



ISSN: 2456-2912

VET 2024; 9(6): 204-207

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www.veterinarypaper.com

Received: 13-10-2024

Accepted: 17-11-2024

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A retrospective study on the incidence of chronic kidney disease (CKD) in dogs

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DOI: <https://dx.doi.org/10.22271/veterinary.2024.v9.i6d.1865>

Abstract

A retrospective study was conducted from October 2023 to October 2024 a total number of 2456 dogs were brought to the small animal medicine outpatient unit of the Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal. Aimed to assess the incidence of Chronic Kidney Disease (CKD) in dogs. Dogs were presented with a history of inappetence, anorexia, vomiting, weight loss, polydipsia, polyuria, anemia, and halitosis were the most frequently observed. Dogs aged 4 to 6 years (27.69%) exhibited the highest incidence compared to other age groups. The occurrence was most prevalent in German Shepherds (21.53%). Incidence was more in male (70.77%) than in female dogs (29.23%). The incidence of CKD in dogs was 2.64% (65 dogs).

Keywords: Chronic kidney disease (CKD), dogs, incidence

Introduction

Chronic kidney disease (CKD) is the presence of structural or functional abnormalities in one or both kidneys that persist for a prolonged period, typically three months or more. CKD can manifest in various forms, ranging from a minor structural abnormality in a single kidney to significant nephron loss in both kidneys. The four-tier staging system, which evaluates renal function, proteinuria, and blood pressure, aids in the application of suitable clinical practice guidelines for diagnosis, prognosis, and treatment stated by Polzin (2011) [10]. Bartges (2012) [2] noted that the kidneys' primary roles include the secretion of cytokines and hormones, the excretion of waste metabolites, and the maintenance of electrolyte balance also highlighted that CKD is marked by a gradual decline in renal function and is linked to high mortality rates. The clinical course of CKD is progressive and irreversible, with eventual uraemia and azotaemia (Plantinga). Clinical signs reportedly associated with decreased kidney function include loss of appetite, vomiting, loss of body weight, and increase in water consumption and urine production polydipsia/polyuria stated by Grauer *et al.*, (2005) [4] and Chen *et al.* (2020) [3].

Materials and Methods

Incidence of chronic kidney disease in dogs were evaluated for a period of one year between October 2023 to October 2024. A total number of 2456 dogs were brought to the small animal medicine outpatient unit of the Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal. A complete history and signalment of each case were recorded, and the incidence of CKD was analyzed based on factors such as age, breed, sex, stage and clinical signs aimed to assess the incidence of CKD in dogs. A comprehensive clinical examination was conducted to identify CKD.

Results and Discussion

In the present study, a total number of 2456 dogs were brought to the small animal medicine outpatient unit of the Veterinary Clinical Complex, Veterinary College and Research Institute, Namakkal and the incidence of chronic kidney disease in dogs was 2.64% (65 dogs). The present study indicates CKD incidence was similar to another researcher such Sosnar *et al.*

(2003) [12]. Age wise incidence of CKD in dogs are presented in Table 1. In the present study, the incidence of chronic kidney disease was higher in dogs aged 4-6 years (27.69%) followed by above 8 years (26.1%) 6-8 years (21.5%), 2-4 years (18.46%) and below 2 years (6.15%) (Fig.2). these findings are similar to Ramesh *et al.* (2018) [13]. Gender wise incidence of CKD in dogs are presented in Fig. 3. CKD was more in male (70.77%) than in female dogs (29.23%) which in accordance to Kavitha (2010) [6]. Stage wise incidence of dogs affected with CKD are presented in Table 2. In this study CKD incidence was higher in stage IV (32.30%),

followed by stage I (26.15%), stage II (23.07%) and stage III (18.46%) (Fig.4) based on (IRIS) in 2023 similar to the other researchers Sonu *et al.* (2019) [11] and Abhinav *et al.* (2021) [1].

