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A STUDY ON PREVALENCE OF PESTE DES PETITS RUMINANT (PPR) IN GOAT AT BAGMARA UPAZILLA AT RAJSHAHI DISTRICT IN BANGLADESH

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A study was conducted at Bagmara upazilla under the district of Rajshahi in Bangladesh during the period of 2 month from 20 September 2015 to 14 November 2015 to determine the prevalence of PPR in goat. A total of 72 diseases cases were recorded randomly irrespective of age, sex and breed over the study period. In the present study the overall prevalence of PPR in goat was 27.78%. In black Bengal goat, the prevalence of PPR in different age group i.e. up to 6 month, 7-12 month, 13-19 month, above 19 month were 18.18%, 42.30%, 22.22% and 12.50%, respectively. Over all, female black bengal goat (46.42%) was more infected than male (12.00%). The prevalence of PPR in different age group i.e. 7-12 month, 13-19 month were 42.85% and 25.00%, respectively; and males (16.66%) and female (23.07%) of Jamunapari goat were recorder. In general, black bengal goats have the higher prevalence (30.18%) than Jamunapari goat (21.05%). The non-immunized goat showed higher prevalence (38.77%) than immunized (4.34%) goat. All data were analyzed by using $\chi 2$ tests with P value at ($P<0.05$) level of significance.

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INTRODUCTION

Small ruminant especially goat is very important in rural economy of the Bangladesh. Peste des petits ruminants (PPR) is a disease of major economic importance and imposes a significant constrain upon sheep and goat production owing to its high mortality rate (Asimet al*.,* 2008). Peste des petits ruminant (PPR), which literally means “Plague of small ruminants”, is an economically important disease of sheep and goats. PPR has been recognized as a highly contagious viral disease of small ruminants, particularly in goats in Bangladesh (Islam et al., 2001). The PPR virus is considered as one of the predisposing factor for respiratory disease complex in goats (Taylor et al., 1990). It is a highly contagious, infectious and fatal viral disease of domestic and small ruminants (Abdallalet al., 2012). In Bangladesh, the PPR virus was first identified during a severe outbreak in 1993 (Sil et al., 1995) which was further confirmed by world reference laboratory and found that the virus has a close relation with Indian isolates (West Bengal) of PPR virus at a cluster with Asian group (Barrett et al., 1997). The Peste des petits ruminant’s virus (PPRV) has been classified under the family Paramyxoviridae, Order Mononegavirales and Genus Morbillivirus (Toberet al., 1998). As members of the family *Paramyxoviridae*, the PPR virus has an envelope. The genome of PPR virus has single stranded RNA, approximately 16kb long with negative polarity (Haas et al., 1995). PPR in goat has been recorded in 1993 from the border belt areas of south western districts (Sathkhira, Jessore and Barguna) of Bangladesh and then spreads throughout the country. By the year 1995, it is assumed 75 percent of the district in Bangladesh is affected with PPR (Debnath, 1995). It has been reported that the Black Bengal goats were more susceptible (67.24%) to PPR than Jamunapari breed (32.76%). Morbidity varies from 40-95% and mortality as high as 80-85% (Samad, 2000). Considering the above circumstances and present situation the study was conducted to study the prevalence (%) of PPR of goat at Bagmara upazila of Rajshahi district in Bangladesh.

MATERIALS AND METHOD

Study area and duration

The present study was conducted at Bagmara upazilla Veterinary hospital under the district of Rajshahi in Bangladesh. The study was conducted from 20th September, 2015 to 14th November, 2015.

Sample and sample size

The study was conducted on naturally PPR suspected goat brought to the veterinary hospital during the study period. A total number of 72 diseases cases were recorded during the study period. Samples were selected randomly irrespective of age, sex and breed over the study period. During the study period different aged goats are consider. Both Black Bengal and Jamunapari goat were grouped into 4 different age groups. Such as, up to 6 month, 7-12 month, 13-19 month, above 19 month of age goat were categorized as group I, II, III and group IV, respectively.

Data collection

The data were directly collected from the owner. Data were based on , Client/owners complains, anamnesis of patient (goat), clinical history, physical examination data (Inspection, Temperature, auscultation, respiration) and clinical sign of suspected goats. History of the cases were taken carefully from the owner based the following aspect (Age, Sex, Breed, Vaccination-yes/no, duration of rearing, housing, previous disease history etc).

Recording of signs and symptoms

Close inspection: Different exposed signs and symptoms were recorded carefully by close infection-Erosion of oral mucosa, respiratory distress, discharges from eyes, nose, mouth, rough coat, soiled hind quarter.

Temperature: Temperatures were recorded by indirect palpation per rectum by thermometer of every case and tabulate.

Indirect auscultation: Indirect auscultation was performed to hear the lung and tracheal sound to coincide with the symptoms of pneumonia.

Skin fold test: Skin fold test were performed to take the rough estimation of the degree of dehydration.

Diagnosis: Among all diseased cases of goat brought to the veterinary hospitals for treatment, presumptive diagnosis of PPR in goat were made on the basis of owners complains, clinical history, clinical signs.

Data analysis

The raw data were collected from owners complain, clinical history and clinical signs and recorded into a previously formed data record sheet. Positivity and prevalence rate were calculated by using MS excel programme. $\chi 2$ test and P value were calculated by the help of SSS (online) software. A descriptive analysis was performed to interpret the data.

RESULT AND DISCUSSION

The present study was conducted to observe the prevalence of PPR in goat. The prevalence and associated results of this study are summarized in the table given below.

