Fact sheet

Addison's disease (hypoadrenocorticism)

Although Addison's disease can be a very serious disease the changes it causes can be very subtle in the early stages. The signs of the disease are variable and often vague. It is important to get an early diagnosis because, with treatment, affected animals can lead a normal and full life.

What is Addison's disease?

Addison's disease occurs when dogs fail to produce enough of the hormone, cortisol and in some cases, the hormone, aldosterone. For this reason, the disease is sometimes called "hypoadrenocorticism" or "hypocortisolemia". The disease is named after a 19th-century English physician, Thomas Addison, who identified and described it.

In the normal dog, cortisol and aldosterone are produced by the adrenal glands, (which are located just in front of the kidneys). Scientists think that cortisol has hundreds of possible effects in the body. Because cortisol is so vital to health, the amount of cortisol produced by the adrenal glands is precisely balanced. Cortisol production is regulated by hormones produced in the brain (from the pituitary) which stimulate the adrenal glands. When the adrenal glands receive the signal from the pituitary they respond by producing cortisol. Cortisol's most important job is to help the body respond to stress. In Addison's disease the body is unable to produce enough cortisol and affected animals may become ill at times of stress.

Aldosterone helps maintain blood pressure and the water and salt balance in the body by helping the kidneys retain sodium and excrete potassium. When aldosterone production falls too low, the kidneys are not able to regulate salt and water balance, causing blood volume and blood pressure to drop.

What causes Addison's disease?

Addison's disease is usually caused by damage to the adrenal glands. Most cases of Addison's disease are caused by the gradual destruction of the outer layer of the adrenal glands, by the body's own immune system.

How would I know if my dog had Addison's disease?

The signs of Addison's disease are extremely variable and can be subtle in the early stages. Addison's disease usually affects younger dogs and females are more at risk than males. In some breeds of dog eg Standard Poodles and Bearded Collies, the disease is more common. Many owners do not recognize the signs of Addison's disease in their pet, but are aware that their pet is 'not quite right'. You should be suspicious if your pet suffers from recurrent illness (particularly vomiting or diarrhea) but recovers rapidly when treated with intravenous fluids.

Common signs of Addison's disease

The steroid hormones affect almost every tissue in the body and the signs of Addison's disease can be diverse. The signs of adrenal insufficiency usually begin gradually. Chronic, worsening fatigue and muscle weakness, loss of appetite and weight loss are characteristic of the disease. Dogs may be depressed, lethargic or unwilling to exercise (and sometimes you don't notice how quiet they have become, confusing the signs of disease with your dog 'maturing').

Gastrointestinal problems (with vomiting and/or diarrhea) that get better and then recur is a common sign. Episodes of collapse or muscle weakness may be reported. Addison's disease can cause increased thirst. If your dog is drinking more (or is suddenly needing to get up in the night to urinate) you should always take them to the veterinarian for a check-up. Low blood sugar can be a problem in toy breeds or young dogs. Female dogs may miss seasons. Because the signs progress slowly, they are usually ignored until a stressful event like an illness or an accident causes them to become worse.

Sometimes, if the disease is unrecognized, a very severe form develops - this is called an Addisonian crisis. Often this begins with vomiting or diarrhea, but progresses rapidly resulting in collapse and possibly coma. Pets can die without urgent treatment. In some dogs there are no signs at all until an Addisonian crisis develops.

How will my vet diagnose the disease?

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In its early stages, Addison's disease can be difficult to diagnose. A review of your dog's medical history may make your veterinarian suspect Addison's disease. Although Addison's disease can be difficult to recognize it is very easy to diagnose. Your veterinarian may suspect the disease based on simple blood tests but specific blood tests are needed to confirm the disease. These tests measure the level of cortisol in the blood. However, because the levels of this hormone vary from hour to hour in the normal animal, the disease cannot be diagnosed on the basis of one blood test. Your veterinarian will need to take a number of blood samples (before and after an injection of a hormone which mimics the action of the pituitary to stimulate your dog's adrenal glands to produce cortisol). These blood samples will need to be sent away to a veterinary laboratory for analysis. If your dog is unable to increase the amount of cortisol in the blood after the injection then it is clear that its adrenal glands are not working properly.

X-rays may also be needed to show other potential problems caused by the disease.

How can the disease be treated?

Addison's disease is caused by there being too little cortisol and/or aldosterone in the blood. Treatment of Addison's disease involves replacing, or substituting, the hormones that the adrenal glands are not making. Oral steroid tablets (prednisone, prednisolone, dexamethasone) are given to replace cortisol, and DOCP injections or Florinef tablets to replace aldosterone. Tablets are given daily to supplement the missing hormones. The doses of each of these medications are adjusted to meet the needs of individual patients.

During an Addisonian crisis, low blood pressure, low blood sugar and high levels of potassium can be life-threatening. Standard therapy involves intravenous injections of hydrocortisone and a saline (salt water) drip. This treatment usually brings rapid improvement. When the patient can take fluids and medications by mouth, the intravenous treatment is decreased until and maintenance therapy is begun. In fact, once stabilized, many dogs require only Florinef tablets on a daily basis. If your veterinarian is using injectable DOCP to replace aldosterone, your pet will likely also require supplemental oral replacement steroid tablets. Your veterinarian may give you a supply of steroid tablets and ask you to give them only when your pet is stressed or excited. This mirrors the circumstances under which cortisol would be produced naturally.

Is it worth treating my dog?

Most dogs with Addison's disease are relatively young and the signs of disease will get worse at they get older. Even if you haven't really noticed a particular problem with your dog you may see dramatic improvement when treatment starts. Routine blood tests are taken two or three times a year to ensure that treatment does not need to be altered. Many dogs will go on to live a normal lifespan. Without treatment the complications can be significant and will seriously affect the quality of your pet's life.

If you want any other information please contact Advanstar Veterinary Healthcare Communications, P.O. Box 6004, Duluth, MN 55806, USA on Toll free 1-800-815-3400 Local 218-740-6477 and we will be happy to advise you.