causes considerable non-specific bone resorption.[7] It seemed more plausible that the physical and chemical processes associated with nutrition were closely linked with these changes in plasma phosphatase. It is possible, however, that the cessation of new bone formation in young animals (also observed during starvation) contributes to the lowering of plasma phosphatase. It must be noted in this connection that young, growing animals were used, and that our conclusions do not necessarily apply to adults.

5797

Viosterol Treatment in Experimental Hyperparathyroidism.*

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Irradiated ergosterol (viosterol) has been employed therapeutically in clinical hyperparathyroidism *(Ostitis fibrosa cystica,* or v. Recklinghausen's disease) to supplement operative treatment. Snapper[1] referred to one case in which "vigantol" had to be given to promote the recalcification of the skeleton after removal of a parathyroid adenoma; he also mentions Regnier's mild case of clinical hyperparathyroidism in which considerable amelioration of the condition had been induced with "vigantol", ultraviolet light, and heat. However, Wilder and Johnson[2] stated that viosterol did not prevent the decalcification of the skeleton in experimental hyperparathyroidism in rats.

The protective and curative effects of small doses of irradiated ergosterol in disorders of calcium metabolism are well known, especially through its use in rickets. On the other hand, large and toxic doses may induce decalcification of the skeleton and a negative mineral balance (Shohl, Goldblatt and Brown,[3] Soeur,[4] and Taylor, Weld, Branion, and Kay.[5])

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[7] Jaffe, H. L., and Bodansky, A., unpublished results.

* The generous cooperation of Eli Lilly and Company, who supplied most of the parathormone used in these experiments, is acknowledged.

[1] Snapper, I., *Ann. de Méd.*, 1931, **29**, 201.

[2] Wilder, R. M., Johnson, J. L., *Proc. Assn. Am. Phys.*, abstracted in *J. Am. Med. Assn.*, 1931, **96**, 1987.

[3] Shohl, A. T., Goldblatt, H., Brown, H. B., *J. Clin. Invest.*, 1930, **8**, 505.

[4] Soeur, R., *La Presse Méd.*, 1931, **53**, 1003, and *Arch. Int. de Méd. Expér.*, 1931, **6**, 365.

[5] Taylor, N. B., Weld, C. B., Branion, H. D., Kay, H. D., *J. Can. Med. Assn.*, 1931, **25**, 20.

Rapid decalcification and fibrous repair of bone in guinea pigs treated with suitably high doses of parathormone has been observed regularly.[6, 7, 8, 9, 10] In this study we investigated the possible influence of viosterol on the bone lesions of experimental hyperparathyroidism. The viosterol (Mead Johnson and Co. 250-D, diluted with corn oil) was given by mouth. A tuberculin syringe with a 19 gauge needle with squared end was used to allow accurate measurement of the doses.

The experimental animals were divided into 3 groups. The first group consisted of 5 guinea pigs weighing between 220 and 290 gm. They were first given viosterol daily for 7 to 10 days. The daily dose of viosterol was adjusted so that one guinea pig of the group received 10 mg. (250-D), 2 received 20 mg., and 1 each received 40 mg. and 80 mg., respectively. After the preliminary treatment with viosterol, the animals were injected daily with parathormone in increasing amounts, and the viosterol was continued. Beginning with 4 units of parathormone, the dose was gradually increased to 40 units, each guinea pig receiving a total of 530 units over a period of 23 days.

The second group of 5 animals weighed from 222 to 352 gm. The viosterol doses were the same as for Group 1, but the injections of parathormone were started simultaneously with the viosterol treatment. In this group the administration of viosterol and parathormone extended over a period of 29 days. As before, the dosage of parathormone was gradually increased from 4 units to 40 units daily. Each animal received a total of 575 units.

The third group contained 6 controls weighing between 210 and 300 gm., injected with parathormone as the guinea pigs in Group 2. *These control animals did not receive viosterol.*

The guinea pigs in all 3 groups were killed to terminate the experiment, and their bones were taken for histological examination. These showed decalcification and secondary fibrous invasion of the bones, as previously described. There was no consistent difference as to the nature and severity of the lesions between the guinea pigs receiving viosterol and parathormone (Groups 1 and 2) and those receiving parathormone only.

Under the conditions of this experiment irradiated ergosterol did

[6] Jaffe, H. L., Bodansky, A., Blair, J. E., *Arch. Path.*, 1931, **11**, 207.

[7] Bodansky, A., Blair, J. E., Jaffe, H. L., *J. Biol. Chem.*, 1930, **88**, 629.

[8] Jaffe, H. L., Bodansky, A., Blair, J. E., *J. Exp. Med.*, in press.

[9] Jaffe, H. L., Bodansky, A., Blair, J. E., *Arch. Path.*, in press; PROC. SOC. EXP. BIOL. AND MED., 1931, **28**, 793.

[10] Bodansky, A., Jaffe, H. L., *J. Biol. Chem.*, 1931, **93**, 543.

not protect the guinea pigs from the demineralizing effects of experimental hyperparathyroidism. It is possible, however, that the healing of bone lesions in experimental or clinical hyperparathyroidism would still be promoted by viosterol after the state of hyperparathyroidism had been terminated by discontinuance of parathormone administration in experimental animals, or by the removal of a parathyroid adenoma in clinical cases.

5798

Effects of Hypophyseal Extracts on Sexually Immature Monkeys.*

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Information concerning the effects of anterior pituitary materials on the gonads of primates is very limited. E. Allen[1] and Hartman[2] have demonstrated the gonad stimulating effect of hypophyseal implants using dogs, monkeys, and pigs as donors, and Courrier, *et al.*,[3] have shown that similar effects can be obtained with alkaline hypophyseal extracts. We wish to report the results of injecting aqueous pyridine extracts of anterior pituitary material in immature female *Macacus rhesus* monkeys.†

Aqueous pyridine extracts as prepared by Fevold, *et al.*,[4] were used. The preparations were injected subcutaneously in 0.5 cc. doses twice daily for periods of 14 to 16 days and each cc. of extract was equivalent to 1 gm. of dried pituitary powder. As small a dose as 8 gm. equivalent of pituitary was found to be sufficient in one animal. The first noticeable change observed was the appearance, in 2 to 3 days of injection period, of a purplish coloration in the skin of the peri-anal region and a reddening of the nipples of the mammae. The maximum coloration and peri-anal swelling was reached in about 8-12 days, the vaginal smear at this time showing predominantly cornified cells. When the injections are

* Aided in part by grants from the National Research Council, Committee on Problems of Sex.

1 Allen, E., *Anat. Rec.*, 1928, **89**, 315.

2 Hartman, C., PROC. SOC. EXP. BIOL. AND MED., 1930, **27**, 338.

3 Courrier, R., Kehl, R., Raynaud, R., *C. R. S. de Biol.*, 1929, **101**, 1093.

† The pituitary powder was kindly furnished by the Research Laboratories of Parke, Davis and Company.

4 Fevold, H. L., Hisaw, F. L., Leonard, S. L., *Am. J. Physiol.*, 1931, **97**, 291.