



Chemotherapy for Dogs and Cats

Chemotherapy is a valuable form of treatment for many types of cancer in dogs and cats. For certain cancers, such as lymphoma, chemotherapy is used alone with the goal of achieving remission. Chemotherapy is also often used following surgery or radiation therapy to delay or prevent metastasis (cancer spread). In some cases, chemotherapy is used to alleviate symptoms and improve quality of life. ***Our goal during cancer treatment is to improve the health and quality of life for our patients. We never want the treatment to be worse than the disease.***

How does chemotherapy work?

Cancer is generally defined as the uncontrolled growth of cells. Traditional chemotherapy medications interfere with the growth of cells by blocking various stages of cell division. Some chemotherapy approaches involve preventing the development of new blood vessels that would feed the tumor or blocking growth factors.

Different chemotherapy drugs have different targets, and in many cases, a combination of drugs is the most effective way to kill cancer cells. Since chemotherapy can affect all dividing cells in the body, healthy cells with high growth rates can also be affected. Cells in the bone marrow, lining of the gastrointestinal tract and hair follicles have high growth rates and can therefore be affected by chemotherapy. Therefore, side effects can occur in those tissues, but normal cells are typically better able to recover and repair themselves than cancer cells.

How is chemotherapy given?

Anti-cancer drugs can be administered via the following routes, although not all drugs can be administered by every route:

Oral: given by mouth and absorbed by the gastrointestinal tract

Intravenous: injected directly into a vein through a catheter. This is the most common way chemotherapy is administered.

Subcutaneous: injected under the skin and absorbed slowly into the blood stream

Intra-lesional: injected directly into the tumor or surgical site

Intramuscular: injected into a muscle and absorbed into the blood stream

Intracavitary: injected directly into the chest or abdomen

How long will my pet receive chemotherapy?

The length of time and frequency of drug administration depends on the type of cancer being treated. Treatment may be given daily, weekly, or less often. Your Veterinary Cancer Group oncologist will work with you to design the best treatment plan for your pet.

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Am I at risk of exposure to these drugs?

For orally administered chemotherapy drugs, it is important to keep the capsules or pills out of the reach of children. If you are pregnant, trying to get pregnant, or nursing, it is safest not to handle these drugs; you should have someone else administer them. People undergoing immunosuppressive therapy should also not handle these medications. Most oral chemotherapy drugs have a protective coating, but we do recommend that you wear latex or poly-vinyl gloves when handling these medications. It is very important that you do not cut pills into pieces or open capsules since this can increase your risk of exposure. Most drugs are inactivated prior to being excreted in stool or urine, but waste should be handled with the usual precautions (use bags or scoops) and “accidents” should be cleaned up quickly by a healthy adult family member.

Should my pet be vaccinated while receiving chemotherapy?

Please consult with your pet’s oncologist prior to scheduling any vaccine appointments. While studies have shown that pets do respond appropriately to vaccination while receiving chemotherapy, it may be recommended to delay vaccination depending on your pet’s health and cancer diagnosis.

Can my pet continue receiving monthly heartworm, flea, and tick preventative medications while receiving chemotherapy?

Yes! There have been no reports of contraindications using these products with chemotherapy.

Will my pet experience side effects?

With the drug dosages used in veterinary medicine, **the majority of pets experience minimal to no side effects.** Despite this, a small percentage of animals do become ill after receiving chemotherapy. If your pet does experience side effects, your oncologist might recommend prophylactic (preventative) medications or alter the drug type or dosage to minimize the likelihood of future side effects. Side effects most commonly occur 2-3 days following treatment but could occur the day of treatment until approximately 10-14 days later.

The following are potential side effects and guidelines to help you assess your pet’s condition :

Nausea: Symptoms of nausea include loss of appetite, starting to eat but losing interest, eating treats but not their normal diet, licking their lips/lip smacking and drooling. Cats may also appear less social or hide. If these symptoms occur in the absence of active vomiting, please administer the anti-nausea (antiemetic) medication prescribed by your pet’s oncologist. Common antiemetic’s include Cerenia, ondansetron (Zofran) and metoclopramide (Reglan). Continue the medication for 2-3 days even if your pet appears to feel well again. Bland diets or over-the-counter antacids may also help (see Side Effects page). Feeding small meals versus one large meal may also be of benefit. If these symptoms worsen or persist for 24-48 hours, please call us.

