

PROGRESS REPORT



Curbing Tumor Growth and Chemotherapy Resistance in Canine Hemangiosarcoma

Erin Dickerson, PhD, University of Minnesota, D17CA-059

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Morris Animal Foundation-funded researchers are evaluating if the beta-blocking agent propranolol can interrupt or block a common cellular signaling pathway associated with hemangiosarcoma, an almost uniformly fatal cancer in dogs. Propranolol is a drug commonly used to treat heart disease in dogs and people that also has shown promise as an adjunct treatment for hemangiosarcoma.

So far, researchers found propranolol prevents tumor cells from harvesting essential nutrients from the surrounding environment, which in turn impedes tumor growth.

In another arm of the study, the team is evaluating the effects of propranolol alone, doxorubicin (a chemotherapeutic agent commonly used to treat hemangiosarcoma) alone, or a combination of propranolol and doxorubicin on tumor growth. Early data indicates combining propranolol and doxorubicin was superior in slowing tumor growth compared to propranolol or doxorubicin treatment alone.

The team also is testing to see if the administration of propranolol can re-sensitize doxorubicin-resistant hemangiosarcoma cells to the effects of doxorubicin. Preliminary results are encouraging and the team is looking more closely at the mechanisms behind this phenomenon.

Hemangiosarcoma is a devastating and deadly cancer. The tumor grows quickly and spreads rapidly, with half of all dogs dying within four to six months of diagnosis even with treatment. Prognosis for dogs has not changed in more than a decade, and new treatments are desperately needed.

Findings from this study were used to inform the design of a clinical trial. A clinical trial is now underway at the University of Minnesota, the University of Pennsylvania, and Purdue University to determine if propranolol in combination increases the survival time of dogs with hemangiosarcoma. The trial will further inform whether this drug combination can be used for the treatment of hemangiosarcoma in dogs.

Thank you to the American German Shepherd Dog Charitable Foundation and to other generous sponsors of this study!