

TESTOSTERONE DECREASES TO BASAL VALUES WITHIN 24 h FOLLOWING CASTRATION IN LLAMAS

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The objective of this study was to compare serum testosterone concentrations ([T]) in adult male llamas (*Lama glama*) following administration of human chorionic gonadotropin (hCG) before and after castration. This information is of diagnostic significance for the determination of retained testicular tissue following surgery or in the case of a cryptorchid male. Seven intact adult male llamas were used in this experiment. Jugular venous blood samples were collected prior to intravenous administration of hCG (5000 IU; Chorulon[®], Intervet) as well as 2, 4 and 8 h post-hCG. The llamas were castrated using routine surgical techniques 24 h post-hCG. Testes were removed from the vaginal tunica, the epididymides were removed, and the testes were weighed. A post-castration hCG response test was performed 24 h after castration (48 h from the previous hCG response test). Serum [T] was measured using a double antibody radioimmunoassay (Diagnostic Products Corporation, Los Angeles, CA). The assay sensitivity was 0.05 ng/ml and the intra- and inter-assay CVs were <10%. All of the samples were tested within one assay. The mean [T] at each treatment time were compared using an analysis of variance. In addition, [T] were compared to total testicular weight using linear regression. Significance was defined as $p < 0.05$. The results for individual animals are summarized in the table below. The [T] was significantly increased from pre-hCG values within 2 h post-hCG ($p < 0.001$) and remained significantly elevated until 8 h post-hCG. The highest [T] occurred at 8 h post-hCG. At 24 h post-castration (48 h post-hCG), the [T] was below the limits of detection. There was a poor correlation ($r = 0.33$) between [T] and total testes weight. In conclusion, serum [T] falls to undetectable values within 24 h following castration. However, ejaculation of fertile sperm and “male” behavior may persist for days to weeks following gonadectomy.

Keywords: Castration; hCG; Llama; Testes; Testosterone

ID	Total testes weight (g)	Serum testosterone concentrations (ng/mL)				
		Pre-hCG	2 h post-hCG	4 h post-hCG	8 h post-hCG	48 h post-hCG (24 h post-castration)
1	35.86	1.46	5.04	5.32	5.71	<0.05
2	30.07	0.94	6.89	8.48	9.73	<0.05
3	38.55	2.09	10.14	12.35	15.66	<0.05
4	32.68	0.62	5.09	6.10	7.51	<0.05
5	21.99	0.53	6.08	9.41	10.42	<0.05
6	42.04	2.99	5.46	5.57	8.22	<0.05
7	9.92	0.25	2.76	3.31	3.58	<0.05
$\bar{X}$	30.16	1.26	5.92	7.22	8.69	

Species Abstracts

Small Animal

A SINGLE INJECTION OF LONG-ACTING DESLORELIN DOES NOT INDUCE ESTRUS IN BITCHES

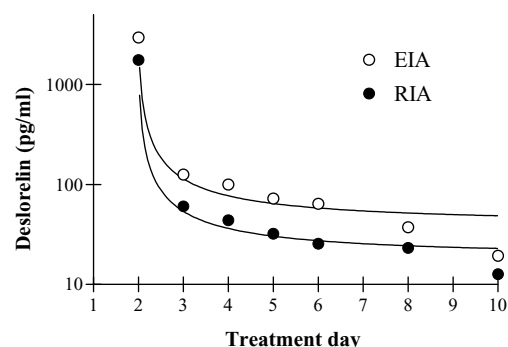
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The objective of this study was to determine serum deslorelin concentrations using radioimmunoassay and enzyme immunoassay following intramuscular administration of a compounded-form of long-acting deslorelin (BioRelease[™] deslorelin, BET Pharmacy; Lexington, KY, USA). Eight mature anestrous beagle bitches were used. Each treatment consisted of a 1 ml (1.5 mg BioRelease[™] deslorelin) injection administered into the epaxial muscle. Vaginal cytologies and jugular venous blood samples were collected daily for 10 days beginning on the first treatment day. Serum progesterone concentrations were determined using a chemiluminescent assay. Serum deslorelin concentrations were determined using a double antibody radioimmunoassay (RIA) (Peninsula Laboratories, Inc.; San Carlos, CA). The RIA sensitivity was 1 pg/ml; intra-assay CV was <5% and inter-assay CV was <10%. In addition, serum desloreslin concentrations were determined using an enzyme immunosorbent assay (EIA) (Peninsula Laboratories, Inc.). The EIA sensitivity was

