Afr. J. Biomed. Res. (2000): Vol 3; 191-192

AJBR

Short communication

SEROLOGICAL SURVEY OF INFECTIOUS BURSAL DISEASE VIRUS ANTIBODIES IN CATTLE EGRETS, PIGEONS AND NIGERIAN LAUGHING DOVES

O. A. FAGBOHUN[1], A.A. OWOADE, D.O. OLUWAYELU & F.O. OLAYEMI
Faculty of Veterinary Medicine, University of Ibadan, Nigeria.

A total of 15 sera samples from cattle egrets (Ardeola ibis), 30 from pigeons (Columba livia) and 30 from Nigerian laughing doves (Streptopelia senegalensis) were screened for antibodies to infectious bursal disease virus (IBDV) using the enzyme-linked immunosorbent assay (ELISA). Three (20%) samples from cattle egrets were positive for antibodies to IBDV while 11(36.7%) samples were positive for pigeons. There was no positive sample for antibody to IBDV in Nigerian laughing doves. These observations indicate that cattle egrets and pigeons could be carriers or reservoir of IBDV.

Key words: Antibody. Infectious bursal disease. ELISA, Cattle egrets. Pigeons. Doves.

Infectious bursal disease is an acute, highly contagious viral infection of young chickens (Lukert and Saif, 1997). The disease was first described in Gumboro, Delaware, United States by Cosgrove (1962). Ojo *et al.* (1973) reported a Gumboro -like disease of poultry in Nigeria. The existence of the disease in Nigeria was confirmed by Onunkwo (1975).

Infectious bursal disease primarily affects the domestic fowls but natural occurrence of infections have been recorded in turkeys and ducks. Okoye and Uche (1985) demonstrated the presence of IBDV antibody in the sera of 6 wild rats (*Rattus rattus).*There is no information yet about the demonstration of antibodies to IBDV in cattle egrets, pigeons and Nigerian laughing doves. This paper reports the presence of IBDV antibodies in cattle egrets and pigeons.

MATERIALS AND METHODS

Collection of Sera

15 migrant cattle egrets were live-trapped at the University Teaching and Research farm while 30 Nigerian laughing doves were live -trapped on the University of Ibadan campus. 30 pigeons were trapped at the University of Ibadan zoological garden. Blood sample was collected from each of the birds in captive by wing vein puncture. The blood was allowed to clot at 4^0C overnight and the sera separated and kept at -70^0C until tested for antibodies to IBDV using ELISA kit.

ELISA Technique

The ELISA technique was as used by Owoade (1999). The technique is briefly described as follows. Each serum sample and control sera were diluted 300^{-1} in blocking buffer (PBS/3%BSA/0.05%Tween 20 (pH7.2)). Fifty microlitres of each diluted sample was added to each well of IBD virus pre-coated microtitre plates and incubated for one hour at 38^0C. Positive control serum (Post IBD serum) and negative control serum (obtained from 5 weeks old unvaccinated cockerels reared in isolation) were similarly treated. The wells were then washed with buffer (Phosphate buffered saline) and 50ul of 640^{-1} of stock conjugate (Rabbit antichicken horseradish peroxidase) (Sigma) was added to each well, incubated again as before and washed. Fifty microlitres of 0.42mg/ml of orthophenylenediamine (OPD, Sigma) containing 0.004%.

Hydrogen peroxide was added and incubated for 15 minutes after which it was stopped by addition of 50ul of 0.1M sulphuric acid. The optical density of the colour reaction was read at 492nm with an ELISA reader (Titertek II)

RESULTS

Three sera samples out of the 15 obtained from cattle egrets were positive for antibodies to IBDV while 11 were positive from the 30 sera samples obtained from pigeons. All the sera samples from Nigerian laughing doves using the same technique tested negative. The optical density (O.D) readings at more than twice the O.D of the negative control (0.254) were taken as positive and those less were taken as negative for IBDV antibody (Table).

[1] *Author for correspondence*

Table 1
Prevalence of infectious bursal disease virus (IBDV) antibodies in the serum of cattle egrets, pigeons and Nigerian laughing doves.

Animal	No. of samples	IBDV +ve serum	O.D range for +ve serum	Prevalence %
Cattle egrets	15	3	0.553-0.811	20.0
Pigeons	30	11	0.511-1.339	36.7
Nigerian laughing doves	30	0	-	0

O.D for +ve control serum = 0.887; O.D for -ve control serum = 0.254

DISCUSSION

The result of the study demonstrates serological evidence of infectious bursal disease virus in cattle egrets and pigeons. Cattle egrets are known to frequently visit poultry environment to feed on maggots resulting from poultry faeces and could have contact with the IBD virus on ingestion of IBD-contaminated maggots or other poultry debris.

The presence of IBDV antibody in cattle egrets in this study is therefore not unexpected. However, pigeons are not known to visit poultry environment. The source of the IBDV antibody in pigeons in the present study is a subject which requires further investigation.

ACKNOWLEDGEMENT

The study was supported in part by the University of Ibadan Senate Research Grant SRG/FVM/94-95/30A

REFERENCES

Cosgrove, A.S. (1962): An apparently new disease of chickens-avian nephrosis. Avian Dis. 6:385-389.

Lukert, P.D. and Saif, Y.M. (1997): Infectious bursal disease. In diseases of poultry. (10th Ed.) **Calnek, B.W., Barnes, H.J., Beard, C.W., McDougald, L.R. and Saif, Y.M. (Eds.)** Iowa State University Press, Ames, Iowa, U.S.A, pg. 721-738.

Ojo, M., Oduye, O., Noibi, L.M. and Idowu, A.L. (1973): Gumboro-like disease in Nigeria. Trop. Anim. HIth. Prod. 5:52-56.

Okoye, J.A. and Uche, U.E.(1986): Serological evidence of infectious bursal disease virus infection in Wild rats. Acta Vet. Brno, 55:207-209.

Onunkwo, O.(1975): An outbreak of infectious bursal disease (IBD) of chickens in Nigeria. Vet. Rec. 97, 433.

Owoade, A.A. (1999): Some epidemiological factors associated with persistent Infectious Bursal Disease (IBD) Virus infection of chicken in South-Western Nigeria. Ph.D Thesis, University of Ibadan.

Received: February 2000
Accepted in final form: July 2000