

CLINICAL MANIFESTATIONS AND DISEASES OF CATTLE AND GOATS IN GOPALGANJ, BANGLADESH

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Abstract

Two year records from 2012 to 2013 of Gopalganj Sadar Upazila Veterinary Hospital under Gopalganj district were studied to determine the prevalence of clinical manifestations and diseases of cattle and goats. A total of 1989 clinical cases (561 cattle and 1428 goats) were recorded and diagnosis of these clinical diseases and disorders were performed based on clinical history, sign, physical examination, clinical test and fecal examination for parasitic diseases. The recorded clinical cases were classified into ten major diagnostic groups, of which the highest prevalence was recorded with general systemic state (20.51%), parasitic disease (19.05%), digestive disorders (11.81%), vitamin & mineral deficiency (11.46%), fattening (10.76%), infectious disease (6.99%), reproductive disorders (5.38%), and mastitis (4.12%). The percentage of occurrence of major diagnostic groups of disease constituted general systemic state (21.36% and 18.36%), parasitic disease (19.19% and 18.72%), digestive disorders (11.73% and 11.94%), infectious diseases (7.35% and 6.06%), reproductive disorders (5.60% and 4.81%), and mastitis (3.29% and 6.24%) in goats and cattle respectively. Significant ($P < 0.05$) association was found in infectious diseases and season for both goats and cattle. Identification & analysis of the trend of clinical diseases available in study area will be useful for veterinary practitioners, researcher's academician and also for policy maker to take necessary steps to control the incidence of clinical diseases of goats and cattle.

Key words: Goats, Cattle, Prevalence, Fattening and Gopalganj

Introduction

Livestock plays an important role to keep the rural economy viable. There are about 22.87 million cattle, 1.21 million buffalo, 20.75 million goats and 2.68 million sheep, 116.5 million chickens and 13.47 million ducks in Bangladesh (DLS, 2014). Livestock is an integrated part of our farming system and plays an important role in the traditional economy of Bangladesh. According to Bangladesh Economic Review (March, 2014), the growth rate of GDP in 2012-2013 for livestock was the highest sub sector at 3.49% compared to 0.15% crops and 1.18% for agriculture and forestry sub sector. Despite being an important sector in Bangladesh agriculture, its contribution to the agricultural GDP is much less than those of crop agriculture and fisheries. The contribution of animal farming has remained largely stagnant with a share of around 13 percent of agricultural GDP over the last two decades. A disaggregated picture, however, shows satisfactory growth for poultry (over 4.5 percent), followed by goats/sheep (around 4 percent) in recent years. The growth of cattle/buffaloes, on the other hand, is highly unsatisfactory and registering a growth of less than 0.5 percent (BIDS). As this is the dynamic potential of this emerging sub sector, it requires policy attention to animal health and production. Among the various constraints in the development of cattle, disease are one of the most important limiting factors which not only

degrade the productivity of cows but also causing mortality (Sarker et al. 1999).

Parasites are organisms that are metabolically and physiologically dependent on other organisms, their hosts, for survival and development (Sobecka 2001). The distribution of parasitic diseases is throughout the world, but it varies in effects in the developed and developing world. The most impact of diseases is probably due to costs of control, particularly helminthic parasitosis of the developed world.

Poor reproductive performance is a crucial production imitating issue. It has been reportable that reproductive disorders are accountable exceptional economic losses to the dairy farmers in Bangladesh (Talukder et al. 2005). The dairy industry's major goal is to provide milk for the consumer market. Most important constraint to achieve this goal is reduced fertility e.g., goats open for longer, more services per conception and higher incidence of reproductive problems, which in turn, contribute to reduced fertility e.g. (Dhaliwal et al. 1996).

Amongst domestic farm animals the metabolic diseases achieve their greatest importance in dairy cows. In farm cows, the incidence of metabolic diseases is highest within the amount commencing at parturition and lengthening till the height of lactation is reached, and this susceptibility seems to be relating to the extremely high turnover of fluids, salts and soluble organic materials throughout the first a part of lactation (Erband Corohn, 1988).

