



A Study on Incidence of Hepatic Dysfunctions in Dogs

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Abstract

In present investigation, a total of 4,420 dogs were screened during the period January 2021 to July 2021. Out of which, 129 dogs were suspected of hepatic dysfunctions among them only 56 dogs were diagnosed with hepatic dysfunctions forming an incidence of 43.41%. However, seven apparently healthy dogs served as control group. Incidence of hepatic dysfunctions in dogs was recorded more in Labrador Retrievers (25.00%) and lowest incidence in Great Danes, Cocker Spaniels, Non-Descript breeds (3.57%) each. With respect to age, highest incidence of hepatic dysfunctions was recorded in dogs aged > 8 years (35.71%) and lowest incidence in < 1 years (16.07%). Further, sex-wise incidence of hepatic dysfunctions was more in females (58.93%) than males (41.07%).

Keywords: Dogs; Incidence; Hepatic Dysfunctions

Abbreviations

Dog is considered to be the first animal named by the human beings and till now among all companion animals, dogs are of prime attraction because of their cooperation and natural attachment for humans. The loyalty, intelligence, affection and devotion of dogs are rewarding and so have made them "Man's best friend". Liver performs many functions for energy saving and toxin elimination. Liver has varied functions which include its role in the process of digestion and metabolism, vital micronutrients which are vital are converted into usage forms required for the body, performs different functions like synthesis of plasma proteins, fats, various clotting factors, metabolism of fats, carbohydrates, and amino acids, bile secretion required for digestion and detoxification and excretion of drugs and toxins glycogen

storage for energy [9]. Canine hepatic dysfunctions is undetected during the early stages and so is a common cause of non-accidental death in dogs. The occurrence of hepatitis in canines vary with the population investigated was 1-2% [11]. In dogs, the incidence of hepatic dysfunctions in dogs are increasing with the lifestyle changes/modifications every day. Therefore, the present investigation was taken up with an objective to record the incidence in relation to breed, age and sex among dogs affected with hepatobiliary disorders in.

Materials and Methods

The present investigation was taken up in the College of Veterinary Science, Rajendranagar, Hyderabad at Department of Veterinary Medicine, during the period from January 2021 to July 2021.

Dogs presented to Teaching veterinary clinical complex, Rajendranagar and Veterinary Hospital, Bhoiguda and with history and signs such as vomition, pale mucous membranes, ascites, polyuria and polydipsia, melena, jaundice, inappetance, lethargy, diarrhea, anorexia, and or other signs indicative of hepatic dysfunctions are studied and included in this study. The suspected dogs with above signs are examined clinically for temperature, pulse, respiration and heart rates. Blood samples were collected from cephalic vein or saphenous veni puncture from those dogs with clinical signs suggestive of hepatic dysfunctions for evaluation of hematological and biochemical parameters. 2 ml of blood was collected aseptically in EDTA coated sterile tubes for hematological examination and 4 ml blood sample was also collected in clot activator coated sterile serum vials and these serum vacutainers were kept undisturbed till serum separation and the serum was taken into another test tube with the help of a sterile Pasteur pipette and subjected to centrifugation at 5000 rpm for 5 minutes for clear serum. Then the serum was transferred to Eppendorf tubes and labelled accordingly. Samples were analyzed for haematological and biochemical parameters. Further, blood was collected from 7 apparently healthy dogs to establish normal values. Ultrasonographic examinations were carried out using Mindray Diagnostic Ultrasound System, Model. Z5 Vet machine using multifrequency (5-7.5 MHz) micro convex probe the echogenicity of the visible lesion on images were classified subjectively as normal, increased (hyperechoic), decreased (hypoechoic) or absent (anechoic), when comparison was made with normal echogeneity pattern for canine liver. Based on the results obtained, incidence of hepatic dysfunctions was studied in dogs.

