Determination of Length of Biological Life of Pregnant Mare's Serum Gonadotrophin in Immature Mice.* (29619)

AARON J. LADMAN†
Department of Anatomy, University of Tennessee Medical Units, Memphis, Tenn.

Recent interest in the factors that regulate the ovulatory response in mammals has resulted in a growing body of knowledge on this subject(1-6). In many of these studies, immature animals were the subjects of choice because the state of their ovarian function could be developed and maintained in a predictable fashion by exogenous hormonal administration. Of the many gonadotrophic preparations available for use in this manner, pregnant mare's serum gonadotrophin (PMS) has been employed most frequently as an ovarian follicular stimulant in mice and rats. To the writer's knowledge, no specific study has been reported in which the biological life of PMS in mice or rats has been determined, although passing observations relating to this problem have been recorded in a number of papers(5,7). Thus, the present work was undertaken to obtain data on the persistence of biological activity of PMS after administration in the immature mouse.

Our findings are interpreted to indicate that the biologic life of PMS under the conditions employed is approximately 6 days.

Materials and methods. F_1 or F_2 hybrids of (CBA $\times$ 129) mice were used in this study. These animals have been shown to ovulate large numbers of ova in response to the sequential administration of small concentrations of gonadotrophins(8). Animals which were 22-25 days of age and of uniform body weight were injected intraperitoneally with 2 I.U. of pregnant mare's serum gonadotrophin (PMS) (Equinex)‡ to initiate follicular growth. At varying intervals after PMS administration, 2 I.U. of human chorionic gonadotrophin (HCG) (APL)‡ was injected intraperitoneally and the animals were sacrificed 18 to 24 hours later and oviducal ova were counted.

Results. Table I summarizes the results of this experiment. When the interval between PMS and HCG administration is 24 hours, an average of 38 ova were ovulated. The optimum interval in the present study was 30 hours, when 48 ova were ovulated. Thereafter, a steady decline in the number of ova was recorded, and at 148 hours the last positive response was observed. By 152 hours, no ova were present in the oviducts.

Discussion. It is not surprising to have found biological responses attributable to PMS activity almost 6 days after its administration in immature mice. Simpson(2) has emphasized that PMS has a longer biological life in the gelding, the mare and the rabbit, the 3 species so far investigated, than either HCG, or pituitary gonadotrophins. This can be appreciated in the work of Wilson and Zarrow(5) who showed good yields of mouse and rat ova when the interval between priming with 30 I.U. of PMS and ovulating hormone administration was 70 hours. Similarly, Rowlands and Williams(7) indicate that 96 hours was an optimal time for PMS to act on the ovary of hypophysectomized rats in order to produce ovulation.

It should be remembered that between 24 and 30 days of age, detectable quantities of endogenous gonadotrophin are being produced by the mouse pituitary(9,10). Concurrent with this rising gonadotrophin output is the decline in ovarian responsiveness with advancing age and the increase in ovarian follicular atresia(6,7). Since our animals varied between 22 and 25 days of age at time of PMS administration, 6 days later would fall within this period of dramatic ovarian alterations. Thus, one cannot be absolutely certain that the biological life of the adminis-

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† Research Career Development Awardee of USPHS. Present address: Department of Anatomy, The University of New Mexico School of Medicine, Albuquerque, N. Mex.

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TABLE I. Effect of Increasing Time Between Injections of PMS and HCG upon Number of Ova Induced to Ovulate in Immature Mice.

No. of animals	Time interval between injections (hr)	No. of ova induced	Mean No. ova/animal	% Ovulating
3	24	114	38.0	100
3	30	144	48.0	100
6	50	104	17.3	83
12	60	199	16.6	83
18	100	89	4.9	89
9	120	25	2.7	77
4	141	3	.75	50
3	148	2	.66	33
14	152	0	0	0

tered gonadotrophin is not of longer duration.

Summary. Increasing the time interval between PMS and HCG administration in immature mice indicates that the biological life of small concentrations of PMS is approximately 6 days.

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Angiotensinase Activity of Fractionated Human Plasma.* (29620)

CALVIN A. SARAVIS AND ROGER B. HICKLER (Introduced by George W. Thorn)
Protein Foundation Laboratories, and Hypertension Unit, Peter Bent Brigham Hospital and Department of Medicine, Harvard Medical School, Boston, Mass.

One mechanism which may be important in the understanding of angiotensin metabolism is that of the angiotensinase activity of plasma. Our experiments designed for isolation and purification of this plasma factor have reached a point where a source of an angiotensinase active fraction is now readily available. The active fraction is easily produced, and retains its activity during storage which permits its use over a period of time as a standard of reference.

Methods and materials. The precise measurement of plasma angiotensinase activity was by a standard bioassay(1). In principle, this test consists of mixing equal volumes of the plasma or its subfractions and a solution of synthetic angiotensin standard (1 μg per ml of val^5 angiotensin II amide, Ciba). After a period of incubation the destruction of the standard was determined by observing the loss of pressure response on intravenous injection of this mixture into a standard bioassay rat, as compared to the response of the standard alone. The term % angiotensinase activity was adopted and is by definition the % destruction of the angiotensin standard when reacted for 60 minutes at 37°C with the plasma fractions, as compared to the

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