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1: Theriogenology. 2004 Apr 1;61(5):977-85.

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Effect of GnRH antagonists treatment on gonadotrophin secretion, follicular development and inhibin A secretion in goats.

Gonzalez-Bulnes A, Santiago-Moreno J, Garcia-Garcia RM, Souza CJ, Lopez-Sebastian A, McNeilly AS.

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The aim of this study was to determine, for goats, the effects of daily doses of GnRH antagonist on ovarian endocrine and follicular function. Ten does were given 45 mg FGA intravaginal sponges and then five were treated with daily injections of 0.5mg of the GnRH antagonist Teverelix for 11 days from 2 days after the day of sponge insertion, while five does acted as controls. Pituitary activity was monitored by measuring plasma FSH and LH daily from 2 days before the first GnRH injection to Day 12. Follicular activity was determined by ultrasonographic monitoring and by assessing plasma inhibin A levels during the same period. In treated does, the FSH levels decreased linearly (0.8 +/- 0.1 ng/ml to 0.5 +/- 0.1 ng/ml, $P < 0.01$) and remained lower than the mean concentration in control goats (0.8 +/- 0.1 ng/ml, $P < 0.005$). LH levels were also lower during the period of antagonist treatment (0.6 +/- 0.2 ng/ml versus 0.4 +/- 0.1 ng/ml, $P < 0.0005$). During GnRH antagonist treatment, there was a significant decrease in the number of large follicles ($> \text{ or } = 6 \text{ mm}$) from Day 3 of treatment (1.2 +/- 0.6, $P < 0.0001$), with no large follicles from Day 9. The number of medium follicles (4-5 mm in size) also decrease during the period of treatment (4.2 +/- 0.7 to 1.0 +/- 0.6, $P < 0.0001$), leading to a significant decrease in inhibin A levels when compared to the control (143.7 +/- 31.3 pg/ml versus 65.2 +/- 19.1 pg/ml, $P < 0.00005$). In contrast, the number of small follicles (2-3 mm) increased in treated goats from Day 4 of treatment (9.6 +/- 2.9 to 20.2 +/- 6.3, $P < 0.005$). Such data indicate that GnRH antagonist reduced plasma levels of FSH and LH with suppression of the growth of large dominant ovarian follicles and a two-fold increase in number of smaller follicles. The results confirm that GnRH antagonist treatment can be used in goats to control gonadotrophin secretion and ovarian follicle growth in superovulatory regimes.

PMID: 14757481 [PubMed - indexed for MEDLINE]

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