CANCER

Treatment of Canine B-Cell Lymphoma with Chemotherapy and a Canine Anti-CD20 Monoclonal Antibody: A Prospective Double-Blind, Randomized, Placebo-Controlled Study

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Introduction

Management of human B-cell lymphoproliferative disorders, including diffuse large B-cell lymphoma (DLBCL), includes a monoclonal antibody that targets the B-cell antigen CD20. The aggressive form of DLBCL has many similarities to the most common form of lymphoma in dogs. Addition of the species-specific antibody rituximab to chemotherapy for the treatment of DLBCL in humans is associated with little increase in toxicity, yet enhanced efficacy. This study evaluates a monoclonal antibody that binds specifically with the canine B-cell antigen CD20 (canine MAb), used with chemotherapy.

Methods

Dogs were enrolled in a prospective, randomized, blinded, placebo-controlled study, treated with one 4-week cycle of L-CHOP chemotherapy, and then only dogs that achieved CR or PR were randomized to either receive treatment with the canine MAb or placebo. Once remission was lost, all dogs received one dose of doxorubicin followed by treatment with the canine MAb. Efficacy was assessed by evaluation of measurable lymph nodes, cytology and clinical status. Safety was based on Veterinary Cooperative Oncology Group's common terminology criteria (VCOG-CTCAE v1.1).

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Results

Dogs (n = 27 enrolled, 24 randomized) all had measurable, cytologically-confirmed and flow cytometrically immunophenotyped DLBCL. The median progression-free and overall survival times in the canine MAb arm of the study were 167 and 325 days, respectively, compared to 93.5 and 177 days for the placebo arm. (See Figures 1 and 2.) Adverse events were restricted to the L-CHOP cycle.

Figure 1. First Phase: MAb-treated dogs had statistically significant longer median PFS times ($p < 0.0001$)

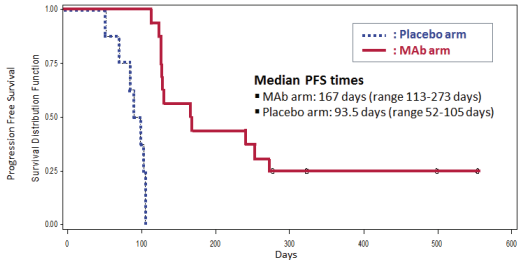
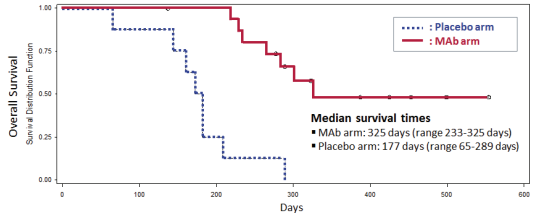


Figure 2. Overall survival times significantly greater for dogs receiving MAb treatment in induction phase ($p < 0.0001$)



Conclusions

The canine MAb was well tolerated and, in conjunction with L-CHOP, caused significant increases in survival in dogs with DLBCL.

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