

INTRODUCTION

Most people who are considering chemotherapy for their pet know a person who has experienced chemotherapy for the treatment of cancer. The thoughts that first come to mind are negative, usually associating treatment with nausea, vomiting, hair-loss, loss of energy, and hospitalization. ***Fortunately for animals, the side effects of chemotherapy are much less severe.***

Quality-of-life for our patients is our primary concern. The doses we give are calculated to provide the most effective defense against cancer while minimizing discomfort and side effects. Most owners are pleasantly surprised with how well their pet tolerates chemotherapy.

- Chemotherapeutic drugs act in many different ways to kill cells. The goal of chemotherapy is to slow the growth of the cancer cells, while producing minimal negative effects on normal cells.
- One of the most effective strategies is using combinations of different combinations of chemotherapy. This allows distinct chemotherapeutic drugs to kill tumor cells by different mechanisms. Using combination chemotherapy can also reduce the development of tumor resistance and minimize dose-related toxicities. The treatment dose and administration schedule of chemotherapy depends on the type of cancer and chemotherapy agents.

AT EACH CHEMOTHERAPY RECHECK

Each time you and your pet come to the hospital, you will be asked to respond to a series of questions that will let us know if you have any concerns; your answers will then be used to determine if the protocol needs to be adjusted.

- At each chemotherapy visit, your pet will have a complete physical examination by a doctor and blood drawn to make sure he/she is able to receive the scheduled dose.
- In the blood-work, we pay special attention to the neutrophil count. Neutrophils are a white blood cell that helps to fight off infections. Certain chemotherapeutic drugs can cause the

number of these white blood cells to decrease below what is safe for another dose of chemotherapy. If this occurs, we will postpone the scheduled chemotherapy and your pet may be placed on antibiotics.

- Further diagnostic tests (such as a chemistry profile, urinalysis, radiographs, and ultrasound) may also be necessary to monitor secondary the disease, or other chemotherapy related side effects.
- Depending on how your pet does, your pet may be sent home after the first treatment with an anti-emetic (anti-nausea) and/or an anti-diarrheal medication.
- Although serious side effects can occur with any chemotherapy, there is low risk for hospitalization for side effects (10% chance), and less than a 1% chance of life-threatening side effects.

SIDE EFFECTS

Potential side effects of chemotherapy occur as a result of normal cells being killed by the chemotherapy agents. The side effects are associated with organs that have the fastest turnover (i.e. rapidly dividing cells), which in the normal body are the bone marrow and gastrointestinal tract. Other side effects are possible depending on the specific drug and usually involve an additional organ (i.e. liver with CCNU, or heart/kidneys with doxorubicin). Here are examples of commonly encountered side effects of chemotherapy:

- **Reduced White Blood Cell Count (Leukopenia):** Many chemotherapeutic agents affect the bone marrow, and the white blood cell that is most rapidly affected is the neutrophil. As discussed above, the neutrophil is the white blood cell that helps to fight infection, and a decrease in the number of circulating neutrophils is called neutropenia. Neutropenia usually occurs 7-10 days after most chemotherapy administration. Should the neutrophil count be too low for chemotherapy, the doctor may wish to perform periodic blood tests, delay a scheduled therapy, and/or prescribe antibiotics to protect against infection.

The Oncology Service, LLC
www.theoncologyservice.com

At Friendship Hospital for Animals
4105 Brandywine Street, NW
Washington, DC 20016
T 202.363.7300
F 202.243.7081

At The Life Centre
165 Fort Evans Road NE
Leesburg, VA 20176
T 571.439.6655
F 703.738.7307

Animal Clinical Investigation, LLC
www.animalci.com

4926 Wisconsin Avenue, NW
Washington DC 20016



- **Gastrointestinal (GI: stomach or intestinal) Discomfort:** Some patients experience some form of GI discomfort 2-7 days after chemotherapy treatment. We will prescribe medications if your pet experiences these side effects.
 - Nausea: Signs of nausea include: lip-smacking, drooling, or loss of appetite but interest in food.
 - Vomiting: This may occur, but is usually self-limiting. Typically, this will resolve after 1-3 episodes. If there is more vomiting, please contact us or your primary care veterinarian. You can also try feeding smaller amounts of their normal food more frequently, and/or a bland diet during this time.
 - Loss of appetite: If your pet is showing signs of nausea or anorexia, you can offer several (3-4) small meals a day. You can also add warm broth to their favorite food to entice them to eat (unless they have vomited >3 times).
 - Diarrhea: If your pet develops diarrhea, we can prescribe a medication to address this. Again, this is commonly transient, and should only last for 24-48 hours. A bland diet can also help with the diarrhea.
- **Tissue Damage:** For some chemotherapy agents, leakage outside the vein can result in severe tissue reactions. If irritation of the injection site develops in the form of redness or pain, contact us for further instructions. Leakage is most common in dogs that cannot be adequately restrained during treatment.
- **Allergic Reactions:** This side effect is rare, but can occur with certain chemotherapeutic agents. Should your pet have an allergic reaction, it will be treated as any other allergic reaction, and we will discuss possible changes to your pet's chemotherapy protocol.
- **Heart Damage:** Some chemotherapy agents (i.e. doxorubicin), in some rare cases can cause irreversible damage the heart muscle. This is typically a cumulative dose effect; we therefore limit the maximum total dose that your pet receives.
- **Hair loss (Alopecia):** Pets rarely lose their hair while undergoing chemotherapy, but if they do, they are not bothered by it. The pets most at risk are animals that have hair that continually grows (i.e Poodle, Old English Sheepdogs). In general, animals that go to the groomer periodically may experience some degree of hair loss. Cats have a very small risk of losing their whiskers, but they will grow them back after treatment, and may be a different color or texture.

If at any time you have any questions or concerns or your pet's clinical signs persist for > 48 hours, please contact us. We want to ensure that this be a good experience for both you and your pet.

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