



Epidemiological observations on canine renal disorders

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Manuscript received: 23.10.2017; Accepted: 08.11.2017

Abstract

The present study was carried out for two years from April 2015 to April 2017 on a total of 2277 dogs presented to the Department of Veterinary Medicine, Teaching Veterinary Clinical Complex, DGCN COVAS Palampur (H.P) from different parts of the Himachal Pradesh as well as neighbouring areas of Punjab. Preliminary screening of dogs for renal disorders was based on the patient's history, clinical signs and routine urinalysis. Furthermore, haemato-biochemical estimation, urine culture and imaging techniques were used for confirmatory and differential diagnosis of renal failure. A total of 108 dogs were found to be suffering from renal disorders indicating incidence of 4.74%. The maximum incidence (50.92%) was found in dogs more than 8 years of age. Males were more affected than females. Labrador Retriever breed was most affected (26.85%) followed by Pomeranian (16.67%) whereas Saint Bernard and Great Dane were least affected (0.93%).

Key words: Renal disorders, dogs, age, sex, breed.

In view of ever increasing urbanization, unscientific feeding, ever increasing environmental pollution and abuse of common therapeutic agents, the pets, like human beings are becoming more susceptible to renal failure. Renal insufficiency has been commonly encountered in aged dogs and research has thrown more light on its pathogenesis and management. Various causes like existing renal diseases, ischemia, toxins and other events that decrease renal perfusion (Graner, 2007) and other causes like nephritis, urinary tract obstruction and lower urinary tract infections may result in renal insufficiency that leads to renal failure (Cowgill and Elliot, 2000). Advancement in diagnostic tools and awareness among pet owners make it possible to recognize the condition. A number of cases of renal affections are being presented in the Department of Veterinary Medicine, DGCN COVAS, CSKHPKV Palampur. In view of above, the present study was carried out to find out the incidence and distribution of renal disorders in dogs.

Materials and Methods

The present study was carried out for two years from April 2015 to April 2017 on a total of 2277 dogs presented to the Department of Veterinary Medicine, Teaching Veterinary Clinical Complex, DGCN

COVAS Palampur (H.P) from different parts of the Himachal Pradesh as well as neighbouring areas of Punjab. Preliminary screening of dogs for renal disorders was based on the patient's history, clinical signs (anorexia, vomition, malena, abdominal pain, polydipsia, polyuria) and routine urinalysis. Furthermore, haematobiochemical estimation, urine culture and imaging techniques (radiology and ultrasonography) were used for confirmatory and differential diagnosis of renal failure as pre-renal, renal (intrinsic) and post renal causes and finally as acute renal failure (ARF) and chronic renal failure (CRF).

Results and Discussion

Out of a total of 2277 canine cases, 108 (4.74%) were found to have renal problems. Renal disorders were highest (50.92%, 55/108) in older age dogs of >8 years followed by dogs > 2-5 years (25.92%, 28/108), 5-8 years (14.81%, 16/108) and lowest in younger dogs (8.33%, 9/108) of less than 2 years of age (Table 1). The incidence of renal disorders was found higher in males (70.37 %) than females (29.63%) (Table 2 and Fig. 1). Regarding breed wise incidence, the highest incidence was recorded in Labrador - 26.85% (male-68.97% and female-

Table 1. Age wise incidence of renal failure in dogs

S.No.	Age of dogs	Number affected	Percentage affected
1.	6 months upto 1 Year	03	2.78
2.	1-2 years	06	5.56
3.	> 2-5 years	28	25.92
4.	> 5-8 years	16	14.81
5.	> 8-11 years	30	27.78
6.	> 11 years	25	23.15

Table 2. Sex-wise incidence of renal failure in dogs

S.No.	Sex	Number affected	Percentage affected
1.	Males	76	70.37
2.	Females	32	29.63

