



Chemotherapy Information Handout

What is chemotherapy?

Chemotherapy is the name given to a group of drugs that have the ability to kill cancer cells. In veterinary oncology, we are able to use many different chemotherapy drugs to treat cancer. The specific drug or drug combination that is initially recommended for each patient varies depending on many factors, including the type of cancer to be treated, as well as the general health of the pet. Once treatment with chemotherapy has begun, the protocols are often further modified to provide the most efficacious treatment possible with the fewest side effects. Therefore, each chemotherapy protocol is highly tailored to meet the specific needs of each patient.

Will chemotherapy make my pet sick?

Many people are initially hesitant to use chemotherapy to treat their pet's cancer because they do not want to compromise their pet's quality of life. An owner may be concerned that treatment with chemotherapy will cause severe side effects in their pet and will make their pet feel poorly. While side effects are possible with chemotherapy and are described in detail below, the main goal of chemotherapy use in veterinary patients is different than it is in human patients. Our primary goal in using these drugs is to provide the pet with a good quality of life for as long as possible. We treat cancer as aggressively as we can but not at the expense of the pet's quality of life. If the pet starts to experience significant chemotherapy-related side effects, we alter our treatment plan. Fortunately, most dogs and cats tolerate chemotherapy much better than human patients.

Generally, dogs and cats that receive chemotherapy feel normal the day they are given the drug. Perhaps 3 to 5 days later, an owner might report that their pet does not feel 100%. But within 24 to 48 hours, the pet is back to his or her normal self until the cycle continues with the next dose of drug. After each dose of chemotherapy, we discuss with an owner whether or not the side effects seen in his or her pet would warrant a change in the pet's therapy. If everyone agrees that the pet's quality of life is good, and as long as there is evidence that the chemotherapy drug is working against the pet's cancer, we continue with the treatment.

However, every pet is different. A small percentage of pets are more sensitive to chemotherapy, and it is impossible to predict which pets will experience more severe chemotherapy toxicity. If severe toxicity occurs, hospitalization for a few days in a vet clinic may be necessary to help the pet recover. Fortunately, the need to hospitalize pets due to chemotherapy-related side effects is uncommon, and some studies show that hospitalization is necessary in less than 10% of patients receiving chemotherapy. Because our primary goal is to provide the pet with a good quality of life, if he or she experiences significant chemotherapy toxicity, we decrease the dose or change drugs in an attempt to avoid problems with future doses. Furthermore, if you are unhappy with the side effects associated with chemotherapy, you may choose to stop treatment at any time.



Many dogs and cats are able to complete chemotherapy protocols without experiencing any toxicity at all or only experience mild toxicity.

What are the side effects associated with chemotherapy?

The side effects most commonly experienced in dogs and cats receiving chemotherapy involve the gastrointestinal tract and the bone marrow. Specifics of these side effects are detailed below. Chemotherapy-related side effects generally occur at a predictable time, allowing treatment to be instituted early to prevent or lessen your pet's clinical signs. Also, the side effects are generally temporary, commonly resolving within several days.

Gastrointestinal Side Effects:

When the cells lining the stomach and intestine are affected by chemotherapy, the result may be vomiting, diarrhea, and loss of appetite. If this occurs, it tends to happen 3-5 days after receiving chemotherapy and resolves within 1-2 days. To prevent a pet from experiencing significant nausea, we may provide the owner with anti-nausea and anti-diarrhea medications to use if needed. Several different classes of medications are available, and they are usually quite helpful in resolving the gastrointestinal side effects associated with chemotherapy.

Bone Marrow Side Effects:

The bone marrow is responsible for producing white blood cells, and when it is affected by chemotherapy, these white blood cell levels may decrease temporarily. Typically this occurs 7 days after a dose of chemotherapy is given, but the timing may vary with the drug used. Decreases in the white blood cell count may be mild, moderate, or severe. Because the body regenerates these cells very quickly, even if a pet experiences a very severe drop in their levels, the count will usually return to normal within 24-48 hours.

