Researchers look to dogs to better understand intricacies of bone cancer

July 28 2011

A new University of Minnesota discovery may help bone cancer patients fight their disease more effectively, according to new research published in the September issue of *Bone*.

Bone cancer typically affects children; the course and aggressiveness of the disease can vary from patient to patient and is very difficult to predict. Some patients respond remarkably well to conventional therapies. Their disease shows less aggressive behavior and they can survive for decades without recurrence. Others respond poorly to treatment or their disease comes back rapidly. Often, these patients survive less than five years.

Recently, a team led by Dr. Jaime Modiano, a College of Veterinary Medicine and Masonic Cancer center expert in comparative medicine, discovered a gene pattern that distinguishes the more severe form of bone cancer from a less aggressive form in dogs. Dogs are the only other species besides humans that develops this disease spontaneously with any frequency.

In fact, dogs are much more likely to develop bone cancer than humans, but according to Modiano – who specializes in the relationship between animal and human disease – human and canine forms of bone cancer are very similar and the gene pattern is an exact match. The discovery of this key differentiating signature may be beneficial in the treatment planning of human bone cancer patients.

"Our findings pave the way to develop laboratory tests that can predict the behavior of this tumor in dogs and children at the time of diagnosis," said Modiano. "This allows us to tailor individualized therapy to meet the patient's needs."

The downstream impact of the findings

University of Minnesota researchers hope to use their findings to develop practical and useful lab tests for humans and for companion animals that will help clinical care providers determine the type of cancer a patient faces, and how aggressive that cancer may be.

Then, depending on which type of cancer a patient has, clinicians could adjust interventions and treatment plans accordingly.

"Patients with less aggressive disease could be treated conservatively, reducing the side effects and the risks associated with treatment, while patients with more aggressive disease could be treated with more intense therapy," said Modiano.

Provided by University of Minnesota