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Field of study: ruminant nutrition and production

Serum protein profile of lactating lambs supplemented with bovine milk

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The profitability of meat sheep farming is strongly influenced by annual lamb production. Lactating lambs with low weight gain are associated with competition between lambs born from sheep with multiple births or insufficient milk production, resulting in an increased mortality and a decreased weaning rate. Milk supplementation is one of the alternatives to ensure the growth and development of lactating animals affected by some adverse process in their mother's milk production, such as mastitis. This study aimed to evaluate the serum protein profile of lambs supplemented with cow's milk. For this purpose, sixteen lactating lambs aged between birth and 30 days were used. They were divided into two groups: one group received milk supplementation, with a daily limit of 500 mL of cow's milk, while the other group relied on exclusive natural breastfeeding. To form the groups, the lambs were classified at birth based on whether their mothers had limited milk production or not. The sheep with limited milk production were those affected by mastitis and, consequently, their offspring were supplemented with cow's milk, while the offspring of sheep with regular milk production were not supplemented. Both groups were managed in collective sheep pens and subjected to the same daily management conditions. The lambs were weighed at birth and monitored during their first 30 days of life. Blood samples were taken to assess plasma protein levels at the end of the test. All the results were submitted for variance analysis to compare each parameter's means, using a 5% significance level. The average daily consumption of cow's milk for the artificially supplemented lambs was 324 ± 183 mL. Serum concentrations of total protein, albumin, urea, and creatinine showed no difference ($P > 0.05$) between conventionally breastfed lambs and artificially supplemented lambs. On the other hand, serum globulin concentration decreased ($P < 0.05$), and, consequently, the albumin:globulin ratio increased for supplemented lambs. The concentration of serum globulins tends to decrease as the amount of colostral antibodies decreases. Considering that the use of cow's milk as a supplement for neonatal sheep that have suffered some quantitative restriction in the availability of maternal milk or colostrum may compromise the animals' immune supply. The study therefore highlights the need to create and maintain colostrum and sheep's milk banks for lambs in cases where the milk production of the mother is compromised to feed the neotates, aiming to preserve normal plasma protein parameters.

Keywords: lambs, globulin, mastitis, milk replacer.