Incidence of CKD in different breeds of dogs are illustrated in Table 3 and Fig.5. The incidence of CKD was higher in German Shepherds (21.53%) followed by Labrador (18.46%), Mongrel (13.84%), Spitz (9.23%), Doberman, Golden Retriever and Pug were 6.15% each, Rottweiler and Great Dane were 4.61% each, while Pitbull, Chippiparai and Rajapalayam were 3.07% each similar to Nabi *et al.* (2018) [5].

Table 1: Age wise incidence of CKD affected dogs

S. No.	Age group	CKD (n=65)
1	Up to 2 years	4 (6.15%)
2	2-4 years	12 (18.46%)
3	4-6 years	18 (27.69%)
4	6-8 years	14 (21.5%)
5	Above 8 years	17 (26.1%)

Table 2: Stage wise incidence of CKD in dogs

S. No.	Stage	CKD (n=65)
1.	Stage I	17 (26.15%)
2.	Stage II	15 (23.07%)
3.	Stage III	12 (18.46%)
4.	Stage IV	21 (32.30%)

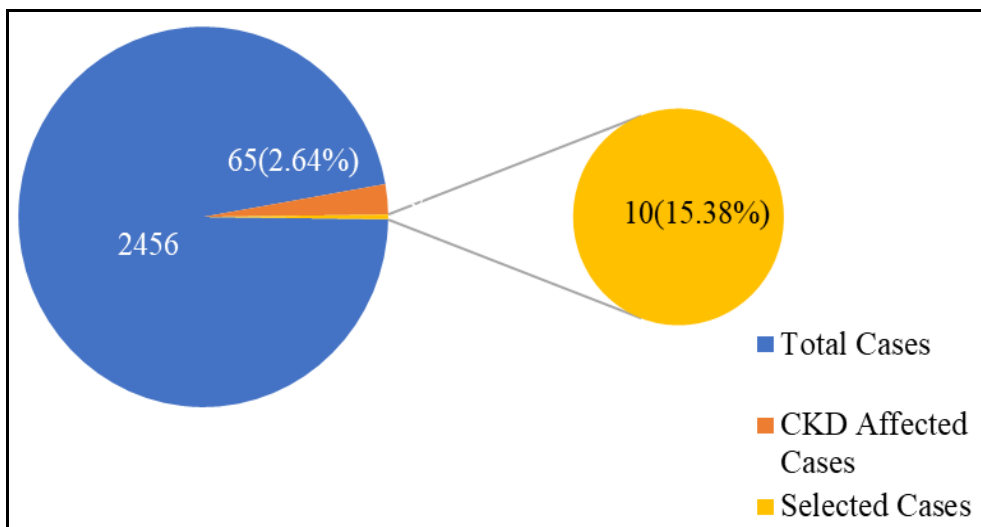


Fig 1: Incidence of CKD affected dogs

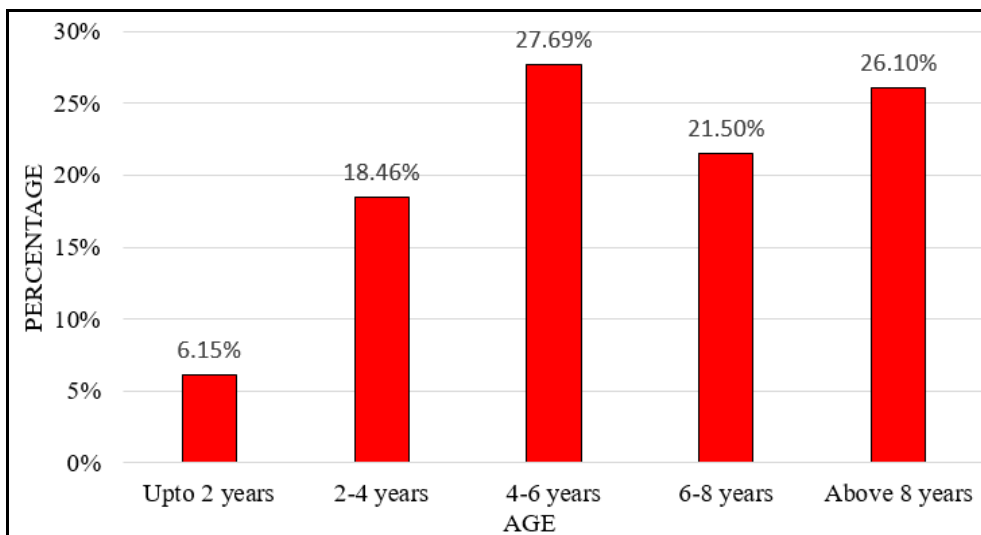


Fig 2: Age wise incidence of CKD in dogs

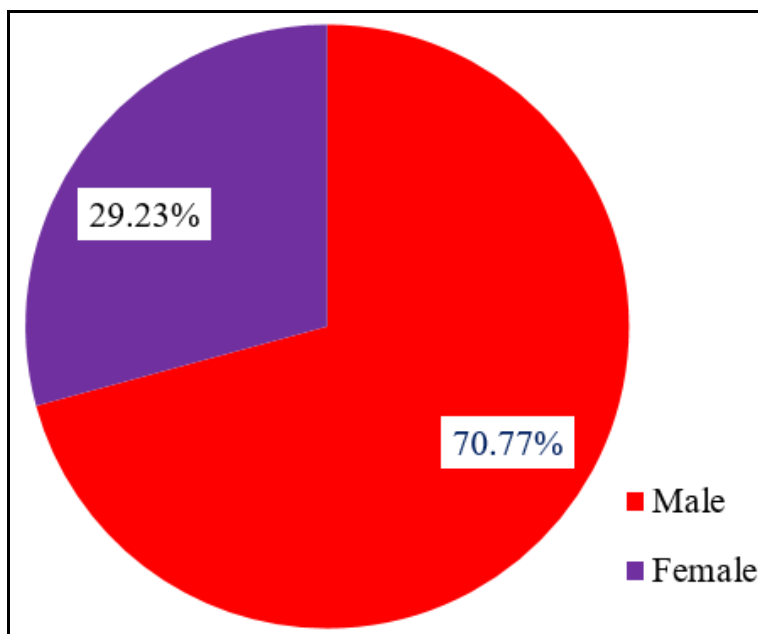


Fig 3: Gender wise incidence of CKD in dogs

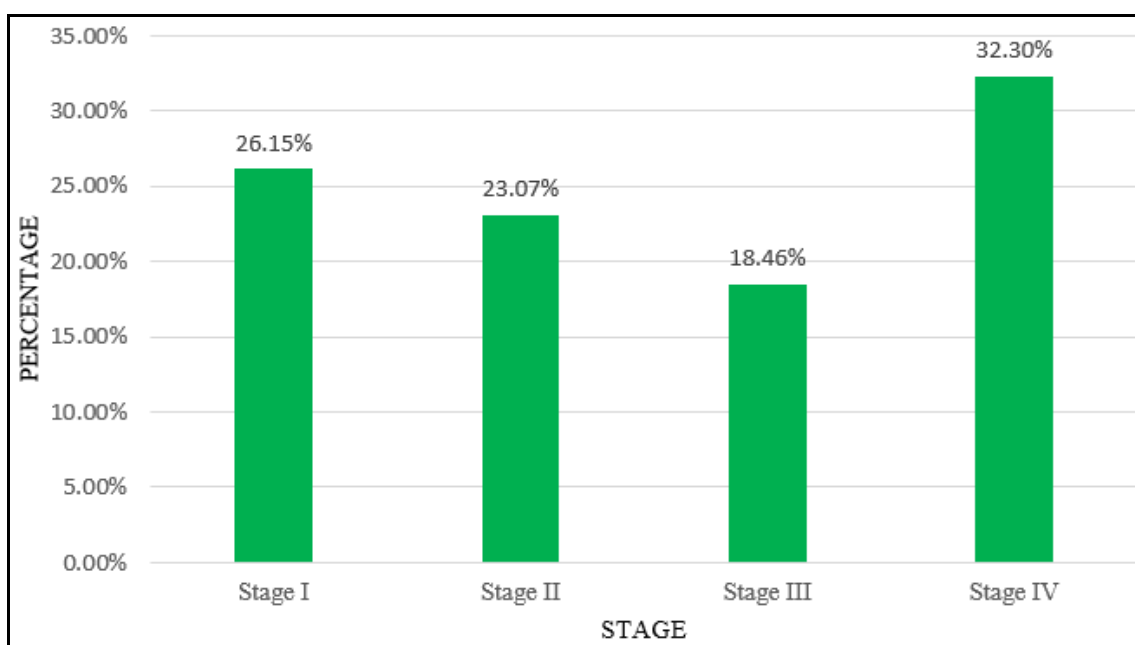


Fig 4: Stage wise incidence of CKD in dogs

Table 3: Breed wise distribution of CKD in dogs

S. No.	Name of the breed	CKD (n=65)
1.	German Shepherd	14 (21.53%)
2.	Mongrel	9 (13.84%)
3.	Labrador	12 (18.46%)
4.	Spitz	6 (9.23%)
5.	Doberman	4 (6.15%)
6.	Golden retriever	4 (6.15%)
7.	Rottweiler	3 (4.61%)
8.	Pug	4 (6.15%)
9.	Great Dane	3 (4.61%)
10.	Pitbull	2 (3.07%)
11.	Chippiparai	2 (3.07%)
12.	Rajapalayam	2 (3.07%)

