

Original Research Article

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Age, Breed and Gender-Wise Prevalence of Hepatic Disorders in Dogs of Nagpur City

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ABSTRACT

A total of 10,204 dogs were presented for various reasons to TVCC, Nagpur Veterinary College, Nagpur, Maharashtra, during study period between September 2019 and August 2020. Among those, dogs showing non specific signs such as inappetence, anorexia, diarrhoea, constipation, vomiting, polyuria, polydipsia, dehydration, pain on abdominal palpation and change in mucus membrane colour and specific signs like jaundice and ascites were screened for hepatic disorders and 109 (1.06 %) cases were found to be suffering from hepatic disorders. The highest prevalence was found in the age group of above 8 years (34.86%), followed by dogs of age between 4 years to 8 years (30.28%), 1 year to 4 years (22.08%) and less than 1 year (12.84%). Males (59.63%) were more affected than females (40.37%). Labrador Retriever (43.12%), Non-descript (29.36%), Spitz (6.42%) and German shepherd (5.51%) were the most commonly affected breeds.

Keywords

Dogs, Hepatic disorders, Prevalence, Nagppur

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Introduction

Liver has a high functional reserve potential. Drug-induced hepatotoxicity, congenital or neoplastic diseases, infectious diseases, metabolic disorders, degenerative processes, auto-immune diseases, vascular injury and even blunt trauma may result in hepatic diseases (Kumar *et al.*, 2013). Conventional

diagnosis of the hepatic dysfunction is only possible when there is a considerable liver damage (i.e. $\geq 55\%$) (Hall and German, 2005). It is difficult to diagnose liver disorders because of incredibly vague symptoms and signs (Rothuizen and Van den Ingh, 1998). It challenges the clinician to determine the hepatic insufficiency before a large percentage of hepatic tissue is affected. Prevalence

studies help to create a benchmark for possible investigations and diagnosis. These programs not only allow veterinary practitioners to diagnose, but also help to spread knowledge of warning signs among the general public.

Materials and Methods

The footfall of dog population presented to Teaching Veterinary Clinical Complex, Nagpur Veterinary College from September 2019 to August 2020 were screened for hepatic disorders. Dogs showing non specific signs such as inappetence, anorexia, diarrhea, constipation, vomiting, polyuria, polydipsia, dehydration, pain on abdominal palpation and change in mucus membrane colour and specific signs like jaundice and ascites, were suspected for hepatic disorders and further subjected to clinical, haemato-biochemical and ultrasonographic examination.

The prevalence of hepatic disorders was studied for a period between September 2019 and August 2020. Haematological examination was done using HORIBA medical ABX micros ESV60 automated cell counter haematology analyzer. Serum biochemical examination was done using Star 21 Biochemical Semi-Auto Analyzer. Abdominal ultrasonography was performed using, Fujifilm Sonosite M Turbo machine with a triple frequency sector transducer having frequency of 3.0 to 5.0 MHz.

Results and Discussion

From a total caseload of 10,204 canine admissions presented for various reasons, results of the study showed that, total 109 dogs were diagnosed with various hepatic disorders, indicating a total of 1.06 per cent affection. Meyer and Rothuizen (2013) who reported 1 percent of clinical cases suffering from hepatitis and the study undertaken by Tantry *et al.*, (2014) recorded 1-2% of

incidence of hepatic disorders among the clinical cases. The findings are in partial agreement with Vijayakumar *et al.*, (2003) who reported prevalence of 3.01 percent in demographic study associated with hepatic disorders in dogs, Poldevaart *et al.*, (2009) also documented 0.50 % of prevalence as chronic hepatitis in dogs and Pradeep *et al.*, (2017) reported prevalence of hepatic disorders associated with hypoalbuminemia as 0.23%.

