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## **Canine Lymphoma Therapy**

Lymphoma is a cancer of lymph cells. These cells are found throughout the body and may affect any organ in the body. There are two types of lymphoma, B cell and T cell lymphoma. Sometimes it is important to differentiate the type of lymphoma with additional testing.

### **Diagnosis:**

1. Abdominal ultrasound- if the measurement of the intestine is enlarged, then something is wrong with the intestine- usually the diagnosis is IBD or lymphoma. Other common findings are a large spleen, and enlarged lymph nodes.
2. Lymph node biopsies or cytology- are the only accurate way to verify the diagnosis of lymphoma. Additional PCR testing may be recommended if pursuing therapy through a board-certified oncologist.
3. Bloodwork is checked to rule out other diseases. Occasionally lymphoma symptoms are caused by infections.
4. Chest X-rays to look for masses and lymph node enlargement.
5. ImpriMed- Optional testing that is recommended but not required, that can determine if CHOP chemotherapy will be effective for your pet or if another treatment option should be considered.

### **Standard Treatment Protocol:**

- 1. Prednisolone or Monthly Depo-Medrol injections**- these are a type of cortisone that help suppress the lymphoid cells. This also has the additional benefits of stimulating the appetite and helps reduce inflammation with arthritis. Some side effects with cortisone products include liver failure, diabetes, immune suppression, etc. The prednisolone is given daily for life, or the depo-medrol is given monthly (every 4 weeks) for life. This is the cheapest options and cost approximately \$ 20-40 dollars per month, and typical median survival time is 2-4 months.
- 2. Lomustine**- This chemotherapy is given once every 21 days in the hospital. Generally treating 3-4 times. This medication can affect the white blood cells; therefore, a CBC and blood panel are checked each month prior to administering the medication. If the WBC is low we will hold off on the medication for 2-4 weeks. The cost of this medication with blood panels is generally \$ 1,000 dollars, and typical median survival time is 4-6 months.

#### **Lomustine protocol:**

Continue current dose of prednisone.

Start Lomustine treatment- We will treat 4 times (at 60 mg per meter/squared), one pill every 3 weeks. 1<sup>st</sup> pill - feed meal with cerenia. after meal give lomustine 20-30 minutes later. Recheck bloodwork (pre-op) in one week after 1st pill is given.

2<sup>nd</sup> pill - 3 weeks after first pill, recheck blood panel- pre-op, prior to giving the pill, then give next round of medication. feed meal with cerenia. after meal give lomustine 20-30 minutes later.

3<sup>rd</sup> pill - 3 weeks later, recheck blood panel- pre-op, prior to pill. repeat cerenia with meal. after meal give lomustine 20-30 minutes later.

4<sup>th</sup> pill - 3 weeks later, recheck blood panel- pre-op, prior to pill. repeat cerenia with meal. after meal give lomustine 20-30 minutes later.

Occasionally lomustine may cause vomiting 30-minutes to one hour after administration. Cerenia and rice may help prevent vomiting.

Occasionally lomustine may cause liver problems, we recommend denamarin or hepagen-c throughout treatment to prevent liver failure.

Continue current dose of prednisone.

Blood panel must be checked prior to starting lomustine, one week after initial administration, and prior to each subsequent administration (every 3 weeks) for 4 treatments.

**3. Doxorubicin-** This injectable drug is beneficial for some types of lymphoma. Typically cost of medication, and testing is \$2,000 additional dollars, and typical medical survival time is 6-9 months.

**4. CHOP protocol -** This is a combination of chemotherapy drugs. Cost is typically \$5,000 - \$10,000 dollars and median survival time is 1 year.

**5. Lymphoma Vaccine-** This therapy still does not have an overwhelming amount of research to support use, generally this is added after CHOP protocol, and will typically add an additional \$5,000 dollars of cost to the treatment plan.

**Additional Therapies that are occasionally added to your dog's treatment:**

1. Hoxsey formula- this is an herbal cancer therapy that is used to decrease the growth of the cancer. It is overall safe and is given daily for life.
2. Convenia, or other antibiotics may be necessary for immune suppression and to treat secondary infections that may arise while your pet is on immunosuppressive medication. This is commonly used for respiratory infections, bladder infection, sinus infections.
3. High protein diet may slow cancer growth.
4. High Omega 3 fatty acids (DHA)- We recommend adding wellactin to the food daily, as the high dose of omega 3 fatty acids help slow cancer growth and reduce inflammation.
5. Cerenia- This product can be used to help prevent vomiting and nausea. Typically, when used long term this is given for 5 days, then not given for 2 days of each week.
6. HBOT- hyperbaric oxygen can be very beneficial for recovery if your pet is on chemotherapy drugs. These treatments are typically 1-2 times per week, and generally cost \$1,000 per month.