



Information for Pet Owners and Caregivers of Puppy Moore

Acute myeloid leukemia (AML) in dogs

Acute myeloid leukemia (AML) is a fast-growing cancer of bone marrow white blood cells. In AML, the bone marrow makes lots of unformed cells called blasts that normally would develop into function cells. However, the blasts are abnormal. They do not develop and cannot fight infections. The number of abnormal cells (or leukemia cells) grows quickly. They crowd out the normal red blood cells, white blood cells and platelets the body needs. Most often, a pet's caregiver will notice their dog has a reduced appetite and less energy or less commonly, more dramatic symptoms due to infection or bleeding. Tumour cells in the bone marrow can cause fewer normal cells which aid in blood-clotting (platelets) and infection-fighting (neutrophils) to be available. The pet is then susceptible to bleeding and infection. Diagnosis is normally based on a blood count, bone marrow evaluation, chest and abdominal radiographs or ultrasonography, and standard blood tests and urinalysis, but may also include more complicated procedures.

The cause of AML is unknown, but may include genetic factors as it is sometimes seen in younger animals (and in children when it occurs in humans). **Other organs** of the body may become affected, and the function of normal cells may be compromised. For example, liver damage may occur because of the expanding cancer cell population in the liver.

In general, dogs with AML do not respond well to treatment. This is due to our reluctance to use, and limited access to, advanced aggressive treatment strategies used in human patients with AML, such as

bone marrow transplantation and supportive white cell and platelet transfusions during therapy. Untreated dogs, or those that do not respond to treatment, usually live **2 to 4 weeks**. At this time, except in a few individuals, survival with therapy does not improve on these survival times.

When treatment is attempted, it involves the use of anti-cancer chemotherapy drugs, some used simultaneously and others in sequence. They are used in a set format, or "**protocol**". Various such protocols exist, using slightly different drug sequences and dosages. In general, similar remission time and life span are achieved with all protocols that use the same drugs, so that one is not necessarily "better" than another. However, it is important to use different drugs in combination, since this has the best chance to increase remission time.

Many pet owners wonder whether they should **feed their pet anything special** during treatment for AML. There is some evidence that higher protein and fat and lower carbohydrate content is beneficial to dogs with other cancers and will help to maintain quality of life. Even if your pet is anaemic, supplemental iron will not help, as the blood is not being lost, but rather there is insufficient room for the red cells to be formed. If remission occurs, the pet's body has enough iron to rapidly replace red blood cells.

It is important to recognize that although you are dealing with a rarely curable disease, your pet can be supported in such a way that a **high quality of life** is achieved. Often the most important part of therapy is control of the symptoms of anaemia (by the use of blood transfusions when the level is very low), and antibiotics (to protect against infection when the bone marrow cannot make enough functional white cells. At this time, there is no supportive care that adequately replaces platelets (clotting cells) in dogs with AML.

Perhaps the most important factors influencing the patient's quality of life and remission time are the care of the pet owner and veterinarian.