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Brief Communication

URINARY OESTROGEN EXCRETION IN THE GOAT DURING THE OESTROUS CYCLE AND AFTER ADMINISTRATION OF PREGNANT MARE SERUM GONADOTROPHIN (PMSG)

Two goats were placed in cages constructed for urine collection. Samples were taken daily and stored in the frozen state until analysis. The urine was processed according to a method designed for determination of oestrone and oestradiol-17 α in bovine urine (*Lunaas* unpublished).

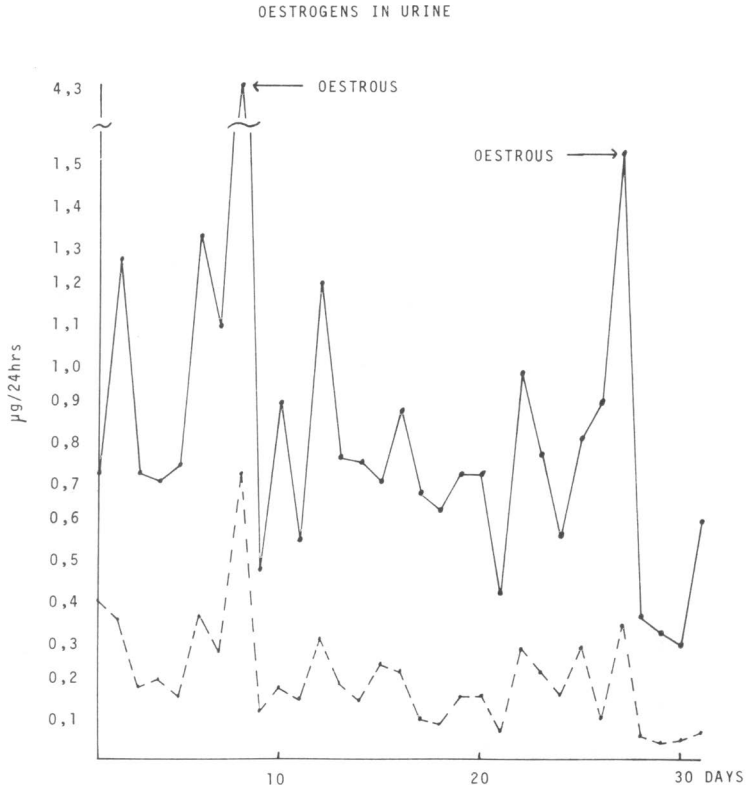
Both of these oestrogens are present in the urine of pregnant goats (*Klyne & Wright* 1957), in which oestradiol-17 α predominates over oestrone and may be excreted in amounts of about 1000 μg per day at late stages prior to parturition (*Van Rensburg* 1971).

Our concention that oestrone and oestradiol-17 α may be present in the urine of non-pregnant animals is based on the chromatographic behaviour of the methylated phenolic fraction on alumina columns (*Brown* 1955) and on the chromogenic property of the oestradiol fraction (*Lunaas* 1964).

In general the oestrone and oestradiol-17 α excretion rates were found to be rather low. In evaluating the results it should be noted that the faecal route of oestrogen elimination may be relatively important in the goat and that the major products being formed in this species during the metabolism of the ovarian oestrogens seemingly remain to be definitely identified.

One of the goats experienced two heats during the experimental period. The results obtained in this animal are presented in Fig. 1. Reasonably well defined peaks are seen at both heat periods observed which were normally spaced in time.

The other goat did not come into heat until treated with PMSG. In comparison she excreted smaller amounts of oestradiol-17 α especially in relation to oestrone (Fig. 2). Minor peaks are apparent, but the excretion of oestradiol-17 α never exceeded



F i g u r e 1. Urinary excretion of oestrogens in the goat during the oestrous cycle.
——— Sum of total oestrone and oestradiol-17 α
------ Oestrone

one µg per 24 hrs. until after the injection of PMSG (1500 i.u. Antex Leo), which was finally made to bring the ovaries out of the apparent quiescence.

She responded by a distinct rise in the excretion of oestradiol-17 α as well as of oestrone. Maximum values were found after six to nine days at which time the sum of total oestrogens excreted amounted to more than 10 µg per 24 hrs.

Olav Lyngset and *Torleiv Lunaas*
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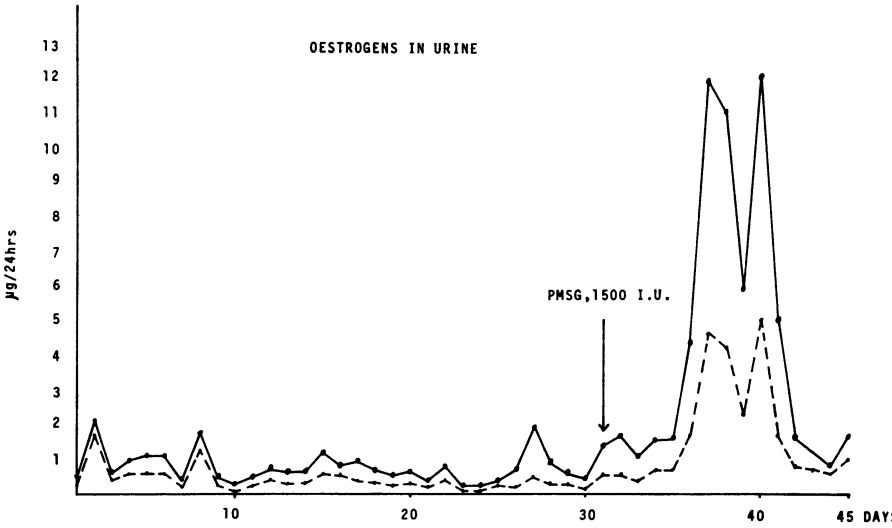

Figure 2. Urinary excretion of oestrogens in a goat during a period of anoestrus and after administration of PMSG.
——— Sum of total oestrone and oestradiol-17 α
------ Oestrone

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