

Chemotherapy for Feline Lymphoma

Lymphoma is considered to be the most chemo-responsive cancer in cats and treatment with multi-agent chemotherapy is associated with the longest survival times. Common protocols include ACOPA and Madison Wisconsin, but both utilize the same chemotherapy agents. The induction part of the treatment protocol ranges from 21-25 weeks. The goal of induction chemotherapy is to induce a remission while preserving a good quality of life for cats undergoing treatment. When a cancer such as lymphoma is no longer detectable based on physical exam, radiographs (x-rays), and/or ultrasound, the patient is considered to be in complete remission. A complete remission is expected in up to 70% of cats receiving multi-agent chemotherapy.

A maintenance chemotherapy protocol is sometimes recommended following induction based on individual cases. Maintenance chemotherapy is less intensive than induction chemotherapy and consists of intravenous treatment, Vincristine, in the veterinary hospital every 21 days along with oral medications, including prednisone, given at home.

The information below outlines the most commonly used chemotherapeutic drugs for cats with lymphoma.

L-Asparaginase:

The first chemotherapy drug given to patients is typically L-Asparaginase more commonly referred to as Elspar. Elspar is an intramuscular injection that works quickly in destroying lymphoma cells by depriving these cells of a food source that they need to survive. Side effects of L-asparaginase are uncommon but include allergic reactions, isolated vomiting, pancreatitis, and a phenomenon called acute tumor-lysis syndrome which is the result of large numbers of cancer cells being destroyed at one time causing overwhelming inflammation in the body. Hematologic toxicity is rare with Elspar. Overall, side-effects with Elspar are seen in less than 1/500 cases treated.

Vincristine:

During the protocol, patients routinely receive Oncovin, more commonly known as Vincristine. Vincristine is a chemotherapy drug that must be given intravenously. It can cause tissue irritation if the drug leaks out of the vein. Side effects of vincristine can include a reduction in appetite, vomiting, constipation, and occasional diarrhea. Side effects of this drug will typically occur in the first 24-72 hours after treatment. If vomiting, diarrhea or poor appetite continues for more than 24-36 hours, call your oncologist for treatment and care recommendations.

Cytosan:

Cytosan, also known as cyclophosphamide, is given alone or sometimes in conjunction with vincristine. Cytosan is administered orally in a tablet form or as an intravenous injection. The main side effects of Cytosan include vomiting, diarrhea, and suppression of the body's white blood cells. If vomiting and diarrhea occur, it is typically minor and only 1-2 days after treatment. Because Cytosan causes reduction in white blood cell counts, a complete blood count (CBC) is recommended 7 days after treatment. Extremely low white blood cell counts are addressed with antibiotics to help prevent life-threatening infections.

Doxorubicin:

Adriamycin, more commonly referred to as doxorubicin, is also received routinely during the protocol. It is given intravenously through a well-placed IV catheter due to the fact that significant tissue damage can occur if doxorubicin is given out of the vein. The treatment with doxorubicin, an infusion, typically takes ~30 minutes. Some cats need mild sedation given the need for a secure catheter with this treatment.

The side effects of doxorubicin include vomiting, diarrhea, reduction in white blood cell counts and occasional kidney-associated toxicity in cats. The patient should only experience one to two episodes of vomiting or diarrhea within the first 1-2 days of treatment. If either of these symptoms persist or are more severe, a veterinarian should be consulted. Due to the potential for reduction in white blood cell counts, a CBC is recommended 7 days after treatment. Before every treatment of doxorubicin, complete bloodwork and a urinalysis are recommended. The bloodwork and urinalysis are used to assess kidney function and white blood cell counts.

If a cat has a prior history of kidney toxicity or develops changes that indicate reduced kidney function, a different drug, CCNU (lomustine), may be substituted for doxorubicin as a means to help preserve kidney function. This medication is given orally every three to four weeks. Side effects of this medication are similar to that of doxorubicin including vomiting, diarrhea, and white blood cell suppression. Over cumulative dosing, there is also a risk of liver toxicity. Serial bloodwork will be used to monitor for this complication.

Prednisone:

Prednisone is a corticosteroid that can be administered in a tablet, liquid, or injectable formulation. This medication is helpful in treating lymphoma and is often given throughout the protocol. Prednisone is typically well-tolerated in cats, but increased appetite and increased urination may be noted. Rarely, vomiting and diarrhea can be seen associated with prednisone treatment. A rare but significant side effect includes the development of diabetes mellitus. Blood glucose is monitored routinely while this medication is being administered.

The goal of chemotherapy treatment is to control the cancer while helping pets maintain a good quality of life. Compared to humans, chemotherapy treatment for pets is less intense with fewer side effects and with the use of oral anti-diarrheal and anti-nausea medications at home, typically most cats recover within 24 hours. If vomiting, diarrhea or poor appetite continues for more than 24-36 hours, call your oncologist or primary veterinarian for treatment and care recommendations.