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EFFECT OF SEASONS ON THE PREVALENCE OF ANTIBODIES OF PESTE DES PETITS RUMINATS (PPR) VIRUS IN SHEEP AND GOATS

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SUMMARY

A total of 852 sera samples, were collected from sheep and goats periodically at 3 weeks intervals for a period of one year. The sera samples were examiend by serum neutralization test (SNT) for antibodies to PPR virus during the four seasons of the year.

The results revealed that, in winter 52.5%, 61.5% and 15.9% of mixed breed sheep, Barki sheep and goats respectively have antibodies for PPR virus. In Spring the positive percentages were ,40%, 44.75% and 19.31%. In summer season they were, 30%, 25% and 4.54% and in Autumn the percentages were 18.75%, 31.66%, and 7.57% for the two sheep breeds and goats respectively.

It could be concluded that PPR virus neutralizing antibodies prevail in winter and Spring months than in Summer and Autumn months.

INTRODUCTION

Peste des petits ruminants (PPR) is an acute or subacute viral disease of goats and sheep characterized by fever, necrotic stomatitis, gastroenteritis and pneumonia. Sheep are less susceptible than goats (Bourdin, 1973). The disease has a wide spread among sheep and goats in humid zones of many west African countries (Hill, 1983) and higher disease rates occure during winter months (Obi et al., 1983). and at the end of the dry season and early rainy season (Ezeokoli et al., 1986).

In Egypt the disease was reported and the virus was isolated from goats (Ismail and House, 1990), and from sheep (Fayed et al., 1990). The pathogenicity of the virus for goats has been studies by Ismail et al. (1990) and in a serological survey, 28.97% of sheep sera were found to contain contain antibodies for PPR virus (Hassan, 1994).

This work was done to study the seasonal influence on the prevalence of PPR virus antibodies in sheep and goats.

MATERIAL AND METHODS

Animals:

Forty sheep of two breeds (20 Mixed breed" Marino x Baki" and 20 Barki sheep) as well as 22 goats aged 3-7 years raised at Desert Research Center Experimental Station at Mariott, Alexandria were used in the study.

Blood sampels :

Blood samples were collected by Veinpuncture from sheep and goats at 3 weeks intervals for a period of one year. The sera were separated and stored untill examined. The time table for blood samples collection is shown in Table 1.

Virus strain:

PPR "Egypt 87" virus strain was obtained from the Virus Strains Collection Bank of Animal Health Research Institute, Dokki, Giza.

Cell culture:

The African green Monkey (Vero) cell line was obtained from the Department of Virology in Animal Health Research Institute. Growth medium for propagation of the cells was the Eagl's minimal essential medium suppemented with 10% newbonn calf serum, 100 IU/ml penicillim and 100 ug/ml streptomycin. The maintenance medium was the same but with 2% serum.

Virus infectivity titeration:

PPR virus was passed several times in Vero cells and the virus titer was determined by the microtiter technique according to Rossiter and Jessett (1982). and the 50% end point was estimated according to Reed and Muench (1938).

Serum neutralization test (SNT):

The sera sampels were first inactivated at 56 C for 30 min. and the microtechnique of SNT was done according to Rossiter and Jessett (1982) and Rossiter et al. (1985) using serum dilution of 1:2.

RESUTLS

Atotal of 852 sera samples from sheep and goats at 3 weeks intervals during the period of one year (Table 1) were examined by SNT for antibodies to PPR virus.

Table 1 shows the details of the results of SNT and Table 2 indicate the collective results for each season of the year.

As shown in Table 2. In winter an overall percentages of 52.5%, 61.2% and 15.9% of

Table (1): Time table for smapling during one year and percentage of positive sera for PPR virus antibodies

No. of blood sampling	Season	Mixed sheep			Barki sheep			Goat		
		Total	+ve	%	Total	+ve	%	Total	+ve	%
1.	Autumn	20	1	5						
2.	" " "	20	2	10	20	8	40			
3.	" " "	20	4	20	20	6	30			
4.	" " "	20	8	40	20	5	25			
5.	Winter	20	11	55	20	11	55			
6.	" " "	20	11	55	20	12	60			
7.	" " "	20	11	55	20	11	55	22	2	9.09
8.	" " "	20	9	45	20	15	75	22	0	0.0
9.	Spring	20	8	40	20	9	45	22	2	9.09
10.	" " "	20	10	50	19	9	47.36	22	5	22.72
11.	" " "	20	8	40	19	9	47.36	22	2	9.09
12.	" " "	20	6	30	18	7	38.8	22	8	36.36
13.	Summer	20	7	35	17	9	52.94	22	3	13.63
14.	" " "	20	5	25	16	3	18.75	22	0	0.0
15.	" " "				15	0	0.0	22	0	0.0
16.	Autumn							22	0	0.0
17.	" " "							22	3	13.36
18.	" " "							22	2	9.09
19.	Winter							22	6	27.27
20.	" " "							22	6	27.27
Total		280			264			308		

Table (2): Percentages of positive animals sera for PPR virus antibodies during the four seasons of the year.

Seasons	Mixed sheep			Barki sheep			Goats		
	Total samples	Nr. of posit.	%	Total samples	Nr. of posit.	%	Total samples	Nr. of posit.	%
Winter	80	42	52.2	80	49	61.25	88	14	15.9
Spring	80	32	40	76	34	44.73	88	17	19.31
Summer	40	12	30	48	12	25	66	3	4.54
Autumn	80	15	18.75	60	19	31.66	66	5	7.57

Mixed, Barki sheep and goats have antibodies to PPR virus. In Spring the percentages were 40%, 44.73% and 19.31%. In summer these percentages became, 30%, 25% and 4.54% and in Autumn the positive percentages were 18.75% 31.66%, and 7.57%, for the two sheep breeds and goats respectively.

DISCUSSION

The results obtained in this study indicated that PPR virus neutralizing antibodies has a high prevalence in winter months in sheep and in Spring months in goats. Such data was in accordance with Whitney et al., 1967 Bourdin and Doutre, 1976, Durojaiya, 1983, Hill, 1983, Obi et al., 1983, Opasina and Putt, 1985, Taylor, 1984) Ezeokoli, et al., 1986) they suggested that, PPR may be encountered more frequently during wet seasons. The high relative humidity and rain fall may predispose to viral infection and favour the survival of the virus.

This study revealed that there is no significant difference between sheep breedn, but sheep and goats sera screened at 1:2 dilutin has an overall positive percentages of PPR antibodies in 36%, 31% respectively. These results are similar to that of Obi et al., 1983, and other authors; Mornet et al., 1965, Gargadennec and Lalanne, 1942, Bourdin 1973, Loses, 1986, Elhag Ali and Taylor, 1984, Durtnell and Eid, 1973, reported that goats were more susceptible than sheep to PPR virus infection, but Taylor, 1984 and 1979 reported that sheep and goats are equally susceptible to infection with PPR virus

The results obtained in this study disagree with that of Obi et al. 1984, who reported a positive perentage of 14.9% in sheep and 21% in goats. A higher positive percentage of 25% in sheep and goats was reported by taylor, (1979).

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