Vomiting: If your pet vomits once or twice but is otherwise feeling well, withhold food for 4-6 hours and offer small amounts of water only. Administer the prescribed anti-nausea medication if your pet is not actively vomiting. If no vomiting occurs after another few hours, you can then offer a small amount (typically ¼ of a normal meal) of a bland diet (see suggestions that follow). If the vomiting continues, becomes more frequent, or your pet appears otherwise ill, please contact us. Your pet may need to have an injection of anti-nausea medication or fluid therapy to address dehydration.

Diarrhea: If your pet experiences diarrhea without vomiting or fever, please feed a bland diet. Make sure your pet has fresh water available at all times. If the stool normalizes within 2-3 days, gradually transition back to your pet’s normal diet, decreasing the amount of bland diet and increasing the amount of the normal diet over 3-5 days. Metamucil can also be added to the diet to improve stool consistency. If diarrhea persists, your oncologist might recommend a probiotic, other dietary supplement, or antidiarrheal medication. Please contact us if your pet has profuse diarrhea, blood in the stool, discomfort or urgency during bowel movements or has other signs of illness.

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Constipation: Constipation is a rare side effect, but may be seen after certain therapies, anesthesia, or following diarrhea. Signs include loss of appetite, straining to defecate and scant stools. Offering Metamucil cakes, bran, or canned pumpkin to increase fiber intake might improve stool consistency. Frequent light exercise might also help.

Fever: The normal temperature for cats and dogs ranges from 100.0 to 102.5 degrees (Fahrenheit). If your pet is not feeling well, we recommend you check their rectal temperature at home. To take the temperature, lubricate the end of the thermometer with Vaseline or K-Y Jelly and insert into the rectum ½ -1 inch for 1-2 minutes. Digital thermometers are safe and accurate, come with a flexible tip, and register your pet's temperature quickly, minimizing your pet's discomfort. Ear thermometers do not conform to the shape of dog and cat ears and have not been shown to be accurate in pets. If your pet appears ill, please take their rectal temperature. If it is over 103 degrees, please seek veterinary care either here or at your family veterinarian or local emergency clinic. A blood test will likely be performed and your pet might require antibiotics and/or other supportive care. If the fever is severe, your pet might need to be hospitalized. If antibiotics are prescribed, you must complete the prescribed treatment, even if your pet's condition improves quickly.

Bloody urine: Cytoxan (cyclophosphamide) can irritate the bladder, causing a side effect known as sterile hemorrhagic cystitis. To your pet, this can feel like a urinary tract infection even though it is not an infection. Signs of bladder irritation include straining to urinate, urinating small amounts frequently and bloody urine. To try to prevent this complication, ALWAYS GIVE THIS MEDICATION IN THE MORNING. You can help your pet "flush" the medication residue from the bladder by encouraging them to drink frequently and to urinate every 2-4 hours for 24 hours after giving the cyclophosphamide. If you notice signs of bladder irritation, please stop giving the Cytoxan and notify us right away. We will likely request that a urine sample be brought in for evaluation since a urinary tract infection can cause the same signs. If a reaction to Cytoxan is confirmed, Cytoxan use will be discontinued and another medication will be prescribed instead.

Hair loss: Most animals do not lose fur; however, animals with continuously growing coats might experience a thinning of their hair. Shaved areas will grow back slowly. Cats and dogs may lose their whiskers and guard hairs. Dogs that need to be clipped and groomed such as poodles and terriers are likely to have mild to moderate hair loss. The hair loss tends to be worse following treatment with Adriamycin (doxorubicin). The hair will regrow after the treatment course has been completed. Occasionally, the hair will grow back a different texture or color.