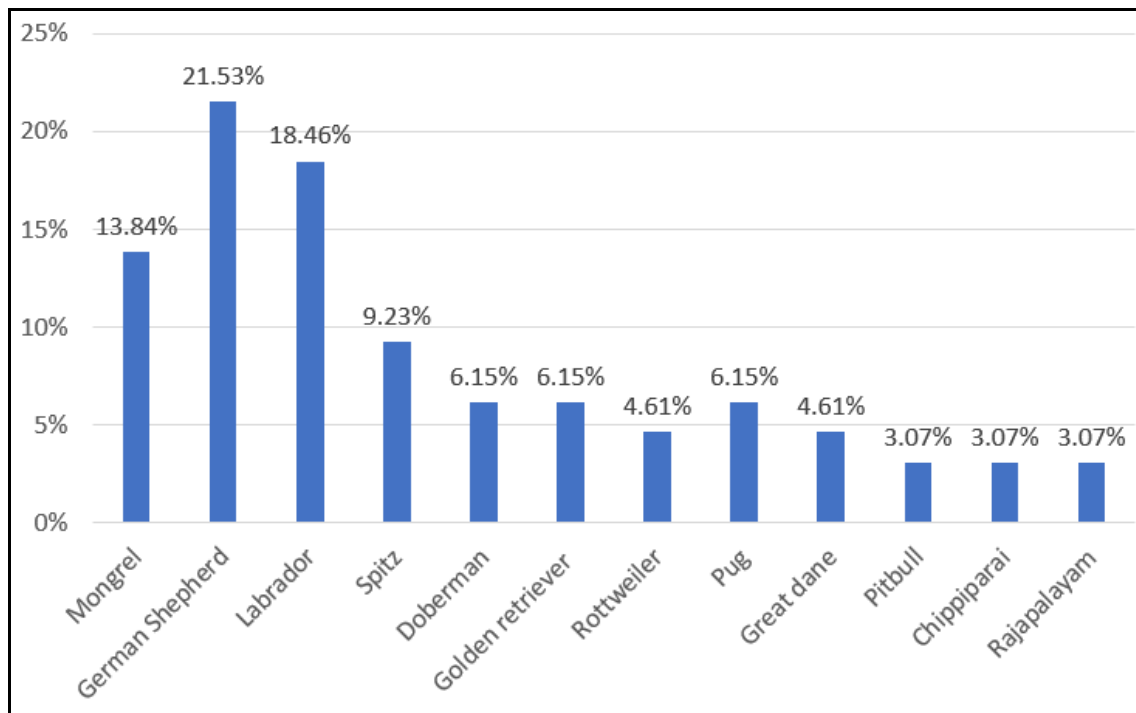


Fig 5: Breed wise distribution of CKD in dogs

Conclusion

In the present study, the incidence of CKD was higher at 4-6 years of age and the German shepherd breed is highly prone. Males are more prone to CKD than females and among IRIS staging stage IV was recorded high in the clinical setting. Pet owners are not aware of CKD in dogs, they miss early signs and present the case at a later age. So, this paper presented to create awareness among the scientific community regarding the early health checkup of pets at the age of 4 years and above.

References

1. Abhinav K, Lakshmi K, Ambica G, Kumar BA. Incidence of chronic kidney disease in dogs. *The Pharma Innovation Journal*. 2021;10(6):738-774.
2. Bartges JW. Chronic kidney disease in dogs and cats. *Vet Clin North Am Small Anim Pract*. 2012;42(4):669-692.
3. Chen H, Dunaevich A, Apfelbaum N. Acute on chronic kidney disease in cats: etiology, clinical and clinicopathologic findings, prognostic markers, and outcome. *J Vet Intern Med*. 2020;34(4):1496-1506.
4. Grauer GF, Brown S. Chronic kidney disease and the role of phosphorus binders. *Clinician's Update*; c2005. p. 1-4.
5. Nabi SU, Dey S, Shah OS, Hussain T, Amin U, Vala J, *et al*. Incidence of renal disorders in canines and its relation with age, breed, and sex. *J Pharma Innov*. 2018;7(1):87-89.
6. Kavitha K. Early detection of renal dysfunction in dogs [thesis]. Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar; c2010.