Table 1. Over all prevalence of PPR in goat

Total Case	No. of infected goat	Percent (%)
72	20	27.78

In the present study the overall prevalence (%) of PPR was 27.78% (Table 1). Khan *et al.,* (2007) reported the overall prevalence of PPRV was 43.33% of the ruminant population in Punjab. They also mentioned the overall PPR antibody seroprevalence in goats was 39.02% which is significantly higher. Abubakar et al., (2008) recorded the prevalence of PPR in small ruminants in Pakistan was 40.98%, but overall was 46.7%. On the contrary in Cameroon, (N = 320), 35% PPR antibodies while for Nigeria (N= 382), the values was 56.5 (Majiyagbe et al., 1992).

Prevalence of PPR on the basis of age

The prevalence of PPR in goats (Black Bengal and Jamunapari) were high in the age between 7-12 months, the prevalence per cent were observed 42.30%, 42.85% in Black Bengal and Jamunapari, respectively. On the other hand, in adult goat (aged over 19 months) prevalence of PPR were quiet negligible; it was 12.1% in Black Bengal whereas no clinical case was recorded in case of Jamunapari goat during the study period (Table 2). The result was statistically not significant. The findings of this study were agreed with Venkataramanan J. (2005) and Blood et al., (1995) they found that more prevalence of PPR in goats were under 1 year of age, specially 4-12 months of age. Taylor et al., (1990) also reported the susceptibility of young animals aged 3 to 18 months was proved to be very high. Radostits et al**.,** (2000) and Singh et al. (2004) also assessed that most prevalent in the goats less than one year.

The present study revealed that, females were more susceptible to PPR than male. The prevalence (%) was found 46.42% and 23.07% in female followed by 12.00% and 16.66% in male Black Bengal and Jamunapari goat, respectively (Table 3). The statistical data analysis shows that, the results of Black Bengal goat was significant where as the result obtained in case of jamunapari goat was statistically not significant ($P<0.05$). The actual cause is not known but it was assumed that, females were normally immunologically weaker than male due to some hormonal effects, Pregnancy or milking status (Chakrabarti, 2004). Samad, (2001) reported that around 60.23% female goat affected with PPR. But this study shows lower value than Samad's observation. This is might be due to Sample size and duration of the present study was lower than that of Samad (2000).

Table 2. Age wise prevalence of PPR in Black Bengal (BB) and Jamunapari goat

Black Bengal Goat					
Age group	No. of goat	No. of infected	Prevalence (%)	χ2 test	P Value <0.05
Group I	11	2	18.18	2.2434	0.523455
Group II	26	11	42.30		
Group III	9	2	22.22		
Group IV	8	1	12.50		
Jamunapari Goat					
Age group	No. of goat	No. of infected in PPR	Prevalence (%)	χ2test	P Value <0.05
Group I	3	0	-	2.8145	0.421123
Group II	7	3	42.85		
Group III	4	1	25.00		
Group IV	5	0	-		

Sex wise prevalence of PPR

Table 3. Prevalence of PPR in different sexes of Black Bengal goat

Black Bengal Goat					
sex	No. of goat	No. of affected in PPR	Prevalence (%)	χ2test	P Value <0.05
Female	28	13	46.42	4.1167	0.042463
Male	25	3	12.00		
Jamnapari goat					
Sex	No. of goat	No. of affected in PPR	Percent in affected	χ2test	P Value <0.05
Female	13	3	23.07%	0.0676	0.794935
Male	6	1	16.66%		

Breed wise prevalence of PPR

In the study area during the study period Black Bengal (BB) goat and Jamunapari goat were brought to the hospital for treatment. So this two breed were consider for the present study. The result of the breed wise prevalence of PPR was summarized and presented in (Table 4). The result of the present study revealed that, Black Bengal breed of goat have the higher prevalence rate (30.18%) than Jamunapari (21.05%) with χ2 test (0.3407) and P value (0.559402) at (P<0.05) level of significance.

Table 4. Breed wise prevalence of PPR in goat

Breed	No. of case recorded	No. of PPR case	Prevalence (%)	$\chi 2$ test	P Value <0.05
BB	53	16	30.18		
Jamunapari	19	4	21.05	0.3407	0.559402
Total	72	20	27.78		

The statistical analysis of the results shows that the result was not significant ($P<0.05$). This result is in agreement with the Shaila*et al.,* (1989) and Samad (2001) reported Black Bengal goats are more susceptible (67.24%) to PPR than Jamunapari breed (32.76%). Higher incidence of PPR in to indigenous Black Bengal goats (27.13%) may be due to enhance participation in disease surveillance and immune-suppression and irregular vaccination program (Mondal*et al.,* 1995).

Prevalence of PPR on the basis of immune status

Table 5. Prevalence of PPR on the basis of immunological status irrespective of breed

Immune status	No. of goat	No. of affected in PPR	Percent infected in	$\chi 2$ test	P Value <0.05
Vaccinated	23	1	4.34%		
Non-vaccinated	49	19	38.77%	5.8934	0.15197

The findings of present study showed that, the prevalence of PPR was higher in non-vaccinated 38.77 (%) as compared to vaccinated 4.34 (%) goat irrespective to breeds (Table 5). The statistical analysis revealed that the result was not significant with $\chi 2$ test (5.8934) and P value (0.15197) at ($P<0.05$) level of significance. This result supports the earlier report where higher prevalence of PPR (68.38%) was found in the unvaccinated goat (Gibbs et al*.,* 1979).

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