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A prevalence study on dogs suffering from gastroenteritis

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Abstract

The objective of this study was to determine the prevalence of gastroenteritis in dogs respective of age, breed, sex, and vaccination status and season wise distribution. The study period was taken for one year from March' 2018 to February' 2019 which included a total of four thousand eight hundred and forty seven dogs. These dogs were registered to VCC, LUVAS, Hisar for different clinical disease conditions. Gastroenteritis is characterized by various clinical signs such as diarrhoea, vomition with or without blood, inappetence, lethargy, fever, anaemia and dehydration affecting different breeds, sex and age groups in dogs. Maximum numbers of dogs suffering from gastroenteritis were found during winter months from December' 2018 to February' 2019. Unvaccinated, non-dewormed, mixed breeds, male dogs, less than one year of age were found to be affected more with gastroenteritis infection.

Keywords: Gastroenteritis, season, breed, sex and age

1. Introduction

Among gastrointestinal disturbances, gastroenteritis is the most common problem which is encountered in all age groups and breeds of canine population. It is characterized by anorexia, vomiting, diarrhoea which may be hemorrhagic, dehydration, lethargy and sometimes fever. Weight loss or stunting is commonly observed in dogs that are more severely affected (Bhat *et al.*, 2013) [2]. Various etiological factors have been reported to be associated with canine gastroenteritis like bacterial and viral infections, parasitic infestations, irritant drugs, dietary errors and ingestion of toxic materials (Ettinger and Feldman, 2010) [5]. But in most of the cases exact etiology remain elusive. Irrespective of etiology, it leads to electrolyte imbalance and dehydration. Earlier many prevalence studies have been done regarding gastroenteritis in dogs but the results are different in each and every study because of the differences in regional climate, breed predisposition in those particular areas, time of study etc. The purpose of this study was to present an analysis of selected data from a large number of cases of gastroenteritis in canine of a university teaching hospital and to find its predisposition regarding breeds, age group, sex and other factors.

2. Materials and Methods

A total of four thousand eight hundred and forty seven dogs were included in this study which were registered in small animal medicine section of veterinary clinical complex, LUVAS, Hisar from March' 2018 to February' 2019. Details of dogs suffering from gastroenteritis were recorded which included breed, age, sex etc. Details of the owner i.e. name, contact number, address etc. were also simultaneously recorded. Complete history of the affected cases regarding the duration of illness, appetite, frequency of vomition and diarrhoea, color of vomitus and faeces, deworming and vaccination status was recorded. Thorough physical and clinical examination of the affected dogs was performed to ascertain the level of dehydration and progression of the disease. Vital clinical parameters i.e. rectal temperature (°F), pulse rate (per minute) and respiration rate (per minute) were meticulously measured and recorded. These data were finally put into tabular form to record the prevalence of gastroenteritis and for further evaluation.

3. Results and Discussion

A total of four thousand eight hundred and forty seven dogs suffering from gastroenteritis were included in the study from March' 2018 to February' 2019. Prevalence of gastroenteritis in dogs for this period of one year was found to be 12.24 per cent as a total of five hundred and ninety three dogs were found to be affected with gastroenteritis out of total registered 4847

affected dogs. Higher prevalence of enteritis in dogs (19.3%) was reported earlier in epidemiological study by Jani (2004) [6]. Another prevalence study conducted by Rakha *et al.* (2015) [8] also suggested that digestive problems (56.50%) in dogs are the most common amongst all the clinical diseases. Similar per cent prevalence of gastroenteritis (13.40%) was reported in a retrospective study conducted in pups by Tagorti (2019) [11].

3.1 Breed-wise distribution of gastroenteritis in dogs

Breed-wise prevalence of gastroenteritis in dogs from March' 2018 to February' 2019 is depicted in Table 1. Maximum prevalence of gastroenteritis was recorded in mixed breed (32.38%) and German shepherd (19.05%) dogs followed by Labrador (10.79%) and Bully (10.29%) breed of dogs. In Pug, Rottweiler, Pitbull and Spitz breeds prevalence of gastroenteritis was found to be 7.76, 7.59, 5.40 and 4.21 per cent respectively. Dachshund (0.84%), Golden Retriever (0.67%), Gaddi (0.51%) and French Mastiff (0.51%) breeds had lowered prevalence of gastroenteritis.

