

### Effect of Prenatal and Postnatal Injections of the Pituitary Gland in the White Rat.

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The present study was undertaken in an attempt to ascertain the time at which the pituitary hormone begins to act upon the organism. Smith and Engle<sup>1</sup> have shown that transplantation of portions of the pars anterior of the pituitary into the young rat causes marked responses in the genital system attributable to the influence of the grafts upon the gonad, which in turn modifies the entire genital tract by means of its enhanced secretions. The gonad has, therefore, been selected as an organ in which there is a definite response to the pituitary hormone which might be used as an index of the first activity of the physiological effect of that secretion.

For the technique employed in performing laparotomy upon the pregnant rat preparatory to the injection of fetuses see Nicholas.<sup>2</sup> Previous failures of many workers to obtain positive results with injections of the gland, single transplants, and pituitary feeding renders the success of the method employed of some interest. The entire pituitary gland was excised from a freshly killed male or female adult rat and macerated under aseptic conditions in a ground-glass mortar in 1 cc. of 0.9% sodium chloride solution. The resultant fluid was used for injection, the same concentration as above being constantly maintained. In all prenatal injections a 27 gauge needle was used, and from .02 to .05 cc. were administered intraperitoneally at each injection. In postnatal treatment from 0.1 to 0.25 cc. were given, either intraperitoneally or subcutaneously, the type of injection being noted in the protocol. Prenatal injections were made upon alternate days; after birth, daily.

The youngest animals injected were those in the fifteenth day of

INJECTED ANIMALS.

Age (days)	No. litters	No. individuals
15	5	26
16	2	13
17	2	16
18	3	19
New-born	2	26

Four litters supplied the control animals.

foetal life. Sixteen, 17, and 18-day embryos were similarly injected. Gonads of both sexes were preserved for sectioning at various stages of both injected and non-injected animals. All material was fixed in Bouin's solution.

Prenatal injection in no way hastened the differentiation in the gonad. It is thus evident that the gonad of the rat foetus is incapable of response to the pituitary hormone. No evidence of sexual maturity was observed in either sex until the tenth day of postnatal life, when the effect was most pronounced in the male. This effect evinced itself in an apparent increase in tubule length as well as by a considerable thickening of the tubular wall. There is an undoubted increase in the size of the interstitial cells, and the tissue presents a dense and closely-packed appearance. We attribute this close-packed appearance to the increase in length and diameter of the tubules. No reconstructions have as yet been made to render this point a certainty.

In the ovary the earliest advance in maturity of the injected animals over the controls appeared at approximately the fifteenth day. No corpora lutea were present but the follicles are larger in diameter and more nearly approaching maturity than in the normal animal if judged by the amount of follicular fluid present. At the twentieth day this precocious development is more marked. In no case were corpora lutea observed nor could eggs be discerned within the lumen of the sectioned tube.

On the basis of the above results, the physiological effect of the pituitary hormone upon the gonad first shows itself in *both* sexes between the tenth and fifteenth days of postnatal life.

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<sup>1</sup> Smith, P. E., and Engle, E. T., *Am. J. Anat.*, 1927, xl, 159.

<sup>2</sup> Nicholas, J. S., *Anat. Rec.*, 1925, xxxi, 385.

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### Studies on Quinine and Quinidine V. Do They Have a Specific Action on Autonomic Nerve Ends?

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In an earlier paper in this series<sup>1</sup> it was shown that epinephrine loses part or all of its pressor activity in dogs following injections of quinine or quinidine because of a partial or complete paralysis of