

Effect of Follicular Hormone on Anaphylactic Shock.

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Numerous investigations have conclusively established that the anaphylactic response of a species can be modified by the endocrines. However, the literature of this field contains many conflicting statements. In a recent publication, in which he reviewed this literature, Farmer¹ pointed to the desirability of repeating some of these investigations.

The following experiments were undertaken to re-examine Schaefer's² report that large amounts of alpha-estradiol benzoate increased the susceptibility of sensitized guinea pigs to anaphylactic shock.*

Experimental. Seventy female guinea pigs, weighing an average of 280 g, were used. They were fed a diet consisting of oats, carrots, and greens. As there possibly exists a seasonal variation in the guinea pig's sensitivity to anaphylactic shock, control experiments and hormone experiments were done during the same season.

1. *Control experiments.* Thirty-three guinea pigs were used. They were sensitized by one intraperitoneal injection of 0.1 cc 1:10 diluted normal horse serum. Nineteen to 21 days after the sensitizing injection, and 18 to 24 hours after the last feeding, the animals received intravenously a shocking injection of 1:10 diluted normal horse serum; 4 animals were shocked with 0.5 cc, 6 with 0.6 cc, and 23 with 0.8 cc. Eleven of the

23 animals which received 0.8 cc, or 47.8%, died in shock. There were no deaths among the animals which received the smaller amounts of serum.

2. *Administration of alpha-estradiol benzoate.* In these experiments we slightly varied Schaefer's technic in that we used only one sensitizing injection as against Schaefer's 2 sensitizing injections, and in that we administered the hormone over a period of 11 to 13 days, whereas Schaefer gave the hormone over a period of 14 days. Thirty-seven guinea pigs were used. They were sensitized by one intraperitoneal injection of 0.1 cc 1:10 diluted normal horse serum. Beginning 8 days after this sensitizing injection, the animals were injected intramuscularly at 2 to 3 day intervals with 2,490 to 4,150 rat units of alpha-estradiol benzoate. Each animal received 4 to 5 injections, or a total of 12,450 to 16,600 units. Two days after the last hormone injection, 19 to 21 days after the sensitizing injection, and 18 to 24 hours after the last feeding, the guinea pigs were shocked by an intravenous injection of 1:10 diluted normal horse serum. Six animals received 0.5 cc, 6 animals 0.6 cc, and 25 animals 0.8 cc. Thirteen of the 25 animals which received 0.8 cc or 52%, died in shock. One of the 6 animals which received 0.5 cc died. There were no deaths among the animals which received 0.6 cc.

Conclusion and summary. A comparison of the control and alpha-estradiol experiments shows that administration of follicular hormone to serum-sensitized female guinea pigs did not enhance their anaphylactic response. This finding is in distinct contradiction to Schaefer's results.

¹ Farmer, L., *Ann. Int. Med.*, 1942, **17**, 212.

² Schaefer, W., *Med. Klin.*, 1937, **33**, 1061.

* In Schaefer's experiments 28 out of 49, or 57%, of the sensitized guinea pigs which had received injections of follicular hormone died in anaphylactic shock, whereas 24 out of 73 control animals, or 33%, succumbed.