Medical Xpress

New therapy combination prolongs survival in dogs with lymphoma

February 7 2012

A new immunotherapy for companion dogs with advanced-stage non-Hodgkin lymphoma (NHL) has been shown to improve survival while maintaining quality of life, according to a study published in the journal *Scientific Reports*. The study resulted from a collaboration between The University of Texas MD Anderson Children's Cancer Hospital in Houston and Texas A&M University College of Veterinary Medicine in College Station.

Using a T-cell therapy developed at MD Anderson Children's Cancer Hospital, veterinarians from Texas A&M saw a nearly four-fold improvement in tumor-free survival compared to dogs who received only chemotherapy. The median tumor-free survival for the Texas-based dogs increased by close to nine months, which is roughly equivalent to seven years in a human life span.

NHL is one of the most common cancers in dogs, according to Texas A&M veterinarians. Although standard chemotherapy can achieve remission, it is rarely a curative treatment, with the two-year survival rate remaining less than 20 percent. When investigators from MD Anderson and Texas A&M met, they explored the feasibility of administering T cells to improve survival.

"We followed the same rigid standards that we practice for human clinical trials at MD Anderson to ensure the safety of each dog," said Laurence Cooper, M.D., Ph.D., professor and section chief of cell therapy at the children's hospital and senior investigator on the study.

"While these pets are benefiting from the T-cell infusions, this collaboration with Texas A&M is a driving force for undertaking similar clinical trials in humans."

To accomplish the T-cell therapy, researchers took a sample of peripheral blood from each dog entering the study. Then the T cells were separated and expanded in Cooper's laboratory over several weeks. As the T cells grew at MD Anderson, the canines received a chemotherapy regimen at Texas A&M similar to what humans with NHL receive, a combination of cyclophosphamide, vincristine, doxorubicin and prednisone. The T cells were then given back intravenously after the chemotherapy to improve the anti-tumor effects.

"The therapy was well tolerated in all dogs who received the infusions. We saw fewer side effects than with traditional chemotherapy, and the pet owners were please with how their dogs tolerated the protocol," said Heather Wilson-Robles, DVM, DACVIM(Oncology), assistant professor at Texas A&M. "The owners were also very pleased to be supporting research that may further enhance cancer therapy in humans and pets with cancer."

"Treating dogs with cancer provides us with a great comparative oncology model for humans," said Colleen O'Connor, Ph.D., post-doctoral fellow at MD Anderson and one of the primary investigators on the study. "We learned important details about the interaction between chemotherapy and tumor cells that can be harnessed to improve the body's immune response. This is something we hadn't appreciated thus far from our clinical research in humans."

From the trial, investigators found that:

- Chemotherapy, while damaging the canine tumor, also makes the

tumor cells susceptible to recognition by the infused T cells
- Infusing back the patient's T cells after chemotherapy can work to improve the survival of canines with NHL, since these T cells were held outside the body preventing damage from the chemotherapy
- Biomarkers were identified that can potentially play a role in determining prognosis

Overall the study further affirmed the ability to use the body's own immune cells, such as T cells, to fight cancer. As a result, MD Anderson and Texas A&M collaborators are creating a program focusing on harvesting and expanding T cells at a large scale for broad clinical use.

Investigators at both institutions are working to open a new trial that will infuse genetically modified T cells that are tumor specific and potentially even more effective against the canine cancer cells.

Provided by University of Texas M. D. Anderson Cancer Center

Citation: New therapy combination prolongs survival in dogs with lymphoma (2012, February 7) retrieved 6 May 2024 from
https://medicalxpress.com/news/2012-02-therapy-combination-prolongs-survival-dogs.html