sulphalein is precipitated in amounts proportional to the protein present. This reaction has been used to measure proteolytic activity, and could be adapted to the quantitative determination of minute amounts of protein.

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Effect of Eserine and Atropine on ACTH Release. (18354)

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Recent observations suggest that hypothalamic centers might take part in the control of the corticotrophic function of the hypophysis, through the release into the pituitary portal system of an unknown stimulating agent(1,2). Adrenalin and histamine have been so far investigated in this respect with negative results; adrenolytic(2-4) as well as antihistaminic(5) agents failing to prevent a stress-induced release of ACTH. The aim of the following experiments was to study the role of acetylcholine in the regulation of ACTH release. Using Sayers' test(6) as an index of corticotrophic function, we have measured, in the rat, the adrenal ascorbic acid response to the independent and simultaneous administration of a parasympathomimetic drug (eserine) and an anticholinergic agent (atropine).

One hundred twenty male piebald rats of an average weight of 130 g were subdivided into groups of 8 animals. Eserine salicylate was subcutaneously injected at a dose level of 0.03 mg/100 g, atropine sulphate at a dose of 20 mg/100 g. The animals, previously fasted for 24 hours, were killed by bleeding one hour after the injection and the adrenal ascorbic acid determined according to Roe and Kuether's method.

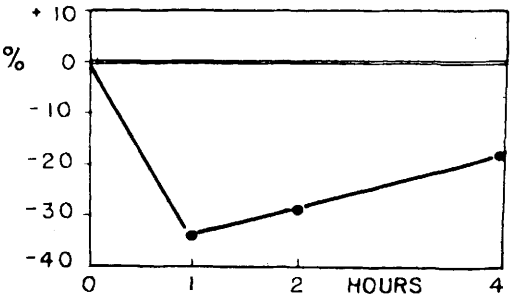

FIG. 1.
Effect of eserine salicylate (0.03 mg/100 g) on adrenal ascorbic acid concentration.

A maximal ascorbic acid depletion (Fig. 1) was observed one hour after the administration of eserine; it was followed in the next hours by a progressive return to normal level.

Atropine (Table I), far from preventing the eserine-induced depletion of adrenal ascorbic acid, increased it significantly and was by itself responsible of an intense discharge.

In order to eliminate the possibility of a direct adrenal ascorbic acid depleting effect of atropine, eventuality suggested by di Mattei's(8) and Frommel's(9) observations on the devitaminizing action of certain drugs, we studied in a final experiment the adrenal ascorbic acid response to atropine, 48 hours after hypophysectomy.

A complete inhibition (Table II) of the

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TABLE I. Effect of Atropine on the Adrenal Ascorbic Acid Response to Eserine.

Treatment	Adrenal ascorbic acid, γ/100 mg
None	468.6 ± 23.2
Eserine*	404.5 ± 29.8
Atropine† ..	318.4 ± 20.9
Eserine + atropine	281.9 ± 10.8

* Eserine (salicylate) 0.03 mg/100 g.
† Atropine (sulphate) 20 mg/100 g.

TABLE II. Effect of Hypophysectomy on the Adrenal Ascorbic Acid Response to Atropine.

Treatment	Adrenal ascorbic acid, γ/100 mg
None	488.4 ± 16.5
Atropine*	286.0 ± 13.8
Hypophysectomy	540.0 ± 15.5
Hypophysectomy + atropine	582.7 ± 17.7

* Atropine (sulphate), 20 mg/100 g.

usual response to atropine was observed under these conditions.

The pituitary-mediated adrenal ascorbic acid depleting effect of atropine as well as its failure to prevent the response to eserine, seem to preclude the possibility of a cholinergic control of ACTH release.

Summary. The adrenal ascorbic acid response to the independent and simultaneous administration of eserine and atropine was studied in the rat. (1) The eserine-induced adrenal ascorbic acid depletion is enhanced by simultaneous administration of atropine. (2) Atropine alone causes a significant fall of the adrenal ascorbic acid concentration. This fall is prevented by hypophysectomy. (3) Our results seem to preclude the possibility of a cholinergic control of ACTH release.

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Comparative Utilization of Fructose and Glucose Given Intravenously.* (18355)

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It has long been known that fructose, despite its slower rate of intestinal absorption (in the rat) is converted to hepatic glycogen more rapidly than glucose(1). *In vitro* experiments using rat liver slices and homogenates(2) have shown that fructose phosphorylation occurred 10 times more readily than glucose phosphorylation. Invert sugar which contains 50% fructose and 50% glucose, when injected into humans has been shown to produce less glycosuria than glucose(3,4). These differences suggest that fructose might be a better sugar for intravenous administration than glucose.

Present study. In each of 10 human subjects two comparative experiments were carried out. The control consisted of the intravenous infusion of 1 liter of 10% glucose. Previously or subsequently 1 liter of 10% fructose was injected at the same or a faster rate. Patients 1, 2, 3, 6 and 8 were patients in their late convalescent period of recovery from abdominal surgery and were relatively normal. The experiments on patients 4, 7, and 10 were performed on their second and third postoperative days and patient 9 was a mild diabetic not on insulin therapy. During and after each injection the urine passed dur-

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