

Chemotherapeutic agents are drugs used to kill cancerous cells. They work by attacking the rapidly dividing cells. They may be administered orally, underneath the skin or directly into a vein.

Chemotherapy is used in cats and dogs for several reasons, including:

- Some cancers, like lymphoma, are widespread throughout the body but will respond to chemotherapy, inducing remission while still allowing the patient to maintain a good quality of life.
- A tumor has been removed surgically but there is concern that the cancer either has or will spread to other areas. Canine osteosarcoma, hemangiosarcoma, and certain mast cell tumors are often treated with chemotherapy following surgery. Feline mammary cancer and injection-site associated sarcomas can also be treated with chemotherapy following surgery.
- Sometimes tumors cannot be removed surgically or treated with radiation therapy, or they have already spread to other areas of the body. In these situations, chemotherapy can be used to try to shrink the amount of cancer present, or to slow its growth. The goal is to make the patient more comfortable, for as long as possible. Chemotherapy used in this manner will not cure a cancer, but will be palliative in nature.
- Chemotherapy can be used with radiation therapy to increase the ability of radiation to kill the cancerous cells.

Side effects of chemotherapy:

Quality of life is extremely important for our veterinary patients. Chemotherapeutic doses for our patients are carefully determined so the drug remains effective against cancerous cells and side effects are minimal.

However, some veterinary patients will still experience side effects. Just as cancerous cells are rapidly dividing, normal cells in the body are, too (e.g. those lining the intestinal tract or the cells found in bone marrow). Therefore, the most common side effects are gastrointestinal such as:

- decreased appetite
- nausea
- vomiting



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- diarrhea
- bone marrow suppression resulting in decreased white blood cell counts and platelet counts

Anti-nausea and anti-diarrheal medications are used throughout treatment to try to prevent and treat chemotherapy induced gastrointestinal problems. Occasionally, an animal will need to be hospitalized for intravenous fluids and supportive care secondary to gastrointestinal problems.

It is critical to monitor a patient's white blood cell count throughout treatment. If the count decreases significantly, the patient may be more susceptible to infections and to becoming septic. Therefore, it is important to know the white blood cell count following treatment so antibiotics can be prescribed if needed. Occasionally a patient will need to be hospitalized for intravenous fluids and antibiotics secondary to an infection.

When certain chemotherapeutic agents (e.g. vincristine, doxorubicin, and mechlorethamine) go outside of the vein instead of directly into the vein, the skin and tissue surrounding the injection area can become irritated. This irritation can range from mild to severe. When doxorubicin goes outside the vein, the irritation can be extremely severe and surgery is sometimes needed to remove damaged tissue. In extreme situations, limbs may need to be amputated. Even though it is rare for chemotherapeutic agents to go outside of the vein when administered properly by trained individuals, it can happen.

Chemotherapy is an effective veterinary treatment options that provide more hope for animals with cancer than ever before. We are pleased to provide the services of Carrie Hume, VMD, DACVIM, Idaho's only board certified small animal oncologist.