



Common diseases of pet animals in Dhaka city and their zoonotic importance

SSMR Hossain, MEH Kayesh*

Department of Microbiology, Faculty of Animal Science and Veterinary Medicine, Patuakhali Science and Technology University, Babugonj, Barisal-8210, Bangladesh

ABSTRACT

Pet animals live in close contact with the human population, and the risk of transmitting zoonotic diseases to human is therefore significant if the animal itself has been infected. This study was conducted to determine the prevalence of common diseases (salmonellosis, leptospirosis, tularemia (rabbit fever), canine rabies, infectious canine distemper, cat scratch disease, dermatophytosis and canine scabies) in pet animals (dog, cat and rabbit) of Dhaka city and their zoonotic significance. The study was conducted in selected areas of Dhaka city (Dhanmondi, Puran Dhaka, Mohammadpur, Kamrangir Char, Hazari Bagh and Lalbagh) during the period of March 2013 to September 2013. A total of 400 pet animals were examined and 8 types of diseases were recorded in these pet animals. The overall prevalence of common diseases in pet animals was 2%. The prevalence of common diseases in dog, cat and rabbit were 2.39%, 3.72% and 6.66%, respectively. The most significant risk of companion animals in Bangladesh is mostly related to dog and cat bites or other physical injuries. Among the recorded diseases cat scratches diseases, salmonellosis and canine scabies were of high zoonotic significance. The pet owners were found at great risk because most of them did not take the vaccines against common zoonotic diseases. Vaccination, proper hygiene measurements and knowledge on preventive measures restrict the risk of zoonosis. The present study suggests for regular vaccination of both pets and humans in Bangladesh in order to the prevention and control of the risk of zoonoses.

Key words: diseases in pet animal, Dhaka city, zoonotic impact

*Corresponding author. Tel.: +88-01712236011

E-mail address: mehkayesh@pstu.ac.bd (MEH Kayesh)

@2014 Int. J. Nat. Soc. Sci. all right reserved.

INTRODUCTION

Rearing pet animals became popular in Bangladesh. Individuals are keeping pet animals like dog and cat for recreational purpose or companionship. 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; Robertson et al., 2000). Dogs and cats may be the most frequent household pets around the world, but there are also many other vertebrates that share our household environment (Bruno et al., 1992). However, in spite of the beneficial effects, close bond between dogs, cats and humans remain a major threat to public health and other domestic animals (Robertson et al., 2000).

WHO defines zoonoses as 'those diseases and infections which are naturally transmitted between vertebrate animals and man.' There are approximately 1415 pathogens known to affect humans, of which about 61% of all human pathogens are zoonotic (Anon, 2011a). Nearly half of all humans' infectious diseases known today can be classified as emerging and about 75% of emerging infectious diseases are caused by zoonotic pathogens. Household pets have been found to play a direct role in transmitting zoonosis (Dada et al., 1979). Rabies is a uniformly fatal zoonotic viral disease acquired by mammal bite, mostly dog bite. There are 40,000 to 70,000 estimated deaths worldwide due to rabies yearly and an estimated 10 million people receive prophylaxis (Jackson et al., 2003). However, the direct impact of zoonoses can be considerable with illness, monetary loss, and adverse effect on

morale of personnel, unfavorable publicity and legal implications. Indirect effects occur as a result of the risk of human infection, barriers to livestock trade, the added costs associated with control programs, marketing produce to ensure it is safe for human consumption and the loss of market awing to reduce consumer confidence (Anon, 2011b,c).

This document provides an overview of the prevalence of pet zoonoses, including transmission. Central veterinary hospital, Dhaka is an ideal and reliable source of information about pet animal diseases and their solution in the capital of Bangladesh. Most of the people of Dhaka city bring their ailing animals for treatment to the central veterinary hospital. Moreover, analysis of the clinical cases record at the central veterinary hospital would provide the idea, seasonal prevalence of the diseases of that zone. This study was undertaken at this hospital for recording and analysis of pet animal zoonoses for determining their current status and risk for human health.

