Research, for material used in connection with the experimental work.

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A PRACTICAL TEST FOR POTENCY OF EXTRACT OF CORPORA LUTEA

THE large amount of work which has been done, in the last few years, upon extracts of corpora lutea, and the results of that work, have urgently called for a suitable test for potency. Corner's and Allen's[1] studies on progestational proliferation in the rabbit, resulting from the physiological action of their extract of the corpus luteum, and Hisaw's and Leonard's[2] similar results, provided a useful test, but one which had several practical objections, arising primarily from the relatively large size of the test animal, and the consequent expense of obtaining and maintaining the animals and of making the tests.

To overcome these objections, W. M. Allen[3] attempted to transfer the application of this technique, using rats as test animals. As a result of thorough studies, he concluded that "The histological alterations of the rat's endometrium during pseudopregnancy are insufficient to warrant the use of these changes as a test for corpus-luteum extracts." At the same time we obtained wholly confirmatory, though as yet unpublished, results in this laboratory. We also had similar results in studies conducted on the uterus of mice.

The results of our studies upon histological changes in the vaginal mucosa of mice have, however, been very satisfactory, and we now present some of them as the basis of a practical test for potency of extracts of corpora lutea.

From histological studies made upon the vaginae of 19 normal mice in different stages of the oestrous cycle, and of pregnancy, it was apparent that the normal changes in the histological picture of the vagina of mice is similar to that described by Long and Evans[4] for the rat.

Histological changes of the vaginal mucosa, comparable to those occurring during pregnancy, were found when normal, adult, unmated, female mice were treated, just after oestrus, with an extract of corpora lutea, in all of 13 test animals, treated with daily injections of extracts for periods ranging from 3 to 14 days. For test purposes, however, it is recommended that periods of more than 7 days be used.

At present we recommend the following test: Beginning the day after oestrus, make daily injections of 0.25 cc. of corpus-luteum extract per test animal for a period of 9 to 14 days. The vagina, upon being preserved, sectioned and stained, according to the usual histological technique employed in such cases, will show, with an extract potent for maintaining pregnancy in ovariectomized, pregnant animals, a histological picture characteristic of pregnancy, *i.e.*, absence of cornified epithelium and of infiltration of leucocytes, presence of vacuolization of the superficial and middle cell layers, mucous transformation, *et cetera*.

This test has several obvious advantages. The test animals are small, easy and inexpensive to obtain and maintain, and the test occupies a relatively short period. Furthermore, 2 to 3 ccs. of extract is sufficient to make a test upon one animal. It may even be that a smaller dosage than that of 0.25 cc. per day will be found to be effective, as the minimal effective dose has not yet been ascertained. Experienced workers will also probably find that the period of time recommended for the test may be reduced with safety.

The extract used in these tests was one prepared by Dr. J. J. Pfiffner, and has been the basis of much of our work upon the physiology of corpus-luteum extract. It is similar to Corner and Allen's extract, save that methyl alcohol is used in place of ethyl alcohol as the first extracting agent.

Similar tests made as controls upon five animals with Swingle and Pfiffner's[5] extract of the adrenal cortex did not bring about a pregnant appearance of the vaginal mucosa in non-pregnant mice.

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