

Blood Analysis of Diarrheal Calves Using Portable Blood Analyzer: Analysis of Calves by Age

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Abstract : Statement of the Problem: Diarrhea is a major cause of death in young calves. This causes great economic damage to the livestock industry. These diarrhea cause dehydration, decrease blood flow, lower the pH and degrade enzyme function. In the past, serum screening was not possible in the field. However, now with the spread of portable serum testing devices, it is now possible to conduct tests directly on field. Thus, accurate serological changes can be identified and used in the field of large animals. Methodology and Theoretical Orientation: The test groups were calves from 1 to 44 days old. The status of the feces was divided into four grade to determine the severity of diarrhea (grade 0,1,2,3). Grade 0, 1 is considered to have no diarrhea. Grade 2, 3 is considered to diarrhea positive group. One or more viruses were detected in this group. Diarrhea negasitive group consisted of 57 calves (Asan=30, Samrye=27). Diarrhea positive group consisted of 34 calves (Kimje=27, Geochang=7). The feces of all calves were analyzed by PCR Test. Blood sample was measured using an automatic blood analyzer(i-STAT, Abbott inc. Illinois, US). Calves were divided into 3 groups according to age. Group 1 is 1 to 14 days old. Group 2 is 15 to 28 days old. Group 3 is more than 28 days old. Findings: Diarrhea caused an increase in HCT due to dehydration. The difference from normal was highest in 15 to 28 days old ($p < 0.01$). At all ages, bicarbonate decreased compared to normal, and therefore pH decreased. Similar to HCT, the largest difference was observed between 15 and 28 days ($p < 0.01$). The pCO_2 decreases to compensate for the decrease in pH. Conclusion and Significance: At all ages, HCT increases, and bicarbonate, pH, and pCO_2 decrease in diarrhea calves. The calf from 15 days to 28 days shows the most difference from normal. Over 28 days of age, weight gain and homeostasis ability increase, diarrhea is seen in the stool, there are fewer hematologic changes than groups below 28 days of age.

Keywords : calves, diarrhea, hematological changes, i-STAT

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