Results and Discussion

Out of 4,420 dogs that were presented Veterinary Hospital, Bhoiguda and Teaching veterinary clinical complex, Rajendranagar, during January 2021 to July 2021, 129 dogs were suspected of hepatic dysfunctions based on the history and were further screened; by diagnostic imaging and various hemato biochemical tests among them only 56 dogs were diagnosed with hepatic dysfunctions forming an incidence of 43.41 percent. (Table 1 and Figure 1). These findings were in agreement with [3] and [6] who reported the prevalence of hepatic dysfunctions in dogs as 55.00 and 55.12 percent respectively. However, [7] and [16] reported an incidence of liver disorders in dogs as 3% and 1.4% respectively. The changes in the incidence rates among dogs affected with hepatic dysfunc-

Sl no.	Total number of cases	Suspected hepatic dysfunctions	Hepatic dysfunctions	Incidence (%)
1	4,420	129	56	43.41

Table 1: Incidence of hepatic dysfunctions in dogs.

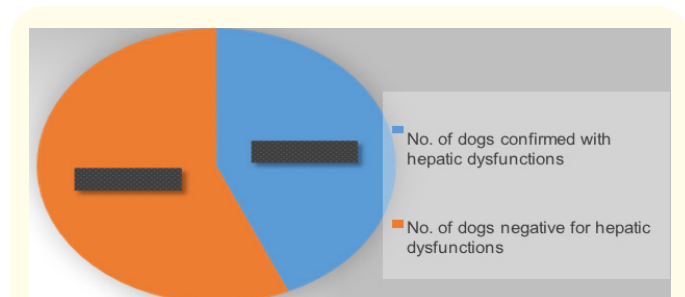


Figure 1: Incidence of hepatic dysfunctions in dogs.

tions was attributed to the be screening of different populations and dogs presented to the hospitals based on geographical location status. Higher incidence of hepatic dysfunctions in this area might be due to presentation of more number of cases at the clinics.

Breed wise incidence

In the present study, highest incidence of hepatic dysfunctions breed wise was observed in Labrador Retriever (25.00%), followed by Schitzu (19.64%), Golden Retrievers (16.07%), Pomeranians (14.29%), Pugs (7.14%), German Shepherds (7.14%), Cocker Spaniels (3.57%), Great Danes (3.57%) and Non-Descript breeds (3.57%) (Table 2 and Figure 2). These findings were in agreement with [2,6] and [14] who has reported highest incidence of hepatic dysfunctions in Labrador Retrievers. While [4] and [12] reported higher incidence of hepatic dysfunctions in Pomeranian breed. Hereditary factor could attribute to its high incidence of hepatobiliary disorders in Labrador Retriever breed [1]. This difference in incidence among the breeds could be attributed to high population of Labrador Retrievers in the area, where the present study was carried out.

Age wise incidence

In the present study, incidence of hepatic dysfunc in dogs with respect to age wise was more among dogs more than 8-10 years (35.71%) of age, followed by 4-8 years (25.00%), less than 1-4 years (23.21%) and < 1 year (16.07%). These findings were in

S. No	Breed	No. of dogs (n)	Percentage (%)
1	Labrador Retrievers	14	25.00
2	Schitzu	11	19.64
3	Golden Retrievers	9	16.07
4	Pomeranians	8	14.29
5	Pugs	4	7.14
6	German Shepherds	4	7.14
7	Great Danes	2	3.57
8	Cocker Spaniels	2	3.57
9	Non-descript	2	3.57
	Total	56	100

Table 2: Breed-wise incidence of hepatic dysfunctions in dogs (n = 56).

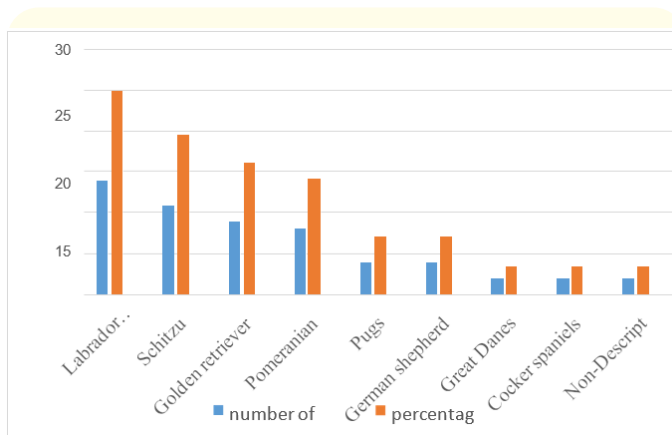


Figure 2: Breed -wise incidence of hepatic dysfunctions in dogs (n = 56).

agreement with [10] who recorded higher incidence of hepatic dysfunctions in dogs between the age group of 8-11 years (44.00%) followed by more than 11 years (33.00%), 4-8 years (16.00%) and less than 4 years (7.00%). The age of onset of ascites due to hepatic origin was above 5 years [13]. (Table 3 and Figure 3).

