

Detection of influenza antibody in animal sera from Kassala region, Sudan, by agar gel diffusion test

by M. A. CAFFAR ELAMIN and S. A. M. KHEIR

Veterinary Research Administration, P.O. Box 8067, Khartoum, Sudan

RÉSUMÉ

CAFFAR ELAMIN (M. A.), KHEIR (S. A. M.). — Mise en évidence d'anticorps contre le virus grippal (influenza virus) dans les sérums d'animaux de la région de Kassala, Soudan, par le test d'immunodiffusion en gélose. *Rev. Elev. Méd. vét. Pays trop.*, 1985, 38 (2) : 127-129.

Le test d'immunodiffusion en gélose (I.D.G.) a été utilisé pour la recherche d'anticorps anti-virus grippal du type A dans des sérums d'animaux apparemment sains. Ces anticorps ont été effectivement mis en évidence avec le pourcentage le plus élevé chez les moutons. Une proportion significative de positifs a été trouvée chez les dromadaires. Tandis que tous les sérums de chevaux se sont révélés négatifs.

Bien que l'isolement du virus n'ait pas été tenté, le résultat de cette étude préliminaire peut être le départ d'autres recherches sur l'épidémiologie de cette infection.

Mots clés : Virus grippal - Anticorps - Test d'immunodiffusion en gélose - Soudan.

SUMMARY

CAFFAR ELAMIN (M. A.), and KHEIR (S. A. M.). — Detection of influenza antibody in animal sera from Kassala region, Sudan, by agar gel diffusion test. *Rev. Elev. Méd. vét. Pays trop.*, 1985, 38 (2) : 127-129.

The agar gel diffusion test was used for screening sera collected from apparently healthy animals for antibody to type A influenza virus.

This survey revealed evidence of the presence of antibody to type A influenza virus. The highest percentage was among sheep. A significant positives were noted among camel sera. All equine sera examined were negative. Although no virus isolation was attempted, the result of this preliminary study may be initiative for further studies on the epidemiology of influenza virus infection.

Key words : Influenza - Antibodies - Agar gel diffusion test - Sudan.

INTRODUCTION

In the Sudan, there has been no studies on the possible role of animals as reservoirs for human pathogens, although such role has been well documented (5). In the Sudan, because of the poor animal husbandry and the close association between man and his animals, such role is expected to be marked.

The type-specific ribonucleoprotein antibody can be detected by agar gel diffusion test (4). The test allows the use of serological surveys

to detect evidence of influenza virus infection. We are presenting here our preliminary results of serological survey for ribonucleoprotein antibody in sera from different animal species at Kassala region, in eastern Sudan.

MATERIALS AND METHODS

Agar gel diffusion test :

The agar gel diffusion antigen from A/turkey/Massachusetts/65 (H 6 N 2) was

kindly supplied by Dr. JORDAN (Sud-Department of Avian Medicine, University of Liverpool).

The test was performed as described by BEARD (1).

Examination of sera for antibody to type A influenza virus :

Serum samples were collected from Kassala slaughter-house from different species of animals. Equine sera were collected from the same locality. All sera were examined by the gel diffusion test.

RESULTS

Table I shows the result of the gar gel diffusion test. The results were categorised only as negative or positive.

DISCUSSION

In the Sudan, respiratory viral diseases like influenza has not gained attention, probably because veterinary practices are concerned mainly with such diseases like rinderpest and foot and mouth disease. However, this survey has demonstrated that antibody to influenza virus type A antigens is present in sera of

camels, goats, sheep and cattle. The significance of this finding may be indicative of previous exposure of the animals to influenza virus, although no virus isolation was attempted.

Outbreaks of influenza virus infection was reported in cattle in USSR (6). The disease is not reported in the Sudan. The percentage positive cases among sheep were comparatively high, this is probably due to the fact that these animals are usually raised in intensive and humid conditions favourable for the spread of respiratory viruses. The epidemiological significance of these findings need further elucidation.

On the other hand, the presence of antibody to type A influenza virus in camel sera is of special interest as these animals are raised in dry desert conditions and usually known to be free of respiratory diseases (3) with the exception of parainfluenzavirus (2). Such findings merit further investigation to elucidate whether it has epidemiological role in the development and persistence of the disease among animal population.

A noteworthy feature was the absence of antibody in sera of equines collected from the same locality. No study on the persistence of influenza virus infection was conducted. Therefore, further studies on this subject has to be made.

TABLE N° I - Serological evidence of influenza virus type A antibody in sera from different species of animals at Kassala region

Animal species	Total number of sera examined	N° positive	N° negative	p.100 of positives
Camel	42	2	40	4.7
Goat	74	4	70	5.4
Sheep	86	6	80	7.2
Cattle	70	2	68	2.9
Donkey	113	0	113	0

RESUMEN

CAFFAR ELAMIN (M. A.), KHEIR (S. A. M.). — Detección de anticuerpos contra el virus gripal (influenza virus) en los sueros de animales de la región de Kassala, Sudan, por la prueba de inmunodifusión en gelosa. *Rev. Elev. Méd. vét. Pays trop.*, 1985, **38** (2) : 127-129.

Se utilizó la prueba de inmunodifusión en gelosa para la búsqueda de anticuerpos anti-virus gripal tipo A en los sueros de animales aparentemente sanos.

Se evidenciaron efectivamente dichos anticuerpos con el

porcentaje más elevado en los carneros. Se encontró una proporción significativa de positivos en los dromedarios mientras que todos los sueros de caballos eran negativos. Aunque no se intentó el aislamiento del virus, el resultado de este estudio preliminar puede ser el punto de partida de otras investigaciones sobre la epidemiología de dicha enfermedad.

Palabras claves : Virus gripal - Anticuerpos - Prueba de inmunodifusión en gelosa - Sudán.

REFERENCES

1. BEARD (C. W.). Demonstration of type-specific influenza antibody in mammalian and avian sera by immunodiffusion. *Bull. Wild Hlth Org.*, 1970, **42** : 779-785.
2. FRIGERI (F.), ARUSH (M. A.). Ricercadi anticorpi inibenti la emagglutinazione da virus parainfluenza 3 sieri provenienti da animali appartenenti a specie diverse della Somalia. *Clinica Vet.*, 1979, **102** : 372-376.
3. HIGGINS (J. A.). Observation on the diseases of Arabian camel (*Camelus dromedarius*) and their control. A review. *Vet. Bull.*, 1983, **53** (12) : 1089.
4. SCHILD (G. C.), PEREIRA (H. G.). Characterization of the ribonucleoprotein and neuraminidase of influenza A virus by immunodiffusion. *J. Virol.*, 1969, **4** : 355-363.
5. STUART-HARRIS (C. H.), SCHILD (G. C.). Influenza viruses of lower animals and birds. In : ARNOLD (L. E.). Influenza, the virus and the disease. 1976 Pp. 78-95.
6. SMETANIN (M. A.). The course of infectious diseases of farm animals. *Vet. Bull.*, 1983, **53** (53) : Abs 5796.