THE RELATIONSHIP BETWEEN WEIGHT AND DISEASE SEVERITY IN DOGS WITH CHRONIC KIDNEY DISEASE: RESULTS FROM A REAL-WORLD STUDY

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INTRODUCTION

Chronic kidney disease (CKD) is common in older dogs (1, 2) with symptoms such as polyuria, polydipsia, weight loss and loss of body condition, amongst others, being commonly reported (2, 3). Despite this, our understanding of the relationship between weight and CKD in dogs remains limited.

OBJECTIVE

To assess the relationship between weight and disease severity in dogs with chronic kidney disease (CKD).

METHODS

Data were drawn from the Adelphi Real World Canine CKD Disease Specific Programme (DSP)™, a cross-sectional survey of veterinarians treating dogs with CKD in the United States from December 2022 to January 2024.

Veterinarians provided data on dog's demographics, clinical characteristics, weight and CKD disease severity.

Weight groupings were taken from the American Kennel Club and adjusted for sex, with dogs placed into one of three pre-defined weight groups: underweight, expected weight, or overweight.

International Renal Interest Society (IRIS) staging system was used to define severity, ranging from stage I (mild loss of kidney function) to stage IV (end stage renal failure).

Ordered logistic regression analysis was used to compare IRIS stages II, III and IV with IRIS stage I for outcome weight groups, while confounding for age.

Bivariate comparisons across and between groups were made using Fisher's exact test.

RESULTS

Overall, 71 veterinarians provided data for 255 dogs with CKD. The mean [SD] dog age was 11.34 [3.45] years and 56.5% were female. The mean [SD] time since diagnosis of CKD was 12.52 [16.36] months. The most common breed was labrador retriever (**Table 1**).

Table 1. Top ten most common breeds

Breed (American Kennel Club), n (%)	Dogs with CKD (n=255)
Labrador retriever	26 (10.2%)
Yorkshire terrier	25 (9.8%)
Chihuahua	21 (8.2%)
Shih tzu	15 (5.9%)
Golden retriever	12 (4.7%)
Maltese	12 (4.7%)
Poodle (Mminiature)	10 (3.9%)
Miniature schnauzer	9 (3.5%)
American staffordshire terrier	9 (3.5%)
Australian shepherd	9 (3.5%)

RESULTS (Continued)

At data collection, the proportion of dogs that were underweight, expected weight, and overweight was 18.0%, 43.1%, and 38.8%, respectively (**Figure 1**). The proportion of dogs at IRIS stages I, II, III and IV was 21.2%, 48.6%, 22.4%, and 7.8%, respectively (**Figure 2**).

Figure 1: Proportion of dogs within each weight grouping

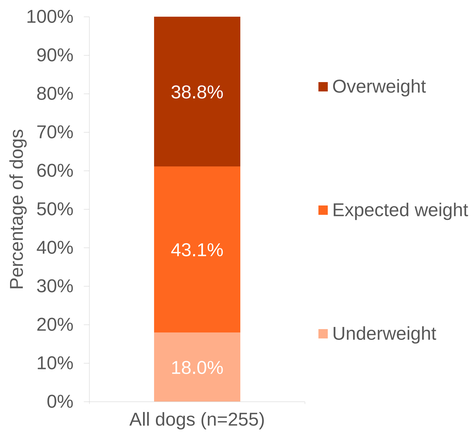
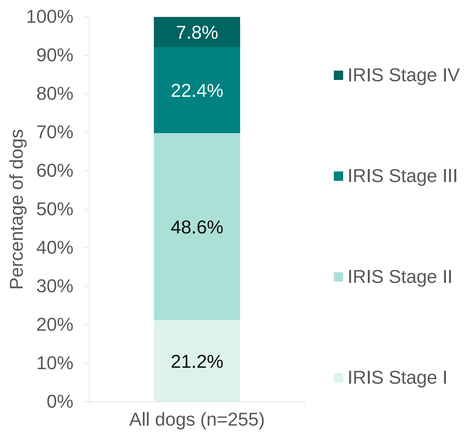


Figure 2: Proportion of dogs within each IRIS stage



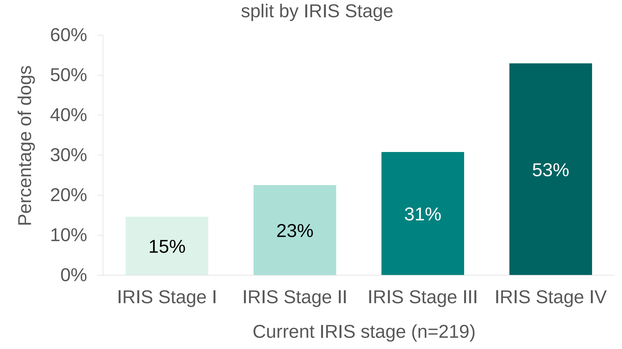
Regression analysis (**Figure 3**) showed that as disease severity increased, the odds of being underweight compared to expected or overweight increased. IRIS stages II (odds ratio [OR], 1.60; p=0.094) and III (OR, 1.48; p=0.241) were not significantly associated weight groups. IRIS stage IV was significantly associated with an increased likelihood of being underweight (OR, 2.55; p=0.027).

Figure 3. Current weight group vs IRIS stage

RESULTS (Continued)

Veterinarians also reported that 32.9% of dogs were experiencing unexplained weight loss at data collection, with more than half of dogs at IRIS Stage IV experiencing this clinical sign (**Figure 4**).

Figure 4. Veterinarian-reported unexplained weight loss split by IRIS Stage



Bivariate analysis identified a significant difference in the proportion of patients with unexplained weight loss across IRIS stages (p=0.015). Pairwise comparison found that a significantly higher proportion of dogs had unexplained weight loss at IRIS stage IV compared to IRIS stage I (p=0.003) and IRIS stage II (p=0.016).

CONCLUSIONS

Weight loss is a prominent clinical sign in dogs with CKD, particularly in later stages. While dogs were identified as expected, overweight and underweight in each IRIS Stage, in the final stage of CKD the likelihood of being underweight increased significantly. Weight should be monitored in all dogs with CKD.

LIMITATIONS

Participating dogs may not reflect the general CKD population since the DSP only includes dogs who are under veterinary care. This means that dogs who present more frequently have a higher likelihood of being included.

The cross-sectional design of this survey prevented any conclusions about causal relationships; however, identification of significant associations was possible.

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