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New Cancer Treatments for Cats

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NEW CANCER TREATMENTS FOR CATS

Photographs by Mr. Wood

When cancer in cats is discussed, feline leukemia is frequently the topic. It is the most common cancer in cats, affecting 200 in 100,000. This is a higher risk than reported for other domestic animals and man. But cats, like other species, also suffer from other cancers. The second most common cancer in cats is squamous cell tumor, affecting the head and neck region; the third most frequent cancer is mammary tumors.

It is this last category which is being studied by Dr. Ann Jeglum, assistant professor of medical oncology at the School of Veterinary Medicine, University of Pennsylvania. Dr. Jeglum feels that cancers occurring in the general population of cats and dogs can provide valuable models for the study of the disease in humans as these animals do not live in laboratory setting but share the environment with people. "They are subject to the same stresses and pollutants as their masters," she said. "They suffer from the same cancers as humans, and when treating them, we can study and evaluate treatment methods and perhaps find new avenues."

Mammary cancer in the cat is a disease of the older population, similar to the occurrence in humans. Cats, unlike dogs which frequently have benign tumors of the breast, have malignant tumors in 86 percent of the cases. In felines there appears to be no difference in tumor incidence between spayed or whole animals. In the dog the incidence of breast cancer is markedly reduced if the bitch is spayed at a young age. Bitches ovariectomized prior to the first heat cycle do not show any evidence of the disease.

Feline mammary tumors (feline mammary adenocarcinoma) metastasize and invade other body systems. Dr. Jeglum explained that owners and veterinarians often do not check the mammary glands of older cats. "When you have an older cat, the breast should be examined at regular intervals," she said. Consequently the animals presented to practitioners or VHUP usually are in the more advanced stages of the disease. Traditionally mammary cancer in the cat is treated with surgery; either all mammary tissue is removed or the affected glands are taken out. This may not prevent recurrence of additional tumors nor does it stop the spread of metastatic disease.

In a study, conducted recently at VHUP, researchers treated fourteen cats with advanced metastatic disease with chemotherapy drugs. Of



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this group, ten had undergone previous surgery to remove affected mammary glands, two cats had had a radical mastectomy followed by immunotherapy, and two cats had inoperable primary tumors. Ten of these cats had been ovariectomized at various ages.

A regimen of two drugs used in chemotherapy treatment of human breast cancer was instituted for the cats at regular intervals. Of the fourteen cats, eleven were evaluated and examined after the end of treatment. The other three cats could not be examined, one had died and two were not returned to the hospital. Three of the eleven cats showed a regression of all clinical disease and tumor development for at least four weeks; the median survival rate of these animals was 283 days. Four cats showed a reduction in measurable disease, their median survival rate was 130 days. The remaining four cats showed no response to the treatment and

their median survival rate was 57 days. The animals studied had a median duration of the disease prior to chemotherapy of 270 days. It was found that cats which had a history of more than nine months of the disease had a median survival rate of 47 days, whereas cats with a history of less than nine months of clinical signs had a median survival rate of 111 days. These results emphasize the importance of early diagnosis and swift treatment of mammary cancers.

The regimen studied at VHUP had some side effects such as anorexia, mild gastric upset, and hair loss. All were transient. According to Dr. Jeglum, there have been no studies in cats to determine the optimal approach to treating breast cancer. "The usual avenue is surgery," she said. Feline breast cancer has a high local and regional recurrence rate. Researchers found evidence of microscopic disease along the entire chain of mammary glands as well as in near-by lymph nodes. This is very similar to findings in humans where adjuvant chemotherapy is employed after surgery to prevent spread and recurrence of the disease.

Dr. Jeglum feels that the prognosis for cats could be improved if the disease were diagnosed early and then treated through a dual approach of surgery and chemotherapy. The researchers found that chemotherapy, rather than hormone therapy, is indicated in cat mammary tumors. "The tumors are progesterone receptive," Dr. Jeglum said. "Also, there have been reports of mammary tumors in cats treated with a hormone preparation containing progesterone."

She views the treatment of mammary cancers in felines as an important model for the study and treatment of the disease with implications not only for cats but also for humans. "This would be an excellent model for the study of drug screening or new treatment regimens as the disease occurs naturally in a varied population. Also, the shorter life span of cats makes it possible to evaluate treatments over the entire life of an animal."

She recommends that owners of older cats routinely examine the mammary glands of their older cats and promptly contact the veterinarian if changes are noted so that early treatment can be instituted. "The chemotherapy protocol can be worked out with the veterinarian," she said. "He or she can handle it, and we provide the back-up." Early detection, just as in human breast cancer, may save the animal's life and enable it to provide many more years of companionship.

The outlook for cats with feline leukemia is also improved. This disease, caused by a virus, affects about 30 percent of the cat population. According to Dr. Jeglum, quite a few cats are able to combat the virus and develop an immunity to it. "It is most dangerous for the younger cats," she explained. Feline leukemia virus (FeLV) is a retrovirus which is transmitted horizontally, from cat to cat through the saliva. Retroviruses are capable of producing a DNA copy of the retroviral material which then is incorporated into the cell. Here it is replicated each time the cell divides. Once a cell is infiltrated, it and its subsequent divisions contain the retroviral material.

FeLV causes tumors in various parts of the body, or a suppression of the immune system. Cats with the virus often have no symptoms of cancer but succumb to a number of infectious diseases. "Some people have linked FeLV with AIDS," said Dr. Jeglum. "There is no evidence for such association. The virus is species spe-

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cific. It will only infect cats, not humans, dogs or other species."

Animals which carry the virus can be identified with the help of two tests. One is an immunofluorescent test (IFA) which detects the antigens to the disease. This test identifies the shedders of the virus, animals which are infectious to others. The other test is an ELISA test which does not identify shedders but can identify transiently infected cats. These are animals which have been exposed to the disease and whose systems are able to develop an immunity. The ELISA test can be performed by the practitioner, the IFA test requires a special laboratory.

According to Dr. Jeglum, the diseases associated with FeLV are fatal in a large number of cats. "They may never develop tumors," she said, "but a large proportion of cats die from the complications caused by the suppressed immune system. When FeLV is suspected it must first be ascertained whether the animal has tumors or whether it is immunosuppressed. Then a course of treatment can be decided upon." Cats with immune problems can be treated with injections of BCG, a non-specific bacterial agent which stimulates the immune system and helps the animal ward off various infectious diseases. BCG treatment is not effective in cats which have developed tu-



mors. These cats have to be treated with chemotherapy. "Either treatment is not that expensive and we have had good success rates," said Dr. Jeglum. "Chemotherapy works well for lymphoma. If the animal has leukemia, the prognosis is not that good, as the animal becomes leukemic." The protocol for treatment is established at VHUP and then is turned over to the practitioners who handle the cases from there on.

Dr. Jeglum stated that the cats with the highest risk of contracting FeLV are those which are allowed to roam freely. "We don't know the extent of the virus in the general cat population," she said. "There are so many cats out there, roaming, that it is impossible to check the incidence, let alone control the disease." The next highest risk group are cats which are indoor/outdoor cats. She advises that another high-risk group of cats are kittens adopted from shelters.

Currently there is no effective vaccine against FeLV. Owners of cats can, to some extent, prevent the disease by keeping their cats indoors or by minimizing exposure to stray cats. If an infected cat is discovered, it should be isolated. Often this simple measure prevents the spread of the disease. In many cases the cats are able to fight off the disease. They remain healthy and can be returned to their companions.

The oncology clinic at VHUP sees new patients on Mondays, appointments can be made by calling 898-4680. *Helma Weeks.*

