



SHORT COMMUNICATION

Acute Kidney Disease in Dogs an Epidemiological Study

Pooja Dawar^{1*}, Brejesh Singh¹, Shashi Pradhan¹, Amita Tiwari¹, Devendra Kumar Gupta¹,
Srashty Singh¹ and Pushendra Maravi²

¹Department of Veterinary Medicine, College of Veterinary Science and Animal Husbandry, N.D.V.S.U., Jabalpur (M.P), INDIA

²Department of Veterinary Gynaecology and Obstetrics, College of Veterinary Science and Animal Husbandry, N.D.V.S.U.,
Jabalpur (M.P), INDIA

*Corresponding author: P Dawar; E-mail: pujadawar57@gmail.com

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ABSTRACT

The present study was aimed to record the occurrence of acute kidney diseases in dogs. Overall occurrence of acute kidney diseases was 01.18 % (32/2696). Out of 148 suspected dogs 21.62% (32/148) suffered with acute kidney disease. The age wise occurrence of acute kidney disease was found to be higher in dogs aged between 4-8 years 28.12% (18/64), followed by dogs above 8 years 25.00% (12/48) of age and was less in dogs 1-4 years age 10.52% (02/19). Breed wise occurrence was higher in Labrador retriever 26.82% (11/41).

HIGHLIGHTS

- Overall occurrence of acute kidney diseases was 01.18 %.
- The age wise occurrence of acute kidney disease was found to be higher in dogs aged between 4-8 years of age.

Keywords: Occurrence, acute kidney disease, dogs

Acute kidney disease is characterized by an increase in serum creatinine along with oliguria or anuria and is defined as a sudden onset of potentially life-threatening kidney dysfunction linked to an abrupt injury to the renal parenchyma (Rimer *et al.*, 2022). Increased urbanisation, environmental contamination, improper feeding practices, and the indiscriminate use of pharmaceutical substances could all contribute to this. (Katoch *et al.*, 2018). Hence, the present study was conducted to record the occurrence of acute kidney disease in dogs that were presented to the Veterinary Clinical Complex, College of Veterinary Science and A.H. Jabalpur.

A total of 2696 dogs presented at V.C.C., College of Veterinary Science and Animal Husbandry, Jabalpur, from May 2022 to November 2022 were screened for the study. Among them, 148 dogs elicited clinical signs, were subjected to haemato-biochemical and urinalysis for confirmation of acute kidney disease. Finally, 32 dogs were found suffering from acute kidney disease during the

study period. The recorded data were analyzed by using one-way ANOVA in IBM SPSS software using standard techniques (Snedecor and Cochran 1994).

The study was aimed primarily to establish the evidence-based status of acute kidney disease in dogs presented at VCC Jabalpur. For this purpose, a total of 2696 dogs, irrespective of age, breed and sex presented at the Veterinary Clinical Complex (VCC), College of Veterinary Science and Animal Husbandry, N.D.V.S.U., Jabalpur, Madhya Pradesh. A total of 2696 dogs were examined during a period of seven months *i.e.*, from May 2022 to November 2022. Total 148 dogs showed clinical signs pertaining to acute kidney disease, out of which 32 dogs were found affected. The overall occurrence of acute

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kidney disease in total dog population was 01.18 per cent (32/2696) whereas occurrence among suspected dogs was 21.62 per cent (32/148). The results are shown in Table 1.

Table 1: Overall occurrence of acute kidney disease in dogs

Particulars	No. screened	No. affected	Occurrence (%)
Total Dog population	2696	32	01.18
Dogs suspected of acute kidney disease	148	32	21.62

The study’s results are similar to the findings of Yalavarthi *et al.* (2020) who reported the occurrence of acute kidney disease as 18.24 per cent. However, these observations contrast with those of Sumit *et al.* (2018) who reported that acute kidney disease was 30.23 per cent. The possible explanation is that variations in estimating the occurrence per cent could potentially be explained by variances in study design and technique.

The age wise occurrence was studied in 148 total suspected dogs of acute kidney disease. Out of 32 confirmed cases of acute kidney disease, the occurrence in dogs of age group between 0-4 years, 4-8 years and more than 8 years was 10.52 per cent (02/19), 28.12 per cent (18/64) and 25.00 per cent (12/48), respectively. A non-significant difference was observed in the age wise occurrence of acute kidney disease. In this study, the highest occurrence of acute kidney disease was in the age group 4-8 years. The results are shown in Table 2.

