

Serum Biomarker Test to Monitor Canine Lymphoma

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In the Literature

Alexandrakis I, Tuli R, Ractliffe SC, et al. Utility of a multiple serum biomarker test to monitor remission status and relapse in dogs with lymphoma undergoing treatment with chemotherapy. *Vet Comp Oncol*. 2017;15(1):6-17.

FROM THE PAGE ...

Acute phase proteins are biomarkers of inflammation, infection, neoplasia, stress, and trauma and are integral portions of the innate immune response.

Haptoglobin and C-reactive protein have increased synthesis and release in many conditions, including cancer, and can be easily and accurately measured in canine serum; they are also useful markers of prognosis in human lymphoid neoplasia.¹⁻³ When measured separately, these proteins cannot differentiate well between cancer and other disease states. Algorithms have been developed to investigate the combination of serum haptoglobin and C-reactive protein in the diagnosis and monitoring of canine lymphoma, termed the canine lymphoma blood test (cLBT).²

This retrospective study of 57 dogs aimed to determine cLBT utility to monitor remission status and predict therapy response in dogs with lymphoma. Using modified Wisconsin-Madison protocols, results of lymph node palpation (+/- cytology) were analyzed and compared with cLBT to determine lymphoma remission status before, during, and after chemotherapy. The cLBT equated well with clinician assessment of remission status by differentiating between dogs with normal lymph nodes (ie, dogs in clinical remission) and those with enlarged lymph nodes (ie, dogs with clinical disease progression); lymphoma was confirmed in enlarged lymph nodes via cytology.

The cLBT was also prognostic; dogs with high pretreatment values had shorter survival times, and dogs achieving a low cLBT during treatment had longer survival times. For

example, dogs reaching a low (<1.93) cLBT with chemotherapy survived more than 3 times longer (54.9-week median survival) than those that never achieved that value during therapy. Further, the cLBT was able to predict lymphoma recurrence prior to the findings of enlarged lymph nodes on examination.

Although further investigation is needed to determine if earlier intervention with chemotherapy is helpful in dogs with lymphoma, this study presented promising data for cLBT utility in clinical practice. The cLBT may be useful in predicting prognosis and monitoring remission status in dogs with lymphoma.

... TO YOUR PATIENTS

Key pearls to put into practice:

- 1** Canine lymphoma is diagnosed using cytology, with histopathology or other advanced diagnostics (eg, flow cytometry, PCR for antigen receptor rearrangement) used if necessary.
- 2** The cLBT may have prognostic value for dogs with lymphoma.
- 3** The cLBT may increase before physical evidence of lymphoma relapse is evident; early intervention with therapy and its effect on prognosis have not been studied.

References

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2. Mirkes EM, Alexandrakos I, Slater K, Tuli R, Gorban AN. Computational diagnosis and risk evaluation for canine lymphoma. *Comput Biol Med*. 2014;53:279-290.
3. Mischke R, Waterson M, Eckersall PD. Changes in C-reactive protein and haptoglobin in dogs with lymphatic neoplasia. *Vet J*. 2007;174(1):188-192.