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Research Article

A Retrospective Study on Dog Diseases in Sylhet City of Bangladesh

Md. Alamgir Hossain, Md. Rafiqul Islam and Md. Mahfujur Rahman*

Department of Medicine, Faculty of Veterinary and Animal Science, Sylhet Agricultural University, Sylhet-3100, Bangladesh
***Corresponding author:** mahfujdm13@gmail.com

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ABSTRACT

The study was conducted to find out the incidence, the seasonal variation and influence of age on dog diseases in Sylhet city, Bangladesh. During the period from January 2009 to December 2013, a total 2090 case of sick pet dogs were brought for treatment at the District veterinary hospital, Sylhet. Diagnosed diseases were categorized into 6 types; those were bacterial, viral, fungal, parasitic, poisoning, and miscellaneous. Overall prevalence of the diseases in dogs showed highest prevalence of parasitic infestation (40.048%), followed by miscellaneous diseases (22.344%), bacterial diseases (16.699%), viral diseases (7.608%), fungal diseases (12.057%) and poisoning (1.244%). The breed wise highest prevalence of diseases in dog was found in local breed (31.577%), followed by cross breed (22.2%), German shepherd (20.478%), Doberman (11.723%), Rottweiler (8.804), Labrador (3.158%), German spitz (2.057%). The highest prevalence of diseases was observed in the winter season (39.234%), followed by summer (37.560%), and rainy season (23.206%). Sex wise prevalence of diseases in dog was higher in the female (57.416%), than male (42.584%). On the other hand, the highest prevalence of diseases in dog was observed in the above 36 months (47.512%), followed in 7-36 months (31.627%), and up to 6 months (20.861%). Results of this study revealed that diseases of the dog were the major constraints for rearing in Sylhet district and it have also greater public health significance.

Key words: Disease, Dog, Retrospective study

INTRODUCTION

Among all the domestic animals, dogs appear on the earth about 20 million years ago (Sharma *et al*., 2008). Their pleasing disposition, cooperative behavior, and natural instinct for affinity with human beings are the reasons for choosing them as domestic animals companionship. Dog is very intelligent and can easily understand the psychology of a person. A well trained dog may replace a qualified person to perform certain specific functions. In many countries, the animal is not only a friend and associate of mankind but is used to perform many national functions. Dog is used in the defense department to detect enemy arms and position and in the police department to detect crime and etc. (Rahman, 1988).

Dogs are the most successful canids, adapted to human habitation worldwide including Bangladesh. They have contributed to physical, social and emotional well-being of their owners, particularly children (Dohoo *et al*., 1998). However, in spite of the beneficial effects, close bond between dogs and humans remain a major threat to public health, with dogs harboring a bewildering number of infective stages of disease causative agents transmissible to man and the other domestic animals (Robertson *et al*., 2000).

In rural areas of Bangladesh very few people keep dog as a pet animal but in urban areas dog rearing is getting popularity day by day. Like other domestic animals dog is not free from diseases. Rural dogs are abundant in the ecosystem of area and interact with other species of wild carnivores and domestic animals in ways that could encourage disease transmission. Domestic dogs pose a significant risk as reservoirs for infectious diseases, especially for wild canids (Bronson *et al*., 2008). The threat of disease transmission from domestic animals to wildlife has become recognized as an increasing concern within the wildlife community in recent years. In the absence of vaccination, a reservoir of susceptible animals remains vulnerable to new disease introductions (Levy *et al*., 2008).

Traditionally, infectious diseases are caused by different type of organisms distributed worldwide. Unfortunately, little is known about the etiology and

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progression of the canine disease and very few therapies have been subjected to critical trials. It is difficult therefore to draw conclusions about causes and effective treatment in dogs (Watson, 2004). But unfortunately there is no report on prevalence of these diseases from Bangladesh, although at the genetic level members of the genus are highly conserved. Since pet share the same environment with humans, they constitute an important reservoir of zoonotic diseases (Kornblatt and Schantz, 1980). Household pets have been found to play a direct role in transmitting zoonosis (Dada *et al.*, 1979; Kornblatt and Schantz, 1980).

Although pet animals are not reared commercially, they play an important role on human life which provides recreation, pleasure and company and thus many lead a peaceful life instead of monotonous life. German shepherd, Doberman, Labrador, Rottweiler, German spitz, cross and local is the available breeds of dogs in Sylhet city. Many people of Sylhet city rear pet dogs but they have limited knowledge about the diseases and their transmission. Few researches were conducted on dog diseases in Bangladesh but there was no specific study conducted regarding diseases of dog in Sylhet city. Therefore, an attempt has been made to find out the incidence, the seasonal variation and influence of age on diseases of pet dog in Sylhet city, Bangladesh.

MATERIALS AND METHODS

The study was designed in Sylhet city of which is located in the North-East part of Bangladesh and also known as Jalalabad. This research work was conducted at the District veterinary hospital, Sylhet on the clinical cases of pet dogs during the period from January 2012 to December 2016. During the study period, a total 2090 case of sick dogs were studied, which were brought for treatment. Date, age, sex, breed and anamnesis of the dogs were noted in the registered book and all this data were collected from clinical records.

