Bangl. J. Vet. Med. (2006). 4 (2): 137–140

Short communication

STUDY ON PNEUMONIA IN BLACK BENGAL GOAT IN SELECTED AREAS OF BANGLADESH

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ABSTRACT

The present study aimed at diagnosis of pneumonia in Black Bengal goat by clinical symptoms and the association of different animal and management factors with the occurrence of pneumonia in goat. The study was carried out on a total number of 40 Black Bengal goats with respiratory disorder that were brought to the Upazila Veterinary Hospital, Boalkhali during June to August 2004. In the study the patients showed high rise of body temperature, serous, mucoid or mucopurulent nasal discharge, cough, moist and crackles rales on auscultation of the lung were diagnosed as pneumonia. It was observed that the age group of 1-2 years, male goat and animal with poor body condition score are in greater risk to pneumonia. On the other hand among management factors free range (night shelter only), muddy floor with poor drainage system, having a feeding pattern of grazing and group or community based grazing pattern were showed susceptible to pneumonia.

Key words: Black Bengal goat, pneumonia, risk factors

INTRODUCTION

Pneumonia is an inflammation of the lung parenchyma usually accompanied with the inflammation of the bronchioles (broncho-pneumonia) or with pleura (pleuro-pneumonia). It is manifested clinically by rapid shallow breathing, cough, ronchi etc. All species of animals irrespective of ages suffer from pneumonia (Blood *et al.,* 1989). In addition to the infectious agents, which cause the pneumonia, there are predisposing factors that contribute to the susceptibility of the animals. These are of paramount importance in any consideration of pneumonia (Chakrabarti *et al.,* 1994). The predisposing factors are exposure of animal in damp place and cold environment, housing in an ill ventilated room, exertion due to extensive work, long transport by train or ship, severe hunger, malnutrition, chronic under-nutrition, exposure to cold wave during winter month, sudden changes in weather, cardiac weakness, recumbency for a long period of time, other debilitating diseases, inhalation of dust, irritating vapors etc. Pneumonia may be of various types, e.g. bacterial, viral, parasitic, aspiration, inhalation, allergic, hypostatic etc. according to etiology. Among all other diseases, pneumonia cause high mortality and poor production of goat. Therefore, the present study was undertaken to know the association of different animal factors and management factors on occurrence of pneumonia.

MATERIALS AND METHODS

A total number of 40 Black Bengal goats with respiratory disorder were examined which attended at Upazila Veterinary Hospital, Boalkhali, during June to August 2004. The age of the animal was ranging from months to four years. The system of diagnosis was based on history, clinical examination (inspection, palpation, percussion and auscultation).

The data were analyzed using STATA-7 (Statistical software). Results of strength of association between the pneumonia and their risk factors were expressed as risk ratio. The strength of association was measured using the lowest risk group as baseline.

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 1729-7893/0107/06

RESULTS AND DISCUSSION

Effect of age on occurrence of pneumonia

The age group belonging to <1 year age had higher percentage (45%), while with increase of the age exceeding 2 years of age had lower percentage (20%). Effect of age on occurrence of pneumonia recorded in this study supports the report of Donkin *et al*. (2004) who recorded kids were susceptible to pneumonia. The age group belonging <1 year was 2.25 times more and the age group belonging 1-2 years was 1.75 times more prone to have developed pneumonia than the base line group (>2 years) (Table 1).

