more rapid clotting in the recalcified plasma is due to the formation of new thrombin to aid the old in the fibrin production. We have shown that such formation of new thrombin in plasma may take place in 10 to 20 seconds, when some agent, such as preformed thrombin or tissue fibrinogen, is acting to start a removal of the blood fibrinogen from the plasma. Evidently, once prothrombin is free in the plasma, its activation to thrombin is only a matter of seconds. Therefore in the normal clotting of plasma there can be no free prothrombin up to within a short time preceding the appearance of fibrin.

The latent period preceding fibrin formation seems, then, to be concerned with changes that lead to a liberation of the prothrombin in the plasma. Our work has shown that a variety of agents tending to hasten dissociation, such as the electric current, X-rays, rise in temperature, dilution with water or saline, and the presence of tissue fibrinogen, will all act to shorten this latent period, although not affecting the rate of fibrin production in most instances. The conclusion seems justified that such dissociation is the essential factor in the liberation of prothrombin, and that the speed of this change determines the length of the latent period and thus of the clotting time. Once such dissociation is accomplished, the real clotting reactions take place with great rapidity.

This is a preliminary report.

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The Action of Pseudoephedrine Upon the Kidney.

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It has been shown[1] that pseudoephedrine has a blood pressor effect about half as great as ephedrine, and that its effect on the peripheral vessels is opposite to that of ephedrine. Pseudoephedrine dilates the peripheral vessels.[2] Hence it was thought possible that pseudoephedrine might act as a diuretic.

A series of experiments upon 25 dogs was undertaken to see if the dilation of the peripheral vessels applied to the gross effect of pseudoephedrine upon the kidney in the intact animal; moreover whether there was an increase in the secretion of urine, and its relationship to blood pressor effects. The effects of repeated injections were also studied.

Luminalized dogs were treated intravenously with doses of pseudoephedrine hydrochloride ranging from 1 to 11.8 milligrams per kilo. The carotid blood pressure, kidney volume, and urine flow were all carefully observed by ordinary methods involving no special technique. It was found that injections of one or two milligrams of the drug cause a rise in blood pressure of 8 to 22 mm. Hg., lasting 6 to 40 minutes. Larger doses of 5 to 11 milligrams cause a fall in blood pressure of 16 to 22 mm. Hg. Intermediate doses and repeated injections of small doses eventually cause a fall in blood pressure, which may be preceded by injections causing a primary fall of a few mm. and then a rise of blood pressure. A second injection of an average dose of 4 mgm. produced as great a fall as 35 mm. Hg.

The kidney volume follows the blood pressure tracing very closely. A rise in blood pressure causes an increase in kidney volume and a fall is followed by a contraction of the kidney. In one case the denervated kidney showed a decrease in kidney volume while the blood was decidedly increased.

The urine flow was increased in one case only. All other experiments, after a rise in blood pressure and an increase in kidney volume, showed no change in the rate of urine secretion, and whenever there was a fall in blood pressure the urine decreased.

Perfusion of the isolated kidney with Tyrode's solution showed that

1. The vein flow is lessened by concentrations up to .05 per cent. In concentrations from 0.1 to 0.5 per cent of pseudoephedrine the vein flow is increased.

2. Continued perfusion of 0.1 per cent, in 62.5 per cent of the trials causes a contraction of the kidney vessels with lessened output.

3. With 0.01 per cent the urine flow is decreased following a curve consistent with the lessened flow of fluid in the contracted kidney vessels.

4. With 0.5 per cent the urine flow is decreased, there is albumen present. There is indicated severe damage to the kidney which terminates in anuria.

5. In two out of four trials when there was contraction of the kidney vessels, the urine flow increased. This was also observed as a transitory phenomena in a great many trials, indicating that in certain concentrations pseudoephedrine stimulates the secretion of urine, which is usually counteracted by the lessened venous flow.

This is a preliminary report.

[1] Read, B. E., and Loo, C. T., *China Med. J.*, 1926, xl, 1144.

[2] Fujii, M., *J. Oriental Med.*, 1925, iii, 1.