Proteinuria in Canine Cancer Patients

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In the Literature

Prudic RA, Saba CF, Lourenço BN, Bugbee AC. Prevalence of proteinuria in a canine oncology population. *J Small Anim Pract*. 2018;59(8):496-500.

FROM THE PAGE ...

Loss of protein via the urinary tract can occur secondary to several underlying diseases, including neoplasia. Assessment of the degree of proteinuria in dogs may be helpful for documenting the severity of protein loss, which can help clinicians decide how best to manage the patient.

This study sought to document the point prevalence of proteinuria in a population of dogs with various neoplasms (excluding lower urinary tract neoplasia) and to assess the severity of protein loss. Of the 60 patients enrolled, 51.7% had some degree of

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TABLE

CAUSES OF PROTEINURIA

Prerenal (Overload) Causes	Renal Causes	Postrenal Causes
Immunoglobulin light chains Hemoglobin Myoglobin Strenuous exercise Fever Seizures	Glomerular loss Tubular loss	Hemorrhage Inflammation Infection

Continues ▶

proteinuria. Most results were borderline; only 15% of patients exhibited overt proteinuria, and only 2 dogs had a urine protein:creatinine ratio >2.0 (reference value, <0.5).

When evaluating the significance of proteinuria, it is important to review the urine sediment. This is a crucial part of a complete urinalysis and is required for proper interpretation of other variables. Presence of hemorrhage[1] or inflammation[2] (infectious or noninfectious) in the sample can confound the ability to identify whether presence of protein is due to glomerular leakage or poor tubular reabsorption rather than an active sediment. In this situation, the cause of hematuria and/or pyuria must be identified and addressed, then proteinuria reassessed. If proteinuria persists in the absence of these confounders, it can be assumed that the protein is present due to kidney disease.

In addition, proteinuria must be interpreted in the context of urine specific gravity.[2] Although a 1+ dipstick reaction might not be concerning in a well concentrated sample, the same reaction in dilute urine should be taken seriously and further evaluated. Other prerenal causes of mild proteinuria (eg, fever, strenuous exercise) must also be considered.

The results of this study suggest that proteinuria occurs frequently in dogs with cancer, although the clinical significance in most cases may be minimal. Establishing baseline protein loss at cancer diagnosis, with subsequent monitoring for progression during therapy, may be warranted to ensure worsening kidney disease does not impact patient quality of life or management of underlying neoplasia. Other biomarkers of kidney disease should also be taken into consideration.

… TO YOUR PATIENTS

Key pearls to put into practice:

1. Patients identified as proteinuric should have a complete health assessment, including physical examination and diagnostic procedures to rule out underlying neoplasia.
2. Proteinuria should be interpreted in the context of an inactive urine sediment. If hemorrhage or inflammation is present, the amount of protein in the sample will be increased.
3. Even if proteinuria appears minimal, patients should be monitored for progression, which could negatively impact patient response to cancer therapy.

References

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2. Meuten D. Laboratory evaluation and interpretation of the urinary system. In: Campbell TW, Allison RW, Thrall MA, Weiser G, eds. *Veterinary Hematology and Clinical Chemistry*. 2nd ed. Ames, IA: Wiley-Blackwell; 2012:356.