The highest affection of hepatic disorder was found in the age group of above 8 years (34.86 %), followed by dogs of age between 4 years to 8 years (30.28%), 1 year to 4 years (22.08%) and less than 1 year (12.84%) (Table 1). Study conducted by Secchi *et al.*, (2012) noted that dogs of age 10 years or more have highest prevalence (39.1%) Murikipudi *et al.*, (2017) reported more prevalence of hepatic disorders in dogs above 8 years of age.

Poldervaart *et al.*, (2009) recorded median age of dogs with primary hepatitis as 7.7 years and Bexfield *et al.*, (2012) reported median age of diagnosis of chronic hepatitis in dogs as 8 years. Highest prevalence in dogs above 8 years of age in the present study might be due to, indiscriminate use of drugs like antibiotics and dewormers without proper consultation with veterinarian and also as age advances, the physiological functioning and regeneration potential of all body cells in general and hepatocytes in particular declines.

Higher prevalence was recorded in males (59.63%) than females (40.37%) (Table 2). Elhiblu *et al.*, (2015) reported more prevalence of liver cirrhosis in males than females and also Murikipudi *et al.*, (2017) recorded more incidence of hepatic diseases in males than females and Pradeep *et al.*, (2017) documented male dogs had higher occurrence of hepatic disorders associated with hypoalbuminemia than female dogs.

Table.1 Age-wise prevalence of dogs affected with hepatic disorders
(n=109)

Age	No. of dogs affected	Percentage of dogs affected (%)
< 1 Year	14	12.84
1 to 4 Years	24	22.02
4 to 8 Years	33	30.28
> 8 Years	38	34.86
Total	109	100

Table.2 Sex-wise prevalence of dogs affected with hepatic disorders

Sex	No. of dogs affected	Percentage of dogs affected (%)
Male	65	59.63
Female	44	40.37
Total	109	100

Table.3 Breed-wise prevalence of dogs affected with hepatic disorders

Breed	No. of dogs affected	Percentage of dogs affected (%)
Labrador Retriever	47	43.12
Nondescript	32	29.36
Spitz	7	6.42
German Shepherd	6	5.51
Golden Retriever	2	1.84
Rottweiler	2	1.84
Pug	2	1.84
Beagle	2	1.84
Great Dane	2	1.84
Lhasa Apso	2	1.84
ShihTzu	1	0.91
Boxer	1	0.91
Cocker Spaniel	1	0.91
St. Bernard	1	0.91
Siberian Huski	1	0.91
Total	109	100.00

Highest prevalence in male dogs might be due to presence of more proportion of males in dog population of Nagpur. This could also be because of wandering behavior of male dogs which exposes them to infectious and toxic environmental hazards. Hepatic disorders was found to be most prevalent in Labrador Retriever dogs (43.12%), followed by Non-

descript dogs (29.36%), Spitz (6.42%), German Shepherd (5.51%). Golden Retriever, Rottweiler, Pug, Beagle, Great Dane, Lhasa Apso breeds showed an equal prevalence of 1.84%. The lowest prevalence of 0.91% was recorded in Shih Tzu, Boxer, Cocker Spaniel, St. Bernard, Siberian Huski (Table 3). Elhiblu *et al.*, (2015) documented that Labradors were

more prone for liver cirrhosis, Murikipudi *et al.*, (2017) also recorded highest occurrence of hepatic disorders in Labradors (35.55%) followed by Mongrels (26.66%), German Shepherd (17.77%) and Spitz (11.11%) and Pradeep *et al.*, (2017) also recorded highest occurrence in Labrador retriever. Highest reports from Labrador Retrievers might be due to the fondness of this breed among the pet parents in Nagpur. The friendly breed trait with easy management activities makes this breed highly attractive for pet parents. Further, the love of pets and the high rate of adoption of stray pups may be a possible explanation for Nondescript dogs to rank second in the prevalence listing.

The prevalence of hepatic disorders at the TVCC during the period September 2019 to August 2020 was 1.06 percent. Dogs above 8 years of age showed highest prevalence. Male dogs were more prone to develop hepatic disorders. Labrador Retriever was the most commonly affected breed followed by non-descript dogs.

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