Table 3. Breed wise incidence of renal failure in dogs

S.No.	Name of Breed	Number of dogs affected	Percentage of dogs affected	Sex	
				Male	Female
1.	Labrador Retriever	29	26.85	20	9
2.	German Shepherd	12	11.11	8	4
3.	Pomeranian	18	16.67	11	7
4.	Labrador Cross	05	4.63	3	2
5.	Pomeranian cross	08	7.40	5	3
6.	Local non descript	11	10.19	9	2
7.	Spitz	03	2.78	2	1
8.	Rottweiler	03	2.78	3	-
9.	Tibetan Mastiff	02	1.85	2	-
10.	Bull terrier	02	1.85	2	-
11.	Pug	02	1.85	2	-
12.	Cocker Spaniel	03	2.78	1	2
13.	Doberman Pinscher	02	1.85	2	-
14.	Daschund	02	1.85	-	2
15.	Pit bull	02	1.85	2	-
16.	Golden Retriever	02	1.85	2	-
17.	Saint Bernard	01	0.93	1	-
18.	Great Dane	01	0.93	1	-

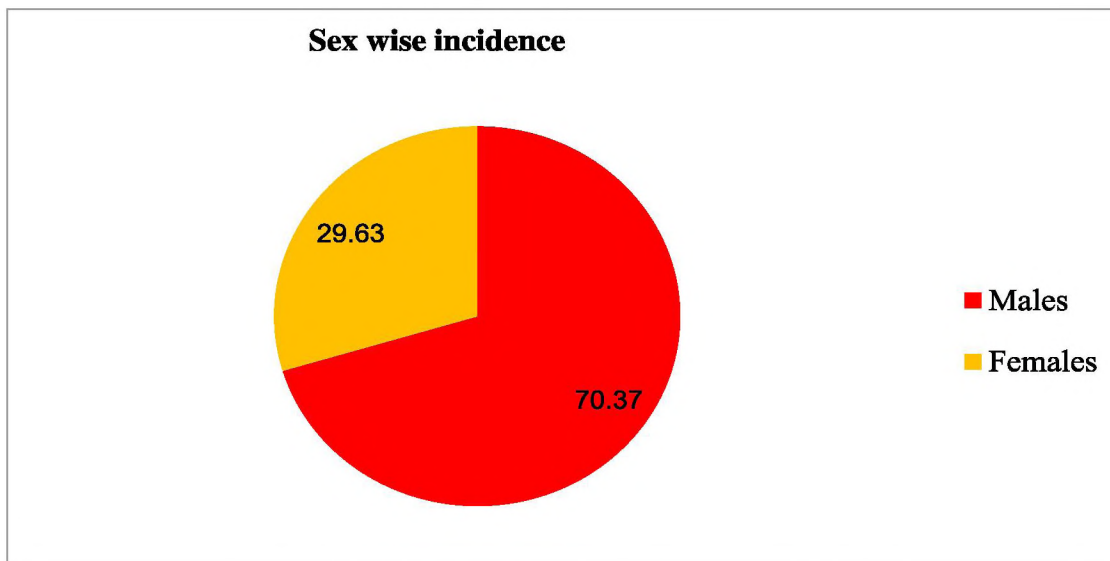


Fig. 1: Sex wise incidence of renal failure in dogs

31.03%) followed by Pomeranian- 16.67% (male-72.22% and female-38.88%), German Shepherd-11.11% (male-66.67% and female-33.33%), local non descript breed 10.19% (male-81.82% and female-18.18%) and lowest in Saint Bernard and Great Dane 0.93% each (male-100%) (Table 3).

The age wise prevalence of renal disorders was in accordance with Ahmed (2011), Kavitha *et al.* (2013), Kandula and Karlapudi (2014) and Oburai *et al.* (2015) who opined that renal disorders are more common in dogs of above 8 years of age. Mallela *et al.* (2006) reported that risk associated with renal disorders were more in dogs of older age (6-8 years). Polzin *et al.* (1989) mentioned that 15% dogs of above 10 years of age were affected with renal impairment. Higher risk of renal failure associated with aged dogs could be due to loss of nephron with the advancement of age.