7. McGrotty Y. Diagnosis and management of chronic kidney disease in dogs and cats. *In Pract*. 2008;30(9):502-507.
8. Plantinga EA, Everts H, Kastelein AMC, Beynen AC. Retrospective study of the survival of cats with acquired chronic renal insufficiency offered different commercial diets. *Vet Rec*. 2005;157(7):185-187.
9. Polzin DJ. Chronic kidney disease. In: Ettinger SJ, Feldman EC, editors. *Textbook of veterinary internal medicine*. St. Louis (MO): Saunders Elsevier, c2010. p. 1990-2021.
10. Polzin DJ. Chronic kidney disease in small animals. *Vet Clin North Am Small Anim Pract*. 2011;41(1):15-30.
11. Sonu AK, Charaya G, Bangar Y, Agnihotri D, Kumar T. Haemato-biochemical alterations in dogs suffering from chronic renal failure. *Indian J Vet Med*. 2019;39(1):31-35.
12. Sosnar M, Kohout P, Ruzikha M, Vrbasova L. Retrospective study of renal failure in dogs and cats admitted to University of Veterinary and Pharmaceutical Sciences, Brno, during 1999-2001. *Acta Vet Brno*. 2003;72(4):593-598.
13. Ramesh A, Varghese S, Jayakumar ND, Malaiappan S. Comparative estimation of sulfiredoxin levels between chronic periodontitis and healthy patients—A case-control study. *Journal of periodontology*. 2018 Oct;89(10):1241-8.

How to Cite This Article

Venkatesh A, Swamy KKP, Sumathi D, Ramya K, Reddy KRR. A retrospective study on the incidence of chronic kidney disease (CKD) in dogs. *International Journal of Veterinary Sciences and Animal Husbandry*. 2024;9(6):204-207.

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