There exists a variety of problems in livestock sector of Bangladesh such as insufficient pasture land, lack of technical expert, insufficient supply of vaccine, lack of epidemiologic study and shortage of government employee in the field level and various diseases of different systems of animals. Infectious diseases cause a great harm in livestock. It has been estimated that about 10% animals die annually due to diseases (Ali *et al.* 2011). Disease also causes nutritional deficiency and disturbances in fertility. Understanding on the incidence, prevalence, distribution and determinants or risk factors of diseases in a region is important for endeavor economical management program.

Veterinary hospital is a perfect and reliable supply of knowledge concerning animal diseases and their resolution. Individuals from the neighboring territories convey their wiped out creatures to the Veterinary healing center consistently. Investigation of the case record gives a thorough thought regarding the ailment issues at neighborhoods. The present study was undertaken and designed with the objectives of identification & analysis of the trend of clinical diseases of goats and cattle available in Upazilla Veterinary Hospital, Gopalganj sadar, which will help to take different steps as preventive measures to control the incidence of clinical diseases of goats and cattle.

Materials and Methods

The retrospective epidemiologic study of diseases in ruminants was done using two years data in Gopalganj sadar Upazila Veterinary Hospital of Gopalganj district. The retrospective data of two years from January 2012 to December 2013 were collected from patient register maintained by veterinary surgeon for all diseased cattle and goat were brought for treatment to the Veterinary Hospital, Gopalganj sadar, Gopalganj. The data were analyzed retrospectively and interpreted to determine the prevalence of diseases; seasonal pattern and distribution of diseases. The information of the animals was collected from the register. Different examination of the animal was performed like a) General examination (for Physical condition, behavior, posture, gait, superficial skin wound, prolapse of the uterus and vagina, salivation, nasal discharge, distension of the abdomen, locomotive disturbance etc) by visual examination of the patient, b) Physical examination (for examination of different parts and system of the body of each of the sick animals) by palpation, percussion, auscultation, needle puncture and walking of the animals and c) Clinical examination (for rectal temperature, pulse, and respiratory rate) on the basis of diseases history, owner complaint, symptoms, to diagnose the following diseases and disorders. Data were organized in the Microsoft® Excel spreadsheet and percentages of

disease conditions prevalent in different groups and seasons were calculated. The proportional prevalence of diseases and disorders were calculated in percentage of the total records. The year was divided into three seasons namely summer (March to June), rainy (July to October) and winter (November to February) according to the climatic condition of Bangladesh. The unions were divided into four groups like east, north, west and south considering the Upazilla Veterinary Hospital in center. Data were collected from clinical case investigation record book to Microsoft Excel 2007 spread sheet, stored separately and percentages of clinical diseases and disorders were calculated. The collected data exported to analytical software STATA 13.

Result and discussion

A total 10 of different diseases and disorders were recorded in 1989 (one thousand nine hundred eighty nine) animals among which 1428 (71.80%) goats and 561 (28.20%) is cattle, were brought to the veterinary hospital, for treatment purpose during the study period (Table 1). Prevalence of general systemic states is 20.51%, parasitic disease 19.05%, digestive disorders 11.81%; vitamin and mineral deficiency 11.46%, fattening 10.76%, infectious diseases 6.99%, respiratory infection 5.53%, reproductive disorders 5.38%, feed poisoning 4.32%, and mastitis 4.12% in both goats and cattle. The result of digestive disorders, infectious and respiratory diseases was consistent with Kabir *et al.* (2010) and Pallab *et al.* (2012). The study found the lower prevalence of general systemic states, parasitic diseases and respiratory disorders than Sarkar *et al.* (2013) and Pallab *et al.* (2013); and vitamin and mineral deficiency, fattening and mastitis was higher than the findings of Kabir *et al.* (2010); Pallab *et al.* (2012) and Parvez *et al.* (2014). The disease and disorders variation may be due to geographical location, the owner are not aware about regular deworming practice and manage mental variation. The general systemic states and parasitic diseases comprises the highest prevalence where mastitis and food comprises the lowest prevalence in comparison to others diseases and disorders of goats and cattle (Table 1).

General Systemic states

Anorexia, fever and leg pain in goats and cattle were diagnosed under the general systemic states (Table 2). There was no significant ($P > 0.05$) relationship in general systemic states with seasons and Union. Prevalence of fever was higher in summer (52.85%) for goats and rainy season (48.48%) for cattle which complied by Hoque and Samad (1996); and Samad *et al.* (2002). The leg pain was recorded throughout the year but it was higher in winter (48.82%) in goat but in

Table 1. Prevalence of clinical diseases and manifestations in goats and cattle recorded at Upazilla Veterinary Hospital in Gopalganj sadar from 2012 to 2013.