White blood cells are very important in fighting infections. If the body has a very low white blood cell count, it is susceptible to developing an infection. In this situation, bacteria that would not normally cause an infection might cause a serious illness. Not all pets with a low white blood cell count will develop an infection. In fact, most pets with low counts may feel well and have no clinical signs at all. However, if an infection develops, he or she may spike a fever, decline food, and act lethargic. This would require hospitalization of the pet to keep him or her safe and comfortable. White blood cell counts of all canine and feline chemotherapy patients are monitored carefully throughout treatment. This allows us to make dose adjustments or prescribe antibiotics as indicated to avoid the need to hospitalize.



Miscellaneous Side Effects:

Unlike people receiving chemotherapy, hair loss in canine and feline patients is usually very minor. Cats may lose their whiskers, and long-haired cats may lose their outer coat. Dogs may develop mild hair thinning. Spots where hair is clipped for surgery or chemotherapy administration may grow back very slowly. However, there are some dog breeds that are more likely to experience hair loss due to chemotherapy. If you own a Poodle, Old English Sheepdog, Schnauzer, Puli, Lhasa Apso, Shih Tzu, Bichon Frise, Yorkshire Terrier, Maltese, or Curly Coated Terrier such as an Airedale or Welsh Terrier, you should expect that your pet will lose a more significant amount of hair during the initial stages of chemotherapy. For all pets, the hair that is lost due to chemotherapy will grow back after the course of chemotherapy has been completed or once treatments are given less frequently. Sometimes hair may grow back a slightly different color.

Some chemotherapy drugs, if they leak outside of the vein during injection, can be extremely irritating to the skin and tissues under the skin. Examples include the chemotherapy drugs vincristine, vinblastine, and doxorubicin. Severe swelling, ulceration, and inflammation can be seen. However, this complication is rare because all intravenous chemotherapy drugs are administered by highly experienced technicians under the guidance of the veterinarian. In the case that the chemotherapy drug does leak outside of the vein, travel to the Atlantic Veterinary College may be necessary for treatment of your pet.

Some chemotherapy drugs have unique toxicities. These will be explained to you if your pet receives one of these medications, and appropriate steps will be taken to avoid them.

How is chemotherapy given?

Most chemotherapeutic drugs are given by injection, either into the vein (intravenously) or under the skin (subcutaneously). These drugs cannot be given at home and must be administered at Cobequid Animal Hospital. Some chemotherapy drugs have oral formulations. These may be given here at CAH or they may also sometimes be given at home by owners with instruction.

What should I expect for my visit?

Prior to each dose of chemotherapy, we discuss with you how your pet has been feeling and will perform a physical exam. Periodically, additional diagnostics such as x-rays, an ultrasound or a CT-scan may be needed to determine whether or not the chemotherapy drugs are effective in treating your pet's cancer. In addition, a blood sample is drawn to check the white blood cell count, red blood cell count, and platelet count. This is necessary to make sure that it is safe to proceed with treatment. In some cases, your pet's treatment may be postponed a few days due to a low white blood cell count. Once it is determined that the pet may receive treatment, the drug is given by the appropriate route (oral, intravenous, or under the skin). The time of infusion for intravenous drugs varies from a few seconds to all day depending on the drug being administered.



Chemotherapy appointments are scheduled as “drop off” appointments to allow us adequate time to assess your pet, review the blood work, and administer the needed drug. Please drop your pet off between 7:30am and 8:00am and expect to pick them up in the afternoon. At the time of drop off, one of our technicians will meet with you to discuss how your pet has been feeling and will help you to fill out the authorization form. Please leave a phone number so that we can reach you during the day if needed. After the pet has been assessed and has received treatment, we will call you to let you know when to pick up your pet. Most pets go home in the afternoon, but if it is more convenient for you to pick up your pet after 5 pm, these arrangements can be made. Most pets will receive a mild to moderate sedative in order to facilitate treatment. They may be slightly groggy still at discharge, but this will diminish over the evening.

Is chemotherapy expensive?

For most types of cancer, there are many treatment options available at varying costs. Your pet will benefit from the expertise of several highly trained health care professionals who will develop a diagnostic and treatment plan that fits you and your family’s needs. Most of the time, diagnostic tests are needed to determine the exact type of cancer your pet has and how far it has spread. The exact cost of each visit will depend on what diagnostics, if any, need to be performed and the cost of the treatment. The cost of chemotherapy varies with the size of the animal, the number of treatments, and the drugs being administered. We never want cost to get in the way of being able to provide good care for your loved one. If finances are a concern, make sure you let your team know your limitations so we can find a plan that works within your budget.

