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A RETROSPECTIVE STUDY OF RENAL INSUFFICIENCY IN DOGS AND CATS FROM A VETERINARY CLINIC IN SOUTHERN ROMANIA

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Abstract: Kidney insufficiency represents one of the most common and life-threatening disorders affecting companion animals, particularly dogs and cats. The present study aimed to evaluate the prevalence, the clinical manifestations, and therapeutic approaches associated with renal insufficiency in canine and feline patients. The research was conducted in a veterinary clinic from southern Romania, over a four-year period, and included a total of 30 patients diagnosed with chronic kidney disease (CKD), comprising 16 dogs and 14 cats. Diagnosis was established based on clinical examination and laboratory investigations, particularly serum creatinine and urea levels. The highest prevalence of CKD was observed in animals aged 11–20 years, confirming the strong correlation between age and renal pathology. Females were more frequently affected in both species, accounting for 75% of canine and 71% of feline cases. Most patients exhibited elevated biochemical parameters, with creatinine values exceeding 5 mg/dl predominantly in females, while nearly all animals presented urea levels above normal reference ranges. Statistical analysis of the collected data revealed no significant differences ($p > 0.05$) regarding the evaluated clinical manifestations (polydipsia, vomiting, diarrhea, constipation) or serum creatinine and urea values in relation to sex or age group. Anorexia showed borderline statistical significance ($p = 0.045$), suggesting its potential importance as an early clinical indicator. Diarrhea and constipation were also recorded but showed no statistically significant association with renal insufficiency ($p > 0.05$). Therapeutic management commonly included antibiotics, antiemetics, gastric protectants, analgesics, vitamin supplementation, fluid therapy, renal support products, and diuretics when necessary. Given the higher prevalence of chronic kidney disease observed in females, closer clinical monitoring and regular screening are recommended for this group. Early detection strategies should be encouraged, particularly in animals presenting anorexia, a clinical sign that showed borderline statistical significance and may serve as an important indicator in the early diagnosis of renal insufficiency.

Keywords: kidney insufficiency, canine, feline, prevalence

Introduction

Renal failure represents a major clinical challenge in veterinary medicine, being associated with significant morbidity and mortality in both canine and feline patients.

Kidney insufficiency develops when approximately 75% of functional nephrons in both kidneys are lost, resulting in the inability to adequately filter metabolic waste and maintain normal physiological balance [Brown, 2013, Elliott et al, 2017, Nelson and Couto, 2009]. Chronic renal failure is defined by a progressive and irreversible loss of nephrons over months or years and represents the final stage of various chronic renal diseases [Elliott et al, 2017, Jubb et al, 2007, Nelson and Couto, 2009].

The early detection of renal dysfunction continues to represent a major challenge in veterinary medicine, primarily because the kidneys possess a substantial compensatory capacity that can mask clinical manifestations until the disease reaches advanced stages [Bannadi, 2024, Brown, 2013]. Considering the growing prevalence of renal insufficiency in companion animals and the heterogeneity of clinical presentation among affected patients, prompt identification of clinical signs and biochemical abnormalities is essential for improving diagnostic accuracy, prognosis, and survival outcomes.

Therefore, the aim of this study was to evaluate the prevalence, clinical manifestations, and therapeutic approaches associated with renal insufficiency in dogs and cats.

Material and method

- veterinary clinic in southern Romania
- four-year period
- 16 dogs (four German Shepherd, one Poodle, 11 mixed-breed)
- 14 cats (four Birman, three Siamese, seven mixed-breed)

Clinical signs followed: polydipsia, vomiting, diarrhea or constipation, anorexia, ammoniacal halitosis, progressive weight loss, and the presence of oral ulcers or mucosal lesions

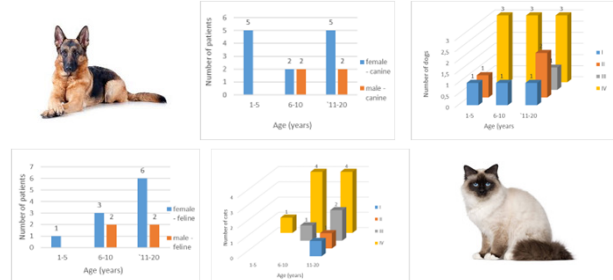
Biochemical blood analyses: serum creatinine and urea concentrations; (initial admission to the clinic and reassessed after a seven-day interval) IRIS classification was used for staging of CKD.