Parameters	Number of Goat (%)	Number of Cattle (%)	Total animal (%)
General Systemic state	305 (21.36)	103 (18.36)	408 (20.51)
Parasitic disease	274 (19.19)	105 (18.72)	379 (19.05)
Digestive disorders	169 (11.73)	067 (11.94)	236 (11.81)
Vitamin & Mineral deficiency	160 (11.20)	068 (12.12)	228 (11.46)
Fattening	148 (10.36)	066 (11.76)	214 (10.76)
Infectious disease	105 (07.35)	034 (06.06)	139 (06.99)
Respiratory Infection	079 (05.53)	031 (05.53)	110 (05.53)
Reproductive disorders	080 (05.60)	027 (04.81)	107 (05.38)
Feed poisoning	061 (04.27)	025 (04.46)	086 (04.32)
Mastitis	047 (03.29)	035 (06.24)	082 (04.12)
Total	1428 (100%)	561 (100%)	1989 (100%)

Table 2. Season-wise distribution of clinical cases of goats and cattle recorded at the Upazilla Veterinary Hospital during two years' period from 2012 to 2013.

Parameters	No. of Goat (N)=1428; n (%)			p-value	No. of Goat (N)=561; n (%)			p-value	
	Summer	Rainy	Winter		Summer	Rainy	Winter		
General systemic states	Anorexia Fever Leg pain	04 (04.12) 51 (52.85) 42 (43.30)	02 (02.47) 41 (50.62) 38 (46.91)	05 (03.94) 60 (47.24) 62 (48.82)	0.896	02 (08.00) 09(36.00) 14 (56.00)	02 (06.06) 16 (48.48) 15 (45.45)	01(02.22) 27 (60.00) 17 (37.78)	0.364
Digestive disorders	Diarrhoea Dysentery Tympany	22 (40.74) 05(09.26) 27 (50.00)	25 (51.02) 01 (02.04) 23 (46.94)	36 (54.55) 03 (4.55) 27 (40.91)	0.485	10 (45.45) 00 12 (54.55)	10 (47.62) 02 (09.52) 9 (42.86)	12 (50.00) 02 (08.33) 10 (41.67)	0.641
Infectious	Bacterial Viral	20 (51.29) 19 (48.71)	18 (52.94) 16 (47.06)	26 (81.25) 06 (18.75)	0.018	04 (26.67) 11 (73.33)	06 (75.00) 02 (25.00)	07 (63.34) 04 (36.36)	0.048
Parasitic	Ectoparasite Endoparasite	40 (48.20) 43 (41.80)	33 (45.20) 40 (54.80)	51 (43.22) 67 (56.78)	0.784	13 (41.93) 18 (58.07)	18 (50.00) 18 (50.00)	17 (44.74) 21 (55.26)	0.795
Vitamin-Mineral deficiency	Mineral Vitamin deficiency	33 (57.90) 24 (42.10)	25 (64.10) 14 (35.90)	33 (51.56) 31 (48.44)	0.451	10 (58.82) 07 (41.18)	12 (54.55) 10 (45.45)	17 (58.62) 12 (41.38)	0.949
Food poisoning		17(27.87)	19(31.15)	25(40.98)		5(19.23)	7(26.92)	13(53.85)	
Mastitis		14 (30.43)	14 (30.43)	18 (39.13)		8 (22.86)	12 (34.29)	15 (42.86)	
Pneumonia		25 (31.65)	23 (29.11)	31 (39.24)		9 (29.03)	9 (29.03)	13 (41.94)	
Fattening		45 (30.41)	45 (30.41)	58 (39.19)		18 (27.27)	18 (27.27)	30 (45.45)	
Anoestrous		28 (35.00)	23 (28.75)	29 (36.25)		5 (18.52)	8 (29.63)	14 (51.85)	

case of cattle it was higher in summer (56.00%) season. In according to Union, leg pain was higher in West side Unions; leg pain was higher in East side Union of Gopalganj sadar upazila in both goats and cattle (Table 3). The variation may be due to manage mental practice and climatic condition may influence the outcome.