How long will my pet receive chemotherapy?

The length of a particular course of chemotherapy will vary depending on the disease being treated and your pet’s response. For some patients, a particular chemotherapy protocol is administered, and once this is completed, no additional treatment is required. For these animals, we recommend recheck evaluations to check for recurrence of the cancer. Early detection of recurrence (ie, before the cancer becomes too advanced) provides more numerous treatment options with a greater potential for success.

For other types of cancers, pets receive longer-term chemotherapy. In these cases, we administer a particular agent until it is no longer effective in killing cancer cells. When the pet’s cancer becomes resistant to a drug, we administer a different chemotherapy drug for as long as possible. In these cases, we cannot predict how many doses of a particular drug a patient will receive. We continue treatment as long as the pet is feeling well and his or her quality of life is good.



Is it safe for me to be around my pet during the time he or she is receiving chemotherapy?

Generally speaking, the risk to a person handling their pet that is receiving chemotherapy is very low. We do not recommend changing your or your pet's lifestyle as a result of chemotherapy treatments. This means that they may continue to sleep in your bed, do not need to be separated from other household pets, can continue to share a litter box with other household cats, and may even eat their normal breakfast the morning of their chemotherapy treatments.

However, because repeated, long-term exposure to chemotherapy drugs can result in severe health problems, some precautions are necessary. A small amount of chemotherapy may be excreted in your pet's urine and feces for up to 5 days after a dose of chemotherapy is given. It is important to avoid contact with your pet's urine or feces during this time.

If your pet has an accident in the house, wear gloves when cleaning it up. Wipe up the waste first and then clean the area with a mild soap and water solution three times using disposable paper towels. Place these materials in 2 plastic bags and dispose of them in a garage trash receptacle.

In general, for cats, change the entire litter box once daily for the first 2 days after chemotherapy administration, and wear gloves when doing so. Be diligent about scooping waste throughout the entire time your cat receives chemotherapy. Dispose of the waste in an outdoor garbage can.

Dogs should urinate or defecate in low-traffic areas (ie, not in the backyard sandbox where children play, not near the family picnic table, etc). Again, use gloves when picking up waste, double bag the waste and dispose of it in an outside garbage can.

Although exposure of a pet owner to significant amounts of chemotherapy from routine handling of their pet is unlikely, certain people are more at risk if they are exposed to chemotherapy. Women who are breast feeding or pregnant, children, people trying to conceive (both men and women), and immunosuppressed individuals should never handle chemotherapy drugs or contaminated urine or feces.

Are there any special precautions I should take if I have to give oral chemotherapy drugs to my pet?

Always wear gloves when handling chemotherapy pills, and wash hands thoroughly when administration is complete. For dogs, you can put the pills into a "meatball" of tasty food and give the pill before the pet's meal when he or she is most hungry. Unfortunately, this does not work for cats, and you often have to "pill them." Please ask your veterinarian or a veterinary technician for a demonstration on how to administer a pill to your pet if you are not sure.

Never split or crush the pills, and do not open the capsules. This can aerosolize the chemotherapy drug and cause you to become exposed. If your pet spits out the pills and they begin to "melt" or break apart, wear gloves and use paper towels when picking up the medication. Wipe the floor with a diluted soap and water solution three times. Put the paper towels and medication into a plastic bag and dispose of it in an outside



receptacle. Do NOT re-dose your pet, as they may have absorbed some amount of the chemotherapy, and administration of another pill may cause them to be overdosed. You should call Cobequid Animal Hospital for advice about what to do next.

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What happens if I have an emergency?

If you have any questions or concerns about your pet after chemotherapy is administered, please call the hospital to speak with a veterinarian or technician. If after-hours, please contact the Metro Animal Emergency Clinic at 902-468-0674.

Final Thoughts

It is important for the owners of dogs and cats receiving chemotherapy to realize that some cancers we treat are not cured. Many of our patients ultimately have recurrence of their cancers. However, most cats and dogs receiving chemotherapy have an excellent quality of life both during and after treatment. It is often possible to provide many additional months, or sometimes even years, of happy life with chemotherapy. The vast majority of owners tell us that they have no regrets about their decision to pursue chemotherapy for their pet.