Table 1: Breed-wise distribution of gastroenteritis in dogs

Breed	No. of dogs	Prevalence (%)
Mixed breed	192	32.38
German Shepherd	113	19.05
Labrador	64	10.79
Bully	61	10.29
Pug	46	7.76
Rottweiler	45	7.59
Pitbull	32	5.40
Spitz	25	4.21
Dachshund	5	0.84
Golden Retriever	4	0.67
Gaddi	3	0.51
French Mastiff	3	0.51
Total	593	100

3.2 Age-wise distribution of gastroenteritis in dogs

Age-wise prevalence of gastroenteritis in dogs from March' 2018 to February' 2019 is depicted in Table 2. Maximum prevalence of gastroenteritis was observed in the dogs less than one year of age (72.18%). Dogs of three months or less age had 29.34 per cent prevalence while dogs above three months to six months or less age had 26.31 percent prevalence of gastroenteritis. Dogs more than six months to less than one year of age showed least prevalence of 16.53 per cent. Adult dogs between one to five years of age group suffering from gastroenteritis showed 27.82 percent prevalence. In agreement with the findings, Bhat *et al.* (2015) [1] also reported higher prevalence in dogs below one year of age (86.66%) in their study on canine gastroenteritis.

Table 2: Age-wise distribution of gastroenteritis in dogs

Age group	No. of dogs	Prevalence (%)
1 month to ≤3 months	174	29.34
>3 months to ≤6 months	156	26.31
>6 months to ≤1 year	98	16.53
>1 year to ≤5 years	165	27.82
Total	593	100

3.3 Sex-wise distribution of gastroenteritis in dogs

Sex-wise prevalence of dogs from March' 2018 to February' 2019 is depicted in Table 3. Prevalence of gastroenteritis in male dogs was 60.88 per cent while those in female dogs it was found to be 39.12 per cent. In the present study female dogs were found to be less affected (39.12%) as compared to the male dogs (60.88%). The results of the present study are in accordance with those of Jani (2004) [6] who also reported higher prevalence of gastroenteritis in male dogs (59.26%) than female dogs (40.74%). Similar findings of higher prevalence of gastroenteritis in male dogs (68.88%) than female dogs (31.12%) were observed by Bhat *et al.* (2015) [1]. Tagorti (2019) [11] also reported that male dogs (57.86%) had higher prevalence of gastroenteritis than female dogs (42.14%).

Table 3: Sex-wise distribution of gastroenteritis in dogs

Sex	No. of dogs	Prevalence (%)
Male	361	60.88
Female	232	39.12
Total	593	100

3.4 Season-wise distribution of gastroenteritis in dogs

Season-wise distribution of gastroenteritis in dogs for the period of March' 2018 to February' 2019 is depicted in Table 4 and Figure 1. Prevalence of gastroenteritis in dogs was found throughout the year. Maximum numbers of dogs suffering from gastroenteritis were found during winter months (30.19%). Dogs during summer, spring and autumn months were found to have 25.46, 24.28 and 20.07 per cent prevalence of gastroenteritis, respectively. The reason of higher prevalence in winter months might be the stress due to adverse climate change which leads to immune suppression in dogs. Similar to the present findings, highest prevalence of gastroenteritis was recorded in winter (39.75%), followed by monsoon (35.90%) and summer (24.35%) in an earlier study (Shinde *et al.*, 2000) [10]. Similar study on haemorrhagic diarrhoea syndrome in dogs by Mortier *et al.* (2015) [7] revealed that dogs were more affected with gastroenteritis in winter season than other seasons. Increased occurrence of gastrointestinal diseases was also found higher (60.19%) in the wet season (September-February) followed by 39.81 per cent in dry season (March-July) by Tagorti (2019) [11].

