



DOGS MAY LEAD DOCTORS TO DISCOVER WHY PEOPLE GET CANCER

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Cancer researchers are finding that purebred dogs, better known for their appearances at dog shows than in the lab, may help provide answers about the genetic basis of cancer -- in dogs and humans.

Doctors and medical researchers are focusing on these thoroughbreds because it is very easy to trace their genetic history, making it easier to isolate cancer-causing genetic mutations.

"In order to be a registered member of [the American Kennel Club], both of those dog's parents had to have been registered members, and their parents, and their parents. So the genetic pool for a particular breed is very, very small," Dana Mosher, a researcher at the National Human Genome Research Institute, told the NewsHour in a March 15 report.

"So what you're hoping is that most of their DNA looks similar and that it's easier to find that area where they look different and that is associated with the disease of interest."

It is estimated that about 10 percent of dogs in the United States develop cancer. Most of the cancers found in humans also affect dogs. These cancers include melanomas, skin cancers, lymphomas and leukemias.

A new field of cancer study

Exploring the similarities between dogs and humans has led to a new field of study called comparative oncology.

Dr. Jaime Modiano, a veterinarian at the University of Colorado, looks at tumor growths in dogs to better understand the role genes play in their growth. Unlike animals people are not categorized by breeds. Pure bred dogs, Modiano said, have more traceable genetic lines.

"So by focusing on multiple breeds, we get multiple risk individual factors for a variety of different tumors that then allow us to go back and say, 'OK, this is the profile of risk,'" said Modiano.

Once they've isolated the genes that cause cancer in dogs, scientists hope to create targeted therapies to treat the cancers in dogs and eventually in humans.

Other advantages to studying dogs

Another reason dogs are so appealing to cancer researchers as research subjects is that dogs are exposed to the same elements as people on a daily basis.

"They're in our environment. They share our household; they share the air they breathe; they share the water we drink," Dr. Susan Lana, veterinary oncologist at Colorado State University, told the NewsHour.

The research has also not drawn the same fire as other test animals because, unlike those other animals, the tumor arises in the dogs naturally and spontaneously.

"In mice and other rodent test models, the cancer is given to the patient and then the [tumors] grow, and it is not necessarily a natural model," said Lana.

Other researchers add that their work will benefit both human and canine patients.

"Owners often make decisions to euthanize based on pain," University of Illinois professor Anne Barger said. "If we can lessen the pain associated with the tumor we can improve the quality of life and the lifespan."

Hopes for a cancer vaccine

Researchers at Memorial Sloan-Kettering Cancer Center are currently testing an innovative cancer vaccine that has proved to be highly successful in dogs.

The vaccine works to tell the immune system that any cancer cells are bad for the body and should be eliminated.

It is too soon to determine how the vaccine will work in large numbers of people, but doctors remain hopeful that man's best friend may lead to a live saving treatment for cancer patients everywhere.

"Over time, they've sort of come to see us as a bridge between all the mouse work that they do at Sloan-Kettering and other places to then making the jump to people," Dr. Philip Bergman, a veterinarian at New York's Animal Medical Center, told the NewsHour.

-- Compiled by Lakshmi Gandhi for NewsHour Extra

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