ship of epinephrine to thyroid metabolism is different than it has previously been thought to be.

Brown-Grant(9,10) demonstrated that epinephrine affects the uptake and release of thyroxine by the thyroid gland. No clear explanation was provided, however, for the changes induced by epinephrine in thyroid function. A possible reciprocal balance between adrenocorticotropic hormone (ACTH) and thyrotropic hormone (TSH) has been postulated(11), but this hypothesis was soon abandoned, because similar changes were observed in the thyroid gland after administration of epinephrine to adrenalectomized rabbits(12).

On the basis of the present study, epinephrine apparently increases conversion of T4 to the faster-acting T3, which controls the release of TSH by inhibiting the hypothalamus (13), thus decreasing the levels of TSH and subsequently the uptake and release of iodine by the thyroid gland. Further experiments are under way to confirm present findings and to extend the study of the influence of epinephrine on the metabolism of T4 by various tissues.

Summary. The influence of epinephrine on the metabolism of thyroxine (T4) by brains, pituitaries, kidneys, and sera of I^{131}-radiothyroidectomized mice was studied with I^{131}-labeled T4. All mice received I^{131}-labeled T4, and half also received epinephrine. Several organs were then investigated chromatographically, each at the same two time intervals. Kidneys and sera indicated I^- and T4; brain and pituitaries indicated I^-, T4, and triiodothyronine (T3). These results confirm findings previously reported. This study has also provided evidence that epinephrine increases conversion of T4 to T3 in the brain. For this reason, a new mechanism is postulated to explain how epinephrine might affect uptake and release of I^{131} by the thyroid gland.

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Myocardial Transaminase Following Coarctation of Abdominal Aorta. (29151)

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Glutamic-oxalacetic Transaminase (GOT) has been found to be present in higher concentration in the left ventricle than in the right ventricle of the heart, with lesser amounts present in the left and right atria (1). Elevation of blood pressure in rats by use of desoxycorticosterone acetate (DOCA), resulted in an increased GOT concentration

TABLE I. Mean Body Weight, Systolic and Diastolic Blood Pressure, and Glutamic-Oxalacetic Transaminase Activity in the Rat.

Treatment	No. of animals	Avg wt (g)	Systolic (mm Hg)	Diastolic (mm Hg)	GOT as Q_T^{10} Right ventricle	GOT as Q_T^{10} Left ventricle
Control	9	251	133 ± 14.1†	96 ± 10.4	585 ± 21.1	615 ± 15.3
Experimental (Blood pressure elevated by coarctation)	11	245	171 ± 3.2*	138 ± 3.6*	591 ± 18.2	679 ± 18.1*

* $P < .05$.

† Values are stand errors of means.

of the left ventricle whereas there was no change in the GOT titer of the right ventricle (2). Earlier research suggested that DOCA had no effect on hepatic, renal, brain or myocardial GOT in the rat(3,4). To determine whether the observed increase in left ventricular GOT was due to the DOCA *per se* or to the associated increase in blood pressure, the experiment was repeated, elevating blood pressure by a physical method to avoid exogenous hormonal effects on GOT.

Methods. Adult, female albino rats of the Sprague-Dawley strain, weighing between 230 and 280 g were used. The animals were fed standard Purina Laboratory Chow and given water *ad libitum* under both pre and post operative conditions. A surgical depth of anesthesia was induced with sodium pentobarbital (35 mg/kg). The abdomen was opened along the linea alba and the aorta was exposed and isolated. At this point the animals were randomly divided into a control series and an experimental series. Those animals designated to be controls were closed with wound clips and allowed to recover.

Blood pressure was elevated in the experimental series by placing a constriction around the abdominal aorta. This was accomplished by use of teflon tubing (internal diameter 0.8 mm), approximately 1 cm in length, cut open lengthwise and placed around the aorta. Nylon ligatures were utilized to close the tubing and prevent expansion. The animals were then closed with wound clips and allowed to recover. Five to six weeks were allowed for elevation of blood pressure. After this period the animals were anesthetized with sodium pentobarbital and the carotid artery was isolated and cannulated. The cannula was connected to a Statham Pressure Tranducer (model P23AA), and blood pressure was recorded with a direct-writing Sanborn Twin-Viso Strain Gage Amplifier. After recording blood pressure the chest was opened, the heart was removed rapidly, blotted free of blood and placed in a beaker of ice-cold, 0.1 M phosphate buffer (pH = 7.4). The right and left ventricles were separated and homogenized in the cold in preparation for enzymatic assay. The interventricular septum was discarded. Glutamic-oxalacetic transaminase was determined by a modification(5) of the Tonhazy, White and Umbreit method(6). Tissue GOT activity was stated in terms of Q_T^{10} notation(7).

Chauvenet's criterion for the rejection of suspected data was applied to all series of experiments(8). Experimental mean values were compared statistically to control mean values by use of Student's "t" test of significance. The null hypothesis was rejected at the 5% level.

Results and discussion. Table I shows the results of this experiment. Both the systolic and diastolic blood pressure were elevated significantly by this procedure ($P = 0.018$ and $P = 0.005$ respectively). The GOT content of the right ventricle was unchanged but left ventricular transaminase was increased significantly ($P = 0.003$).

Recently in this laboratory blood pressure (both systolic and diastolic) was elevated by administration of DOCA(2). The increase in left ventricular GOT resulting from DOCA treatment or coarctation may be related to the increased work load imposed on the heart through the higher pressure head. The increased pressure should have no effect on the work load of the right ventricle.

Since it has been shown that oxidative me-

tabolism occurs principally in the mitochondria(9), in which GOT has been observed to be concentrated(10,11), the evidence cited would appear to implicate GOT in myocardial metabolism. GOT converts aspartic acid to oxalacetic acid. The increased GOT may furnish more oxalacetic acid to the citric acid cycle and thus might offer a potential source of energy to the animal. This could be a means of meeting the increased work load placed on the heart by elevated blood pressure.

Summary. The glutamic-oxalacetic transaminase (GOT) activity and blood pressure were determined in normal animals and in animals with elevated blood pressure. Blood pressure was elevated by use of bands of teflon tubing placed around the abdominal aorta. This procedure resulted in an increase in both systolic and diastolic blood pressures within a period of 5 to 6 weeks. GOT was elevated above control levels in the left ventricle, but was unchanged in the right ventricle.

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Specific Activity of Inulin-C^{14}OOH in Serum and Lymph of Nephrectomized Dog.* (29152)

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It was recently shown that the radioactively labelled inulin derivatives, inulin-C^{14}OOH and inulin-OCH$^{3}_{3}$, may differ in size and charge from inulin and give rise to physicochemical separation in several *in vitro* systems. These included dialysis, ultrafiltration, sephadex gel filtration and paper electrophoresis(1).

No fractionation between inulin-C^{14}OOH and inulin could be shown in glomerular filtration in the dog, but a decline in the urine specific activity following a single intravenous injection suggested fractionation at an extrarenal level. Specific activities of serum inulin could not be obtained experimentally owing to rapid excretion of inulin into the urine. It was inferred, however, that the falling specific activity of the urine inulin may have reflected changes in blood plasma, since no fractionation of the labelled inulin derivatives from inulin took place at the renal glomeruli. We suggested, therefore, that radioactive inulin-C^{14}OOH could be removed more rapidly than inulin from the circulation by extrarenal processes.

Reported herein are the results of an experiment performed on a nephrectomized dog which enabled measurement of serum and lymph specific activities. Inulin-C^{14}OOH (found to be smaller than inulin by ultrafiltration) moved more rapidly than inulin into thoracic duct lymph, thus demonstrating a

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