8 pg/ml; intra-assay CV was <5%, inter-assay CV was 9.2%. Non-linear regression was used to compare the assays. Despite earlier success with estrus induction using this drug [1], estrus was not induced in any of the treated bitches in this study based on vaginal cytology (<90% cornified epithelial cells) and serum progesterone concentrations (<2.0 ng/ml). Deslorelin concentrations were elevated for 1–3 days following treatment. There was a significant correlation found between each assay ($R^2 = 0.99$) (Fig. 1). It is not clear why BioReleaseTM deslorelin did not result in estrus induction in bitches in this study. However, it has been suggested that gonadotropin stimulation with GnRH should continue for a minimum of 7–9 days to result in oestrus induction [2]. Future studies will focus on administering multiple injections of BioReleaseTM deslorelin to prolong duration of elevated serum deslorelin concentrations for reliable estrus induction. Reliable estrus induction is needed in conjunction with routine breeding management when breeding opportunities are missed or following conception failure and may also be used as a treatment for primary anestrus.

Keywords: Canine; Deslorelin; Estrus; GnRH; Radioimmunoassay



References

- [1] Kutzler M. *Theriogenology* 2005;64:766.
- [2] Concannon P, et al. *J Reprod Fertil Suppl* 1997; 51:41.

INFLUENCE OF TAURINE DEFICIENCY ON UTERINE INERTIA IN THE BITCH

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Recent studies have shown that in addition to cardiac muscle, taurine is also found in high concentrations in skeletal and smooth muscle [Kramer, et al. *J Vet Intern Med* 1995;9:253–8]. Taurine is not an essential nutrient in dogs, yet certain breeds appear predisposed to taurine deficiency, including Newfoundlands, Portuguese Water Dogs, Cocker Spaniels, Labrador Retrievers and Golden Retrievers [Torres, et al. *J Anim Physiol (Berl)* 2003;87:9–10]. The objective of this research is to determine if a correlation exists between low plasma taurine concentrations in bitches with altered uterine muscle contractility. We hypothesized that bitches with low plasma taurine concentrations (<60 nmol/mL) would have uterine inertia. Venous blood samples were collected within 7 days of whelping from 18 bitches (Group 1, $n = 8$: spontaneous whelping, including six dogs from taurine-deficient breeds; Group 2, $n = 10$: prolonged whelping). Plasma taurine and calcium concentrations and total dietary taurine were determined using an automated analyzer. All bitches were normocalcemic at time of sample collection. Plasma taurine concentrations were >60 nmol/mL in all bitches from Group 1. Mean taurine did not differ by group, however, 20% of bitches in Group 2 had plasma taurine concentrations <60 nmol/mL. The only breed identified with taurine deficiency in this study was English Bulldogs, a breed that has not been previously described as taurine deficient. Total dietary taurine did not appear to correlate with the plasma taurine, which may reflect the individual's general ability to synthesize sufficient taurine.

Keywords: Plasma taurine; Uterine inertia; Taurine-deficient dog breeds; Dietary taurine; Post-partum

	Mean (range)	
	Group 1	Group 2
Plasma total calcium (mg/dL)	9.2 (7.8–10.4)	8.2 (5.1–10.2)
Plasma taurine (mmol/mL)	194 (94–382)	107 (35–194)
Total dietary taurine (g/kg)	1.0 (0.58–1.94)	0.9 (0.2–1.7)

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