

DePorre Veterinary Hospital

4066 W. Maple Road
Bloomfield Hills, Michigan 48301
www.deporrevet.com

248-646-1669 phone 248-646-6348 fax

Caring People Caring for Animals

Diabetes Insipidus

What is Diabetes Insipidus?

Diabetes insipidus is a condition characterized by reduced secretion or reduced effectiveness of a hormone called anti-diuretic hormone (ADH). ADH is a hormone that is produced by the hypothalamus and released by the pituitary gland in the brain. ADH promotes reabsorption of water by the kidneys, which allows the kidneys to concentrate urine and maintain adequate hydration of the body.

What Causes Diabetes Insipidus?

There are two types of diabetes insipidus:

- Central diabetes insipidus (CDI) is caused by an absolute lack in the secretion of ADH by the pituitary gland. This may occur due to damage to the brain or a pituitary tumor, although in some cases it appears to arise spontaneously with no discernable underlying cause.
- Nephrogenic diabetes insipidus (NDI) is caused by a lack of response of the kidneys to ADH secreted by the pituitary gland. NDI can occur when the kidneys cannot respond to ADH due to interference from other factors in the body. These may include toxins from bacterial infections (such as E. coli), electrolyte abnormalities or different types of steroids. Other disorders may also lead to NDI including hyperthyroidism, hyperadrenocorticism, hypoadrenocorticism, kidney infections, and chronic kidney disease.

Both CDI and NDI may occur as congenital diseases as well, but both are extremely rare. Diabetes insipidus may affect both dogs and cats, with no breed, gender or age risk factors noted.

What are the Clinical Signs of Diabetes Insipidus?

Clinical signs of diabetes insipidus are increased urination (polyuria) and increased drinking (polydipsia). Animals may show signs of dehydration, but otherwise physical exams are usually normal.

How is Diabetes Insipidus Diagnosed?

Diabetes insipidus is diagnosed by ruling out other potential causes of polyuria and polydipsia. A general blood panel, urinalysis and urine culture will typically be performed to assess for different causes of polyuria/polydipsia. If diabetes insipidus is present, these results will likely be normal other than dilute urine concentration and possibly electrolyte abnormalities. An abdominal ultrasound as well as testing to assess the function of the adrenal glands may also be performed to rule out conditions such as Cushing's disease, Addison's disease and other types of kidney disease. A water deprivation test may be performed to rule out a behavioral cause for excessive water drinking. If no other causes for polyuria/polydipsia can be identified, a trial therapy of synthetic ADH hormone may be done and the response assessed.

How is Diabetes Insipidus Treated?

Central diabetes insipidus (CDI) is treated using synthetic ADH (DDAVP drops). These drops are administered into the conjunctival sac of the eye and are absorbed into the body. The synthetic ADH replaces that ADH which should be produced in the brain, and allows the kidneys to reabsorb water normally. Treatment for nephrogenic diabetes insipidus is more difficult but may be attempted with a

combination of a medication called a thiazide diuretic and a low sodium diet. This combination reduces urine volume, although does not necessarily improve water reabsorption by the kidneys. It is also possible to forego treatment for diabetes insipidus, as long as the polyuria/polydipsia is not significantly affecting the quality of life of the pet or owner and the pet has access to fresh water at all times.

What is the Prognosis with Diabetes Insipidus?

In patients with CDI, treatment with DDAVP is typically life-long and these patients can often live a normal life. NDI is much more difficult to manage and as a result patients with this disease have a more guarded prognosis. All patients with diabetes insipidus must have access to fresh water at all times. Lack of access to fresh water can quickly lead to severe dehydration.