Digestive disorders

Diarrhoea was found to be the highest in winter (54.55 and 50.00 %), tympany in summer (50.00 and 54.55%) season both in goats and cattle respectively. In other hands Diarrhoea was high prevalent (54.55%) in north and south sided unions for goats and cattle (Table 2). Tympany in south (59.09%) for goats and in north (53.85%) sided unions for cattle was recorded (Table 3). There was insignificant ($P>0.05$) relationship of digestive disorders with season and unions. Rahman *et al.* (2012) and Parvez *et al.* (2014) also reported higher

prevalence of diarrhoea in winter season for goats and cattle.

Infectious diseases

In case of infectious diseases, highest prevalence of bacterial disease was found in winter (81.25%) for goats and rainy (75.00%) season for cattle where viral disease was more prevalent in summer (48.71%) in both goats and cattle (Table 2). There was significant ($P < 0.05$) relationship between infectious diseases and viral diseases with seasons. North (73.17 and 63.64%) and East (50.00 and 75.00%) sided region was prone to bacterial and viral diseases of goats and cattle (Table 3). The findings are agreed by Rahman *et al.* (2012) who also found the highest prevalence of viral disease in goats during summer season and bacterial diseases during winter season.

Parasitic disease

In goats ectoparasitic diseases were higher in summer

(48.20%) but in case of cattle ectoparasitic diseases were highest in rainy (50.00%). Elsewhere endoparasitic diseases is frequent in winter (56.78%) and summer (58.07%) season respectively for goats and cattle (Table 2). Northside was more prevalent to ectoparasitic disease and east side for endoparasitic diseases in both goats and cattle (Table 3). There was no significant ($P > 0.05$) relationship between parasitic diseases with seasons and areas. Rahman *et al.* (2012) (53.7%) who also reported highest prevalence of parasitic diseases in summer season in both goats (23.4%) and cattle (53.7%).

Vitamin and mineral deficiency disorders

Highest prevalence of mineral deficiency disorders of goats were found during rainy (64.10%) season and in summer (58.82%) for cattle where vitamin deficiency was higher during winter (48.44%) in goats and in case of cattle during rainy (45.45%) season (Table 2). North sided animal was prone to mineral deficiency and east sided animal for vitamin. There was no significant relation between vitamin and mineral deficiency disorders; and seasons and areas (Table 3). The variation in vitamin and mineral deficiency may be due to different feeding practice, availability of green grass, mineral supplement with feed and manage mental practice.

Mastitis

Mastitis was highest prevalent in winter in both goats (39.13%) and cattle (42.86%) (Table 2), that contradict with the findings of Samad (2001) who reported higher cases of clinical mastitis during summer (38.67%) and rainy (38.67%) seasons than winter (22.66%). According to union, west sided area was more

frequently affected by mastitis (Table 3). The variation may be due to geographical difference and hygienic management of the house and animal.

Respiratory disorders

Among different respiratory disorders pneumonia has considered that was higher in winter season in goats (39.24%) and cattle (41.94%) (Table 2). This findings agreed by Samad *et al.* (2002) who reported the highest percentage of pneumonia in cattle during winter (47.06%) in comparison to rainy and summer seasons but this observation contradicts with Rahman *et al.* (2012) who found the highest percentage of pneumonia was recorded during summer (6.3%), followed by winter and rainy seasons both in cattle and goats. Higher prevalence was found in north (35.44%) sided area in goats and south (35.48%) sided area for cattle (Table 3).

Reproductive disorders

Anoestrous was higher in winter season for goats (36.25%) and cattle (51.85%) (Table 2) that is supported by Parvez *et al.* (2014) and Rahman *et al.*, (2012) who found highest number of cases in cattle was recorded during winter (80.0%), followed by rainy (75.0%) and summer (42.1%) seasons but Parvez *et al.* (2014) reported higher prevalence in rainy (1.58%) season for goats. Reproductive disorders was common in western area (41.25% and 29.63%) for both goats and cattle (Table 3).

