

Rotavirus Associated Diarrhoeas of Buffalo Calves in Sri Lanka

S. Mahalingam

Faculty of Veterinary Medicine & Animal Science,

University of Peradeniya.

ABSTRACT

Faecal samples from 150 buffalo calves aged 1-150 days, and located in various districts of Sri Lanka were examined for group A rotavirus antigen by the Enzyme Linked Immunosorbent Assay (ELISA). Positivity of each sample was confirmed by the blocking ELISA.

In the calves studied, 27.3% (41/150) were diarrhoeic, and the rest non-diarrhoeic, although in contact with the animals showing diarrhoea. Antigen was detected in 36.6% (15/41) of the diarrhoeic animals, and in 11.9% (13/109) of the non diarrhoeic animals. There was a strong association between the presence of antigen in faeces and diarrhoea in these animals ($\chi^2 = 46.98$; $p = 0.001$). Acquisition and decline of maternal antirotaviral antibodies in 9 new born calves was monitored for a period of 110 days by the blocking ELISA. Before suckling none of these calves had antirotaviral antibodies. After suckling, the blocking activity of sera from these had risen by 90-100%, and thereafter declined to negativity by the 33rd to 56th day. Antigen was detected in diarrhoeic calves in the age group 1-60 days, but none in the 61-150 days age group.

The twenty eight specimens shown to be positive for rotavirus group A antigen were subgrouped by the ELISA using monoclonal antibodies prepared against subgroup 1 and 11 antigens. Thirteen out of 28 of these specimens, classified as strongly positive (percentage blocking \geq 50%) all belonged to subgroup 1. The remaining specimens, which were considered weakly positive (percentage blocking 30-50%) were untypable. As much as 68.5% of the 146 serum samples examined for antirotaviral antibodies, by the blocking ELISA, at a single serum dilution (1:20) against a constant dose of antigen (8 units), was positive indicating a widespread infection with the virus in the population studied.

The strains of group A, subgroup 1 rotavirus were isolated from faecal material collected from five diarrhoeic buffalo calves in MA104 cells. These buffalo isolates too required pretreatment of specimens with trypsin, incorporation of trypsin in the maintenance medium, rolling of inoculated cell cultures, and at least six serial passages before distinct Cytopathic effects were produced in MA104 cells.

This is the first study establishing the presence of group A, subgroup 1 rotavirus in buffalo calves in Sri Lanka, and its association with diarrhoea in these animals.