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# NEWS FROM THE WORLD OF ONCOLOGY

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## COMMON CHEMOTHERAPY DRUGS

I get questions from time to time about the common chemotherapy drugs that I use in my practice. In veterinary oncology we use many different chemotherapeutic agents. However, there are certain drugs that are used more commonly than others. Understanding the mechanism of action of these drugs, what their common side effects are, when side effects can be expected and when the CBC nadir will occur is important and can be invaluable in helping a client understand if the changes they see in their pet are associated with the chemotherapy treatments.



As a rule of thumb, GI side effects develop more quickly than bone marrow side effects. This is due to the fact the cells of the intestinal mucosa turn over more quickly than WBCs and their precursors. Typically GI effects can include one or all of vomiting, diarrhea or loss of appetite. These typically occur 3 to 5 days following treatment and, if seen, will last for 12 to 24 hours. Most GI side effects can be managed by diet modification and the use of medications such as metronidazole or metoclopramide. CBC side effects typically include leukopenia comprised of neutropenia. If the neutrophil count drops significantly below 1.0 then there is a risk of the development of fever, lethargy, malaise, and even sepsis. The day at which the CBC is expected to be at its lowest point is called the nadir.

Over 70% of animals receiving chemotherapy treatments will not experience any side effects throughout their entire treatment protocol. The following is a brief summary of some of the most common chemotherapy drugs used in the treatment of cancer.

**Carboplatin:** Most common side effects are GI related and are expected 3 to 5 days after treatment. This medication can rarely be nephrotoxic. The CBC nadir in dogs is expected at 10 days and potentially again at 21 days. The feline nadir is between 14 and 21 days.

**Cyclophosphamide:** Most common side effects are GI related and would be expected to occur 3 to 5 days after treatment. In dogs this medication can cause sterile hemorrhagic cystitis (in 9% of cases) in the first 24 to 48 hours following treatment. The CBC nadir is expected at 7 days.

**Doxorubicin:** Most common side effects are GI related and are seen 3 to 5 days after treatment. In dogs this drug has a total lifetime cumulative cardiotoxicity. In cats this drug has the potential to be nephrotoxic. The CBC nadir is expected at 7 days.

**L-asparaginase:** The most common side effect is allergic reaction to the *E coli* protein base. Allergic reaction is very uncommon. Allergic reactions typically are noted within 20 minutes of treatment. This medication, when used alone, would not be expected to significantly impact the CBC.

**Lomustine:** The most common side effects are GI related and may develop 3 to 7 days following treatment. The CBC nadir is at 10 days. Elevations in liver values can be noted over time in about 6% of cases. Progressive thrombocytopenia can develop over a period of months, though this is rarely noted.

**Vincristine:** The most common side effects are GI related and are seen 3 to 5 days following treatment. The CBC nadir is expected as 7 days.

If I am treating a patient of yours with a drug not mentioned here and you feel you may be seeing a chemotherapy side effect please contact me, or in my absence, the VEC Emergency Service.

***Dr. Kevin Finora is a board certified Oncologist and Small Animal Internist. He sees patients Wednesday (including evenings) to Saturday at VEC/RC South. Please do not hesitate to contact Dr. Finora if you have any cancer related questions.***

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