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A RETROSPECTIVE STUDY OF COMMON DISEASES AT VETERINARY TEACHING HOSPITAL, BANGLADESH AGRICULTURAL UNIVERSITY, MYMENSINGH

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ABSTRACT

A retrospective study was undertaken to determine the occurrence and distribution of diseases based on species, age, sex, system affected, case type, causal agents and season variation at Veterinary Teaching Hospital, Bangladesh Agricultural University from January 2012 to December 2014. According to the case record, a total of 5036 sick animals were examined and 103 types of diseases were identified during this period. The commonly found various diseases were parasitic disease (33.86%), myiasis (5.96%), PPR (5.16%), pneumonia and pneumonitis (4.11%), repeat breeding (2.88%) and rest of the diseases had lower percentage than 2.5%. Out of the 5036, 1759 cases (35%) were male and 3277 cases (65%) were female. Animals aged between 1-3 years had high occurrence (45.23%) followed by 0-1 year (25.11%). Diseases in digestive system were mostly affected (33.79%) and lowest in cardiovascular system (0.65%). Occurrence of diseases was highest (36.81%) in rainy season (June-October) followed by (35.54%) in summer (March-May) and lowest (27.64%) in winter season (November-February). The findings of this study can be used in the formulation of more effective disease management and control strategies including appropriate vaccination program in this area.

Keywords: Retrospective study, epidemiology, prevalence, veterinary teaching hospital

INTRODUCTION

Agriculture consisting of crop, fisheries, livestock and forest sub sector continues to be the largest sector of Bangladesh economy. Livestock sub sector contributes 12% to agricultural GDP and 3% to National economy (Mia, 2013). Livestock subsector provides new raw material for industry, serves a social security for the rural poor, and provides security against crop failure or damage during draught or cyclone. Though Bangladesh has one of the highest livestock populations in the world, but characterized by very low productivity, particularly in cattle because of low productivity, inferior genetic material, indiscriminate breeding leading to severe genetic erosion, neglect of animal healthcare and non- existence of an efficient value chain, shortage of feeds and fodder resources and lack of awareness (BIDS, 2012).

However, more than 10 million people directly depend on these sectors for their livelihoods (Karim *et al.*, 2010). The management practices of animals and geo-climatic condition of Bangladesh are favorable for the occurrence of various diseases (Onneshan, 2014). Veterinary hospital is an ideal and reliable source of information about animal diseases with their treatment. People from the neighboring areas bring their sick animals to the Veterinary hospital every day. Analysis of the case record gives a comprehensive idea about the disease problems at local areas. Although some reports on clinical case records from Bangladesh Agricultural University Veterinary Teaching Hospital (Das and Hashim, 1996; Samad, 2001; Samad *et al.*, 2002; Sarker *et al.*, 2013; Ali *et al.*, 2011), Haluaghat Upazilla Veterinary Hospital, Mymensingh (Sarker *et al.*, 1999) and Dairy Cooperatives in Pabna district (Pharo, 1987), Ulipur Upazilla Veterinary Hospital, Kurigram (Kabir *et al.*, 2010), Chandanaish Upazilla of Chittagong district, Bangladesh (Pallab *et al.*, 2012) and Patuakhali Science and Technology University Veterinary Clinic (Rahman *et al.*, 2012) are available but no study was performed after 2002 in Veterinary Teaching Hospital, Bangladesh Agricultural University, Mymensingh.

The objectives were to determine occurrence of diseases and disorders in animals attended in Veterinary Teaching Hospital, BAU including the distribution of diseases based on species, age, sex, system affected, case type, causal agents and season variation from January 2012 to December 2014.

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MATERIALS AND METHODS

The retrospective epidemiologic study of diseases was done using 3 years data at Veterinary Teaching Hospital (VTH) of Bangladesh Agricultural University, Mymensingh. The retrospective data of 3 years from January 2012 to December 2014 were collected from patient case record of Veterinary Teaching Hospital, Bangladesh Agricultural University, Mymensingh. The data were analyzed retrospectively and interpreted to determine the occurrence of diseases; seasonal pattern and distribution of diseases. The patient's data were collected from the register book after official permission from the director of the veterinary teaching hospital. During the period of study 5036 diseased animals were recorded from patient register.

The data were manually patterned for recording errors or missing data and obvious discrepancies. The potential errors were assessed and corrected. Data with apprehensive values were excluded. Data were statistically analyzed by Epi Info software 3.5.3 version and Statistical Package for Social Science (SPSS) software 20 version. Chi-square test was used to know the association between different groups in respective cases. According to age, diseased animals were grouped as based on terminology. We considered three seasons according to Ali *et al.* (2011) as summer from March to May, rainy from June to October and winter from November to February.

