CLINICO-EPIDEMIOLOGICAL OBSERVATIONS IN DOGS SUFFERING FROM CHRONIC KIDNEY DISEASE

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Received: 05.05.2020; Accepted: 09.06.2020

SUMMARY

The present study was aimed to record epidemiological and clinical observations of dogs suffering from chronic kidney disease. A total of 24 dogs which were diagnosed to be suffering from chronic kidney disease on the basis of history, clinical observations and haemato-biochemical alterations were selected for the study. Clinical signs, patient history, sex, age, breed and type of feeding were recorded in preplanned history sheets in all dogs. The maximum cases (41.66%) were found in dogs of more than 8 years of age. Males were affected more than females. Labrador Retriever breed was most affected (29.1%) followed by German shepherd (24%). Maximum cases (75%) were presented with a history of vomition and inappetance. In conclusion, disease is seen more in adult male dogs with age above 8 years and given diet rich in protein.

Keywords: Age, Breed, Chronic Kidney Disease, Dogs, Feed, Sex

Chronic kidney disease (CKD) or Chronic renal failure (CRF) is a loss of functional renal tissue due to prolonged disease with more than 2 months of progressive disease process. With ever increasing urbanization, unscientific feeding, increasing environmental pollution and abuse of common therapeutic agents, the pets like human beings are becoming more susceptible to renal failure (Katoch et al., 2017). CKD occurs commonly in older dogs and cats. Advances in diagnostics, International Renal Interest Society staging of renal failure, treatment and dietary modification has been shown to increase survival and quality of life (Bartges, 2012). Therefore, awareness among owners with regards to feeding pattern, dietary modification and testing their pets routinely after a certain age can help in early disease recognition and improving quality of life. The epidemiological study in Haryana with regard to chronic kidney diseases in dogs and the knowledge status of pet owners with regard to diet influencing kidney disease is lacking. Hence, the present study was formulated to record clinico-epidemiological observations in dogs suffering from CKD.

The present study was carried out for a period of six months from July 2018 to December 2018. During this period, a total of 24 dogs presented to Veterinary Clinical Complex (VCC), Lala Lajpat Rai University of Veterinary and Animal Sciences (LUVAS), Hisar and were diagnosed to be suffering from chronic kidney disease on the basis of history, clinical observation, haemato-biochemical alterations were selected for the study. Clinical signs and epidemiological parameters viz. age, sex, breed, feed and

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knowledge of owner towards feeding schedule of dogs were recorded for all the positive cases during clinical examination by recording them in a preplanned proforma. Owners of dogs suffering from CKD were asked whether they know feeding pattern of their dog and what diet they offer to their pets (Homemade or Canned/packed food) to determine the effect of diet on renal failure retrospectively.

Age wise occurrence of chronic kidney disease indicates increased chances of renal failure with increase in age (Table 1). Renal failure was recorded maximum (41.66%) in adult dogs with age above 8 years followed by 29.16% in dogs between 4-8 years' age group, 20.83% in dogs between 1-4 years' age group and least cases was recorded in young dogs under 1year of age. This higher risk of renal failure associated with aged dogs could be due to loss of nephrons with the advancement of age and reduced blood supply to kidneys. Similar to present study findings, Tufani et al. (2015) reported highest prevalence in older age (49.58%) of >8 years followed by middle age (35.17%) of >4-8 years and lowest in younger dogs (15.25%)of less than 4 years of age. This age wise occurrence of renal failure was in accordance with Kandula and Karlapudi (2014), Oburai et al. (2015) and Katoch et al. (2017).

Age-wise occurrence of renal failure in dogs (n=24)					
Age	No. of dogs affected	Percentage			
Up to 1 yr	2	8.33			
>1to 4 yr	5	20.83			
>4 to 8 yr	7	29.16			
8yr and above	10	41.66			
Total	24	100			

Table 1

The occurrence of chronic renal failure was found more in males (75%) as compared to females (25%). This result of higher prevalence in male dogs is in accordance with the results of Pradhan *et al.* 2011 (54.19%), Oburai *et al.*, 2015 (58.1%), Tufani *et al.*, 2015 (54.76%) and Katoch *et al.*, 2017 (70.37%) who reported higher prevalence of renal failure in males in contrary to findings of Kandula and Karlapudi, (2014) who recorded higher prevalence in females (63.16%). This higher percentage of males suffering from CKD can be due to more presentation of dogs to the clinics or preference of owners to keep males as compared to females. Otherwise higher prevalence of renal failure in male dogs could be due to more risk associated with urolithiasis in male than female due to several anatomic characteristics (Bjorling, 2003).

