Lack of Effect of α-Ethyltryptamine on ACTH Secretion When Blood Pressure is Held Constant.* (31789)

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Previous experiments in this laboratory have demonstrated a parallelism between the pressor response to drugs related to α-ethyltryptamine and their activity in inhibiting ACTH secretion(1). This raised the question of whether or not inhibition would be produced by α-ethyltryptamine if no blood pressure increase was produced. Consequently, we determined the effect of α-ethyltryptamine on ACTH secretion in dogs in which the blood pressure was held constant by bleeding.

Methods. Twelve male mongrel dogs weighing approximately 12 kg were anesthetized with pentobarbital and subjected to cannulation of the right lumboadrenal vein and one femoral artery. A timed adrenal venous blood specimen was collected immediately after cannulation ("stress specimen"). All the dogs were then given 20 mg/kg of α-ethyltryptamine intravenously. Six of the dogs were bled from the femoral arteries a sufficient amount to hold the systolic blood pressure within 10 mm Hg of the preinjection value. Twenty-five minutes after injection of the drug, all dogs were subjected to laparotomy and an adrenal venous blood specimen collected starting 5 minutes later ("restress specimen"). After this specimen was collected, they were injected with 100 mU of ACTH intravenously and a post-ACTH adrenal venous specimen collected starting 4 minutes later.

Adrenal venous specimens were collected in tubes containing a few drops of heparin, centrifuged promptly and the plasma stored in the frozen state for subsequent analysis of 17-hydroxycorticoid content by the method of Silber and Porter(2). The output of these hormones was calculated by multiplying the 17-hydroxycorticoid concentration in adrenal venous plasma by adrenal venous plasma flow. Blood pressure was measured continuously in all dogs using a Statham strain gauge and a Grass Model 5 polygraph.

Results and discussion. The results are summarized in Table I. They show clearly that in the dogs subjected to hemorrhage, the usual inhibition of ACTH secretion was not produced by α-ethyltryptamine. There was no blood pressure rise in these dogs, while in the control dogs not subjected to bleeding, the mean blood pressure rise was 22 ± 3.8 mm Hg. It could be argued that hemorrhage is an additional stress which simply overcomes a partial blockade of ACTH secretion. This seems unlikely, since 20 mg/kg of α-ethyltryptamine is a relatively large dose. Inhibition of the response to laparotomy and other stresses occurs at a dose of 10 mg/kg or less(3,4). In addition, amphetamine and methamphetamine inhibit ACTH secretion when they produce a marked pressor response but not when they produce a small or no pressor response(1). Alpha-ethyltryptamine occasionally fails to inhibit ACTH secretion, and these failures have almost without exception been associated with small pressor responses. In addition, some other pressor drugs inhibit ACTH secretion if given in large doses by constant infusion so that the blood pressure rise they produce is marked and prolonged (Lorenzen and Ganong, unpublished observations). Therefore, it seems reasonable to postulate that it is the rise in blood pressure rather than the drugs *per se* which inhibits ACTH secretion. The site at which the blood pressure rise acts to produce this inhibition is unknown.

Summary. When the rise in blood pressure usually produced by α-ethyltryptamine is prevented by hemorrhage, no inhibition of ACTH secretion is observed in surgically stressed dogs. These results suggest that it

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TABLE I. Effect of Hemorrhage on Inhibition of ACTH Secretion Produced by α-Ethyltryptamine. Values are means ± standard errors.

		17-hydroxycorticoid output (μg/min) in response to:		
	BP rise* (mm Hg)	Stress	Restress	100 mU ACTH
6 dogs subjected to hemorrhage	0 ± 3.7	8.4 ± .5	7.4 ± 1.0	9.1 ± 1.3
6 control dogs	22 ± 3.8	9.0 ± 2.3	2.7 ± 1.5	9.5 ± 2.0

* Systolic blood pressure at time of restress specimen minus systolic blood pressure at time of stress specimen.

is the rise in blood pressure produced by α-ethyltryptamine that causes the inhibition of ACTH secretion.

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Complement-Fixing and Hemagglutinating Antibodies to *Treponema microdentium*.* (31790)

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Socransky, Loesche, Hubersak and MacDonald(1) reported that the oral spirochete *Treponema microdentium* could be grown in a considerably less complex medium than was hitherto possible. In this study we have utilized their medium and methods to grow these organisms. We then determined the antibody responses in actively immunized rabbits as well as the antibody levels found in a group of human sera using *T. microdentium* as the antigen.

Methods and materials. The *T. microdentium* used in the study was kindly supplied by Dr. S. S. Socransky, Harvard School of Dental Medicine.

Preparation of antigens. The spirochetes were carried in low concentrations of agar (0.1 to 0.7%) and transferred to broth for growth in quantity using the technics of Socransky *et al*(1). After anaerobic incubation for 6-7 days at 35°C, the broth cultures were checked for contamination by the use of dark-field microscopy and gram-stain. The spirochetes in broth culture were centrifuged at 3000 rpm for 1 hour at 4°, washed 3 times in cold 0.9% NaCl and resuspended in saline to 1/10 or 1/20 of the original volume (10× and 20× concentrates respectively). Thimerosal was added as a preservative in a final concentration of 1:10,000 and the vaccines were stored at 4°. The optical density of the 10× vaccine was >2.0.

Immunization of rabbits. Four New Zealand rabbits weighing 3-4 kg were used, 2 receiving vaccine in aqueous medium and 2 receiving vaccine in Freund's complete adjuvant. Rabbits 30 and 31 received twice weekly intravenous injections of the 10× vaccine (aqueous) over a 3-week period for a total dose of 9 ml. Their secondary booster series consisted of 3 injections of 1 ml of the 20× vaccine starting one month after the last injection of the primary series. The

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