World Academy of Science, Engineering and Technology
International Journal of Animal and Veterinary Sciences
Vol:13, No:01, 2019

Comparison of Serum Protein Fraction between Healthy and Diarrhea Calf by Electrophoretogram

Authors : Jinhee Kang, Kwangman Park, Ruhee Song, Suhee Kim, Do-Hyeon Yu, Kyoungseong Choi, Jinho Park

Abstract : Statement of the Problem: Animal blood components maintain homeostasis when animals are healthy, and changes in chemical composition of the blood and body fluids can be observed if animals have a disease. In particular, newborn calves are susceptible to disease and therefore hematologic tests and serum chemistry tests could become an important guideline to the diagnosis and the treatment of diseases. Diarrhea in newborn calves is the most damaging to cattle ranch, whether dairy or cattle fattening, and is a large part of calf atrophy and death. However, since the study on calf electrophoresis was not carried out, a survey analysis was conducted on it. Methodology and Theoretical Orientation: The calves were divided into healthy calves and disease (diarrhea) calves, and calves were classified by 1-14d, 15-28d, and more than 28d, respectively. The fecal state was classified by solid (0-value), semi-solid (1-value), loose (2-value) and watery (3-value). In the solid (0-value) and semi-solid (1-value) feces valuable pathogen was not detected, but loose (2-value) and watery (3-value) feces were detected. Findings: ALB, α-1, α-2, α-SUM, β and γ (Gamma) were examined by electrophoresis analysis of healthy calves and diarrhea calves. Test results showed that there were age differences between healthy calves and diarrheic calves. When we look at the γ-globulin at 1-14 days of age, we can see that the average calf of healthy calves is 16.8% and the average of diarrheal calves is 7.7%, when we look at the figures for the α-2 at 1-14 days, we found that healthy calves average 5.2% and diarrheal calves 8.7% higher than healthy cows. On α-1, 15-28 days, and after 28 days, healthy calves average 10.4% and diarrheal calves average 7.5% diarrhea calves were 12.6% and 12.4% higher than healthy calves. In the α-SUM, the healthy calves were 21.6%, 16.8%, and 14.5%, respectively, after 1-14 days, 15-28 days and 28 days. diarrheal calves were 23.1%, 19.5%, and 19.8%. Conclusion and Significance: In this study, we examined the electrophoresis results of healthy calves and diseased (diarrhea) calves, gamma globulin at 1-14 days of age were lower than those of healthy calves (diarrhea), indicating that the calf was unable to consume colostrum from the mother when it was a new calf. α-1, α-2, α-SUM may be associated with an acute inflammatory response as a result of increased levels of calves with diarrhea (diarrhea). Further research is needed to investigate the effects of acute inflammatory responses on additional calf-forming proteins. Information on the results of the electrophoresis test will be provided where necessary according to the item.

Keywords : alpha, electrophoretogram, serum protein, γ, gamma
Conference Title : ICLPZD 2019 : International Conference on Livestock Production and Zoonotic Diseases
Conference Location : Singapore, Singapore
Conference Dates : January 10-11, 2019