

DETECTION OF BOVINE RESPIRATORY SYNCYTIAL VIRUS IN CALVES OF RIO GRANDE DO SUL, BRAZIL*

DETECÇÃO DO VÍRUS RESPIRATÓRIO SINCICIAL BOVINO EM TERNEIROS NO RIO GRANDE DO SUL, BRASIL

SHORT NOTE

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RESUMO

Durante 20 meses entre 1987 e 1990 coletou-se, em matadouro, amostras de tecido pulmonar de 351 terneiros originários de municípios próximos à Porto Alegre. Utilizando-se a imunofluorescência direta (IFD) e indireta com anticorpos policlonais e monoclonais em cortes de pulmão congelados verificou-se a presença do Vírus Respiratório Sincicial Bovino (BRSV) em 18 (5,13%) das amostras. Isolou-se o BRSV de amostras positivas pela IF.

Palavras-chave: vírus respiratório sincicial bovino - imunofluorescência.

SUMMARY

During 20 months of the 1987-1990 period, lung tissue samples from 351 calves were obtained at a slaughterhouse. These calves were from counties nearby Porto Alegre. The direct and indirect fluorescent antibody tests (FAT) using polyclonal and monoclonal antibody conjugates were performed on frozen lung sections. Eighteen (5.13%) of the calf lung samples were positive for the Bovine Respiratory Syncytial Virus (BRSV). The BRSV was isolated from FAT positive samples.

Key words: bovine respiratory syncytial virus, immunofluorescence.

Bovine Respiratory Syncytial Virus (BRSV) causes a severe bovine respiratory disease and is most often associated with fatal pneumonia in calves. In England it had a seasonal pattern of infection, i.e., autumn and winter (EDWARDS et al, 1984).

Employing the serum-neutralization test and a modified fluorescent antibody test (DFAT) in Canada, it was found that 71.3% of calves had antibodies against BRSV. When these tests were applied to adult cattle, 95% were found to be positive (MARTINS & BOHAC, 1986; LYNCHS & DERBYSHIRE, 1986).

In England, 6.4% of the bovine pneumonic lungs examined by the DFAT were positive to BRSV, and also 50% of the samples from five pneumonia outbreaks (EDWARDS et al, 1984; THOMAS & STOTT, 1981).

The first isolation in France, of the BRSV from dairy cows was first reported in 1986 (FRAPPIER et al, 1986).

VAN VUUREN (1990) reported antibody titres to BRSV ranging from 10 to 1280 during an outbreak of respiratory tract infections in cattle kept in feedlots in South Africa.

The SCOTTISH VETERINARY INVESTIGATION SERVICE (1991) reported a rise in the number of submissions relating to respiratory problems in cattle in December 1990; BRSV infection was the most common diagnosis. It was found primarily in young animals. The fluorescent antibody test (FAT) is considered to be rapid and effective in detecting BRSV in bovine specimens (THOMAS & STOTT, 1981).

Recently, it was found that an enzyme immunoassay, designed to detect human respiratory

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syncytial virus antigens in human samples, may permit a rapid diagnosis in bovine samples with greater sensitivity than the DFAT, a BRSV specific monoclonal antibody conjugate was used (OSORIO et al, 1989).

During the months of April to November 1987 and April 1989 to March 1990, lung tissue samples from 351 calves were collected at a slaughterhouse nearby Porto Alegre city, Rio Grande do Sul, Brazil. The calves were approximately few days to some weeks old and were culled from small dairy farms.

The direct and indirect FAT using polyclonal and monoclonal antibody conjugates were performed on the frozen lung sections of 6-8 μ m. Eighteen (5.1%) of the calf lung samples were positive for BRSV (Table 1).

TABLE 1 - Results of the fluorescent antibody test on lung calf tissue samples collected during April to November 1987 and April 1989 to March 1990 in Rio Grande do Sul, Brazil.

FLUORESCENT ANTIBODY TEST	SAMPLES	
	NUMBER	PERCENTAGE
Positive	18	5.1
Negative	333	94.9
TOTAL	351	100.0

Viral isolation attempts were performed on 5 lung tissue samples that were positive by the FAT; These lung samples were homogenized and inoculated onto monolayers of calf testis secondary cell cultures. The cytopathic effect (CPE) including syncytia and cytoplasmic inclusions, and a positive FAT were observed on the third post-inoculation day on 3 samples. The cell cultures employed as controls were negative for CPE and did not show specific fluorescence.

This appears to be the first report of BRSV infection of calves in Brazil. It strongly indicates that BRSV respiratory infections are prevalent in Brazil and

that the causal agent should be sought when investigating Bovine Respiratory Disease Complex.

SOURCES AND MANUFACTURERS

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