The history and physical examination of each of the patient were carried out for the pet dogs are briefly described below:-

History of the patients include (a) date of examination, (b) signalment (client and patient) identification, (c) chief complaint, (d) patient illness, (e) past medical history

A complete medical history include (a) family medical history, (b) vaccination history, (c) travel history, (d) diet history, (f) environmental history, (g) birth history (if <6 months old) (h) potential source of intoxication.

In physical examination visual examination, pulse, respiration and rectal temperature recorded, and examination of the different organs and system of the body was conducted by using the clinical methods of inspection, palpation, percussion and auscultation. Mouth gag and local anesthesia were also used for clinical examination of the dogs. Extension and flexion, needle puncture and otoscopy were also performed when required.

Laboratory examination

Materials considered significant were collected for diagnostic purposes. Fecal samples and skin scrapings were examined at the hospital. Blood and urine samples were collected for routine and specific examinations and were examined at the Field Diseases Investigation Laboratory (FDIL) Sylhet. The routine blood examination consisted of determination of total number of erythrocytes, leucocytes, DLC, hemoglobin, clotting time, PCV and ESR. The specific blood examination includes examination of blood smear for blood protozoa. The routine urine analysis included determination of specific gravity and presence of protein, RBC, pus cell and casts presents in urine. Where needed the owners were asked to perform X-Ray examination from radiologist to diagnose bone diseases and chest diseases.

Postmortem examination

Dead dogs either at the District veterinary hospital or submitted to the District veterinary hospital by the owners were subjected to postmortem examination to record gross pathological changes and collect materials for laboratory diagnosis.

Statistical analysis

All data were analyzed by analysis of variance (ANOVA) procedures (Steel and Torrie, 1980) appropriate for a completely randomized design by the GLM procedure of SAS (1995).

RESULTS

Prevalence of bacterial diseases in pet dogs

A total 6 types of diseases including bacterial disease, viral, fungal and parasitic disease, poisoning and miscellaneous were recorded in 2090 sick dogs. Table 1 details the year wise prevalence from 2009-2013. Table 2 shows the age wise prevalence, Table 3 shows the breed-specific risks of diseases for the 07 breeds of dogs, Table 4 shows the sex wise prevalence and Table 5 details the seasonality of dogs' diseases.

Analysis of diseases of pet dogs

Disease was very low in 2009 (18.708%), followed by 2010 (19.234%), in 2011 (20.574%), in 2012 (20.670%) and highest prevalence observed in 2013 (20.813%) which showed in Table 2.

Table 1: Year -wise cumulative prevalence (%) of the diseases in dog

Name of Diseases/ Disease condition	Number of the disease in years					
	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)	Total (%)
Bacterial Disease	70 (3.349)	73 (3.492)	79 (3.779)	67 (3.205)	60 (2.871)	349 (16.699)
Viral Disease	39 (1.866)	31 (1.483)	36 (1.722)	31 (1.483)	22 (1.053)	159 (7.608)
Fungal Disease	37 (1.770)	45 (2.153)	45 (2.153)	58 (2.775)	67 (3.206)	252 (12.057)
Parasitic Infestation	159 (7.608)	157 (7.512)	174 (8.325)	168 (8.038)	179 (8.565)	837 (40.048)
Poisoning	7 (0.335)	3 (0.144)	5 (0.239)	4 (0.191)	7 (0.335)	26 (1.244)
Miscellaneous Diseases	79 (3.780)	93 (4.450)	91 (4.354)	104 (4.977)	100 (4.785)	467 (22.344)
Total	391 (18.708)	402 (19.234)	430 (20.574)	432 (20.670)	435 (20.813)	2090 (100)

Table 2: Age-wise cumulative prevalence (%) of the diseases in dogs

Name of diseases/ Disease condition	Up to 6 months (%)	7-36 months (%)	Above 36 months (%)	Total (%)
Bacterial Disease	57 (2.727)	113 (5.407)	179 (8.565)	349 (16.699)
Viral Disease	76 (3.636)	52 (2.489)	31 (1.483)	159 (7.608)
Fungal Disease	34 (1.627)	85 (4.067)	133 (6.363)	252 (12.057)
Parasitic Infestation	182 (8.709)	244 (11.675)	411 (19.665)	837 (40.048)
Poisoning	14 (0.670)	9 (0.430)	3 (0.144)	26 (1.244)
Miscellaneous Diseases	73 (3.492)	158 (7.560)	236 (11.292)	467 (22.344)
Total	436 (20.861)	661 (31.627)	993 (47.512)	2090 (100)

