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Abstract

Associations between viral infections and respiratory disease in artificially reared calves

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Veterinary Record (1993) **133**, 85-89

Market-purchased, week-old, dairy bred calves entering a commercial calf-rearing unit were blood sampled at six-week intervals until three months old. Viral infections were monitored by ELISA for antibodies to bovine herpesvirus 1, bovine respiratory syncytial virus, parainfluenzavirus-3, bovine adenovirus subgroup 1 and bovine viral diarrhoea virus (BVDV). The immunoperoxidase test was used to detect BVDV in serum. The total immunoglobulin concentration in the initial blood sample was measured by the zinc sulphate turbidity test. The relationship between clinical respiratory disease, viral sero-conversion and the initial concentration of serum immunoglobulin was investigated by the use of the relative risk statistic, Fisher's exact test, χ^2 techniques and the correlation coefficient. Treatment rates for respiratory disease of 45 per cent were observed during the first period of the study and 19 per cent during the second period. During the first period there was a significant positive association between clinical respiratory disease and seroconversion for all the viruses except parainfluenzavirus-3 and BVDV but in the second period there was no such relationship. Similarly, in the first period, but not in the second, there was a significant negative association between clinical respiratory disease and both antiviral immunoglobulin as measured by ELISA and total immunoglobulin as measured by the zinc sulphate turbidity test. Two of the 536 calves that survived to three months of age were found to be persistently infected with BVDV.