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Elevated serum thymidine kinase activity in canine splenic hemangiosarcoma*

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Abstract

Thymidine kinase 1 (TK1) is a soluble biomarker associated with DNA synthesis. This prospective study evaluated serum TK1 activity in dogs presenting with hemoabdomen and a splenic mass. An ELISA using azidothymidine as a substrate was used to evaluate TK1 activity. Sixty-two dogs with hemoabdomen and 15 normal controls were studied. Serum TK1 activity was significantly higher in dogs with hemangiosarcoma (HSA) than in normal dogs (mean ± SEM = 17.0 ± 5.0 and 2.01 ± 0.6, respectively), but not dogs with benign disease (mean ± SEM = 10.0 ± 3.3). Using a cut-off of 6.55 U/L, TK activity demonstrated a sensitivity of 0.52, specificity of 0.93, positive predictive value of 0.94 and negative predictive value of 0.48 for distinguishing HSA versus normal. When interval thresholds of <1.55 and >7.95 U/L were used together, diagnostic utility was increased. Serum TK1 evaluation may help to discriminate between benign disease and HSA in dogs with hemoabdomen and a splenic mass.

Keywords
angiosarcoma, biomarker, cancer, dog, hemoabdomen