

## Addison's Disease – What every owner should know!

### **What is Addison's disease?**

Addison's disease is the common name for a condition called hypoadrenocorticism. This disease is characterized by reduced to absent production of critical hormones from the adrenal glands. The adrenal glands are small, paired glands next to the kidneys that produce several hormones that regulate a variety of body functions necessary to sustain life. The most widely known hormone is cortisol, commonly called cortisone or steroid. Cortisol is needed by every cell in the body and is essential to protein, fat and carbohydrate metabolism as well as maintaining a healthy intestinal tract. The adrenal glands also produce another hormone called aldosterone which regulates electrolyte and water balance by keeping blood sodium and potassium concentrations within specific normal ranges. Normal blood pressure requires appropriate sodium concentrations in the blood and patients can develop low blood pressure when deficient in aldosterone. When a patient doesn't produce enough of these hormones, it will become unwell and if the levels become very low it can be **life-threatening**.

### **I've read there are different types of Addison's disease, is that true?**

Yes. A dog (or very rarely a cat) can be deficient in BOTH cortisol and aldosterone. This is classically what is referred to as Addison's disease or Primary Hypoadrenocorticism. There is a less common type called Atypical Addison's disease in which only cortisol is deficient. Because aldosterone is unaffected in Atypical Addison's disease, the electrolytes (sodium and potassium) remain normal.

### **What causes Addison's disease?**

In dogs with Addison's disease, the adrenal glands have been damaged and are no longer producing the essential hormones cortisol and aldosterone. This damage can occur in several ways:

- Hereditary autoimmune disease where the dog's own immune system attacks and destroys the adrenal glands
- Invasion of the adrenal glands by some type of tumor/cancer
- Overdose of prescription medication such as trilostane or mitotane used to treat overactive adrenal glands
- Infection of the adrenal glands
- If a dog/cat receives supplemental steroids for a long time and then suddenly stops receiving them

### **What clinical signs will my dog develop if he/she has Addison's disease?**

Clinical signs of Addison's disease can be acute and life-threatening or chronic, vague, and not very specific. Signs can be similar to dogs with gastroenteritis: depression, vomiting, weight loss, diarrhea and increased thirst and urination. These signs may come and go and many times the pet will improve with non-specific, symptomatic, and supportive care. If your dog experiences recurrent lethargy, diarrhea, vomiting and increased thirst/urination, Addison's disease should be considered.

Some dogs will experience sudden weakness, vomiting, diarrhea, and collapse. This is an **Addisonian Crisis** and is considered a medical emergency. Urgent hospitalization and supportive treatment will likely be necessary because electrolyte disturbances can lead to cardiac arrest.

In summary, the more noticeable signs of Addison's disease are:

- Loss of appetite
- Lethargy
- Weakness
- Vomiting
- Diarrhea
- Weight loss
- Shivering, tremors, muscle stiffness
- Depression
- Dehydration

These signs are seen in many other diseases, so diagnosis is not always straightforward. This is why we call Addison's disease "the great pretender" because it looks like so many other diseases.

### ***How is Addison's disease diagnosed?***

Your veterinarian will initially suspect Addison's disease based on the age and breed of your dog and the clinical signs your pet is showing. Generally speaking, this is a disease of younger to middle-aged female dogs although male dogs are not excluded. Common dog breeds with Addison's disease include Standard Poodles, Labradoodle, Goldendoodle, Portuguese Water Dogs, Nova Scotia Duck Tolling Retrievers, and Bearded Collies. Your vet will perform a thorough physical examination and a series of blood tests to help confirm the diagnosis. If there are specific electrolyte changes, or if the vet suspects Atypical Addison's disease, they will likely measure a resting blood cortisol level which is a relatively inexpensive way to see if Addison's disease may be present. If the resting cortisol supports possible hypoadrenocorticism, they will probably perform an ACTH-stimulation test (this is a test where the hormone that instructs the adrenal gland to produce cortisol is injected – if the adrenals fail to respond to this instruction, we have a diagnosis). Your dog will likely need to stay at the veterinary hospital while this test is completed. Additional tests such as radiographs (x-rays) or abdominal ultrasound may be performed to help exclude other causes for your pet's clinical signs.

### ***Is there treatment for Addison's disease? Will my dog be able to live a normal life?***

Luckily, the answer to both of these questions is yes! Once diagnosed, most dogs can be successfully treated with oral or injectable medications. Diet and activity level can often remain unchanged once the diagnosis is obtained and appropriate medical treatment implemented. The majority of dogs resume normal lives, even after an Addisonian crisis.

Cortisol is easily replaced with daily oral prednisone therapy. Aldosterone can be replaced either with daily oral medication (Florinef) or with a monthly injection of Percorten/DOCP or Zycortal. These injections can be done at either your veterinary office or you can learn to give the monthly injections at home. DOCP/Percorten and Zycortal are preferred methods of aldosterone replacement as they always seem to work when started at the standard label dose. This means we don't have to monitor electrolytes as frequently as we do with Florinef, which can save you money. In fact, we often find that we can slowly wean the dose of Percorten/Zycortal down from the starting dose and find a lower volume of drug that their individual dog will respond to, resulting in even greater cost savings. With Florinef, more frequent monitoring of electrolytes is required as it doesn't reliably work and the dose needs to be increased over time in most pets. In fact, some dogs have sodium and potassium concentrations that never become normal on Florinef despite continued dose increases. Treatment will be LIFELONG, so your veterinarian can help you decide which treatment plan fits best with your lifestyle.

When a dog is on Florinef and responds well to the drug, it is possible to wean down or off of concurrent prednisone. When the diagnosis is first made and Florinef is chosen as the aldosterone replacement, generally prednisone AND Florinef are started together at the same time. Florinef does contain some prednisone-like steroid as well as aldosterone replacement. So that may allow some dogs to come off the additional prednisone in the future and be maintained on Florinef alone. A dog receiving Percorten or Zycortal as aldosterone replacement will ALWAYS require prednisone be given in addition to those injections.

Again, it must be emphasized that treatment for Addison's disease is FOREVER. Your dog will require long-term/indefinite replacement of either cortisol (prednisone), aldosterone (DOCP/Zycortal/Florinef), or both in most cases.

Some of these medications, particularly the cortisol portion may need to be increased during periods of stress such as when traveling, while your pet is being boarded, or if your pet has to undergo surgery of any type. In addition, it is a good idea that your veterinarian evaluate your dog every 6-12 months to ensure appropriate stabilization and management of the disease. This usually involves simple follow-up blood tests to monitor electrolytes, blood proteins, blood glucose, and kidney parameters.

The vast majority of pets with Addison's disease have a good to excellent prognosis once the diagnosis has been established and they have been properly stabilized with appropriate treatment.