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BRIEF COMMUNICATION

SEROLOGIC SURVEYS FOR AVIAN ENCEPHALOMYELITIS AND CHICKEN-EMBRYO-LETHAL-ORPHAN VIRUSES IN CHICKENS IN KOREA

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Avian encephalomyelitis (AE) is a viral disease. The clinical manifestations are seen primarily in young chickens and are characterized by ataxia and tremor of the head and neck. The disease was first identified in chicks in New England in 1932 by JONES.

Chicken-embryo-lethal-orphan (CELO) virus is latently infective in chickens, which can be a contaminative factor in embryos used for vaccine production[1] or for cell cultures[10]. CELO virus was first isolated in 1952 by YATES et al.

Widespread distribution of these viral infections is well-known[2,6,8,9]. On the other hand, there has been no report of the incidence of the above-described viral infections in chickens in Korea except for a personal communication on AE, which was cited by VAN ROEKEL[9]. This report deals with serological surveys for AE and CELO viruses in chickens in Korea.

Materials and methods Sera: Sera from 41 culled chickens (older than 1 year) produced in Korea, were obtained from at least 8 farms located in 5 districts of the country in April, 1972. One drop of chloroform was added to each serum sample for transport. The sera were centrifuged at 3,000 rpm for 15 minutes and inactivated at 56°C for 30 minutes before use.

Virus: The AEV-VR strain used as the standard virus of AE was supplied by Dr. VAN ROEKEL. This strain had been passed three times through chick embryos in this laboratory. The infected embryo brain suspension was used as viral material. Ote strain of CELO virus was obtained from the National Institute of Animal Health, Tokyo. The titer of the virus was $10^{8.7}$ 50 % tissue culture infective dose ($TCID_{50}$) per 0.1 ml.

Indirect fluorescent antibody technique (IDFAT) for AE: The test was made according to CHOI and MIURA.

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Virus neutralization test (VNT) for AE: Embryonating eggs used were produced at this laboratory. All eggs were proved to be negative for the neutralizing antibody against AE virus. The test was made according to CALNEK & JEHNICH[3], with a modification in that mixtures of serum and AE virus were incubated at 37°C for 1 hr. Fifty percent of embryo-infective dose (EID_{50}) was calculated by Behrens-Kärber's method. A log neutralization index (NI) of 1.1 or higher was recorded as positive[4].

Tube cell-culture serum-neutralization test for CELO virus: Primary CK cultures were prepared from the kidneys of 9-day-old chicks. The final preparation contained 10^6 cells per ml. The serum to be tested was diluted to 1 : 4 with yeast-lactoalbumin-Earle medium, and mixed with the same volume of virus diluted to contain 100 $TCID_{50}$ per 0.1 ml. Three tubes were used for each serum-virus mixture. The serum was considered as positive for CELO virus antibody when no CPE was present in two tubes or more. The final results were recorded after 3 days.

Results and discussion Table gives data of 41 serum samples of chickens collected from 5 districts of Korea. All samples revealed a positive titer (range 1 : 5~1 : 160) in the IDFAT for AE. The VNT for AE was conducted with pooled sera of each district except Kyung-Buk district, which was pooled in two batches. The sera were positive NI (range 1.3~2.2) with an exception of the serum from Kyung-Gi district with NI (1.0) for AE. The antibody titers were not so high in general.

TABLE *Serum antibodies for AE and CELO viruses in chickens in Korea*

DISTRICT	AE VIRUS				CELO VIRUS
	IDFAT			VNT	
	No. positives / No. samples	Range of titer	Geometric mean titer	NI (Pooled serum)	No. positives / No. samples
Kyung-Gi	6/6	1:5 ~1:20	1:8	1.0	3/5
Cheung-Nam	7/7	1:10~1:160	1:51	1.4	5/5
Jeun-Buk	5/5	1:40~1:160	1:80	1.8	4/4
Kyung-Buk	13/13	1:10~1:160	1:45	1.6 & 2.2	6/8
Pu-San	10/10	1:10~1:160	1:43	1.6	5/5

Twenty three out of 27 serum samples were positive for neutralization test to CELO virus (table). The antibody was detected in the 5 districts.

These data indicate that infections with AE and CELO viruses widely distribute in Korea as well as in many other countries.

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