

ABSTRACTS

Editorial Comment: A fixed style of presentation for this department of ANESTHESIOLOGY has purposely not been defined. It is the wish of the Editorial Board to provide our readers with the type of abstract they desire. Correspondence is invited offering suggestions in regard to the length of abstracts, character of them, and source of them. The Board will appreciate the cooperation of the membership of the Society in submitting abstracts of outstanding articles to be considered for publication.

HILL, J. M.; MUIRHEAD, E. E.; ASHWORTH, C. T., AND TIGERTT, W. D.: *Use of Desiccated Plasma with Particular Reference to Shock.* J. A. M. A. 116: 395-402 (Feb. 1) 1941.

The authors state that plasma proteins are the key to the closely related problems of shock, fluid balance, and blood volume. Whatever the mechanism of shock, it is generally agreed that there is "a disparity in blood volume relative to vascular capacity"; and that "restoration of circulating blood volume is the essential aim . . . before a vicious cycle tends to be set up with progressive vascular damage due to anoxemia."

In this paper they discuss the use of dried plasma, prepared by the Adtevac process and given in concentrated form, which permits large amounts of protein to be given quickly. Hypertonicity builds up blood volume by withdrawing fluids from the tissues, and there is also evidence to show that hypertonic solutions have a direct stimulating effect on vascular tone.

Neutral plasma is produced by adsorption of agglutinins when whole blood is pooled at low temperatures (ten parts of type "O" to one of "AB," or equal parts of "A" and "B"). This neutral plasma is placed in 500 cc. ampules and desiccated in bulk from the frozen state by the 'Adtevac' process, then granulated, weighed into 25 Gm. lots and stored in vaccine type bottles either in nitrogen or par-

tial vacuum and sealed with celloidin. For use, the 25 Gm. is dissolved in 100 cc. of water, giving a four times normal concentrate, which in shock, is administered rapidly (100 cc. in one minute).

Over a one and one half year period, this concentrated plasma has been used in 156 cases. Of these, 45 were in shock, the other 111 were for various indications, such as hypoproteinemia, eclampsia, severe infection with collapse, neurosurgery, burns, roentgen sickness, hemolytic anemia, etc.

The 45 cases of shock are analyzed in tabular form. Of these, 19 were severe with pulse and blood pressure imperceptible; 16 moderate with blood pressure below 80/40; 10 mild with low blood pressure, and other signs of shock. The results were graded as excellent in 36 cases, with a rise of blood pressure above 80/40 within five to thirty minutes; fair in 8 cases, with less pronounced improvement; and poor in one case, with a transitory response.

Where hemorrhage was a factor in the production of shock, concentrated plasma was found to be more effective and rapid in action than whole blood, and in severe cases, may succeed where any amount of whole blood alone may fail. If the loss of red cells is 60-70 per cent, whole blood must be given in conjunction with the plasma.

The promptness of action is believed to be due to shift of tissue fluids to the blood stream. The available tissue fluid in a normally hydrated person is

stated to be three times the circulating plasma volume. Determination of specific gravity of whole blood and plasma, hematocrit, and hemoglobin, in the above cases of shock, before and after the administration of concentrated plasma, showed that the increase in plasma volume took place immediately; and that this increase was much greater than could be accounted for by the volume of fluid injected. This shift of tissue fluids is diametrically opposed to the mechanism of shock.

Reactions were few and consisted of fever, traced chiefly to pyrogens in the diluent, and urticaria.

R. B.

WRIGHT, C. I.: *The Enzymatic Deacetylation of Heroin and Related Morphine Derivatives by Blood Serum*. J. Pharmacol. & Exper. Therap. 71: 164-177 (Feb.) 1941.

Heroin is an acetylated morphine derivative. The sera of some rabbits deacetylate heroin with liberation of morphine. The difference in action of these two substances may thus be partially explained as follows: Hypodermically, morphine is less potent than heroin, as judged by effective clinical doses. This may be due to the fact that morphine is precipitated by the alkaline tissue reaction, and so passes into the blood stream slowly. Heroin is not precipitated as readily, enters the serum more rapidly, and exerts its action, therefore, in smaller concentrations.

If, on the other hand, heroin owes its action to the fact that it is deacetylated to morphine in the serum, then the intravenous injection of the two drugs should reveal morphine to be the more potent substance dose for dose. This is suggested by the following evidence: Intravenous administration of the two substances to rabbits indicates that morphine is five to ten times as toxic as heroin.

R. D. D.

FRIEDMAN, SIDNEY M.: *Effect of Progesterone Anesthesia on Systemic Blood Pressure*. Proc. Soc. Exper. Biol. & Med. 46: 197-198 (Jan.) 1941.

Comparative blood pressure effects of progesterone and nembutal anesthesia were observed. Eight female rats were given 17 to 22 mg. progesterone intraperitoneally and twenty-four hours later " $\frac{1}{10}$ cc. of nembutal solution containing one grain per cubic centimeter." Blood pressure was observed at ten minute intervals until recovery was complete. With both agents, a brief preliminary rise of 10 mm. of mercury was noted immediately after injection. In no case did progesterone depress the blood pressure to any greater degree than nembutal.

M. H. H.

BRUNNER, R., AND SEED, LINDON: *Blood Pressure and Pulse Rate Changes During Thyroidectomy*. Surg., Gynec. & Obst. 70: 731-740 (Apr.) 1940.

During a thyroidectomy for a toxic goiter it is a universal observation that there is a rise in blood pressure and pulse rate due to the thyrotoxicosis itself, and not related to the anesthetic agent. Consequently, the value of routine blood pressure and pulse rate readings during a thyroidectomy is even greater than during other operative procedures. The character of the reaction may determine whether or not the operation is to be started, and once started, if it is to be continued, terminated, or confined to a subtotal resection of one lobe. A survey of 600 anesthetic charts showed certain constantly recurring patterns in the blood pressure and pulse rate curves. Premedication consisted of pentobarbital sodium one to 3 grains, plus morphia sulphate grain $\frac{1}{8}$ to $\frac{1}{4}$ and atropine sulphate grain $\frac{1}{150}$. Readings of these patients with nontoxic nodular goiters