MATERIALS AND METHODS

The animals used for this study were those presented at the central veterinary hospital (CVH) and Thana livestock office (TLO), Lalbagh Metro, Dhaka from March to September 2013. During the 6 months of study period, a total of 400 sick pet animals (most of them were dogs, cats and rabbits) were studied those were brought for treatment at the CVH and TLO. All the patients were first registered in the patient register book including date, age, sex, breed and complaint of the owners. Detailed clinical examination of each of the patient were carried out as described by Samad (2008), which included the history of family, vaccination, travel, diet, environmental, birth and potential source of intoxication. Visual inspection, pulse, respiration and rectal temperature recording and examination of the different organs and system of the body by using the clinical methods of palpation, percussion and auscultation were conducted. Mouth gag and local anesthesia were also used for clinical examination of the animals. Extension and flexion, needle puncture were also performed when required. Samples considered significant for diagnostic purposes were collected.

Faecal samples and skin scrapings were examined at the CVH and TLO, Lalbagh, Dhaka.

RESULTS AND DISCUSSION

The relative clinical prevalence of disease and disorders of male and female dogs are presented in table 1. The prevalence of salmonellosis, leptospirosis, canine rabies, infectious canine distemper and canine scabies in male dog is 23.15%, 11.11%, 14.81%, 16.67%, 34.26% & in female dog is 29.70%, 5.94%, 13.86%, 21.79%, 28.71%, respectively.

The prevalence of clinical diseases of cat in Dhaka city was presented in table 2. Salmonellosis, leptospirosis, canine rabies, infectious canine distemper, cat scratch diseases and canine scabis were recorded in male 13.05%, 2.17%, 7.60%, 6.52%, 38.04%, 32.62% and in female 33.33%, 4.35%, 4.35%, 5.78%, 21.75% and 30.44%, respectively.

Rabbits in Dhaka city were found infected with tularemia (rabbit fever) and dermatophytosis with prevalence rate 75% and, 25% in male and 50% and 50% in female, respectively (table 3).

Human infection of pet animal diseases

Canine scabies

Scabies is a zoonotic disease. It's mainly transmitted to the pet owner through close contact. Itchy rash is the major clinical sign of this disease. In study area 117 dogs were found affected with scabies out of 209 dogs. Thirty five scabies dog owners have been found affected from the dogs, probably due to direct contact with the affected animals. The history showed that after the dog has been treated, however, symptoms usually disappeared. *Sarcoptes scabiei*, causing scabies, is the most important zoonotic arthropod in Bangladesh (Huq et al., 1985).

Cat scratches disease

Cat scratches disease is one of the most common zoonotic diseases. Out of 161, fifty cats were affected with this type of disease. The owners of

these cats were also affected with this disease. This disease probably transmitted to the owners either cat's scratches or bites. Symptoms of swelling of the lymph nodes nearest to the bitten

or scratched site, fever, headache, and a general malaise were reported by the owner. Some patients recovered without medical treatment but some patients required a course of antibiotics.

Table 1

Comparative clinical prevalence of diseases of male and female dog at Dhaka city

Diseases	Dog affected (209)			
	Male (108)		Female (101)	
	No.	%	No.	%
Salmonellosis	25	23.15	30	29.70
Leptospirosis	12	11.11	6	5.94
Canine rabies	16	14.81	14	13.86
Infectious canine distemper	18	16.67	22	21.79
Canine scabies	37	34.26	29	28.71

Table 2

Comparative clinical prevalence of diseases of male and female cat at Dhaka city

Diseases	Cat affected (161)			
	Male (92)		Female (69)	
	No.	%	No.	%
Salmonellosis	12	13.05	23	33.33
Leptospirosis	2	2.17	3	4.35
Canine rabies	7	7.60	3	4.35
Infectious canine distemper	6	6.52	4	5.78
Cat scratch diseases	35	38.04	15	21.75
Canine scabies	30	32.62	21	30.44

Table 3

Comparative clinical prevalence of diseases of male and female rabbit at Dhaka city

Diseases	Rabbit affected (30)			
	Male (20)		Female (10)	
	No.	%	No.	%
Tularemia (rabbit fever)	15	75	5	50
Dermatophytosis	5	25	5	50

