

Summary. Three synthetic vitamin K compounds were administered to 26 patients with hypoprothrombinemia. Following treatment the prothrombin concentration: (1) was markedly elevated in 11 patients with obstructive jaundice, (2) was not elevated in 8 and only slightly elevated in 3 patients with chronic diseases of the liver; (3) was not elevated in 1 patient, and after an initial delay was elevated in 1 patient with acute diseases of the liver; (4) was moderately elevated in 2 patients, one with non-tropical sprue, and the other with gastro-colic fistula. When considered in terms of the dosages employed, there were no significant qualitative differences in the relative effectiveness of the three compounds. No untoward reactions were observed except that the patients receiving large doses of 4-amino-2-methyl-naphthol-hydrochloride complained of slight burning pain at the site of injection.

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Effect of Posterior Pituitary Extract on Concentration of Urine Secreted during Osmotic Diuresis in Rabbit.*

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When 10% sucrose is infused rapidly into the circulation of anesthetized rabbits, there follows the rapid elimination of a large amount of urine, having a sugar concentration approaching that of the infusion fluid, and almost keeping pace with it as to rate. The injection of posterior pituitary extract during this diuresis results in a further acceleration of rate. This has been shown to be due to an increase in glomerular filtration.¹ If from the calculated filtration, using the amount of sucrose in plasma and urine for making the calculation, there be subtracted the amount of urine actually eliminated, there is obtained a figure which represents the amount of filtrate reabsorbed during the passage through the tubules. During this phase of increase in filtration from pituitary extract, there not only is no decrease in absorption, but there may actually be a slight increase. During this pituitary "diuresis" the sugar content of urine falls

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¹ Nelson, E. E., *J. Pharm. Exp. Therap.*, 1934, **52**, 184.

while that of the chlorides rises. With passing off of the pituitary effect, the concentrations return to or toward their original levels. In a consideration of these changes the following view was expressed: "It is possible that with these high rates of filtration the maximum absorbing capacity of the tubules is approached, so that changes in filtration from various experimental procedures can be observed in a relatively uncomplicated form."¹

In the previous report no estimates were made of the changes in osmotic concentration of the urine during the changes in filtration. In the present study changes in depression of the freezing point have been used to indicate changes in osmotic concentration. The finding that these values are relatively constant has been taken as supporting the suggestion of the earlier report, namely that under the conditions of experiment the maximum concentrating capacity of the tubules is approached.

Experimental. Large rabbits, under urethane anesthesia, were given 10% sucrose solution intravenously by means of the intravenous infusion apparatus recently described from this laboratory.² Urine was collected into graduated centrifuge tubes for 5-minute intervals. The rate of secretion always exceeded one cubic centimeter per minute. Chlorides were determined by a modified Volhard-Arnold method, specific gravity by weighing in a one cubic centimeter pycnometer, depression of freezing point using a Beck-

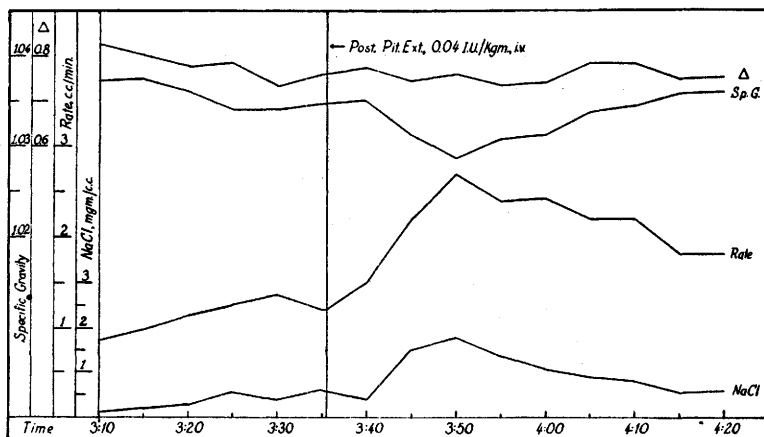


FIG. 1.

Effect of injection of posterior pituitary extract on rate, chloride content, specific gravity, and freezing point depression, of urine formed during continuous intravenous infusion of 10% sucrose solution, in a rabbit. Morphine-urethane anesthesia.

² Katz, Gerhard, *Science*, 1939, **89**, 63.

man thermometer in the usual manner. When the rate had been constant for at least 4 5-minute periods, posterior pituitary extract was given intravenously, in amounts of the order of 0.04 International Units per kg body weight.

As in the previous study, this amount of pituitary was followed almost invariably by an increase in both rate and chloride content. Sucrose determinations were not made, but in the previous series it invariably fell. Specific gravity either fell or remained constant, and the freezing point remained practically constant. The results, which were consistent throughout, are illustrated in the record of a single experiment shown in Fig. 1.

Conclusions. The finding that the osmotic concentration, as revealed by the depression of the freezing point, remains constant during the action of pituitary extract on the diuresis induced by rapid intravenous infusion of sucrose solutions, lends support to the view that the absorption capacity of the tubules has been reached under these conditions of experiment.

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Etiology of Hypertension Due to Complete Renal Ischemia.

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It is generally agreed that the hypertension which develops in experimental animals as a result of partial¹ or complete² ischemia of the kidneys is of humoral and not of nervous origin.

Although *renin*, a pressor extract prepared from the renal cortex, has been implicated by some observers,^{3, 4} neither this product nor any other has to date been proved to be the substance responsible for ischemic hypertension.

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¹ Goldblatt, H., Lynch, J., Hanzal, R. F., and Summerville, W. W., *J. Exp. Med.*, 1934, **59**, 347.

² Taquini, A. C., *Rev. Soc. argent. de biol.*, 1938, **14**, 422.

³ Prinzmetal, M., and Friedman, B., *PROC. SOC. EXP. BIOL. AND MED.*, 1936, **35**, 122.

⁴ Harrison, T. R., Blalock, A., and Mason, M. F., *PROC. SOC. EXP. BIOL. AND MED.*, 1936, **35**, 38.