BRIEF COMMUNICATION

PROGESTERONE AND PSEUDOPREGNANCY IN THE
GOLDEN HAMSTER

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During the course of some behavioural studies of the Golden Hamster, pseudopregnancy has been induced by copulation with sterile males or the injection of various gestagens. The duration of pseudopregnancy was found to be significantly extended in some of the groups receiving gestagen injection.

Virgin females, 2 to 3 months old, were housed individually in standard M.R.C. rat cages. They were kept on a 12/12 hr reversed light schedule and given unlimited diet 41B and water. Each morning, in the hour preceding the dark half of the light schedule, vaginal smears were taken and read by the method of Orsini (1961) which is based on colour and viscosity of the vaginal mucus. Pseudopregnancy was inferred from the continued presence of a clear, highly viscous secretion; it was not confirmed by laparotomy. All injections and sterile matings (using vasectomized males) were carried out in the hour-long period mentioned above. The injections were given subcutaneously. In all cases the first injection was given on the morning of the post-oestrous discharge, that is, about 12 hr after ovulation.

The treatments given to each of the six groups of females and the timing of their post-oestrous discharge ending the pseudopregnancy is shown in Table 1. Control injections of saline, ethyl oleate, and 100 μ g oestradiol benzoate did not interrupt the normal oestrous cycle. In all the groups except E, pseudopregnancy tended to last longer than when it was induced by copulation (sterile mating). The data for each of the injected groups was compared with group A, the sterile mated group. Groups B, D and F differed significantly at the 5% level (Median test).

In group C the total of 15 mg of Provera® had a permanent effect on the females. Five animals showed a single cycle after injection and then became non-cyclic while the remaining animals became non-cyclic after the pseudopregnancy. In all the other groups the females continued to cycle normally after the pseudopregnancy.

It has been demonstrated that the injection of progesterone will reliably induce pseudopregnancy in the rat (Everett, 1963; Rothchild & Schubert 1963). This and other evidence has led Rothchild (1960) and Rothchild & Schubert (1963) to postulate a positive feedback from progesterone to LTH. The simplest explanation for the present finding that pseudopregnancy may be

extended when it is induced by the injection of progesterone, is that sufficient progesterone remains after the injection to maintain the corpora lutea (through the stimulation of LTH) beyond their normal span. Though histological evidence

TABLE 1
THE TREATMENT OF THE GROUPS AND THE TIMING OF THE POST-OESTROUS
DISCHARGE ENDING PSEUDOPREGNANCY

Group	Treatment	N	The number of animals showing post-oestrous discharge on Day												
			8	9	10	11	12	13	14	15	16	17	18	21 to 20	+
A	Sterile mating	30	1	1	7	19	2	—	—	—	—	—	—	—	—
B	2 × 5 mg progesterone ¹ aqueous	10	—	—	—	1	—	—	1	3	—	—	5	—	—
C*	3 × 5 mg medroxyprogesterone acetate ²	10	—	—	—	1	—	—	1	—	—	—	1	2	—
D†	1 × 2.5 mg medroxyprogesterone acetate ²	10	—	—	2	1	—	—	2	2	1	1	—	—	—
E	2 × 5 mg progesterone ³ (in oil)	10	2	3	3	—	2	—	—	—	—	—	—	—	—
F	2 × 5 mg progesterone ¹ (aqueous) with 2 × 100 µg oestradiol benzoate ⁴ (aqueous)	10	—	—	—	—	—	—	—	1	4	—	3	2	—

1. Luteocyclin M®, Ciba.

3. Protormone®, Burroughs Wellcome.

2. Depot-Provera®, Upjohn.

4. Oestroform®, B.D.H.

* Five animals showed one normal cycle after injection and then became non-cyclic.

† One animal continued to cycle after injection.

is required to substantiate this, it is supported by the fact that only the longer-lasting gestagens produced the prolonged pseudopregnancies. Animals in group E, receiving progesterone in oil, showed pseudopregnancies of normal length. So it does not appear that the method of induction of pseudopregnancy by a gestagen is an important determinant in itself.

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