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Addison's Disease in Dogs

What is Addison's disease?

Addison's disease is the common name for *hypoadrenocorticism*. Hypoadrenocorticism is a condition where there is diminished or lowered hormone production from the outer part or *cortex* of the adrenal gland.

What are the adrenal glands and what do they do?

The adrenal glands are small, paired glands located next to the kidneys. Each gland consists of an outer *cortex* and an inner *medulla*. The glands produce several substances that regulate a variety of body functions and are necessary to sustain life. The most widely known of these substances is *cortisol*, a corticosteroid commonly called cortisone or steroid, which is produced by the outer part of the adrenal cortex. Also produced by the adrenal cortex and equally important is *aldosterone*, which is a mineralocorticoid hormone. Aldosterone regulates the electrolyte and water balance of the body and is involved in the excretion of potassium and retention of sodium.

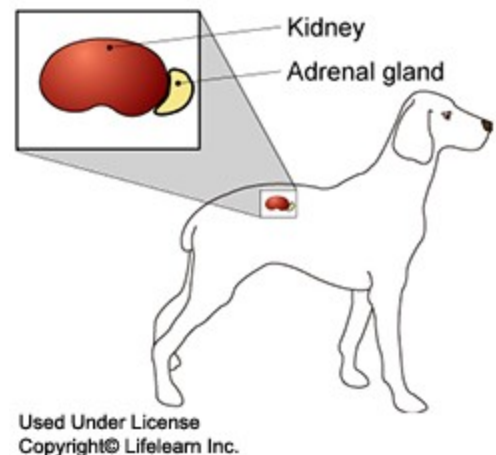
Deficiency of these two hormones, cortisol and aldosterone, is referred to as hypoadrenocorticism or Addison's disease.

What causes Addison's disease?

In the dog, the main causes are direct injury to the adrenal gland tissue, infection or certain autoimmune conditions. There are two main categories of Addison's disease, namely primary and secondary Addison's disease.

Primary hypoadrenocorticism results from a disease process in the adrenal glands; this may be caused by immune-mediated disease. It can also occur when treating Cushing's disease (hyperadrenocorticism), a disease in which too much cortisol and aldosterone are produced. Addison's disease may also result when a drug used to treat Cushing's disease, Lysodrenâ (mitotane) or trilostane, destroys too much of the adrenal tissues, resulting in a deficiency of cortisol and aldosterone.

Secondary Addison's disease results from a disease such as a tumor in the pituitary gland, which is an important hormonal regulator located in the brain. Secondary Addison's disease can also develop if a dog has been treated with long-term steroids for any reason and the medication is abruptly stopped. This is also known as *iatrogenic hypoadrenocorticism*.



What are the clinical signs of hypoadrenocorticism?

"Clinical signs of Addison's disease are usually vague and non-specific..."

Clinical signs of Addison's disease are usually vague and non-specific and are similar to the symptoms seen in animals with more common medical disorders such as chronic gastroenteritis or renal disease. Common signs include lethargy, diarrhea, vomiting, increased thirst and increased urination. Intermittent shaking episodes are also characteristic. The symptoms may wax and wane. Weight loss is often seen.

These animals will often improve with non-specific medical treatment. For example, the administration of fluids or corticosteroids appears to help temporarily, but the signs soon return. In a pet that experiences recurrent bouts of sudden lethargy, diarrhea and vomiting, increased thirst and urination or other non-specific illness, Addison's disease should be considered as an underlying cause.

What is an Addisonian Crisis?

Sometimes the condition takes on a much more serious form. There is sudden weakness, with severe vomiting and diarrhea, and sometimes the patient collapses. This is an **Addisonian crisis and is considered a medical emergency**. Under these circumstances, urgent hospitalization and supportive treatment will be necessary.

How is Addison's disease diagnosed?

Diagnosis is based on your pet's medical history and clinical signs, coupled with the results of blood and urine tests. The most common diagnostic tests are the ACTH-stimulation test and the low-dose dexamethasone suppression (LDDS) tests. Your dog will probably have to be admitted to the veterinary hospital for the day to perform the necessary tests. Additional tests such as radiographs or abdominal ultrasound are performed in suspicious cases or to rule-out another cause for your pet's clinical signs.

How is Addison's disease treated?

Once a diagnosis of hypoadrenocorticism has been made, most dogs can be successfully treated with oral medication. Your dog's diet and activity levels can often remain unchanged. The majority of dogs resume normal lives, even after an Addisonian crisis.

It will be necessary to monitor progress carefully, particularly at the start of treatment. This may involve occasional hospitalization for monitoring and follow-up testing.

It must be emphasized that lifelong replacement of both glucocorticoids (cortisol) and mineralocorticoids (aldosterone) may be necessary. Some of these medications, especially corticosteroids, may have to be increased during periods of stress, such as when traveling, if your dog is going to be boarded, or if your dog has to undergo surgery. In addition, your veterinarian will have to see your pet at regular intervals to ensure that stabilization is satisfactory. This usually involves simple follow-up blood and urine tests and routine ACTH-stimulation tests or LDDS tests.



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What is the prognosis for a dog diagnosed with Addison's disease?

The vast majority of patients with Addison's disease have a good to excellent prognosis once the diagnosis has been established and they have been stabilized with the appropriate drugs. If you wish to discuss the long-term prognosis for your pet, please do not hesitate to contact your veterinarian.

*This client information sheet is based on material written by: Ernest Ward, DVM
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