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Is your pet facing chemo?

Answers to your top questions

In veterinary oncology, chemotherapy is often recommended to control a pet's cancer, prolong survival and maintain a good or even excellent quality of life. What are the risks, and what can you expect? Here are some insights from Dr. Sue Ettinger, or "Dr. Sue Cancer Vet," as her clients call her.

Chemotherapy drugs are compounds that are toxic to cancer cells, which multiply very rapidly. Most chemotherapy drugs work by damaging the ability of cancer cells to divide and replicate. Therefore, the goal of conventional chemotherapy is to arrest cancer cell growth and to kill the cancer cells.

Note: This is different from metronomic chemotherapy. Metronomic chemotherapy is low-dose oral, or pulse, chemotherapy given on a continuous treatment schedule. Since it's given daily or every other day, the chemotherapy is administered at lower doses than typical chemotherapy, often with a reduced toxicity profile. This is covered the accompanying handout "FAQ about metronomic chemotherapy."

When is chemotherapy recommended?

Chemotherapy may be recommended for your pet for one of the following reasons:

1. To reduce or eliminate your pet's cancer. For tumors sensitive to chemotherapy (such as lymphoma, myeloma or leukemia), chemotherapy is usually the most effective single treatment.

2. To prevent or delay metastasis (spread) of your pet's cancer. Chemotherapy is typically administered after the primary tumor has been controlled locally with surgery, radiation therapy or both. If your pet's tumor has a high likelihood of metastasis, chemotherapy will likely be part of the treatment plan.

3. To increase the sensitivity of your pet's tumor to radiation therapy. Some drugs have been shown to increase the ability of radiation

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therapy to kill cancer cells without increasing the toxicity to normal tissue that is in the radiation field.

4. To make your pet more comfortable. Occasionally, chemotherapy may be recommended as a palliative treatment for tumors that cannot be removed with surgery or treated with radiation therapy. The goal is to make your pet more comfortable and alleviate problems associated with the tumor, such as pain or pressure.

Will chemotherapy make my pet sick?

The surprising answer is no! Chemotherapy is very well-tolerated in most dogs and cats. In my experience, 80% of pets have no side effects. Fifteen to 20% will have mild to moderate side effects, but the side effects only last a few days and will improve on their own. Plus, we have effective medications to minimize any side effects that do show up and help your pet get through them more quickly. Severe side effects that require hospitalization are rare (less than 5%).