Stage	Blood creatinine* μmol/l mg/dl	Comments
		Dogs Cats
1	<125 1.4–2.8	Normal blood creatinine or normal or mild increase blood SPM. Some other laboratory evidence (such as, in dogs, polydipsia, polyuria, or weight loss) without identifiable renal cause (i.e. not CKD).
2	125–250 1.4–2.8	Normal or mildly increased creatinine, mild renal azotemia (lower end of the range lies within reference ranges for creatinine for many laboratory tests, but the possibility of creatinine concentration as a screening test means that patients with creatinine values close to the upper reference limit often have necessary follow-up). Mildly increased SPM. Clinical signs usually mild or absent.
3	251–400 2.9–5.0	Moderate renal azotemia. Many conventional signs may be present, but their extent and severity may vary. If signs are absent, this stage could be considered as early Stage 3, while presence of many or marked systemic signs might justify classification as late Stage 3.
4	>400 >5.0	Increasing risk of systemic clinical signs and uremic crisis.
	>51 >38	

SDMA concentrations were not evaluated in any of the studied patients, and arterial blood pressure measurements were not performed for CKD substaging. Urinalysis, complete blood count and several biochemical parameters were not available for all patients because of difficulties associated with sample collection procedures and the additional diagnostic expenses that were declined by the owners. Long-term follow-up of the patients was also restricted, as repeated clinical reassessments were not consistently accepted by the owners.

Statistical analysis and data interpretation were performed using IBM SPSS Software. Descriptive statistical methods were applied to evaluate the distribution of cases according to species, sex, age groups, clinical signs, and biochemical parameters. Comparative analyses were conducted to assess potential differences in clinical manifestations and biochemical values according to sex and age groups, with statistical significance considered at $p < 0.05$.

Results and discussions



No statistically significant differences were found ($p > 0.05$) between the CKD occurrence and the presence of polydipsia, vomiting, diarrhea, or constipation.

Anorexia was the most consistently observed clinical sign, affecting 14 dogs (87.5%) and all 14 cats (100%). The borderline statistical significance ($p = 0.045$) supports anorexia as a useful clinical predictor of kidney insufficiency progression.

56.25% of the dogs were categorized as stage IV, with a predominance among females (37.5%). Most cats were included in stage IV renal failure, with females showing the highest prevalence (42.86%). No significant differences ($p > 0.05$) were found in creatinine or urea values according to sex or age group in either dogs or cats.

The therapeutic approach used at the clinic included: antibiotics when gastrointestinal infection (Metronidazole, Synulox), antiemetics (Metoclopramide, Maropitant, Ondansetron), gastric protectants (Controloc), lactulose for constipation, analgesic medication (Buprenorphine) and various supportive supplements (Renalvet, Pronefra, Azodil, B complex vitamins). This management strategy is supported by current literature [Bartges, 2012, Li et al., 2013, Marks et al, 2018, Quimby, 2016, Worwag and Langston, 2008], and reflects the current consensus that CKD management is palliative, aiming to slow progression and improve quality of life rather than achieve cure.

Conclusions

Given the higher prevalence of chronic kidney disease observed in females, closer clinical monitoring and regular screening are recommended for this group. Attention should be given to animals exhibiting anorexia, as this clinical sign demonstrated borderline statistical significance and could represent a valuable indicator for the early recognition of renal insufficiency.

The high prevalence of severe clinical manifestations suggests that many animals were presented in advanced stages of disease, thereby negatively influencing prognosis, and limiting therapeutic options.

Therefore, the implementation of early screening programs in geriatric patients, together with routine biochemical monitoring and improved owner awareness regarding the early signs of CKD, may contribute significantly to earlier diagnosis, delayed disease progression, and improved long-term clinical outcomes in affected animals.