Tularemia (rabbit fever)

Francisella tularensis is highly infectious, and as few as 10 to 50 organisms inhaled or injected intradermally can reliably cause disease in humans. In humans, tularemia is characterized by acute febrile illness that commonly includes other nonspecific symptoms such as malaise, chills, headache, and myalgia. In our study, 3 people were found affected by this disease from 20 diseased rabbits which might be transmitted to humans by a number of different routes, including

handling infected animals, ingestion of contaminated food or water, inhalation of infective aerosols and arthropod bites (ticks and insects) (Hayes et al., 2005; Petersen and Schriefer, 2005).

The study showed that the common pets in Dhaka city play role in the transmission of some zoonotic diseases in human. However, the molecular epidemiological studies are needed for better understanding of the route of transmission and the pet-borne zoonoses in Bangladesh in order to take necessary steps for controlling the diseases.

Preventive measures should be taken to avoid the zoonoses from pet animals.

Table 4
Zoonotic importance of common pet animal diseases

Name of the Disease	Total No. of affected Animal	Number of People affected
Canine scabies	117	35
Cat scratches disease	50	25
Tularemia	20	3

Zoonotic diseases spread from pet animals to people via several routes. Direct contact with the pets and sharing the pet's environment could be the common means of exposure to potential diseases in human. Indirect transmission may occur by contaminated food, water or insect bite. Common sense and good hygiene could prevent most disease transmission between pets and people. Pets' bite should be thoroughly washed with soap and water and seen by a physician. Pets' feces should be disposed of daily. Any illness of the pets should be treated immediately. Regular deworming, vaccination and cleaning of pets could be of important considerations. Hands should be washed after handling the pets or cleaning up of its urine or feces. Children should be taught to keep their hands out of their mouths and to wash their hands before eating.

REFERENCES

- Anon (2011a). Zoonosis <http://en.wikipedia.org/wiki/zoonosis>.
- Anon (2011b). The nature of emerging zoonotic diseases: ecology, prediction and Prevention.
- Anon (2011c). Zoonotic diseases of smallstock. <http://www.smallstock.infor/infor/health/zoonoses.htm>.
- Alexander AD, Balows A, Hausler WJ, Hermann KL, Isenberg HD and Shadomy HJ, (1991). Leptospira. In: eds. Manual of Clinical Microbiology. 5th ed. Washington, DC. American Society for Microbiology.
- Bruno B and Chomel (1992). Pediatric Infectious Diseases Journal, 11:479-487.
- Dada BJO, Adegboye DS and Mohammaed ANA (1979). A survey of gastrointestinal parasites of stray dogs in Zaria Negeria. Veterinary Record, 104: 145-146.
- Dohoo IR, McDonell WN, Rhodes CS and Elazhary YL (1998). Veterinary research and human health. Candian Veterinary Journal, 39 : 549-556.
- Haque MS, Yeasmin T, Islam MM (2011). Epidemiological characteristics of human rabies at Infectious Disease Hospital, Dhaka. Bangladesh Journal of Child Health, 35: 102-7.
- Huq MM, Shaikh, Karim MJ and Khan MM (1985). Scabies in man and dogs. Bangladesh Veterinary Journal, 19: 63-65.
- Hayes EB, Goodman JL, Dennis DT, Sonenshine DE (2005). Tick-borne diseases of humans. ASM Press; Washington, USA. Tularemian, pp. 207-217.
- Jackson AC, Warrell MJ and Rupprecht CE (2003). Management of rabies in humans. Clinical Infectious Disease, 36: 60-3.
- Petersen JM, Schriefer M (2005). Tularemia: emergence/re-emergence. Veterinary Research, 36:455-467.
- Robertson ID, Irwin PJ, Lymbery AJ and Thompson RCA (2000). The role of companion animals in the emergence of parasitic disease. International Journal of Parasitology, 30 : 1369-1377.
- Samad MA (2008). Animal Husbandry and Veterinary Science. 1st Pub., LEP No. 11, BAU Campus, Mymensingh, Bangladesh.