

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

on arriving in the operating room showed an unchanged blood pressure and a slightly higher pulse rate than on the ward. During the first ten minutes of anesthesia the systolic pressure rises 15 to 20 mm. of Hg. and then is maintained at a fairly constant level 10 to 12 points above the ward reading. The diastolic remains approximately 5 points higher than the ward reading. The pulse rate changes very little, averaging 100 beats per minute throughout the operation.

In the moderately toxic group the systolic pressure shows slight fall, and the pulse rate a rise preceding induction of anesthesia. During the first ten minutes the systolic pressure shows a sharper rise of 20 points and the diastolic is elevated about 10 points and is maintained at that level. The average pulse rate varies only a few points from 110.

In the severe toxic cases, the pressure and pulse rate both rise prior to anesthesia. After induction there is a considerable rise in systolic pressure, reaching a peak in approximately fifteen minutes and then gradually dropping. The diastolic pressure rises and falls in unison with the systolic, but to a lesser degree. The sharp rise in systolic pressure is quite characteristic, and is roughly proportional to the degree of toxicity, but in the absence of true hypertension rarely goes above 200. The pulse rate in this group is high, averaging 130 in contrast with 110 in the moderately toxic, and 100 in the nontoxic group.

Under local anesthesia 25 cases falling into group two were done. Here the average variation in systolic and diastolic pressure is slight, being within 10 points of the ward reading. The pulse rate is maintained at a higher level, between 120 to 130 throughout the operation.

J. E. R.

SELYE, H.: *Anesthetic Effect of Steroid Hormones*. Proc. Soc. Exper. Biol. & Med. 46: 116-121 (Jan.) 1941.

Desoxycorticosterone acetate (DCA), progesterone, testosterone, estradiol, and cholesterol were tested. Intraperitoneal injections of the substances were made into white rats, the drugs being dissolved in peanut oil. Deep surgical anesthesia resulted from the intraperitoneal injection of DCA and progesterone into 12 female rats, while only 1 male rat was anesthetized with DCA and 2 with progesterone. Six female rats were anesthetized by testosterone, but this effect was not observed until the end of one hour. Estradiol and cholesterol were without effect.

The animals showed no ill effects on recovery. Overdose led to death from respiratory paralysis. Partially hepatectomized rats were more sensitive, indicating that the liver plays a role in destruction of these preparations.

No explanation is given as to the possible mechanism underlying the production of anesthesia in this manner. The sharp difference in sex susceptibility is interesting. Blood pressure was not lowered.

R. D. D.

TOCONTINS, L. M., AND O'NEILL, J. F.: *Infusion of Blood and Other Fluids into the Circulation Via the Bone Marrow*. Proc. Soc. Exper. Biol. & Med. 45: 782-783 (Dec.) 1940.

Substances injected into the bone marrow enter the general circulation apparently unchanged and almost as rapidly as when injected intravenously. In cases of widespread mutilations, burns, edema, poorly developed or obliterated veins and states of shock, it is sometimes impossible to use the intravenous or subcutaneous routes of administration.

For these reasons, the authors have attempted a clinical application of the