Table 1. Calculation of risk ratio among the animal factors on occurrence of pneumonia

Variable	Category	Total number of animal affected	Percentage (%)	Risk ratio
Age	<1 year	18	45	2.25
	1-2 year	14	35	1.75
	>2 year	08	20	1
Sex	Male	28	70	2.33
	Female	12	30	1
Body condition score	2	28	70	2.33
	3	12	30	1

Table 2. Calculation of risk ratio among the management factors on occurrence of pneumonia

Variable	Category	Total number of animal affected	Percentage (%)	Risk ratio
Type of housing	Stall	06	15	1
	Loose	14	35	2.33
	Night shelter only	20	50	3.33
Type of floor	Muddy	30	75	7.5
	Concrete	06	15	1.5
	Macha	04	10	1
Drainage system	Good	04	10	1
	Fair	12	30	3
	Poor	24	60	6
Feeding pattern	Stall feeding	02	5	1
	Grazing	34	85	17
	Stall feeding + Grazing	04	10	2
Grazing pattern	Individual	16	40	4
	Group or community	20	50	5
	Others	04	10	1

Effect of sex on occurrence of pneumonia

In this study it was observed that, male (buck) species suffered most because among whole study population the disease percentage was 70% in case of male and only 30% in case of female. This might be due to sex variation of the species. This result could not be compared due to lack of similar reports in the available literature. The male goats also remained 2.33 times more at risk than the female (Table 1).

Effect of body condition score on occurrence of pneumonia

Poor body condition score (BCS-2) of goat was recorded to be more susceptible than good body condition (BCS-3) to pneumonia, where disease percentage was 70% and 30% respectively. Effect on body condition score on occurrence of pneumonia recorded in this study supports the report of Hale *et al.* (2003) who recorded weak and stressed goats were susceptible to pneumonia. The goats obtaining score 2 were 2.33 times more likely to have pneumonia than the goats obtaining score 3 (Table 1).

Effect of type of housing on occurrence of pneumonia

From this study it is known that, goats remaining on free range (night shelter only) are more vulnerable to pneumonia (50%) while those housed in loose and stall are less prone to get pneumonia (35% & 15%). According to Hale *et al.* (2003) poor ventilation, over crowding, dirty or poorly ventilated barn are associated with severe outbreak of pneumonia. Loose and free ranged goats were also remained in 2.33 times and 3.33 times more at risk than the stalled goats (Table 2).

Effect of type of floor on occurrence of pneumonia

Among the three types of floor, muddy, concrete and macha, muddy floor appeared to be the predisposing factor to develop pneumonia in goat. The disease percentage was 75% in muddy floor while 15% & 10% in case of concrete floor and macha system respectively. Goats reared in muddy and concrete floor remained in 7.5 times and 1.5 times more at risk than the goats reared in macha system (Table 2). An unexpected cold snap can increase pneumonia in goat (Smith *et al.*, 1994). According to Hale *et al.* (2003), dirty floor, a manure pack, high humidity were considered as risk factors to develop pneumonia.

Effect of drainage system on occurrence of pneumonia

According to the history of drainage system, poor drainage system was more prone to develop pneumonia in goat. In this study, 60% disease percentage was in poor drainage system while 30% and 10% in fair and good drainage system respectively. Goats housed with poor drainage system remained in 6 times more at risk than the goats housed with good drainage system for developing pneumonia (Table 2). According to Hale *et al.* (2003), poor waste management was considered as risk factor to develop pneumonia.

Effect of feeding pattern on occurrence of pneumonia

The study revealed that 85% of goats having both grazing and stall-feeding pattern and only 5% goats having stall-feeding developed pneumonia. The grazing group remained 17 times more at risk than the stall-feeding group (Table 2). According to Hale *et al*. (2003), dusty feed and feeding can also detrimental to health, which enhance development of pneumonia.

Effect of grazing pattern on occurrence of pneumonia

As usually, group or community based grazing pattern developed more pneumonia in goat where the disease percentage was 50% and at the same time individual grazing pattern developed less pneumonia where the disease percentage was 40%. Group or community based goats were 5 times more at risk than the non-grazed goats (Table 2) because there might be more chances of transmission of pathogenic microorganism via the aerosol route. Effect of grazing pattern on pneumonia recorded in this study supports the report of Hale *et al.* (2003) who reported higher percentage of pneumonia occur due to overcrowding in grazing places.

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