These recorded clinical cases were primarily categorized into three major groups on the basis of treatment required. These groups were: (1) Medicinal cases, (2) Gynaeco-obstetrical cases and (3) Surgical cases. In case of multiple system affection two or more systems were affected namely digestive, respiratory and/or integumentary system. However, the eye diseases which also include corneal opacity were included under medicinal cases because surgical intervention has never been practiced in Bangladesh (Osmani *et al.*, 2000).

RESULTS AND DISCUSSION

In total of 5036 cases; 1079 cases (21.4%) were cow, 481 cases (9.5%) were bull, 1155 cases (22.9%) were heifer, 654 cases (12.9%) were calf, 1450 cases (28.8%) were goat, 15 cases (0.3%) were sheep, 11 cases (0.2%) were horse, 37 cases (0.8%) were dog, 17 cases (0.3%) were cat, 32 cases (0.6%) were rabbit and 105 cases (2.2%) were bird . Out of the 5036, 1759 cases (35%) were male and 3277 cases (65%) were female. Male and female animal's ratio was 1:2 approximately.

Age, sex and season wise distribution of diseases and disorders observed in different systems of cattle

The diseases and disorders observed in the different systems of cattle are shown in the Table 1. In the study 5036 animals were studied where cattle were 3361 and out of 103 detected diseases in different system about79 diseases were observed in case of cattle. System wise top 5 diseases are described in the Table 2. In the study it was found that cattle of different aged were suffering from various diseases and disorders, where maximum no. of cattle (964) was affected by parasitic infection. The study also revealed that most of cattle of all aged were affected with gastrointestinal diseases (Table 1). It was exerted from the study that myiasis also occurred as well as anestrus and repeat breeding were found in cattle. Worm infestation was more frequent in all the studied aged of cattle as compared with other diseases and disorders. Table 1 expressed that cattle of 1-3 years old were mostly affected by diseases and disorders in contrast of cattle of other age group.

Sex wise diseases and disorders in cattle were presented in the Table 1. The study revealed that female cattle were significantly affected with diseases and disorder observed in the different systems of cattle where as male responded as less. Likely the trend of age based phenomena; worm infestation was also ranked as the most frequent in case of female in the studied areas due to less attention against preventing measures of worm as described as Rahman *et al.* (2012).

Table 1. Systemic distribution of diseases in cattle observed in age, sex and season wise

Systems involved	Age group (year)				Sex		Season			Total
	0-1 (A_1)	1-3 (A_2)	3-8 (A_3)	8-15 (A_4)	M	F	Summer	Rainy	Winter	
Gastrointestinal	125	305	425	265	401	719	392	414	314	1120
Respiratory	42	85	51	21	73	126	69	74	56	199
Reproductive	0	125	179	160	75	389	162	172	130	464
Integumentary	190	155	75	56	152	324	166	176	134	476
Musculo-skeletal	35	66	45	26	63	109	61	64	47	172
Hematopoietic	30	49	43	10	46	86	46	49	37	132
Urinary	35	25	30	12	37	65	36	38	28	102
Nervous	37	21	7	0	25	40	23	24	18	65
Cardiovascular	17	11	5	0	15	18	12	12	9	33
Multiple system	143	313	125	25	214	392	212	224	170	606
Total	654	1155	985	575	1101	2268	1179	1247	943	3369

There is statistically significant relation between diseases and ages of cattle (χ^2= 379.701), disease and sex (χ^2 = 404.241) and disease and season (χ^2 = 45.336).

Table 2. Top five (5) diseases/disorders in cattle

Name of the disease/disorder	Male	Female	Total
Liver and rumen fluke infestations	230	431	661
Ectoparasitic infestation	115	188	303
Myiasis	53	99	152
Balantidiasis	50	88	138
Repeat Breeding	0	129	129
Total	448	935	1383

Season wise diseases and disorders in cattle were presented in the Table 1. The results obtained from the study exerted that diseases and disorders of cattle were more prominent in the rainy season (37.02%) than that of summer (34.99%) and winter (27.99%) ones. According to Islam *et al.* (2012b) vectors of different internal and external parasites were more prevalent due to geo-climatic condition of studied area so that parasitic diseases are more prominent. Among the reproductive diseases repeat breeding is more common due to heat detection error and improper timing of AI in cow as described in Khair *et al.* (2013).

Age, sex and season wise distribution of diseases and disorders observed in different systems of goat

Age, sex and season wise distribution of diseases and disorders in goat as per systems have been summarized and presented in Table 3.In the study 5036 animals were studied where goats were 1450 and System wise top 5 diseases are described in Table 4. In the study it was found that goat of different aged were significantly suffering from various diseases and disorders, where maximum no. of goat (n=223) were affected by *Peste des petits ruminants* (PPR).