Table 4: Season-wise distribution of gastroenteritis in dogs

Season	No. of dogs	Prevalence (%)
Winter (December 2018 to February 2019)	179	30.19
Spring (March 2018 to May 2018)	144	24.28
Summer (June 2018 to August 2018)	151	25.46
Autumn (September 2018 to November 2018)	119	20.07
Total	593	100

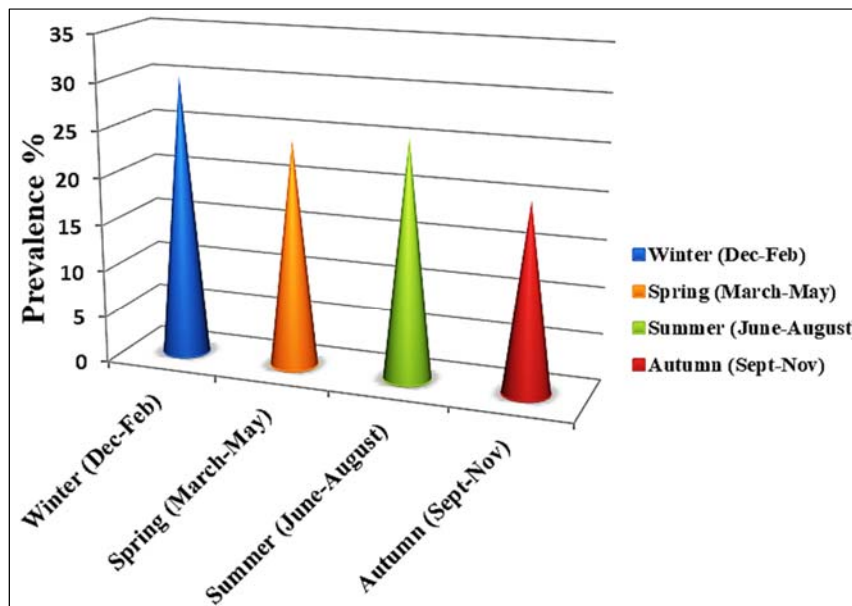


Fig 1: Graphical representation of season wise distribution of gastroenteritis in dogs

3.5 Vaccination and deworming status of gastroenteritis dogs

Vaccination and deworming status of dogs suffering from gastroenteritis for the period from March’ 2018 to February’ 2019 is depicted in Table 5. Dogs which were not vaccinated had 52.95 per cent prevalence of gastroenteritis while dogs which were either completely or incompletely/inadequately vaccinated were found to have 47.04 per cent prevalence. In addition, dogs which were not dewormed showed higher prevalence of gastroenteritis (57.50%) than the dogs which were completely dewormed (42.49%). Poor deworming and vaccination status might have contributed to the occurrence of disease in affected dogs which is in accordance with the observation by Saxena *et al.* (2006) [9]. High prevalence of gastroenteritis in vaccinated dogs might be due to improper vaccination schedule or due to the use of improperly maintained vaccines. Vaccination protects dogs against major viral diseases which otherwise commonly affect all age groups mainly pups of less than six months of age. Cavalli *et al.* (2008) [3] suggested that susceptibility to viral infection causing gastroenteritis often coincides with the time when puppies are separated from dams as the level of protective immunity or maternal immunity declines. A poor vaccination antibody response might be due to improper age or timing of vaccination, non boosting of the animals, interference produced by maternal antibodies and improper maintenance of cold chain (Deka *et al.*, 2013) [4].

Table 5: Vaccination and deworming status of dogs suffering from gastroenteritis

Status	No. of dogs	Prevalence (%)
Complete/Incomplete vaccination	279	47.04
No vaccination	314	52.95
Total	593	100
Complete deworming	252	42.49
No deworming	341	57.50
Total	593	100

4. Conclusion

Prevalence of gastroenteritis in dogs for the period from March’ 2018 to February’ 2019 was found to be 12.24 per

cent. It was also noticed that dogs suffered from gastroenteritis throughout the year but increased occurrence was observed during the winter months i.e. from December’ 2018 to February’ 2019 (30.19%). Majority of dogs affected with gastroenteritis were non-vaccinated (52.95%), non-dewormed (57.50%), mixed breeds (32.38%), male dogs (60.88%) and of less than one year of age (72.18%).

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