

# Hyperadrenocorticism (Cushing's Disease)

Hyperadrenocorticism (Cushing's Disease) is a complex endocrine disorder in which multiple organ systems are affected by elevated levels of circulating cortisol. Cortisol is a glucocorticoid or steroid normally produced by the adrenal glands. Spontaneous or naturally occurring Cushing's disease is caused by excessive production of cortisol by the patient's adrenal glands. In 85 to 90% of patients the excess cortisol production is due to excessive production of adrenocorticotropic hormone (ACTH) by the pituitary gland at the base of the brain. The excess ACTH causes the adrenal glands to produce excess cortisol. The remaining 10 to 15% of patients have cortisol-secreting adrenal tumors. Approximately one half of the adrenal tumors are malignant. Iatrogenic Cushing's disease is caused by excessive administration of glucocorticoid (steroid) medications. Cushing's disease is common in dogs and rare in cats and generally affects middle-aged to older animals.

## DIAGNOSIS

The diagnosis of Cushing's disease is based on history, physical examination and laboratory findings. Dogs with Cushing's disease typically show many of the following clinical signs: excessive drinking, urination, and panting, increased appetite, hair loss (usually symmetrical), lethargy, blackheads (comedones), muscle atrophy, thin skin, skin hyperpigmentation, pot-bellied or pendulous abdomen, reproductive abnormalities, recurring infections (ears, skin, urinary tract, etc.), abnormal calcification of the skin (calcinosis cutis). Laboratory tests used to diagnosis Cushing's disease include a complete blood cell count, chemistry profile, urinalysis +/- urine culture and sensitivity and a urine cortisol:creatinine ratio (UCCR). If Cushing's is suspected based on the results of these tests then we would recommend a Low Dose Dexamethasone Suppression Test (LDDST) and/or an ACTH stimulation test. To distinguish between pituitary dependent Cushing's disease and adrenal tumors we may recommend an endogenous ACTH concentration or a High Dose Dexamethasone Suppression Test (HDDST). Occasionally chest and/or abdominal radiographs or ultrasound may be necessary to look for abnormal calcification, organ enlargement or adrenal tumors.

## TREATMENT

The goal of therapy for Cushing's disease is to decrease the excessive water consumption, excessive urination, and increased appetite, and to improve the pet's skin conditions and infections. Pets with Cushing's disease can be treated with three different oral medications: **Lysodren** (mitotane or o,p'-DDD), **Anipryl** (selegiline hydrochloride or l-deprenyl) or **Vetoryl** (trilostane). Results may be seen as soon as one week after initiation of therapy or as long as 6-8 weeks after therapy begins. All three medications need to be given for the life of the pet. If medical treatment is discontinued, clinical signs of Cushing's disease will recur. Surgery is an option for animals with adrenal tumors.

**Lysodren** reduces the tissue in the adrenal glands which is overproducing the excess cortisol. Lysodren therapy is likely to be effective, but carries with it significant risks of side effects. Potential side effects of Lysodren therapy include: vomiting, diarrhea, shaking, weakness, collapse and decreased appetite. If you notice any of these symptoms please give prednisone as directed by the label and call the clinic at 651-777-1393 as soon as possible. Do not give any more Lysodren until you have called the clinic

**Anipryl** decreases production of ACTH in the brain. Anipryl therapy is less likely to be effective than either Lysodren or Vetoryl, but carries with it fewer risks of side effects. Potential side effects of Anipryl therapy include: vomiting, diarrhea, restlessness, lethargy, increased salivation and decreased appetite.

**Vetoryl** is a steroid analogue which acts as a competitive inhibitor of a specific enzyme system. By inhibiting the action of these enzymes it decreases the production of several steroids, including cortisol. Vetoryl is usually associated with only mild side-effects such as mild lethargy and decreased appetite two to four days from the start of therapy.

We will need to recheck the pet one to two weeks following initiation of medical treatment. At that time we will weigh the pet, assess how they have done on the medication, look for changes in clinical signs and discuss possible blood work. Please fast your pet for 12 hours prior to your appointment. Please call our offices to schedule an appointment. Additional recheck appointments will be necessary to continue to monitor the pet's response to therapy.

## **PROGNOSIS**

Depending on which body systems are affected, response to treatment is generally seen within several days to months. Left untreated Cushing's disease is a progressive disease with a poor prognosis. Most patients treated for Cushing's disease generally have a good prognosis. The average survival time for patients treated with Lysodren is two years with at least 10% surviving for four years. Patients with benign adrenal tumors have a good to excellent prognosis. Pets with small malignant adrenal tumors that have not spread to other parts of the body have a fair to good prognosis. Patients with large malignant adrenal tumors that have spread to other parts of the body have a poor to fair prognosis.

If you ever have questions regarding any of the above information, please do not hesitate to contact us. Visit us online at [www.WhiteBearAnimalHospital.com](http://www.WhiteBearAnimalHospital.com).

### **WHITE BEAR ANIMAL HOSPITAL**

1909 East County Road E  
White Bear Lake, MN 55110  
651.777.1393