



The Pet Oncologist

Chlorambucil (Leukeran®)

It is important to remember that even if your pet's cancer may not be curable, your pet can enjoy an excellent quality of life during chemotherapy. Chemotherapy medications have the potential to produce side effects. However, due to the less aggressive approach (for example, lower dosages), pets usually tolerate chemotherapy far better than humans.

Chlorambucil is an orally administered chemotherapy medication that can be used to treat a variety of cancers in pets including chronic lymphocytic leukaemia, small cell or low-grade lymphoma, multiple myeloma, bladder cancer, mast cell tumours and soft tissue sarcomas.

Chlorambucil is an attractive treatment option for many owners because they can administer the drug orally to their dogs at home, the risk of chemotherapy toxicity is low (around 5%), and the cost is relatively low compared with other treatment options. **If your pet experiences any signs of illness, please contact your veterinarian.**

Typically, there is no risk to the owner/s or other pets in the household. However, chemotherapy drugs may potentially cause cancer (carcinogenic), may cause mutation in DNA (mutagenic) and may cause foetal abnormalities (teratogenic). Traces of chemotherapy may be present in pets' bodily wastes (particularly urine and/or faeces) for up to 72 hours after administration. Therefore, it is crucial for pet owners to take some necessary precautions to prevent exposure during this period (particularly when administering chemotherapy, and when handling bodily wastes), such as:

1. Avoid direct contact with chemotherapy and always wear disposable gloves when handling chemotherapy medications.
2. Always wear disposable gloves when handling urine, faeces, vomit or blood.
3. **People with a weak immune system, children, women who are or may be pregnant or breastfeeding, should avoid handling any dispensed chemotherapy medications and contact with the pet's urine, faeces, vomit or blood for up to 72 hours after administration.**
4. **Keep these personnel, and other pets, away from areas where accidents have occurred.**
5. Any accidents in the house should be cleaned up promptly with dilute bleach (preferred) or detergent solution, then disposed of in a separate double bag in the rubbish bin. Alternatively, dispose of urine and faeces in the toilet; but use the lid and double flush.
6. Urine-soaked or soiled items should be discarded rather than washed. If washed, wash separately from other laundry, locally twice and bleached.
7. If accidental contact occurs with urine, faeces, vomit, or blood, wash skin thoroughly with warm soapy water for a minimum of five minutes.

Chlorambucil is administered best on an **empty stomach**. However, if that is not possible, then it can be given with a small amount of food (e.g. the tablet can be wrapped in cheese or given in a small meatball of food).

Chlorambucil should be stored in the original container in the fridge, away from food, and kept out of reach of children and pets.

Please refer to hand out entitled '**Handling Chemotherapy Medications at Home**' for crucial handling and administration instructions, as well as handling of pet's bodily wastes.

Side effects that may occur:

Lethargy

- Lethargy is where your pet has lower energy levels or is tired or sleepy and is uncommon.
- Your pet may be reluctant to go for his or her usual routine walk.

- If lethargy occurs, please allow your pet to rest as much as possible. If the lethargy worsens or does not resolve within 3 to 5 days, please contact your veterinarian.

Gastrointestinal signs

- Loss of appetite, nausea, vomiting and diarrhoea are uncommon.
- If any gastrointestinal signs occur, please stop chlorambucil and contact your veterinarian.
- In most circumstances, the side effects will abate within 24-48 hours after discontinuing chlorambucil.
- It is rare for pets to require supportive medications or hospitalisation while receiving chlorambucil.

Low white blood cell count

- Your pet's white cell counts and platelet counts may drop after receiving chlorambucil and occasionally may never recover. However, it is uncommon and usually occurs after a prolonged course of chlorambucil (e.g. six months later).
- This is not a problem unless the white cell counts drop too critically low (i.e. neutrophil counts less than 1.0).
- When this occurs, your pet is at a slightly increased risk of sepsis and infection. If your pet is clinically well, your veterinarian will often prescribe prophylactic antibiotics to prevent this side effect from occurring and ask you to stop chlorambucil temporarily. You will be asked to monitor your pet closely for a short period. Subsequent chlorambucil treatment dosages or treatment intervals will likely be reduced to prevent the white cell counts from dropping too critically low.
- During this period, if your pet has a temperature higher than 39.2°C (i.e. fever) or shows any signs of illness (such as lethargy, vomiting, going off food or diarrhoea), please consider this an emergency and contact your veterinarian immediately. Your pet may have sepsis and/or infection that will require immediate management with intravenous fluid therapy and broad-spectrum antibiotics in the hospital. Sepsis and/or infection is a potentially life-threatening side effect that cannot be managed with supportive home medications.
- The most common source of sepsis and/or infection is from the pet's own gastrointestinal tract, therefore please avoid feeding your pet raw food during chemotherapy.
- If your pet has a low white cell count, your veterinarian may ask you to temporarily or permanently stop chlorambucil and avoid dog parks and interaction with pets with unknown vaccination status for a short period.
- If your pet has a low platelet count, your veterinarian may ask you to temporarily or permanently stop chlorambucil and avoid vigorous exercise or strenuous activity for a short period.

Liver damage

- It is sporadic to see liver damage in dogs, and it has not been reported in cats.
- If liver damage occurs, it is usually reversible. Chlorambucil will be stopped, and your pet may be administered liver protectants for a short period.

Fur loss

- Pets can and do not lose their fur during treatment. However, pets that have fur clipped during chemotherapy may not regrow or be slower to grow back until chemotherapy has finished.
- Certain breeds (such as Terriers and Poodles) may need regular grooming as they may lose some body hair and/or experience some thinning of their coat.
- Pets may lose some of their whiskers and/or eyelashes.
- Owners may comment that their pet appears "aged" during therapy. This is usually due to thinning of the coat and temporary pigment changes to the skin and/or fur.
- After chemotherapy has finished, fur usually grows back within a few months.
- Occasionally there may be a permanent texture and/or colour change.
- However, none of the above changes should impact your pet's quality of life.

Other

- Neurological signs, skin reactions and interstitial lung disease are extremely rare in people and has not been reported to occur in dogs or cats. However, seizures have been reported to occur in one cat and suspected to occur in one dog.
- If neurological signs or a seizure occurs, please stop chlorambucil and contact your veterinarian immediately.