قسم أمراض الدواجن
كلية الطب البيطرى - جامعة القاهرة
رئيس القسم : أ.د / ابراهيم عبد المعطى

دراسة مدى انتشار عدوى فيروس الريو فى قطعان الدجاج

محمد عامر ، مصطفى بسطامى ، ضياء الدين جاد ، أحمد حمودة

استخدم اختبار الترسب فى الأجار لاكتشاف الأجسام المناعية الموجبة ضد العدوى بفيروس الريو فى ٢٧ قطيع من قطعان البياض وأمهات التسمين خلال العامين ١٩٨٤ ، ١٩٨٥ وكانت نشبة القطعان المصابة ٦٦ر٦٧٪ من القطعان المختبرة وتراوحت نسبة الاصابة بها بين ١٢ر٥٪ الى ٣٦ر٧٣٪ وكانت النسبة العامة لانتشار العدوى فى القطعان ١٨ر٣٣٪ كما دلت النتائج على أن نسبة الاصابة فى القطعان المرباه فى الاقفاص (١٢ر٧٩٪) وقد ثبت من النتائج أن عدوى فيروس الريو كانت منتشرة فى جميع السلالات المختبرة .

Dept. of Vet. Med.,
Faculty of Vet.Med., Cairo Univ.,
Head of Dept. Prof. Dr. I. Abd El-Moty.

SEROLOGICAL INCIDENCE OF REO-VIRUS INFECTION IN CHICKEN FLOCKS

(With Two Tables)

By
M.M. AMER; M.A. BASTAMI; D.G. KHILFA and H.S. HAMOUDA
(Received at 28/10/1985)

SUMMARY

Agar gel-precipitation test was used for detection of Reo-virus precipitins in sera from 27 laying or broiler breeder flocks during the year, 1984. 66.67% of the tested flocks showed positive reactors with a flock incidence ranging from 12.5 to 36.73% and total incidence of 18.33%. The floor reared flocks showed higher incidence of reactors (20.73%) than the cage reared ones (12.95). All the tested chicken breeds showed reactors to Reo-virus infection.

INTRODUCTION

The Reo-viruses are the etiologic agents of a widespread poultry infections and reported to be responsible for respiratory infections (FAHEY and CRAWLEY, 1954; Petek, et al. 1967) and viral arthritis (DALTON and HENRY, 1967; JOHNSON and VAN DER HEIDE, 1971 and OLSON and SOLOMON, 1968). In Egypt Reo-virus could be isolated and its precipitins were detected by BASTAMI (1977). Moreover, TANTAWI, et al. (1984) isolated Reo-virus from broiler chickens showing Tenosynovitis.

Agar gel-precipitation (AGP) test was used for the detection of Reo-virus precipitins in chicken sera (JOHNSON, 1972; VAN DER HEIDE, 1977 and SCHWARTZ, et al. 1976). This investigation was undertaken to determine serologically the situation of such infections among chicken flocks.

MATERIAL and METHODS

1) **Serum samples:**
were collected in 551 pools; each from two samples; from 27 laying chickens and broiler breeder flocks from different breeds, ages and rearing systems in the year 1984.

2) **Virus and Antiserum:**
Reo-virus S 1133 and reference positive precipitating serum were obtained from Klinik fur Geflugel der Tierartztlichen Hochschule, Hannover, W. Germany.

3) **Antigen for agar gel-precipitation (AGP) test:**
The supernatent fluid of hemogenated chorioallantoic membranes of 10 day-old SPF embryonated chicken eggs infected with Reo-virus S 1133 were used as antigen after testing for specific reaction. (OLSON and WEISS, 1972 and VAN DER HEIDE, et al. 1974.

4) Agar gel-precipitation test:

The AGP-test was adopted as described by WOERNLE (1959).

RESULTS

The obtained results are shown in table 1 and 2. Reo-virus precipitins were detected in 18 flocks out of the examined 27 flocks with a percentage of 66.67. The incidence of positive cases among positive flocks reanged between 12.5 and 36.73%. 101 serum pools out of 551 revealed positive reaction with a total incidence of 18.33%. It was observed that all the tested breeds were positive to the infection. In relation to the rearing system; the results showed that 13 flocks out of 16 (81.12%) floor reared flocks were positive with an incidence of 20.73%, while 5 flocks cage reared out of 11 (45.45%) were positive with incidence of 12.94%.

Table (1)
Serological incidence of Reo-virus in floor reared chicken flocks using AGP-test

Flock No.	Age/week	Breed	No. of samples	No. of +ve	% of & +ve
1	6	Hubbard	10	-	-
2	8	Hypro	23	6	26.08
3	14	Hubbard	13	3	23.07
4	15	LSL	11	2	18.18
5	18	Hypro	31	10	32.25
6	23	Isa brown	25	8	32.00
7	30	Hubbard	21	3	14.28
8	30	Hubbard	32	4	12.50
9	32	LSL	27	-	-
10	36	Hypro	7	2	28.57
11	41	Hisex	28	7	25.00
12	46	Shaver	49	18	36.73
13	48	LSL	40	6	15.00
14	52	Hisex	14	5	35.71
15	56	Hypro	26	5	19.23
16	58	Shaver	24	-	-
Total			**381**	**79**	**20.73**

& : % of positive samples/tested samples per flock.
- : Negative AGP-test.
+ : No. of positive samples.