Highest diseases were found in age group A2 includes one to three years of age (Table 3).The diseases of gastrointestinal system were commonly found in female (n=217) than that of male (n=117). Diseases of goat related with season shown that most of the diseases occurred during the rainy season than that of summer and winter (Table 3).

Goats were mostly affected with PPR (n=223) due to its contagious nature and vaccinated goats also affected with it as described by Islam *et al.* (2012a). Causes of myiasis and parasitic infection previously described due to geo-climatic condition.

Table 3. Systemic distribution of diseases in goat observed in age, sex and season wise

System involved	Age group (year)			Sex		Season			Total
	0-1 (A1)	1-3 (A2)	3-8 (A3)	M	F	Summer	Rainy	Winter	
Gastrointestinal	120	157	57	117	217	117	124	93	334
Respiratory	52	68	25	51	94	51	54	40	145
Reproductive	3	165	35	71	132	70	74	58	203
Integumentary	73	95	35	71	132	71	74	58	203
Musculo-skeletal	26	34	12	25	47	25	27	20	72
Hematopoietic	21	27	10	20	38	20	22	17	58
Urinary	31	41	15	30	57	31	32	24	87
Nervous	31	41	15	30	57	31	32	24	87
Cardiovascular	0	0	0	0	0	0	0	0	0
Multiple system	94	123	44	91	170	91	97	73	261
Total	451	751	290	526	924	507	536	407	1450

Table 4. Top five (5) diseases/disorders in goat

Name of the disease/disorder	Male	Female	Total
PPR	89	134	223
Pneumonia	48	84	132
Myiasis	32	57	89
Parasitic infestation	22	33	55
Fracture	17	26	43
Total	208	334	542

Age, sex and season wise distribution of diseases and disorders observed in different systems of sheep

Age, sex and season wise distribution of diseases and disorders in sheep as per systems have been summarized and presented (Table 5). Mostly digestive system is affected by parasitic infection and the following is musculo-skeletal system by myiasis and gangrene. Diseases and disorders are more prevalent in female than male and in rainy season sheep's are mostly affected rather than summer and winter.

Table 5. Systemic distribution of diseases in sheep observed in age, sex and season wise

Diseases occurred in different systems	Age group (year)			Sex		Season			Total
	0-1 (A1)	1-3 (A2)	3-8 (A3)	M	F	Summer	Rainy	Winter	
Gastrointestinal system									6
Anorectic syndrome	0	1	0	1	0	0	1	0	
Parasitic infestation	1	3	1	2	3	1	3	1	
Respiratory system									1
Pneumonia	1	0	0	0	1	0	0	1	
Reproductive system									3
Dystocia	0	2	1	0	3	1	2	0	
Musculo-skeletal system									5
Gangrene	1	1	0	2	0	2	0	0	
Myiasis	1	1	1	1	2	2	1	0	
Total	5	7	3	6	9	6	7	2	15

Age, sex and season wise distribution of diseases and disorders observed in different systems of horse

Diseases and disorders in horse are described in the Table 6 according to age group, sex and season. Most diseases are occurred in A2 and A3 age group. Diseases and disorders are more common in male (64%) than female (36%) because of male are used in racing and carrying purpose.

Table 6. Systemic distribution of diseases in horse observed in age, sex and season wise

Diseases occurred in different systems	Age group (year)			Sex		Season			Total
	0-1 (A1)	1-3 (A2)	3-8 (A3)	M	F	Summer	Rainy	Winter	
Gastrointestinal									4
Colic	0	1	1	1	1	1	1	0	
Parasitic infestation	0	1	1	1	1	1	1	0	
Musculo-skeletal									
Abscess	1	1	1	2	1	2	1	0	7
Wound	0	1	1	2	0	1	1	0	
Fracture	0	1	1	1	1	0	1	1	
Total	1	5	5	7	4	5	5	1	11

Age, sex and season wise distribution of diseases and disorders observed in different systems of dog

Diseases and disorders in dogs according to age group, sex and season are described (Table 7). Most diseases are occurred in A1 and A2 age group. Diseases and disorders are more common in male (63%) than female (37%) because of male are used as pet animal after castration. Dermatitis was the most common cases (34%) were seen during study period. Six rabid dogs (16%) were found during the study period at VTH, BAU.

