

Influence of Desoxycorticosterone on Cesium Excretion in Adrenalectomized Rats.* (17548)

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Adrenal cortical steroids are known to influence the metabolism of sodium and potassium, both members of Group I of the periodic table. We have studied the possible influence of one of the adrenal cortical hormones, desoxycorticosterone, on the excretion of administered cesium, the heaviest member of Group I.

The method employed has been described previously for radio-sodium(1) and for radio-potassium(2) and need only be mentioned briefly here. Male rats purchased from Holtzman (Madison, Wis.) were bilaterally adrenalectomized. Twenty-four hours after operation the animals were injected subcutaneously with 2 different doses of desoxycorticosterone† dissolved in 0.25 cc of corn oil. Control rats received only 0.25 cc of oil. One hour after receiving the hormone the rats were injected with 2 cc of an aqueous Cs₁₃₄‡ solution containing 10.3 µg of cesium carbonate. The rats were immediately placed in glass metabolism cages and the urine collected directly into

ointment tins for a period of 6 hours. The urines were evaporated to dryness and radio-cesium determined as previously described for radiosodium.(1) The cesium excretion for the experimental period was expressed as the percentage of the material administered.

Table I lists the results which indicate an excretion of $5.20 \pm 0.75\%$ of the administered cesium within the 6 hour period. The administration of 25 and 250 µg of desoxycorticosterone had no significant influence on the cesium excretion. As little as one microgram of the hormone caused a significant retention of sodium(1) and 10 µg caused a significantly increased excretion of potassium.(2)

Summary. Desoxycorticosterone did not influence the excretion of administered radio-cesium in adrenalectomized rats. Under specific conditions of the test $5.20\% \pm 0.75\%$ of the administered radiocesium was excreted in the urine within the first 6 hours.

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TABLE I.
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14 rats in each experiment.

Desoxycorticosterone, µg	Mean body wt, g $\pm$ S.E.	Mean excretion of Cs ₁₃₄ , % $\pm$ S.E.	Significance of difference, “t”
0	144 $\pm$ 2	5.20 $\pm$.75	—
25	138 $\pm$ 2	4.28 $\pm$.45	1.03
250	138 $\pm$ 3	4.87 $\pm$.73	0.31

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1. Dorfman, R. I., Potts, A. M., and Feil, M. L., *Endocrinology*, 1947, v41, 464.

2. Dorfman, R. I., *PROC. SOC. EXP. BIOL. AND MED.*, 1949, v70, 732.

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‡ The radiocesium was obtained from Monsanto Chemical Co. through the U. S. Atomic Energy Commission.