Among different breeds reported at VCC, Labrador Retriever was most affected breed followed by German Shepherd, Spitz, Afghan Bully and Pug (Table 2). The prevalence of renal failure in dogs with respect to breed was in accordance with Ahmed (2011), Kandula and Karlapudi (2014), Tufani *et al.* (2015) and Katoch *et al.* (2017) who reported highest renal disorders in Labrador and German Shepherd breeds. Relative difference with breed wise prevalence of renal disorders might be due to distribution of a particular breed in the geographical area.

Most common clinical signs recorded were inappetance, vomiting, anorexia, weight loss and polyuria/ polydypsia. Among the 24 renal failure dogs, 75% of the dogs exhibited vomiting and inappetance followed by anorexia in 50%, depression in 37.5%, pale mucous membrane in 37.5%, oral ulcer in 33.33%, melena in 29.6%, polyuria/polydipsia in 20.83%, weakness in 25%, diarrhea in 20.83%, halitosis in 20.83%, weight loss in 20.83% and dental tarter in 20.83% as shown in Table 3.

Clinical observation of 75% dogs showing vomiting

Table 2

Breed wise occurrence of renal failure			
Breed	Number of cases (%)		
Labrador Retriver	7(29.10)		
German Shepherd	6(24.00)		
Spitz	3(12.50)		
Afghan Bully	2(8.30)		
Pug	2(8.30)		
Saint Bernard	1(4.16)		
Great Dane	1(4.16)		
French mastiff	1(4.16)		
Non descript	1(4.16)		

 Table 3

 Clinical signs observed in cases of canine renal failure

Clinical signs	No of dogs affected	Percentage
Inappetance	18	75.00
Vomition	18	75.00
Anorexia	12	50.00
Dull/depressed	9	37.50
Pale mucous membrane	9	37.50
Oral ulcer	7	29.16
Melena	7	29.16
Weakness	6	25.00
Weight loss	5	20.83
Polyuria/polydepsia	5	20.83
Halitosis	5	20.83
Diarrhea	5	20.83
Dental Tarter	5	20.83

Table 4

Dietary information obtained from owner of 24 dogs suffering from chronic renal failure

Age group	Diet given					
	Milk +Chapati	Milk +Egg	Pure non Veg	Pedigree + Home made	Pedigree	
Up to 1 yr	1	-	-	1	-	
>1to 4 yr	1		2	1	1	
>4 to 8 yr	-	2	1	5	1	
8 yr and abov	e -	4	-	-	3	

as a clinical sign was in accordance with findings of Tufani et al. (2015) who showed 80.95% dogs showing vomiting. Vomiting in renal failure might be due to uremic gastropathy and retention of uremic toxins (Queau, 2012). Anorexia or decreased appetite in uremic dogs is multifactorial and the reason might be accumulation of toxic metabolic waste products, decreased clearance of hormones (leptin, ghrelin) involved in the appetite regulation centre in the brain and hyper serotoninergic state from increased tryptophan transport to the brain (Aguilera et. al., 2000). Melena in renal failure occur due to gastrointestinal ulcerations and thrombocytopathy in response to uremic toxins (Queau, 2012). Oral ulcerations were observed in 33.33% CKD dogs which is lower as compared to results of Tufani et al. (2015). In contrast to the findings of Tufani et. al. (2015) who reported 61.9 % dogs suffering from CKD having halitosis, a lower percentage of dogs showed halitosis in the present study. Halitosis in CRF results from bacterial degradation of urea to ammonia (Queau, 2012).

Sixty-two and half percent owners were ignorant

about feeding pattern of their dog and what diet to their pets to be followed. Fifty percent of pet owners were feeding home- made diet, 29.16% were feeding only packed food and 20.90% were feeding both homemade and packed food (Table 4). Out of fifty percent dogs being fed homemade diet, 25% were given pure non veg diet rich in protein. Most of the cases found positive for chronic renal failure were given high protein diet. No relationship was found between age of occurrence of renal failure and diet.

CONCLUSION

Male dogs with age above 8 years were mostly affected. Lack of knowledge of feeding pattern and ignorance of owner with regard to offering balanced diet can be the factor which had initiated the disease in their pets.

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