Special note about PREDNISONE and DEXAMETHASONE

DOGS: If these medications are used as part of your dog's therapy, side effects can include **increased water intake, appetite, urination, restlessness and panting**. Your dog must have access to water at all times. If your pet receives this drug only once a day, it is helpful to give it in the morning. Do not increase the amount of food that you give your dog or excessive weight gain may occur. Your dog might feel less hungry if you divide their normal amount of food into two or more meals throughout the day.

CATS: cats rarely experience side effects while receiving prednisone. They rarely have increased appetite, thirst and urination, but on a rare occasion, cats might experience diarrhea or depression. If predisposed, cats might develop diabetes while receiving these medications, either by mouth or as injections. If your cat has a sudden increase in water intake or urination, please contact us or your regular veterinarian.

Remember to tell us about any reactions your pet experiences, even mild ones, at their next appointment. Our goal is to ensure that your pet's quality of life, even while undergoing treatment, is as normal as possible. In the vast majority of cases, we can adjust the drug dosage or timing of administration, or substitute another drug, to greatly lessen the risk of side effects. *Your feedback allows us to optimize your pet's chances of continuing treatment in good health.*

BLAND DIETS

DOGS: Low-fat cottage cheese, cooked (preferably boiled) skinless chicken breast (dark meat is too fatty), lean ground beef or white fish such as tilapia. Mix with an equal amount of cooked white rice, pasta, mashed potatoes or sweet potatoes.

CATS: Meat baby food that does not contain onion or garlic powder (such as chicken or beef with broth), cooked white fish or skinless chicken breast, or canned tuna can be mixed with small amounts of Cream of Wheat or rice baby cereal to maintain stool consistency.

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At home suggestions for mild side effects

NAUSEA/INAPPETENCE

1. Pepcid AC or Zantac 75
Do not use "chewable" forms of these medications; generics are fine.
DOGS:

Pepcid AC	½ tablet per 15 pounds, every 12-24 hours
Zantac 75	½ to 1mg per pound every 12 hours

CATS:

Pepcid AC	½ tablet every 12-24 hours
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2. Start anti-nausea medication
3. **Dogs and Cats:**
 - a. Steep 1 teaspoon ginger root (freshly grated or dried spice) in 1 cup hot water.
 - b. Allow it to cool to room temperature. Then give 1 teaspoon orally three times daily (every 8 hours).
4. Feed a bland diet in small meals versus one large meal.

VOMITING

1. Withhold food and water for 4 to 6 hours. Start anti-nausea medication.
2. If no vomiting after at least 4 hours, offer small amounts of water.
3. If no further vomiting after another 4 to 6 hours, offer a small amount of bland food.
4. Gradually offer larger amounts of food and water.
5. If your pet continues to vomit after removing food and water or vomits more than 2 times in 24 hours, contact us or your local veterinarian.

DIARRHEA

1. Feed a bland diet.
2. Make sure your pet has water available at all times.
3. Add Metamucil or a probiotic.
4. Medications--
FOR DOGS ONLY:

Pepto Bismol*	¼ caplet or 2.5 ml (1/2 teaspoon) per 15 pounds
Kaopectate*	½ caplet or 2.5 ml (1/2 teaspoon) per 15 pounds, every 4-6 hours
Immodium*	2ml per 15 pounds OR 1 capsule (2mg) per 70 pounds

Do not use the "chewable" forms of these medications

CERTAIN BREEDS OF DOGS CAN HAVE ADVERSE REACTIONS TO THESE MEDICATIONS. CONTACT YOUR ONCOLOGY TEAM PRIOR TO ADMINISTERING.

CONSTIPATION

1. Increase fiber in the diet by adding Metamucil, bran flakes or canned pumpkin.
2. Increase gentle exercise.
3. Make sure your pet has water available at all times.

BLOODY URINE

1. Stop Cytoxan immediately.
2. Make sure your pet has water available at all times.
3. Call us and/or your local veterinarian to report this occurrence. Medications might be started for discomfort.

PLEASE CALL IF ANY OF THESE SIDE EFFECTS PERSIST FOR MORE THAN 24 HOURS. CONTACT US SOONER IF SYMPTOMS SEEM SEVERE, ESPECIALLY IF THEY ARE RELATED TO FEVER, LETHARGY OR VOMITING.

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