

SEROLOGICAL PREVALENCE OF INFECTIOUS RINOTRACHEITIS AND BOVINE DIARRHEA IN HOLSTEIN CALVES IN THE PRINCIPAL URUGUAYAN DAIRY REGION

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Abstract

A seroepidemiological survey was conducted in the main dairy area of Uruguay, in order to study the prevalence of viral infections associated with respiratory and enteric diseases in calves. Specific antibodies against Infectious Bovine Rhinotracheitis (IBR) and Bovine Viral Diarrhea (BVD) viruses were detected by indirect ELISA test (commercial kit SVANOVIR tm). Seventy seven dairy farms from the main Uruguayan dairy region (San José, Canelones and Florida) were selected. Blood samples were taken from 5 to 15 female Holstein calves during the first week of life, the total amount of samples were 536. Management procedures, feedings methods, morbidity and mortality rates were measured through the use a questionnaire. Results showed a seroprevalence of 27% of IBR and 42% for BVD. Antibodies against IBR didn't show significant differences between geographical regions. Therefore, antibodies against BVD were found in high levels in Florida 55% \pm 3.3% in relation to San José and Canelones with 31% \pm 2.7%. In conclusion, a high prevalence of this pathogens are observed even in young or adult animals and the geographic differences are probably related to management factors.

INTRODUCTION

Incidence of dairy heifer calves mortality is high during the 3 or 4 weeks of life^(3, 15). The American National Monitoring studies (NAHMS-USDA) showed the incidence for this country was between 11% and 44%⁽¹⁷⁾. Reports of dairy calves mortality from others countries show: Tanzania 23%⁽¹³⁾, and France between 4% and 8%⁽¹⁾. The only report from Uruguay claimed 9.5% in a big dairy farm⁽¹⁴⁾.

Different dairy farms reports from Uruguay showed incidence of calves mortality in the range of 0 to 50%. It is important to demonstrate the impact of dairy calves mortality and the associated factors to start searching for tools to prevent it.

Several researches report different factors associated with dairy calves mortality such as colostrums management, quality and offer of them^(6, 10, 11, 14, 17). Other risk factors could be: time of the calf in contact with cows, farm size, birth season, environmental hygiene, presence of infection virus agents and people involved in the management^(3, 4, 5, 7, 8, 9, 15, 15, 17).

The main goal of this study was to establish the calves mortality and the serum prevalence of viral agents associated with respiratory and enteric disease and also characteristics of Uruguayan dairy farms.

MATERIALS AND METHODS

Seventy seven haphazard dairy farms with more than 30 milking cows were selected in Florida, Canelones, and San José counties from Uruguay. These farms were visited to acquire data from management, production, health status and the herdperson involved with calves management. A person to person interview was carried out with a trained veterinarian.

From each farm a serum was taken random sample of 5 to 15 calves born in the week previous to the visit. At the lab, the presence of antibodies against of infection bovine rinotracheitis IBR was determined, as well as the bovine virus diarrhea BVD. They were tested with a commercial ELISA kit (SVANOVIR tm., EIA kit, SVANOVA Biotech S-751 83, Upsala, Sweden).

RESULTS AND DISCUSSION

The estimate mortality to the study population was $4.7\% \pm 1.2\%$ with a range from 0% to 46%. This high range of mortality shows the high variability between the different dairy farms in the population.

The serological prevalence for IBR was similar in San Jose-Canelones 28% (85/306) and Florida 25% (58/230). The situation for BVD was different for the involved regions: San Jose-Canelones showed 31% (92/297) and Florida 55% (127/230). Although we are talking about serological prevalence and not a clinical disease the difference could be associated with management factors and mortality⁽¹²⁾.

It was interesting that the farmer perception was different from the reality. As an example of this situation, the herdperson estimation of the presence of the involved agent was 19.2% for IBR and 18.5% for BVD and the serological presence was for the first agent 92.4% and for the second agent 100%.

The management of heifers calves in the first week were tied to a stick "estaca" in 83% of the farms. The time of calf with its mother was more than 24 hours in 58% of farms, between 12 and 24 hours in 36% of farms and less than 12 hours in only 6% of the farms. Mortality was higher in farms where the calves were 24 or more hours with cows than in the others farms. The reason of this association could be that calves that spend more time in contact with cows could be more exposed to infection agents than calves taken out in the first hours of life.

The colostrum ingestion control probably is not very good, because in 98% of farms calf drink it directly from its mother. Nave disinfections is common practice in 43% of dairy farms, but it was associated with high mortality, probably because they also were associated with bad environmental hygiene.

The characteristics of the person involved in the calves management were employees in 74% of farms, dairy owner in 11% of farms, dairy farm relatives in 9% and milker on 6% of the farms. The percentage of sex were 85% men and 15% women both with age average of 35 years.

Although the mortality can be considered low in relation to other reports the high range distribution gives opportunities to improve it. The high serum prevalence of IBR and BVD, and the association of other factors with mortality could be useful when making recommendations.

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