

# Hypoadrenocorticism (Addison's Disease)

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## BASIC INFORMATION

### Description

Hypoadrenocorticism (Addison's disease) arises from decreased secretion of hormones by the adrenal gland. The adrenal gland makes several types of hormones, and usually mineralocorticoid and glucocorticoid hormones are both decreased. In atypical Addison's disease, only glucocorticoids are diminished.

### Causes

*Primary hypoadrenocorticism* may develop when the adrenal glands are attacked by the immune system. The triggering event for this problem is unknown. Lymphoma may cause hypoadrenocorticism in the cat. Prolonged administration of steroid medications, brain tumors and trauma, and congenital defects of the pituitary gland may cause *secondary hypoadrenocorticism*. The pituitary gland is responsible for secreting the hormone that activates the adrenal gland (adrenocorticotropic hormone [ACTH]), and ACTH falls in all of these latter conditions.

### Clinical Signs

Hypoadrenocorticism occurs most often in young, female dogs of many different breeds. Certain families of Leonbergers and standard poodles may be affected. The disease can occur in young cats of any breed or gender.

Clinical signs include intermittent vomiting, diarrhea, decreased appetite, weight loss, and sometimes dark, bloody diarrhea. Lethargy, depression, and weakness are also common. Sometimes hair loss and increased thirst and urination occur.

In some animals, signs wax and wane; in others, an acute crisis develops, with the animal showing signs of collapse, dehydration, and shock. Although pulses can be weak, the heart rate may remain slow because of high blood levels of potassium.

### Diagnostic Tests

The diagnosis often requires laboratory testing, because no clinical sign is specific for Addison's disease:

- A blood count may reveal anemia and elevated white blood cells.
- Classic findings on a chemistry profile of the blood include low sodium, high potassium, low chloride, and sometimes high calcium levels. Animals with atypical Addison's disease do not have these blood abnormalities, because they are caused by a mineralocorticoid deficit. Low blood sugar can also occur during shock.
- An ACTH response test shows abnormally low blood cortisol levels and confirms the diagnosis.

- With primary hypoadrenocorticism, the circulating ACTH level in the blood is high; with secondary hypoadrenocorticism, it is low.

Other tests that may be run, depending on the presenting clinical signs, include chest and abdominal x-rays, an electrocardiogram (ECG), a urinalysis, abdominal ultrasound, and fecal examination.

## TREATMENT AND FOLLOW-UP

### Treatment Options

Animals in an acute crisis require hospitalization for intravenous fluids, injectable steroids, and medications to lower blood potassium levels. Shock must be treated aggressively, and blood or plasma transfusions may be required if the animal is hemorrhaging into the gut. The acute crisis can be life-threatening and reversed only through intensive care.

For most dogs with hypoadrenocorticism, lifelong supplementation with mineralocorticoids is needed. This may involve administration of oral fludrocortisone (usually once daily) or injections of desoxycorticosterone pivalate (DOCP) every 25-40 days. Oral glucocorticoids (steroids such as prednisone or dexamethasone) are also given for life. For dogs with atypical Addison's disease, only glucocorticoids may be required.

Cats with hypoadrenocorticism are often treated with DOCP every 3-4 weeks and with either oral or injectable steroid medications.

### Follow-up Care

During an acute crisis, intensive monitoring with repeated blood tests is often needed to ensure that all laboratory abnormalities are resolving. Frequent rechecks and blood tests are needed in newly diagnosed patients until correct dosages of medications are determined. Once regulated, periodic rechecks are performed usually for the rest of the animal's life. Blood potassium levels may remain a little elevated, even with adequate treatment.

### Prognosis

If the animal survives an acute crisis, then the disease is often very manageable. Treatment of the disease can be rewarding, because most animals respond well to the medications. Because adrenal gland hormones help to combat stress, however, affected animals often do not handle physical stresses very well. During periods of stress (such as surgery or other illnesses), extra steroid supplementation may be needed, and close monitoring for signs of relapse is important.