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CUSHING'S DISEASE (Hyperadrenocorticism)

WHAT IS CUSHING'S DISEASE?

Cushing's disease, or hyperadrenocorticism, is a common disorder in dogs resulting from excessive cortisol secretion by the adrenal glands (two small glands that are next to the kidneys). In the normal dog, the pituitary gland produces a hormone called ACTH, which stimulates the adrenal gland to produce the glucocorticoid hormone, cortisol, necessary for the function of many systems in the body. If there is a problem in the pituitary gland or the adrenal glands and too much cortisol is produced, then Cushing's disease develops. Hyperadrenocorticism does occur in cats, but is uncommon and often accompanies diabetes mellitus.

WHAT ARE THE SYMPTOMS?

Cushing's disease progresses slowly and owners often attribute some symptoms to old age. Dogs may only have a few of the symptoms at the time of diagnosis.

Excessive cortisol can cause:

- Increased appetite
- Increased thirst
- Increased urination
- Recurring skin or urinary tract infections
- Panting/pacing
- Abdominal Enlargement
- Hair Loss/Thin Skin

The most common symptom is increased water consumption leading to increased urination (polyuria/polydipsia). This is present in over 85% of animals with Cushing's disease and may lead to inappropriate urination in otherwise housebroken animals. Increased appetite is also quite common. Dogs may display inappropriate behavior by begging, stealing food, or getting into the garbage. The abdominal enlargement or potbellied appearance is due to a decrease of muscle mass leading to a shift of fat into the abdomen. The hairloss is usually seen on the chest and abdomen while the head and legs are spared.

WHAT CAUSES CUSHING'S DISEASE?

There are three causes for Cushing's disease. All causes result in excessive cortisone production that result in the above symptoms.

- Pituitary dependent hyperadrenocorticism- a tumor of the pituitary gland causes an increased production of ACTH that results in the adrenal glands producing more cortisol. Greater than 80% of dogs have this form of Cushing's disease.
- Adrenal dependent hyperadrenocorticism- a tumor of one or both adrenal glands causes an increased production of cortisol. This form accounts for less than 20% of dogs with Cushing's Disease.
- Iatrogenic hyperadrenocorticism- this is caused by an animal receiving high doses of anti-inflammatory steroids (prednisone).

HOW IS CUSHING'S DISEASE DIAGNOSED?

The symptoms associated with Cushing's disease can mimic other diseases, so it is important to have full screening labwork including a chemistry panel, complete blood count, and urinalysis. Common findings seen with Cushing's disease include elevated liver enzymes (ALP, ALT) and cholesterol. Dilute urine is also a common finding.

There are many specific tests to help in the diagnosis of Cushing's disease. These tests include an ACTH stimulation test, low or high dose dexamethasone suppression tests, endogenous ACTH, urine cortisol:creatinine ratio, and abdominal ultrasound. A diagnosis is made once all information is gathered and analyzed by your doctor.

HOW IS CUSHING'S DISEASE TREATED?

Depending on the type of hyperadrenocorticism diagnosed, either surgical or medical treatment may be warranted. Surgery is the recommended treatment for an adrenal tumor, while medical therapy is the treatment for a pituitary tumor.

Current medical treatments for pituitary dependent hyperadrenocorticism includes one of two oral medications: Mitotane (Lysodren) and trilostane (Veteryl). Other medications have been used in the past, but are not as effective as mitotane and trilostane. With either medication, frequent monitoring of lab work is required during the induction phase, and then every 6 months thereafter for the life of the animal.

Mitotane works by destroying the adrenal cells that produce cortisol. The benefits of mitotane include a relatively low cost, convenient dosing (often 3 days a week), and it is available at most pharmacies. The disadvantages include potential serious side effects, including the destruction of too many adrenal cells.

Trilostane works by inhibiting the production of cortisol and another adrenal hormone called aldosterone. This is the main benefit of trilostane, as no adrenal cells are destroyed. If too much cortisol is inhibited, the effects are reversible. The disadvantages include greater costs, increased dosing frequency (often once or twice daily), and lack of FDA approval in the United States. Trilostane, in its pure form, can be obtained by filing for FDA approval and ordering from the UK. There are compounding pharmacies in the US that make their own trilostane, although the efficacy cannot be guaranteed.