

LOW STORES OF 25-HYDROXYVITAMIN D LEVELS AND ITS ASSOCIATION WITH CANCER IN DOGS. ¹B Husbands, ²KA Selting, ³R Ringold, ¹BluePearl ²University of Missouri, College of Veterinary Medicine, Columbia, MO. ³Veterinary Diagnostic Institute, Inc., Simi Valley, CA.

Vitamin D, important in bone and mineral metabolism, also impacts cellular health. Low stores of vitamin D are associated with lymphoma, cutaneous mast cell tumors, hyperparathyroidism, kidney disease, hemangiosarcoma, and IBD. Since circulating levels of active 1,25(OH)₂D are tightly regulated, serum 25(OH)D is a common measure of vitamin D status. We compared 25(OH)D in clinically healthy dogs to concentration in dogs with various benign and malignant neoplasms.

Serum was collected from healthy dogs (control) and dogs with neoplasia (disease). Clinically healthy dogs reported health status for 1-2 years. Dogs that developed cancer or other serious disease were censored as well as any dogs whose diet was altered. All disease was histologically confirmed. Dogs with inappetence for 1 week or more were censored. 25(OH)D was measured using a quantitative chemiluminescent assay.^a

The control dogs (n=158) had a median 25(OH)D concentration of 67.4 ng/ml, which was significantly greater than the disease cohort (n=335, 313 malignant and 22 benign) whose median 25(OH)D concentration was 62.6 ng/ml (P=0.004). When classified by tumor type, mast cell (n=51), melanoma (n=17), osteosarcoma (n=19), and other misc cancers (n=13) were not significantly different from control. Carcinoma (n=64), histiocytic sarcoma (n=8), hemangiosarcoma (n=10), lymphoma (n=80), and sarcoma (n=48) were significantly lower than the control group (P=0.031, P=0.016, P=0.049, P=0.0006, respectively). Relative Risk of having cancer with 25(OH)D concentrations below 40 ng/ml was 2.7 (P=0.001).

25(OH)D levels in dogs vary widely. Measurement of 25(OH)D serum concentration can identify dogs for which supplementation may improve health and response to cancer therapy.

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