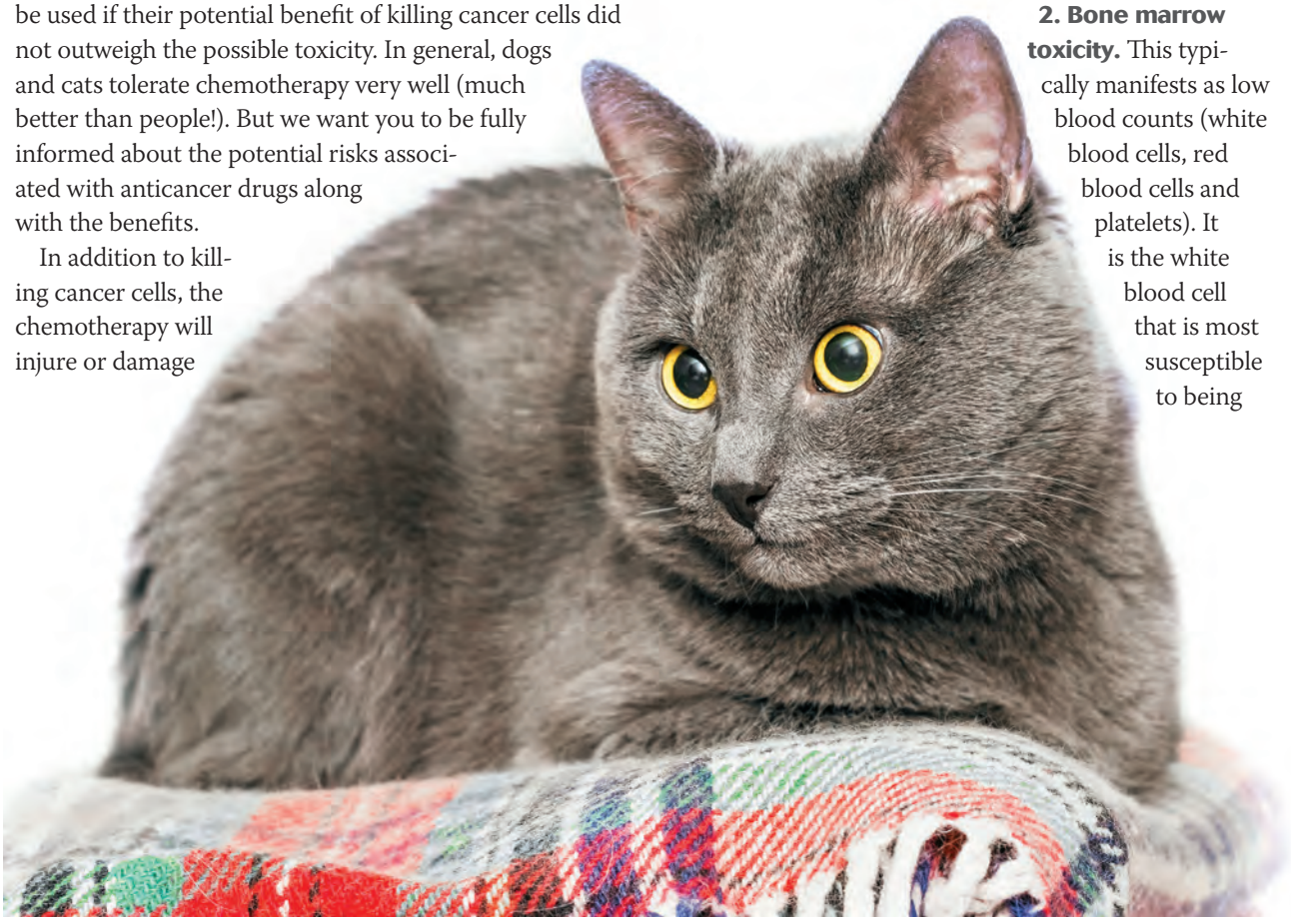
Still, most chemotherapy drugs have the potential for side effects, so it is important to be aware of them when making the decision to treat. However, they would not be used if their potential benefit of killing cancer cells did not outweigh the possible toxicity. In general, dogs and cats tolerate chemotherapy very well (much better than people!). But we want you to be fully informed about the potential risks associated with anticancer drugs along with the benefits.

In addition to killing cancer cells, the chemotherapy will injure or damage some normal cells. Remember that chemotherapy kills rapidly dividing cancer cells, so some normal cells that divide rapidly are susceptible to the toxic effects of chemotherapy. The three most common side effects are:

1. Gastrointestinal toxicity. This can manifest as nausea, vomiting, diarrhea or loss of appetite. (Keep in mind that pets with nausea tend to approach food to eat but then turn away without eating. They may also salivate or appear anxious.) These side effects most commonly occur for two to five days (with a total range of one to seven days) after the chemotherapy treatment. Generally, the side effects are mild and resolve on their own without additional treatment. Severe gastrointestinal side effects are uncommon.

If gastrointestinal side effects do occur, your veterinarian may prescribe an oral medication after treatment. For example, a common medication used to prevent and treat vomiting and nausea is maropitant (Cerenia—Zoetis), so you may give this at home after treatment for three to five days. Your cancer specialist or veterinarian may also give an injectable form with certain chemotherapy drugs to prevent nausea at the time of treatment.