Table 7. Systemic distribution of diseases in dog observed in age, sex and season wise

Diseases occurred in different systems	Age group (year)			Sex		Season			Total
	0-1 (A1)	1-3 (A2)	3-8 (A3)	M	F	Summer	Rainy	Winter	
Gastrointestinal									12
Anorectic syndrome	2	2	1	3	2	2	2	1	
Parasitic infestation	2	3	2	4	3	2	4	1	
Musculo-skeletal									7
Myiasis	3	2	2	4	3	3	2	2	
Integument (Skin)									12
Dermatitis	5	4	3	8	4	4	5	3	
Rabid dog	0	2	4	4	2	4	1	1	6
Total	13	13	12	24	14	15	14	9	37

Age, sex and season wise distribution of diseases and disorders observed in different systems of cat

Diseases and disorders in cats according to age group, sex and season are described (Table 8). Most diseases were occurred in A1 age group. Diseases and disorders are more common in male (59%) than female (41%) because of male are used as pet animal after castration. Gastrointestinal system was frequently affected by stomatitis (35%) and anorectic syndrome (17%). Stomatitis is frequently occurred due to eating of fish spine, edged bone also described in Healey *et al.* (2007). In rainy season 47% cases were placed than summer (42%) and winter (11%).

Table 8. Systemic distribution of diseases in cat observed in age, sex and season wise

Diseases occurred in different systems	Age group (year)			Sex		Season			Total
	0-1 (A1)	1-3 (A2)	3-8 (A3)	M	F	Summer	Rainy	Winter	
Gastrointestinal									9
Stomatitis	4	2	0	3	3	2	3	1	
Anorectic syndrome	2	1	0	2	1	2	1	0	
Musculo-skeletal									4
Myiasis	1	1	0	2	0	1	1	0	
Wound	1	1	0	1	1	1	1	0	
Dermatitis	2	2	0	2	2	1	2	1	4
Total	10	7	0	10	7	7	8	2	17

Age, sex and season wise distribution of diseases and disorders observed in different systems of rabbit

Diseases and disorders in rabbit are described in according to age group, sex and season. Most diseases were occurred in A3 age group. Diseases and disorders are more common in male (60.61%) than female (39.39%) because of male are used as pet. Pasteurellosis (21.21%) was most frequent among the diseases.

Postmortem report of birds reported at VTH, BAU

A total 106 number of birds were reported at VTH for diagnosis of disease/s by postmortem. Six types of diseases were found, among them Newcastle Disease (34.90%) ranked top followed by salmonellosis (20.75%), avian pox (16.98%) and lowest was salmonellosis with mycoplasmosis (7.54%). Newcastle Disease (ND) was mostly found in layer and pigeon.

Temporal distribution of diseases

Out of total 5036 cases highest cases were found in March (11.85%) followed by July (11.60%), August (10.25%) and lowest in January (5.02%). Disease frequency was highest in the starting of summer (March-11.85%) and then rainy season (July-11.60%). Due to climatic changes and presence of vector causes vector-borne diseases; in March occurrence of disease become high. In July because of geographic and temporal cluster disease occurrence also high. Occurrence of diseases and disorder in both month March and July high due to immunological status, travels, community behaviors of animal also similar reported by Samad (2011).

Diseases of the reported animals at VTH, BAU

Occurrence of diseases was classified mostly depends on systematic affections. This was done to find which system/s was/were affected and causes health disturbances. However, gastrointestinal system was mostly affected which was similar with Kabir *et al.* (2002), Ali *et al.* (2011) and Sarker *et al.* (2013). Among individual diseases the prevalence of parasitic infestation&/ infection was highest followed by 6 diseases were more prevalent *e.g.* myiasis, repeat breeding, PPR, anorexia, pneumonia and balantidiasis. The prevalence of other diseases was comparatively low. Among diseases of different systems those affecting reproductive system constituted highest occurrence is repeat breeding followed by anestrous. This was due to mainly for nutritional deficiency, infectious diseases, ovarian cyst and failure to heat detection by owners as described by Khair *et al.* (2013). The prevalence of parasitic disease was 33.86 % in the present study .The higher rates 51.50% had been recorded previously (Ali *et al.*, 2011). This occurred due to improper following the anthelmintic schedule by animal owner which also described by Islam *et al.* (2012b). Among the postmortem cases of birds ND ranked top in layer and pigeon. More diseases were reported in the rainy season.

We recommend for undertaking retrospective research focusing on the causes of most predominant general, systemic and reproductive disorders of animals on regular basis which will help to identify risk factors of diseases. Control measure should be initiated to reduce the burden of these diseases/disorders in the study area. This study generated information which is valuable not only for the clinicians, researchers, animal health

companies, policy planners, management and control strategy of diseases but also for the academicians to update veterinary curricula.

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