Table 3: Breed-wise cumulative prevalence (%) of the diseases in dogs

Name of Diseases/ Disease condition	German Shepherd (%)	Doberman (%)	Rotroilar (%)	Labrator (%)	German spitz (%)	Cross (%)	Local (%)	Total (%)
Bacterial disease	69 (3.301)	55 (2.632)	40 (1.914)	12 (0.574)	14 (0.574)	76 (3.636)	83 (3.971)	349 (16.699)
Viral disease	20 (0.957)	28 (1.340)	20 (0.957)	3 (0.144)	4 (0.191)	34 (1.627)	50 (2.392)	159 (7.608)
Fungal disease	104 (4.976)	29 (1.388)	20 (0.957)	5 (0.239)	4 (0.191)	40 (1.914)	50 (1.914)	252 (12.057)
Parasitic infestation	153 (7.321)	72 (3.445)	61 (2.919)	39 (1.866)	16 (0.766)	189 (9.043)	307 (14.689)	837 (40.048)
poisoning	4 (0.191)	4 (0.191)	0 (0.000)	0 (0.000)	0 (0.000)	9 (0.430)	9 (0.430)	26 (1.244)
Miscellaneous diseases	78 (3.732)	57 (2.727)	43 (2.057)	7 (0.335)	5 (0.239)	116 (5.550)	161 (7.703)	467 (22.344)
Total	428 (20.479)	245 (11.722)	184 (8.803)	66 (3.158)	43 (2.057)	464 (22.200)	660 (31.579)	2090 (100)

Table 5: Season-wise cumulative prevalence (%) of the diseases in dogs.

Name of diseases/ Disease condition	Winter (Nov-Feb) (%)	Summer (Mar-Jun) (%)	Rainy (Jul-Oct) (%)	Total (%)
Bacterial Disease	170 (8.134)	94 (4.498)	85 (4.067)	349 (16.699)
Viral Disease	50 (2.392)	64 (3.062)	45 (2.153)	159 (7.608)
Fungal Disease	62 (2.967)	152 (7.273)	38 (1.818)	252 (12.057)
Parasitic Infestation	313 (14.976)	319 (15.263)	205 (9.809)	837 (40.048)
poisoning	7 (0.335)	13 (0.622)	6 (0.287)	26 (1.244)
Miscellaneous Diseases	218 (10.430)	143 (6.842)	106 (5.072)	467 (22.344)
Total	820 (39.234)	785 (37.560)	485 (23.206)	2090 (100)

Table 4: Sex-wise cumulative prevalence (%) of the diseases in dogs

Name of diseases/ Disease condition	Male (%)	Female (%)	Total (%)
Bacterial disease	118 (5.646)	231 (11.053)	349 (16.699)
viral disease	74 (3.541)	85 (4.067)	159 (7.608)
fungal disease	145 (6.938)	107 (5.120)	252 (12.057)
Parasitic infestation	386 (18.469)	451 (21.579)	837 (40.048)
Poisoning	8 (0.383)	18 (0.861)	26 (1.244)
Miscellaneous diseases	159 (7.608)	308 (14.737)	467 (22.344)
Total	890 (42.584)	1200 (57.416)	2090 (100)

DISCUSSION

This study reported the most prevalent dog diseases in Sylhet city of Bangladesh as bacterial disease, viral disease, parasitic disease, fungal disease, poisoning and miscellaneous. The current study was designed to fill a critical data gap relating to disorder prevalence information that has been identified as a constraint to improving dog welfare (Bateson, 2010; Rooney *et al.*, 2008; APGAW, 2009)**.** Overall prevalence of the diseases in dogs showed highest prevalence of parasitic infestation (40.048%), followed by Miscellaneous Diseases (22.344%), bacterial diseases (16.699%), viral diseases (7.608%), fungal diseases (12.057%), poisoning (1.244%). These results supported the earlier works made in different areas of Bangladesh (Rahman, 1988) and elsewhere (Hazlett *et al*., 1983; William *et al.*, 2002; Freeman *et al*., 2006; Meler *et al*., 2008). The highest prevalence of diseases in dog was found in local breed (31.577%), followed by cross breed (22.2%), German shepherd (20.478%), Doberman (11.723%), Rottweiler (8.804), Labrador (3.158%), German spitz (2.057%) which was supported by Mahmud *et al.*, 2014.

According to the animal health trust, dog diseases are most prevalent on autumn to winter. In the present study the highest prevalence of diseases was observed in the winter season (39.234%), followed by summer (37.560%), and rainy season (23.206%). The sex wise highest prevalence of diseases in dog was observed in the female (57.416%), than male (42.584%) and the age wise highest prevalence of diseases in dog was observed in the above 36 months (47.512%), followed in 7-36 months (31.627%), and up to 6 months (20.861%). Soumitra *et al*., 2016 reported that the highest prevalence of dog diseases is higher in more than 18 months of age. These results also support the earlier works done in Bangladesh (Rahman, 1988, Tarafder and Samad, 2010).

Conclusion

From the study it may be concluded that the occurrence of diseases and disorders could be recognized as one of the important hindrance on the dog rearing in Sylhet city. Increasing the awareness of pet owners about the management and disease problems of their pet animals through special campaigns, proper therapeutic managements of the diseases, and time to time vaccination of pet animals are important for prevention and control of the diseases of pet animals.

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