2. Bone marrow toxicity. This typically manifests as low blood counts (white blood cells, red blood cells and platelets). It is the white blood cell that is most susceptible to being



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damaged by chemotherapy, so we monitor the white blood cell counts of patients undergoing chemotherapy very closely. If the cells that produce the white blood cells are damaged, the patient's white blood cell levels may fall low enough to increase susceptibility to infection. The good news is that white blood cells recover quickly—typically within days—and antibiotics may be prescribed to decrease the risk of infection while they are low.

If your pet acquires a systemic infection, you may notice severe lethargy or fever. Please call your veterinarian if you note either.

Platelet counts may also be affected, but this is more common with long-term chemotherapy. Platelets aid in blood clotting. When the platelet count is low, clotting can become an issue, and you may notice more bruising than normal or nosebleeds. It is very important that you stay in contact with your veterinarian so we can help determine the severity of any problems at home.

3. Hair loss. This side effect is usually mild in dogs but can show up unexpectedly. It's not nearly as common as it is in people receiving chemotherapy because dogs' hair does not grow continuously throughout their lives. Exceptions are Old English sheepdogs, poodles and other breeds whose hair does continue to grow—in other words, dogs that need periodic hair clipping. The hair will regrow after chemotherapy is stopped. And remember that dogs don't worry about how they look, so the psychologic impact is minimal compared with people.

It's important to note that in any breed, the hair will be slow to regrow in areas that we need to shave for access to veins or for other procedures, such as abdominal ultrasound. In addition, when the hair regrows, it may be of a slightly different color or texture.

Cats may lose their whiskers when they are undergoing chemotherapy.

4. Other effects. Some intravenous chemotherapy drugs can be extremely irritating to the tissues if they leak out of the vein during administration. This can result in swelling, inflammation, ulceration and tissue damage. Examples of drugs that can cause this are doxorubicin, vincristine, vinblastine and mechlorethamine (part of the MOPP rescue protocol for lymphoma). We are very careful about minimizing this by administering these chemotherapeutic drugs through catheters and giving the treatments in a quiet, dedicated room. In addition, all treatments are given by experienced oncology nurses or oncologists.

In addition to the above side effects, other drugs may have unique potential toxicities. Your veterinary oncologist will review this information with you if your pet is scheduled to receive one of these drugs.

How is chemotherapy given?

Chemotherapy treatment may consist of one drug or a combination of several drugs. Most drugs are given by intravenous (IV) injection or orally. Less commonly, chemotherapy is given in the muscle (intramuscularly, or IM), under the skin (subcutaneously, or SQ), or into the chest or abdominal cavity.

The therapy will be planned by your veterinary cancer specialist based on your pet's cancer and other medical problems that may impact drug choice. Cancer specialists work very closely with your pet and you to tailor the protocol to your pet's condition and to minimize side effects. We strive to maintain a good to excellent quality of life for your pet while he or she is undergoing treatment. As I often say, live longer, live well. Our patients need to do both.

Chemotherapy is usually given on an outpatient basis. Typically your pet will stay for a short time to allow for a physical examination, pre-chemo blood work and chemotherapy treatment. Most pets are awake for treatment and sedation is not required. The length of the actual treatment depends on the drug, but most drugs are given intravenously over five to 30 minutes.

For some cancers, you may be administering oral chemotherapy at home. Please see the "Helping pets through chemo" handout for tips and safety recommendations for handling chemotherapy and having a pet on chemotherapy in the home.

Remember, chemotherapy would not be used if the potential benefits of killing cancer cells did not outweigh the possible toxicities. Most pets tolerate chemotherapy extremely well. Your pet is quite likely to have normal activity and energy and continue its routine. We will work very closely with you to minimize side effects while maximizing the therapeutic benefits for your pet. Our goal is that your pet feel good and have a good to excellent quality of life while undergoing chemotherapy treatment (and after treatment too). #livelongerlivewell #kickcancersbutt

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