

STUDY REGARDING HORMONAL AND BIOCHEMICAL PROFILES IN PREGNANT AND LACTATING EWES TREATED WITH BROMOCRIPTINE

Iuliana Codreanu, Gabriela Negritu, M. Codreanu, N. Dojană

*Faculty of Veterinary Medicine Bucharest, Romania,
iulianacod@yahoo.com*

Abstract

The study of maternal behavior in sheep, can not be conceived without investigating of the anterohypofizary hormones implication in the expression (direct or indirect) of this type of behavior, as, for example, prolactin, FSH and ACTH.

Thus, the literature indicates that prolactin, regardless of species, acting on the central nervous system, inducing and maintaining maternal behavior. It also initiates and maintains the mammary gland secretion, this effect is exercised only in terms of its prior action of estrogen and progesterone.

To approach the role of prolactin in the induction and maintenance of maternal behavior and in the initiation and development of milk secretion in sheep, we used the antiprolactinic drug preparation: Bromocriptine.

Thus, Bromocriptine was series administered in sheep, in doses of 1 mg - 2.2 mg/animal/day, from 4 days before birth up to 3 days after birth, following the effect of bromocriptine on weight gain in lambs, but also on the main biochemical constituents of blood.

Key words: *Bromocriptine, lactating ewes, maternal behavior.*

MATERIAL AND METHODS

The sheep from this experiment belonged to the Merino breed (artificially inseminated) and they were at the third calving, and all were to girls in the same month (controlled calving).

To assess the antiprolactin effects of Bromocriptine, we proceeded to the composition of the two groups, as follows:

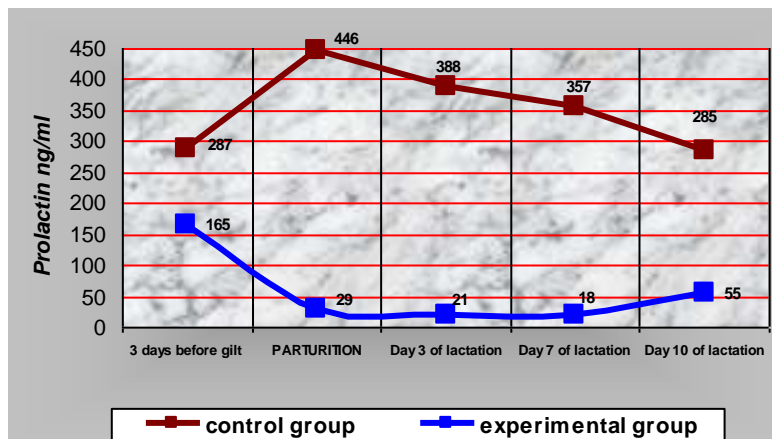
- control group - consisting of seven Merinos sheep;
- experimental group (LE) - consisting of five Merinos sheep, which was administered Bromocriptine series in doses of 1 mg - 2.2 mg/animal/day, from 4 days before birth up to 3 days after birth, following the effect of bromocriptine on weight gain in lambs, but also on the main biochemical constituents of blood. In order to determine hormonal profile and biochemical sheep in the control group we collected blood from the jugular

vein in the morning, between 9.00 to 11.00 in the following days: 70, 100 and 140 of gestation, the day of calving, and days 10,18,35 and 42 of lactation (Brunton, et al., 2008; Negritu et al., 2011). After collection, the blood samples were centrifuged and plasma was frozen at -15°C until they were sent to the laboratory for hormones determination (prolactin, progesterone, FSH and growth hormone) and biochemical parameters.

RESULTS AND DISSCUTION

In addition to hormonal dosages, the research presented in this paper consisted in the development of biochemical tests in sheep, in different physiological states (pregnant and lactating) and consisted of: determination of metabolic profile parameters (activity of aspartate aminotransferase, alanine aminotransferase, dosing mineral elements, but also of total protein). The data were statistically interpreted using T Student test. The values of prolactin, FSH, progesterone and GH, resulting from hormonal investigations (both for sheep in the control group and those in the experimental group) are suggestively illustrated in figure 1.

Figure 1. The dynamics of average values of prolactine (ng/ml) during pregnancy and lactation in sheep of control and experimental groups



Comparing the results obtained in the study of hormonal profile at birth, in the experimental group, there is observed a distinct significantly decrease ($p < 0.01$) of average value of prolactin, a difference which is maintained, also during the 10 days of lactation, when the hormonal dosages were made.

After stopping the antiprolactinic treatment, is observed a significant increase ($p < 0.05$) average value of prolactin in sheep in this group. This highlights the inhibitory and constant action of bromocriptine on pituitary prolactin secretion, secretion which ultimately will change the maternal behavior of sheep in the experimental group (Codreanu, 2001; Dojană, 2011).

Comparing the results after dosing some biochemical parameters (table 1), it is found that the mean values of total protein were slightly higher in the experimental group, but the difference considered statistically insignificant ($p > 0.05$).

Comparing the results after dosing some biochemical parameters (table 1), it is found that the mean values of total protein were slightly higher in the experimental group, but the difference considered statistically insignificant ($p > 0.05$). Bromocriptine treatment of sheep from experimental group did not affect other biochemical parameters (statistically insignificant), observing that they have been close to the average values of the control group (Negritu et al., 2009; Negritu et al., 2010).

Table 1. Comparative analysis of average values of biochemical exams in sheep from the control and experimental groups

Parameter	GROUPS	
	Control	Experimental
Total Protein (g/dl)	7.6	8.0*
Albumin (g/dl)	3.75	3.9*
Globulin (g/dl)	3.85	4.1*
Ca (mg/dl)	9.2	10.1*
P (mg/dl)	6.05	6.6*
AST (U/l)	47	58*
ALT (U/l)	22.6	22.3*

* $p > 0,05$ - insignificant differences

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CONCLUSIONS

The studies of indirect role of prolactin in the induction and maintenance of milk secretion (factor that makes the maternal behavior), was performed with a prolactin inhibitor (bromocriptine).

Comparing the results obtained in the study of hormone profile shows a highly significantly decrease ($p < 0.01$) of the average value of prolactin (29 ng/ml) in sheep from the experimental group - who was treated with Bromocriptine.

Highly decrease significantly of serum prolactin levels in sheep treated with bromocriptine, shows the constant inhibitory action of Bromocriptine on the LTH - pituitary secretion, which ultimately led to the treated sheep, much weaker expression of maternal behavioral manifestations during lactation.

The comparative analysis of results from other hormones dosage (progesterone and FSH) in sheep from experimental and control groups, were found insignificant differences between the average values of these hormones, either during pregnancy or lactation.

Comparing the average values of total protein, were slightly higher in the experimental group (8.0 g/dl) than the control group (7.6 g/dl), but the difference were considered statistically insignificant ($p > 0.05$).

Bromocriptine treatment of sheep in the experimental group did not affect other biochemical parameters, observing that they have been close to the average values of the control group (statistically insignificant).

The whole experiment is a clear demonstration of the lactogen role of prolactin in sheep and maternal behavior in conditioning the default.

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