation. Some of the advantages of the intravenous method are: rapid induction with minimal psychic shock, easy induction, injection is pleasant and dosage is easily controlled. Recovery from intravenous anesthesia is rapid, there is absence of vomiting and distention, there are few complications postoperatively and blood pressure is maintained. Pentothal is ideal for patients who fear inhalation anesthesia and it can be used as a supplement to other agents.

The requisites for intravenous anesthesia are: (1) a properly trained anesthetist; (2) oxygen should be available; (3) an airway tube should be available; (4) proper technic for venipuncture; (5) asepsis and antisepsis; (6) freshly prepared solution of the anesthetic agent, and (7) pure, sterile, distilled water for preparing the solution. The apparatus used for most of the cases in this series was one which was described by Pico. An intravenous graduate gravity flask was used in some cases. Induction was performed by the continuous infusion of a 2 per cent solution of sodium pentothal; maintenance was conducted with an infusion of 1 per cent solution. The rate of flow was controlled by the anesthetist according to the desired depth of anesthesia and to the requirements of each patient. For abdominal cases the average induction required 15 to 30 cc. of 2 per cent solution. For cesarean section and for vaginal plastics the amount of solution for induction was smaller than for abdominal surgery.

Preliminary medication for these cases consisted of veronal, grains 7½ the night before operation. One hour before operation a hypodermic injection of morphine sulfate, grain ⅙ (0.01 Gm.), and atropine sulfate, grain 1/150 (0.00043 Gm.), was given. Additional barbiturates were not used in order to better evaluate the effect of the pentothal sodium for general surgery. For cesarean section, atropine was given without morphine.

Three hundred consecutive major gynecologic and obstetric cases were studied. In a group of 45 cesarean operations, the average amount of pentothal sodium used was 1.14 Gm. and the average anesthetic time was forty-five minutes. In five cases of cesarean section and hysterectomy, the average anesthesia time was sixty-one minutes and the average amount of pentothal sodium was 1.35 Gm. The gynecologic cases were divided into two groups. In cases such as vaginal plastics, etc., the average dose of pentothal sodium was 0.89 Gm. and the av-