The sex wise prevalence for renal disorders in canine was in accordance with the findings of Ahmed (2011), Tufani *et al.* (2015) and Oburai *et al.* (2015). 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). The incidence in males was probably also higher due to

more number of males presented for the treatment. However this is in contrast with the findings of Kandula and Karlapudi (2014) who observed higher prevalence as 63.16% in female dogs in contrast to that of male (36.84%) dogs in a study conducted on a total of 237 dogs. However, Shizuo (1995) and Tilley and Smith (2007) did not find relation of sex with occurrence of renal failure in dogs.

The prevalence of renal failure in dogs with respect to breed was in partial accordance with Ahmed (2011) who reported highest renal disorders in Labrador and German Shepherd and lowest in Pomeranian and mixed breeds as compared to Labrador followed by Pomeranian in our study. The present findings related to breed-wise prevalence were also in accordance with Saravanan *et al.* (2012) who documented high prevalence of renal failure among Labrador breeds. However Oburai *et al.* (2015) observed highest incidence of canine chronic renal failure in 54.84% dogs of Spitz breed. The relative difference with breed wise prevalence of renal disorders might be due to distribution of a particular breed in the geographical area and where the present study was carried out. The highest prevalence in Labrador could be due to the fact that this breed is more sensitive for pyometra, leptospirosis, systemic causes and other mixed conditions.

References

- Ahmed SA. 2011. Incidence of renal disorders in canines, evaluating prognostic markers in gentamicin induced nephrotoxic dogs. Thesis submitted to IVRI, Izatnagar (U.P).
- Bjorling DE. 2003. The urethra. *In: Textbook of Small Animal Surgery* (ed. Slatter, D. Philadelphia: Saunders) pp: 1638- 1651.
- Cowgill L and Elliot DA. 2000. Acute renal failure. *In: Textbook of Veterinary Internal Medicine*, eds Ettinger SJ and Feldman, EC WB Saunders, Philadelphia, pp. 1615-1633.
- Graner GF. 2007. Management of Acute Renal Failure, *BSAVA Manual of Canine and Feline Nephrology and Urology*, 2nd Edition, pp. 215-222, BSAVA Wood House, Gloucester.
- Kavitha S, Nambi AP, Srinivasan SR, Jayaprakash R and Muralimanohar B. 2013. Clinicopathological changes in chronic renal disease in dogs. *Indian Veterinary Journal* **90** (4): 131-133.
- Kandula S and Karlapudi SK. 2014. Prevalence of renal disorders in dogs-A Clinical Study. *International Journal of Agricultural Sciences and Veterinary Medicine* **2** (3): (ISSN 2320-3730).
- Mallela MK, Bhutia, YD, Suryanarayana C, Rajni V and Reddy MCS. 2006. Efficacy of conservative therapy in managing chronic renal failure in dogs. *Indian Journal of Veterinary Medicine* **26**: 89-92.
- Oburai LN, Vaikunta Rao V and Naik BR. 2015. Clinical and nephrosonographic findings in canine chronic renal failure: A Prospective Study. *IOSR Journal of Agriculture and Veterinary Science* **8** (6) : 11-16.
- Polzin DJ, Osborne CA, Adams LD and O'Brien TD. 1989. Dietary management of canine and feline chronic renal failure. *Veterinary Clinics North America Small Animal Practice* **19**: 539- 560.
- Saravanan M, Sarma K, Kumar M, Amol GR, Mahendran K and Mondal DB. 2012. Management of acute renal failure by using conventional therapy in dogs. *Indian Journal of Veterinary Medicine* **32** (2) : 111-112.
- Shizuo Matsuoka. 1995. Diagnostic significance of urinary enzymes in veterinary practice. *Japanese Journal of Veterinary Research* **43**: 70-71.
- Tilley LP and Smith FWK. 2007. Renal failure *In: Blackwell's Five Minute Veterinary Consult: Canine and feline*. Blackwell Publishing, USA. pp. 1186-1189.
- Tufani NA, Singh JL, Kumar M, Gupta D, Shekhar P and Rajora VS. 2015. Renal failure in Indian dogs: An epidemiological study. *Indian Journal of Veterinary Medicine* **35** (1): 7-11.