

marked transitory diabetes insipidus (700 cc. of water per kg. body weight) occurred in four dogs in which following separation of the gland its proximal surface was cauterized. In a few days, the water intake returned to normal or only a trace of an increased consumption persisted. In one instance following cautery, typical diabetes insipidus appeared subsequent to the 10th day; thus suggesting that the essential mechanism responsible for diabetes insipidus both of the temporary and of the permanent type is inherent in the hypophysis. That the ventral portion of the hypothalamus is not involved as outlined above is indicated not only by numerous protocols from our earlier cat and dog series but also by further experiments for verification now near completion.

That the hypophysis is essential for the diabetes insipidus which follows hypothalamic lesions is also evidenced because hypophysectomy, on the 49th day after the hypothalamic lesion, eliminated abruptly a persistent marked diabetes insipidus (from 700 cc. water per kg. of body weight to normal—100 cc. \pm). This result might of course be due to an indirect effect on metabolism rather than to the removal of the specific mechanism causing the disturbance.

8797 C

Effect of Viosterol on the Parathyroids and Kidneys of Rats.*

E. V. COWDRY AND L. E. RECTOR.

From the Anatomical Laboratory, Washington University, St. Louis.

Alterations unlike those hitherto reported as following the administration of viosterol have been recently described in monkeys (*Macacus rhesus*).¹ The parathyroids of some remained about the same, but those of others showed a marked decrease in basophilic cytoplasmic material, and the possibility was mentioned that this material might constitute a parathyroid secretion antecedent. In the kidneys, the incidence of intranuclear inclusions increased from 18.7 to 75% of individual monkeys. This was interpreted as due, either to the activation of a virus already present in very small amounts, or to the direct effect of the treatment. It was not possible to correlate the degree of loss of parathyroid basophilic ma-

* Aided by a grant from the Josiah Macy, Jr., Foundation.

¹ Cowdry, E. V., and Scott, G. H., *Arch. Path.* (in press).

terial, or the extent of formation of the nuclear inclusions in the kidney with the size of the dosage.

White rats were selected for further experiments because Rector² found that in our laboratory the kidneys of 50 were apparently without nuclear inclusions. This indicated that, in the particular stock of rats examined, the likelihood of a virus being present in the kidneys was remote as contrasted with the probability that such a virus existed in the kidneys of the monkeys as evidenced by the occasional occurrence of nuclear inclusions in the absence of treatment with viosterol. Realizing the importance of accurate controls, especially in measuring the parathyroid change, 52 rats were selected from our colony on the basis of sex and weight so that 26 of them (sexes equally divided) were comparable individually with the remainder as to sex and weight measured to the gram. Each rat of the first group of 26 was given 0.2 cc. of the strong preparation of viosterol manufactured by Mead, Johnson Co. (containing 1,000,000 international units of vitamin D per cc.)† every other day. But soon the dosage was reduced owing to its evident toxicity and, in the case of some rats, it was stopped altogether. Whenever a rat died its untreated running mate of the same sex, and originally of the same weight, was killed and histological preparations were made of parathyroids, kidneys and aorta. Thirty days after the treatment was commenced, all the surviving animals with their running mates were killed and examined in the same way. The lesions reported in the literature as produced in rats by hypervitaminosis D were observed; but parathyroid and renal alterations, comparable to those mentioned in monkeys, were conspicuous by their absence. No similar parathyroid basophilic cytoplasmic material was found, even in the untreated rats, and no typical nuclear inclusions were observed in either group.

It is evident, therefore, (1) that the normal structure of the parathyroid cells of the rat is quite different from that of the monkey and (2) that dosage with viosterol did not excite nuclear inclusion formation in the kidneys of the rat—a species in which, in our colony, there was no cytological evidence of a virus to begin with.

² Rector, L. E., *PROC. SOC. EXP. BIOL. AND MED.* (in press).

† Kindly supplied for these experiments by Mead Johnson Co.