Fattening

Fattening was higher in winter season in goats (39.19%) and cattle (45.45%) (Table 2) but it was contradicted with the findings of Parvez *et al.* (2014)

Table 3. Union wise clinical diseases and manifestations of goats and cattle at UVH in Gopalganj sadar from 2012 to 2013

Parameters	No. of Goat (N)=1428; n (%)				p-value	No. of Goat (N)=561; n (%)				p-value
	East	North	South	West		East	North	South	West	
General Anorexia	01(03.03)	02(02.38)	04(04.30)	04(04.21)		-	02(06.06)	01(04.17)	02(05.26)	
systemic Fever	14(42.42)	42(50.00)	41(44.09)	55(57.89)	0.502	03(37.50)	16(48.48)	09(37.50)	24(63.16)	0.439
states Leg pain	18(54.55)	40(47.62)	48(51.61)	36(37.89)		05(62.50)	15(45.45)	14(58.33)	12(31.58)	
Digestive Diarrhoea	05(41.67)	30(54.55)	18(40.91)	30(51.72)		06(42.86)	05(38.46)	12(54.55)	09(50.00)	
disorders Dysentery	02 (16.67)	03(05.45)	-	03(05.17)	0.259	01(07.14)	01(07.69)	01(04.55)	01(05.56)	0.983
Tympany	05(41.67)	22(40.00)	26(59.09)	24(41.38)		07(50.00)	07(53.85)	09(40.91)	08(44.44)	
Infectious Bacterial	05(50.00)	30(73.17)	10(50.00)	19(55.89)	0.217	01(25.00)	07(63.64)	03(37.50)	6 (54.55)	0.492
Viral	05(50.00)	11(26.83)	10(50.00)	15(44.11)		3 (75.00)	04(36.36)	05(62.50)	5 (45.45)	
Parasitic Ectoparasite	13(38.24)	38(50.67)	27(42.19)	46(45.54)	0.613	03(27.28)	17(50.00)	12(52.17)	16(43.24)	0.525
Endoparasite	21(61.76)	37(49.93)	37(57.81)	55(54.46)		08(72.72)	17(50.00)	11(47.83)	21(56.76)	
Vitamin- Mineral	06(37.50)	28(70.00)	17(48.57)	40(57.97)	0.099	08(88.89)	12(48.00)	09(64.29)	10(50.00)	0.153
Mineral Vitamin deficiency	10(62.50)	12(30.00)	18(51.43)	29(42.03)		01(11.11)	13(52.00)	05(35.71)	10(50.00)	
Feed poisoning	06(09.84)	22(36.07)	11(18.03)	22(36.07)		05(19.23)	09(34.62)	06(23.08)	06(23.08)	
Mastitis	08(17.39)	09(19.57)	07(15.22)	22(47.83)		05(14.29)	11(31.43)	07(20.00)	12(34.29)	
Respiratory disorders	11(13.92)	28(35.44)	19(24.05)	21(26.58)		01(03.23)	08(25.81)	11(35.48)	11(35.48)	
Fattening	14(21.21)	27(40.91)	09(13.64)	16(24.24)		21(14.19)	50(33.78)	34(22.97)	43(29.05)	
Reproductive disorders	08(10.00)	22(27.50)	17(21.25)	33(41.25)		05(18.52)	07(25.93)	07(25.93)	08(29.63)	

who reported higher in summer for goats (0.61%) and cattle (0.96%). Northern sided (40.91%) owners are usually like to goat fattening practice and western (29.63%) to cattle (Table 3). The variation may be due to purpose of fattening of animals which might be for ritual demands or others.

Feed poisoning

In goats (40.98%) and cattle (53.85%) (Table 2) food poisoning was higher during winter season and among the owners of north sided area for both goats and cattle (Table 3). Highest prevalence in winter may be due to feeding practice of owner on the purpose of fattening of animals and owners are not aware about feed poisoning of animals.

Conclusions

The study showed that general systemic states, digestive disorders and parasitic diseases of goats and cattle predominantly present. Necessary steps of biosecurity should be taken to prevent seasonal influence of infectious diseases of cattle and goats. Proper feeding, management and with regular anthelmintic therapy is therefore necessary to gain maximum output from rural livestock's. The knowledge derived from this study will increase our understanding the clinical case of goats and cattle in a particular area and taking necessary preventive measure to disease at national policy level. Therefore further studies would be required for the identification and characterization of etiological agents.

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