

## **Cushing's Disease (Hyperadrenocorticism)**

Cushing's disease, also known as hyperadrenocorticism, is one of the most common endocrine diseases seen in dogs. It is a disease of the adrenal glands (a small gland located near each kidney) and occurs when a portion of the gland becomes overactive resulting in excessive production of glucocorticoids—the body's natural cortisol. Cortisol is an essential hormone, but when produced in excessive amounts, cortisol causes a variety of symptoms including, but not limited to, excessive panting, increased thirst and urination, ravenous appetite, pot-bellied appearance, muscle weakness and hair loss.

### **Types of Cushing's Disease**

There are two different distinct forms of the disease. There is pituitary dependent hyperadrenocorticism (PDH) and there is an adrenal-based disease.

**Pituitary Dependent Hyperadrenocorticism (PDH):** This occurs when the pituitary gland in the brain produces an excessive amount of a hormone called adrenocorticotropic hormone (ACTH). ACTH then stimulates the adrenal gland to produce excessive amounts of cortisol. PDH is the more common type of Cushing's disease and represents about 80-85% of dogs with Cushing's disease.

**Adrenal Tumor:** This type occurs when there is a tumor within a single (or rarely both) adrenal gland causing that individual gland(s) to overproduce cortisol. Adrenal tumors can be benign—meaning they affect only the adrenal gland itself. Or, they can be malignant, with the potential to metastasize or spread to other organs.

Determining the type of Cushing's disease is very important as it changes how we treat the disease. Either a blood test or an ultrasound, or both, can be used to help distinguish between the two types. In the case of a suspected adrenal tumor, ultrasound and chest x-rays are essential to screen for possible metastasis before pursuing further treatment. Benign and non-metastatic adrenal tumors are treated by surgical removal if possible. PDH and non-surgical adrenal tumors are treated with medication.

### **Treatment (PDH)**

Although there are several medications that can be used for treating Cushing's disease, the two most effective ones are Lysodren and Trilostane.

**Lysodren Therapy:** Lysodren works by slowly destroying adrenal gland tissue to reduce the amount of cortisol produced. There are two phases to Lysodren therapy: induction and

maintenance. Induction usually lasts 5 to 14 days and begins with daily administration of Lysodren. It is continued until a decrease in appetite or water drinking is noticed. Signs of a decreased appetite may be very subtle and include taking longer to finish a meal, not eating all the food, stopping for a drink of water or pausing to look at an owner while eating. As soon as a decrease is noted it is VERY important to stop the Lysodren. Occasionally, more serious signs occur including vomiting, diarrhea and lethargy. Please notify us immediately if any of these occur. After one week of treatment a monitoring blood test (ACTH stimulation test) needs to be administered regardless of whether or not the pet is still receiving Lysodren. The test takes a few hours and evaluates the dog's response to Lysodren. If the response is acceptable, the pet begins maintenance therapy. If not, the pet remains in induction until an adequate response occurs. Maintenance therapy consists of administering Lysodren once to several times a week. Monitoring includes a blood test one month after starting maintenance therapy and every three months after.

**Trilostane Therapy:** Trilostane is the other common medication used in the treatment of Cushing's disease and it works in an entirely different way than Lysodren. Trilostane very closely resembles another hormone, pregnenolone, which is used in the production of cortisol. The presence of Trilostane in the body decreases the amount of pregnenolone that can be used to make cortisol resulting in decreased cortisol levels. Unlike Lysodren, Trilostane does not have two phases of treatment. Dogs are started on a daily dose based on their weight. The same monitoring test is used for both drugs and is first conducted 10 to 14 days after starting Trilostane. However, when using Trilostane the test must be performed 4 to 6 hours after the pill is given. Based on the test results, the dosage of Trilostane is adjusted as needed. The second monitoring test is done in another two weeks, and then every three months. Trilostane does not need to be stopped if decrease in appetite or water drinking occur, although please contact us if any more serious signs develop. Trilostane does have the potential to cause birth defects and should never be used in pregnant animals. At this time, Trilostane is not approved for use in the U.S. and has to be ordered from a foreign pharmacy. There are multiple online pharmacies including Master's ([www.mastersmarketing.com](http://www.mastersmarketing.com)) through which the product is readily available. Trilostane is currently awaiting approval by the FDA and has been used effectively in Canada and Europe, as well as by many veterinarians here in the U.S. for several years.

Cushing's disease can be a very serious and initially very overwhelming disease. Just remember that with time and careful monitoring many pets can be treated and their symptoms greatly reduced or eliminated. It is very important to have lots of communication with us during the treatment of this disease so please feel free to call us at 562-961-0028 with any questions you may have.