

CANCER: WE CAN TREAT IT!

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The goal of cancer therapy for companion animals is to control the tumor while maintaining or improving the quality of life of the pet. A recent Morris Animal Foundation survey found that cancer was the most common cause of death due to disease in companion animals. Almost 500 dogs died from cancer in a study of 2,000 dogs that had autopsies after death. In fact, 40% of the patients seen by the internal medicine service at the University of Florida Veterinary Medical Teaching Hospital are presented for evaluation of their cancers.

The best plan for the treatment is most often determined using a team approach. The pet's owner, the medical oncologist, the surgeon, the radiation therapist, the anesthesiologist and often other specialists such as the oncology nurse, work together to make sure that every aspect of the patient's medical condition is taken into consideration. Our pets are very fortunate in that they can receive many of the same therapies that have been developed for human family members. Response to therapy is often rapid and life saving. Surgical excision or radiation therapy is typically the most effective for treating localized lumps or masses. Chemotherapy is the mainstay for the treatment of systemic or metastatic cancer that has spread throughout the body. It can be used alone or in combination with other therapies. A few examples of other therapies include hyperthermia, photodynamic therapy, immunotherapy, and gene therapy.

Surgery

For many types of cancer, particularly skin tumors, surgical excision offers the best chance for a cure. Surgery can be used to obtain a tissue sample for a biopsy diagnosis. Additionally, surgery can be used to debulk a tumor so that other treatments such as radiation therapy can be more effective. Sometimes partial removal of a mass (called palliation) may help the animal walk or eat more effectively and therefore improve its quality of life, even though it does not prolong the time an animal lives. Patients with some tumors such as sunlight-associated skin tumors (hemangiomas and squamous cell carcinomas) have an excellent prognosis when treated with complete surgical excision. Prognosis depends on the size and location of the lesion. The dog can be cured if the tumor is removed when it is small < 1cm. Complete excision of an oral squamous cell carcinoma results in an increase in median survival time* from a few months without surgery to 9-18 months with surgery depending on the location and size of the tumor and age of the dog.

* A median survival time of five months that one-half of the animals have died within five months after they have been diagnosed with cancer and one-half will live longer than five months after diagnosis.

Chemotherapy

Chemotherapy is generally well tolerated by small animal patients. The most chemoresponsive tumors are lymphoma, mast cell tumors, osteosarcoma, and some carcinomas. When treated with a multidrug protocol involving weekly injections and/or oral treatments for nine weeks followed by twice monthly maintenance drug therapy, dogs with lymphoma have a median survival time of about one year. Twenty-five percent of dogs will live two years. If a dog is diagnosed with lymphoma and not treated, it will typically live only 30-60 days.

Combination Therapy

Combination therapy often provides better tumor control than using any of the treatments alone. An excellent example of the effectiveness of combining therapies is the use of either surgery and chemotherapy or surgery and immunotherapy to treat osteosarcoma, a bone tumor of dogs. Osteosarcoma is typically a tumor of middle-aged large purebred dogs. The most common site for osteosarcoma is found at the distal radius. Amputation of the affected limb is recommended to remove the source of pain for the animal; however, amputation of the affected limb does not improve survival (median survival time of 2-4 months). Microscopic tumor cells are present in the lungs at the time of diagnosis which grow and eventually lead to the dog's demise if left untreated. If dogs are treated with four or five doses of chemotherapy such as carboplatin (after limb amputation) then they have a median survival time of 12-14 months. When a dog's own immune system is stimulated to kill tumor cells, the treatment or immunotherapy is associated with fewer adverse effects. When dogs with osteosarcoma are treated twice weekly injections of the immunostimulant L-MTP-PE (muramyltripeptide) after limb amputation their median survival time is extended from 2-4 months to about 8 months. The only adverse effect is a mild fever after some of the injections.

Gene Therapy

Gene therapy is an area of intense interest in human oncology. The idea behind gene therapy is that special genetic material (DNA) is placed in tumor cells (usually by a vector like a virus) that results in the death of those tumor cells and some of the surrounding noninvolved tumor cells as well. Gene therapy has been successful for the treatment of oral melanoma in dogs. Unfortunately, gene therapy is not widely available yet for dogs.*

Radiation Therapy

Radiation therapy has been used for decades in the treatment of human patients with cancer. Radiation can be delivered to the tumor in a number of ways. Brachytherapy is a type of radiation therapy where the source of the radiation is implanted within the tumor itself and is then removed after a few days. Radiation sources implanted in a tumor can be used to deliver very high doses to the tumor while sparing normal surrounding tissues. Soft tissue tumors such

* The AKC Canine Health Foundation is currently funding research studies in cancer and canine genetics. For more information on these studies, refer to the website are for sponsored research programs or request a copy of AKC/CHF currently sponsored research.

as fibrosarcomas may be treated effectively with brachytherapy. Radioactive materials (iodine 131) can be injected systemically and are useful for treating hyperthyroidism in cats and some bone tumors in dogs. Radiation can be delivered from a machine across a distance to the patient. This is called teletherapy. Although it is effective for local control of tumors, similar to surgery, surrounding normal tissue may be damaged as well. To minimize toxicity, pets are treated with low radiation doses three times a week for 3-5 weeks under general anesthesia. A new form of radiation therapy, conformal stereotactic radiation therapy, involves the delivery of radiation to the tumor with a margin of 1 mm of normal tissue. Use of a single high radiation dose delivered to conform to the shape of the tumor is being evaluated currently. This new form of therapy will be safer, more effective, and more pleasant for the owner and pet.

Many wonderful, promising new anticancer therapies become available almost on a daily basis for our pets; however, we know that all of the available therapies work best when the tumor is small (preferably microscopic). In both veterinary and human oncology, the best weapon in the fight against cancer is early detection. Below are some of the early warning signs that you can look for in your own companion animals. These will help you detect cancer while it is still optimally treatable.

Early Warning Signs of Cancer in Our Pets

1. Lump present more than 1 month
2. Open wound-with or without bloody discharge
3. Bad odors-especially bad breath
4. Loss of interest in food
5. Difficulty swallowing
6. Weight loss
7. Lack of desire to exercise or weak when exercises
8. Persistent lameness
9. Difficulty breathing or persistent cough
10. Difficulty urinating or defecating

Adapted from the Veterinary Cancer Society Warning Signs

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