group of patients indicate that 688A is effective in lowering B.P. and alleviating hypertensive symptoms. 4. These preliminary results obtained with 688A appear encouraging. The potentialities of this drug in arterial hypertension and peripheral vascular diseases are under further investigation. Detailed studies will be published elsewhere.

The authors wish to express their appreciation to Dr. Louis Leiter, Chief of the Medical Division, and to Dr. Samuel Silbert, Attending Surgeon for Peripheral Vascular Diseases, for their active interest in this investigation.

Received June 4, 1951. P.S.E.B.M., 1951, v77.

Selective Inhibition of Adrenal and Thyroid Stimulating Effect of Amphenone B* by Cortisone and Thyroxine. (18821)

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We have previously reported that the oral administration of Amphenone "B"(1-2) in the rat induces a marked adrenal and thyroid hypertrophy(3). The adrenal stimulation was lacking in the hypophysectomized animal and was prevented by cortisone administration in the intact rat.

This report presents data which show that thyroxine will prevent the Amphenone-induced thyroid hypertrophy without altering the adrenal response. Conversely, cortisone will prevent the adrenal enlargement without materially depressing the thyroid hypertrophy.

Materials and Methods. Female rats of the Holtzman strain were ovariectomized at 24 days of age and were started on these experiments at 57 days of age. A stock pellet ration was fed *ad libitum*. Amphenone B, Cortisone, and Thyroxine were administered daily as indicated in Table I. The animals were autopsied 24 hours after the last injection. The adrenal thyroid and thymus glands were dissected out and weighed to the nearest milligram.

Results and Discussion. Data from a representative series are presented in Table I. It will be seen that when Amphenone "B" is administered for 14 days it induces a marked adrenal and thyroid hypertrophy. The simultaneous administration of thyroxin and Amphenone "B" reduces the thyroid weight from an expected mean of 50 ± 6 to 9 ± 1. However, the adrenal response is not reduced by thyroxine administration. Moreover, the simultaneous administration of cortisone and Amphenone "B" reduces the adrenal weight from an expected mean of 112 ± 18 to 32 ± 8, but the thyroids in this same group of animals remain enlarged. This selective inhibition of the thyrotropic and adrenotropic action by thyroxin and cortisone respectively indicates that the pituitary is capable of simultaneously increasing its thyrotropic activity and reducing its adrenotropic effect or vice versa. It also indicates that there must be two distinct and separate endpoints in the pituitary through which Amphenone "B" exerts its distinctive effects upon the thyroid and adrenal.

The thymus weights indicate that although the adrenal of the Amphenone "B" treated rat is producing some corticoid, its hormone production is not at all in keeping with the increased size of the adrenal. Thus the control thymus weight of 827 ± 62 mg is reduced to 51 ± 11 mg by Amphenone "B" plus cortisone, but only to 408 ± 177 mg by Amphenone "B" alone. This evidence of limited

* 1,2 bis-(p-aminophenyl)-2-methylpropanone-1 dihydrochloride.

† National Institutes of Health, Public Health Service, Federal Security Agency.

1. Allen, Milton J., U. S. Patent 2,539,388 (1951).

2. Allen, Milton J., and Corwin, A. H., *J.A.C.S.*, 1951, v72, 117.

3. Hertz, R., Allen, M. J., and Tullner Wm. W., PROC. SOC. EXP. BIOL. AND MED., 1950, v75, 627.

TABLE I. Selective Effect of Cortisone and Thyroxine on Adrenal and Thyroid Hypertrophy Induced by Amphenone "B."*

Treatment	Final body wt (g)	Adrenal wt (mg)	Thyroid wt (mg)	Thymus wt (mg)
0	230 ± 13	67 ± 13	14 ± 2	827 ± 62
Amphenone B alone	180 ± 21	112 ± 18	50 ± 6	408 ± 177
Amphenone B + cortisone	150 ± 13	32 ± 8	33 ± 8	51 ± 11
Amphenone B + thyroxine	184 ± 26	111 ± 50	9 ± 1	545 ± 177

* Amphenone "B" given 32 mg daily *per os* in 0.5 cc H_2O for 14 days. Thyroxine (dl) given 32 μg daily subcut. 0.2 cc of .01 N NaOH for 16 days. Cortisone acetate given 2 mg daily subcut. in 0.2 cc saline suspension for 16 days. Cortisone and thyroxine begun 2 days before Amphenone "B." Each experimental group includes 10 animals.

corticoid production by the enlarged adrenal suggests that Amphenone "B" may be inducing a non-productive hypertrophy in the adrenal similar to that produced by thiouracil in the thyroid(4-5). In any case, it is clear that the availability of such compounds as Amphenone "B" will provide interesting experimental tools for the elucidation of the reciprocal relationship between the anterior pituitary and its various target organs.

Summary. Amphenone "B" induces a marked hypertrophy of both the thyroid and adrenal in the rat. Simultaneous administration of thyroxin and Amphenone "B" prevents the thyroid hypertrophy without reducing the adrenal enlargement. Combined cortisone and Amphenone "B" administration prevents the adrenal enlargement without altering the thyroid hypertrophy. Thus, Amphenone "B" exerts its adrenal and thyroid effect by acting through two distinct end-points in the anterior pituitary.

Received June 4, 1951. P.S.E.B.M., 1951, v77.

4. Astwood, E. B., Sullivan, J., Bissell, A., and Tyslowitz, R., *Endocrinology,* 1943, v32, 210.

5. Mackenzie, C. G., and Mackenzie, J. B., *Endocrinology,* 1943, v32, 185.

Metabolism of Glycine.* (18822)

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The metabolism of glycine in normal mice has been studied after a single intravenous injection of glycine-2-C^{14} by following the specific activity of the uncombined glycine in the plasma, liver and skeletal muscle and by determining the specific activity of the expired CO_2. In this way it has been possible to estimate the size of the body pool of glycine, the turnover time and rate of turnover of body glycine, and the rate of oxidation of the methylene carbon atom of glycine to CO_2. A similar study of glucose metabolism in normal and diabetic rats was reported recently by Feller, *et al.*(1).

Experimental. Glycine-2-C^{14}† (1.5-2.0 μg per g body weight), in 0.1 ml of 0.85% saline solution, was injected intravenously into young, adult, Rockland strain white mice. The specific activity of the glycine was 10,000 cpm per μg. The respiratory CO_2 was absorbed in sodium hydroxide solution and then precipitated as $BaCO_3$ for radioactivity meas-

* This work was supported in part by a grant from the American Cancer Society recommended by the Committee on Growth of the National Research Council.

1. Feller, D. D., Strisower, E. H., and Chaikoff, I. L., *J. Biol. Chem.,* 1950, v187, 571.

† Obtained from Oak Ridge National Laboratory on allocation of the U. S. Atomic Energy Commission.