Table 2: Age wise occurrence of acute kidney disease in dogs

Age groups (years)	No. screened (n=148)	No. affected (n=32)	Occurrence (%)
0-4	19	02	10.52
4-8	64	18	28.12
More than 8	48	12	25.00

$\chi^2 = 2.471^{NS}$; non-significant $p > 0.05$.

The result of this study was in accordance with Tufani *et al.* (2015), Badesiya (2016), Sumit *et al.* (2018) and Yalavarthi (2020) who reported the highest incidence in middle-aged dogs. However, these observations are in contrast with Ahmad (2011), Sharma (2014), Mshelbwala *et al.* (2016) and Devipriya *et al.* (2018) who have observed a higher

incidence in old-aged dogs. The possible reason for the higher occurrence of acute kidney disease in middle-aged dogs may be due to the greater incidence of infections.

The breed wise occurrence was studied in 148 total suspected dogs of acute kidney disease. Out of 32 confirmed cases of acute kidney disease, the occurrence in confirm dogs were Labrador Retrievers 26.82 per cent (11/41), Spitz 21.05 per cent (04/19), Non-descript 21.73 per cent (10/46), German Shepherd 18.51 per cent (05/27) and other breeds (Rottweiler, Pug, Golden Retriever) 13.33 per cent (02/15). A non-significant difference was observed in the breed wise occurrence of acute kidney disease. In this study, the highest occurrence of acute kidney disease was in Labrador Retrievers. The results are shown in Table 03. The observations recorded in the present study are similar with the earlier reports of Kandula and Karlapudi (2014), Tufani *et al.* (2015), Sumit *et al.* (2018), Nabi *et al.* (2018), Athaley (2018) and Thade (2019) reported a higher occurrence of acute kidney disease in the Labrador retriever dogs. However, these findings were contrary with Oburai *et al.* (2015) who reported the incidence to be highest in the Spitz breed of dog. Labrador retriever dogs appeared to be the breed with the highest infection rate, the popularity of the breed could be the cause for it.

Table 3: Breed wise occurrence of acute kidney disease in dogs

Breed	No. examined (n=148)	No. affected (n=32)	Occurrence (%)
Labrador Retrievers	41	11	26.82
Spitz	19	04	21.05
Non-descript	46	10	21.73
German Shepherd	27	05	18.51
Others, (Rottweiler, Pug, Golden retrievers)	15	02	13.33

$\chi^2 = 1.422^{NS}$; non-significant $p > 0.05$.

Gender wise occurrence was studied in 148 total suspected dogs of acute kidney disease. Out of 32 confirmed cases of acute kidney disease, the occurrence was 23.95 per cent (23/96) in male dogs and 17.30 per cent (09/52) in female dogs. A non-significant difference was observed in gender wise occurrence of acute kidney disease. In this study, the highest occurrence of acute kidney disease was observed in male dogs. The results are presented in Table

04. The present finding were similar to the work of Oburai *et al.* (2015), Tufani *et al.* (2015), Sumit (2018), Athaley (2018) and Yalavarthi (2020) observed higher occurrence in male dogs. However, these findings were in contrast with Kandula and Karlapudi (2014), Mukherjee *et al.* (2014) and Nabi *et al.* (2018) where they found that the prevalence was more in female dogs as compared to male dogs. Higher occurrence in male dogs may be attributed to anatomical variations in the volume and size of the urogenital system and the male and female kidneys, which may contribute to the development of disease.

Table 4: Gender wise occurrence of acute kidney disease in dogs

Sex	No. screened (n=148)	No. affected (n=32)	Occurrence (%)
Male	96	23	23.95
Female	52	09	17.30

$\chi^2 = 0.88^{NS}$; non-significant $p > 0.05$.

CONCLUSION

The overall occurrence of acute kidney disease in dogs was found to be 01.18%, Among suspected dogs, it was 21.62%. Breed wise highest occurrence observed in Labrador retriever *i.e.*, 26.82% and age wise in dogs of 4-8 years of age had more occurrence of acute kidney disease. No significant variation in gender wise occurrence was observed.

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