It is, however, decreased in pre-eclampsia or eclampsia, and the forcing of fluids may produce undesirable systemic symptoms and signs.

The parenteral injection of extracts of the posterior lobe of the pituitary gland produced the following changes: 1. A decrease in the volume of urine, an increase in the chloride concentration, and an average rise in the systolic blood pressure of 15 mm. Hg. in normal pregnant, parturient or puerperal women. 2. A markedly decreased volume of urine, an increase in the chloride concentration, and an average rise in the systolic blood pressure of 49 mm. Hg. in pre-eclamptic patients.

8190 P

Effect on Blood Pressure of Sudden Release of Intestinal Distention.

IAN AIRD.* (Introduced by E. A. Graham.)

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A study has been made of the effect of changes in intestinal distention upon the blood pressure of a dog whose vagosympathetic trunks are divided and common carotid arteries ligated on both sides of the neck, and whose splanchnic nerves are divided. The blood pressure in such an animal would be expected to vary inversely with the degree of splanchnic congestion induced by the distention of the gut. The only factor difficult to control in such an animal is the contractility of the intestinal muscle, which in responding to a rise in intra-intestinal pressure may contract tightly, rendering the intestine anemic, and, by the consequent increase in peripheral resistance to the blood flow, causing a rise in blood pressure. This pressor effect obtained in 5 dogs in which the whole small intestine, ligated at both ends as a closed loop, was distended with air. In 5 dogs and 3 cats, however, the intestine remained passive under distention, and became distinctly cyanosed at an air pressure of 60-90 mm. of mercury, and the blood pressure of these animals exhibited at once a sharp fall of from 20-90 mm. of mercury within half a minute. Release of this intestinal distention after a period of from 5 minutes to 7 hours was followed by a return of the color of the

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bowel to normal, and by a rapid rise of blood pressure to its original level or beyond it.

In a further series of 5 dogs, prepared in the same way, the distention was maintained from 6-18 hours. Release of the distention was again followed by return of the bowel to a normal color, but in 3 animals, instead of the rise in blood pressure which occurred in the previous series, a sharp fall was observed. In one of these 5 dogs indeed the blood pressure, perfectly stable before release of the distention, fell progressively after release till the animal's death 7½ minutes later.

In 2 other animals distended for more than 18 hours, and in one animal distended for only 12 hours, the bowel failed to resume its normal color after collapsing and remained cyanosed. In these dogs there was no alteration in the blood pressure. The bowel was obviously devitalized and thrombosis of the vessels in its wall probably prevented the return of venous blood from the area of splanchnic congestion to the general circulation.

The unexpected fall in blood pressure on relief of an intestinal distention of 6-18 hours' duration strongly suggested the diffusion of a depressor substance from the lumen or from the tissue spaces of the bowel wall into the stagnating blood of the congested intestinal capillary bed, and the return of that substance after deflation with the portal blood to the general circulation, to exercise then its depressor effect. An investigation of this depressor was, therefore, commenced. It was first determined that normal dog portal plasma had no depressor effect. In 2 animals the portal vein was drained immediately after release of a 16-hour distention at a pressure of 80 mm. of mercury. The portal plasma of both these animals exercised a depressor effect upon the blood pressure of the intact dog. The depressor activity of the plasma was lost by dialysis through a celloidin membrane. Precipitation of the proteins of the plasma was performed by adding trichloracetic acid to a concentration of 10%, and the filtrate freed of trichloracetic acid by repeated ether extraction in a separating funnel. The protein-free filtrate so obtained had a depressor effect on the blood pressure of a dog in a dose comparable to 3 cc. of the active plasma. A similar protein-free filtrate of portal plasma from a normal dog was inactive. The protein-free filtrate failed to activate, as histamine would activate, the virgin guinea pig uterus or the isolated cat jejunum—its action on the rabbit's blood pressure and circulation have not yet been determined, but intraperitoneal injection in the young guinea pig was not followed by death, or by obvious respiratory difficulty. The

filtrate had no action on frog rectus abdominis or on eserinized leech muscle, both of which contract with acetylcholine. The filtrate had no effect upon isolated rabbit intestine, which is depressed by adenosine and stimulated by the "substance P" of Euler and Gaddum. The diffusible depressor substance apparently present in the portal blood after release of an intestinal distention of 12-18 hours' duration thus remains unidentified.

8191 P

Species-Specificity in Production of Anti-Gonadotropic Substances.*

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The work of Collip and his collaborators[1] has shown that the prolonged daily administration of gonadotropic extracts to rats leads to the production of substances which can inhibit the action of such hormones. The present study was conducted to determine if an "anti-hormone" developing from the injection of an extract made from the pituitary glands of one species is effective against an extract prepared from the hypophysis of another species.

A series of 39 female rats, age 21 to 23 days at the beginning of the experiment, was injected daily with a weak dose of a gonadotropic extract prepared from human pituitary glands in the manner described previously.[2] In 5 days the ovaries had increased 50% in weight and showed developing graafian follicles and corpora lutea. The ovaries of the rats sacrificed in 30 days gave an 86% increase in weight, but in 60 days they were equal to those of the controls, and in 90 and 119 days they weighed slightly less than those of controls of the same age.

The blood serum of the rats sacrificed in 90 and 119 days was examined for the presence of "anti-hormones" according to the method used by Collip and Anderson[3] in testing for an anti-thyrotropic hormone.

* Supported in part by the Rockefeller Fluid Research Fund of Stanford University School of Medicine.

1 Collip, J. B., *J. Mt. Sinai Hosp.*, 1934, **1**, 28.

2 Fluhmann, C. F., PROC. SOC. EXP. BIOL. AND MED., 1932, **29**, 1193.

3 Collip, J. B., and Anderson, E. M., *Lancet*, 1934, p. 76.