Sex wise incidence

In the present study, incidence of hepatic dysfunctions in dogs with respect to sex-wise was highest common in female dogs (58.93%) as compared to male dogs (41.07%). Incident rates of hepatic dysfunctions in dogs in relation to sex was and among males

S. No	Age	No. of dogs (n)	Percentage (%)
1	< 1 year	9	16.07
2	1-4 years	13	23.21
3	4-8 years	14	25.00
4	> 8 -10 years	20	35.71
	Total	56	100

Table 3: Age-wise incidence of hepatic dysfunctions in dogs (n = 56).

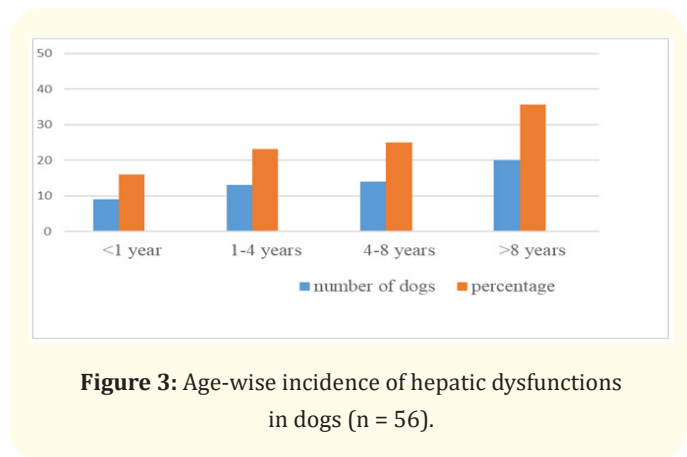


Figure 3: Age-wise incidence of hepatic dysfunctions in dogs (n = 56).

and females respectively. These findings are in accordance with [4,11] and [15] who observed higher incidence of hepatic dysfunctions among female dogs. In contrary [5,8,10] and [13] documented that liver diseases were more common among male dogs than female dogs. The reason for higher incidence of hepatic dysfunctions in females could be the preference of the people of the area under study towards having female dogs than males. (Table 4 and Figure 4).

S. No	Sex of the dogs	Number of dogs (n = 56)	Percentage (%)
1	Male	23	41.07
2	Female	33	58.93
	Total	56	100

Table 4: Sex -wise incidence of hepatic dysfunctions in dogs (n = 56).

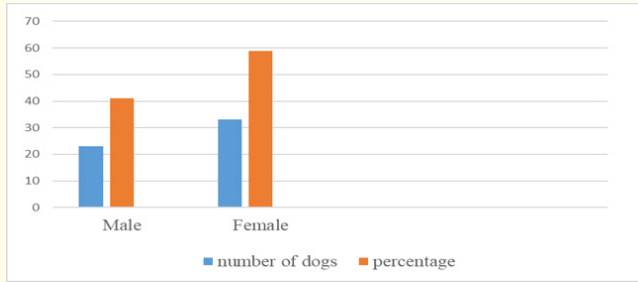


Figure 4: Sex -wise incidence of hepatic dysfunctions in dogs (n = 56).

Conclusion

The incidence of hepatic dysfunctions in dogs was carried out on the dogs diagnosed for hepatobiliary disorders based on history, clinical examination, hematobiochemical studies and ultrasound examination. Based on the results, The Incidence reported in the present study was 43.41%. Breed-wise higher incidence was recorded in Labrador Retriever, Age -wise incidence was noticed highest in more than 8 years and Sex-wise incidence was higher in female dogs.

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