Table (2)
Serological Incidence of Reo-virus in cage reared chicken flocks using AGP-test

Flock No.	Age/week	Breed	No. of samples	No. of +ve	% of +ve
1	12	Shaver	10	-	-
2	12	Shaver	14	-	-
3	17	Hisex	11	2	18.18
4	23	Hubbard	24	7	29.16
5	34	Rhod Island	24	-	-
6	35	Shaver	10	-	-
7	43	Shaver	10	-	-
8	43	Hisex	14	2	14.28
9	46	Hypro	12	-	-
10	54	LSL	10	3	30.00
11	55	Hisex	31	8	25.80
Total			**170**	**22**	**12.94**

N.B.: From Table 1 and 2.

1.18 Flocks showed positvie results, and 9 were negative.

2. Total positive samples were 101 samples with percentage of 18.33 from the total 551 examined ones.

DISCUSSION

The common precipitating lines most probably represent the common preciptin group antigen among the avian Reovirus serotypes, (KAWAMURA and TSUBAHRA, 1966; LEERS, et al. 1968; OLSON and WEISS, 1972 and SHAU and OLSON, 1975). Moreover; BASTAMI, (1977) and TANTAWI. et al. (1984) reported that the local Reo-virus isolates were related to the reference strains Reovirus Winterfield and S 1133; respectively; in using both cross agar gel-precipitation and cross neutralization tests.

In our study agar gel-precipitation test using antigen prepared from S 1133 for screening 27 chicken flocks for detection of Avian Reo-virus infection. Our results showed that the distribution of the infection was 66.67% in the tested flocks with an incidence of 18.33% out of the tested sera. The Reo-virus infection was higher in the floor reared flocks than the cage reared ones, 20.73 and 12.94%; respectively. While BASTAMI (1977) found that the incidence of Reovirus reactors among intensive and extensive raised flocks were 41.1 and 27.3%, respectively. This comparison clarified that the improvement in the poultry industry can minimimze the spread of infection.

From our results and the comparison with results of BASTAMI (1977), it can be concluded that the incidence of serological reactors against Reo-virus has been lowered.

REFERENCES

Bastami, M.A. (1977): Studies on Reo-virus in Egypt. MVSc. Thesis Faculty Vet. Med., Cairo Univ.

Dalton, J. and Henry, R. (1967): Tenosynovitis in poultry. Vet. Rec., 80: 638.

Fahey, J.E. and Crawley, J.F. (1954): Studies on chronic respiratory diseases of chickens: 11. Isolation of a virus. Can. J. Comp. Med., 18: 13.

Johnson, D.C. and Van der Heide, L. (1971): Incidence of tenosynovitis in maine broilers. Av. Dis. 15: 829.

Johnson, D.C. (1972): Diagnosis, pathology and etiology of tenosynovitis in broiler and broiler breeders. Av. Dis., 16: 1067.

Kawamura, H. and Tsubahara, H. (1966): Common antigenicity of avian reovirus. Natl. Inst. Anim. Hlth. Qt., Tokyo, 6: 187.

Leers, W.D.; Rozee, K.R. and Warlow, H.C. (1968): Immunodiffusion and immunoelectrophoretic studies of reovirus antigens. Can. J. Microbiol., 14: 161.

Olson, N.O. and Weiss, R. (1972): Similarity between Arthritis virus and Fahey-Crowley virus. Av. Dis., 16: 535.

Petek, M.; Fullgua, B.; Borghi, G. and Baroni, B. (1967): The Crawly agent: An avian Reovirus. Arch. Ges. Virus forsch., 21: 414.

Schwartz, L.D.; Gentry, R.F.; Rothenbacher, H. and Van der Heide, L. (1976): Infectious Tenosynovitis in commercial White Leghorn chickens. Av. Dis., 20 (4): 769.

Sahu, S.P. and Olson, N.O. (1975): Comparison of the characteristics of avian reoviruses isolated from the digestive and respiratory tract, with viruses isolated from the synovia. Am. J. Vet. Res. 36: 847.

Tantawi, H.H.; Amina, N.; Yossef, Y.I.; Fawzia, M.; Al-Abdula, J.M.; El-Batrawi, A.; El-Ghawas, A.; Nasser, A.A. and Reda, I.M. (1984): Infectious Tenosynovitis in broiler and broiler breeders in Egypt. Vet. Res. Comm. 8: 229.

Van der Heide, L. (1977): Results of trials with breeder vaccination against Teno-synovitis (Viral Arthritis). Proc. 26th Conf. and 11th Poult. Hlth. Symp. Uni. Calif. Davis.

Van der Heide, L.; Geissler, J. and Bryant, E.S. (1974): Infectious Tenosynovitis: Serologic and Histopathologic response after experimental infection with a Connecticut isolate. Av. Dis. 18 (3) 289.

Woernle, H. (1959): Diagnose der Infektiosen Bronchitis der Huhner met Hilfe der Prazipitation-sreaktion in festen Agarmedium. Mh. Tierheilk, 11: 154.