



DIABETES INSIPIDUS

ABOUT THE DISEASE

Diabetes insipidus (DI) is a disease of the endocrine system, which monitors hormones. **DI** happens when the kidneys are unable to adequately concentrate the urine, and as a result, patients are unable to effectively retain water, and excessively urinate.

This is not to be confused with diabetes mellitus, which is an endocrine disease of insulin and sugar imbalance. Please see the [Diabetes Mellitus](#) document for additional information.

There are two types of **DI**:

- **Central diabetes insipidus (CDI)** – Dysfunction within the pituitary gland that leads to a decreased secretion of urine concentrating hormone (vasopressin/ADH).
- **Nephrogenic diabetes insipidus (NDI)** – Dysfunction within the kidney that leads to a decreased response to urine concentrating hormone (vasopressin/ADH) secreted by the pituitary gland.

Symptoms include:

- Excessive urination
- Excessive thirst
- Inappropriate or accidental urinating (house/kennel/etc.)
 - Often misinterpreted as either behavioral or incontinence
- Mental depression, dehydration, disorientation, and incoordination
 - Will occur if patients lose free access to water, and then develop secondary neurologic symptoms

OBTAINING A DIAGNOSIS

Specific routine laboratory testing does not exist for **DI**. Unfortunately, most diagnoses are made after performing blood and urine tests to rule out other metabolic and hormonal diseases (renal disease, diabetes mellitus, Cushing's disease, etc.).

Urine testing can be performed and will often show a patient with very dilute urine, without any other significant urine changes. Under a controlled setting, patients may undergo a modified water-deprivation test to determine if they can concentrate their urine once systemically detecting mild dehydration.

A hormone replacement is available for treatment called DDAVP, which will help concentrate the urine. In patients that repeatedly show very dilute urine, they are given DDAVP to determine if they will then concentrate their urine. If they do, then **CDI** is strongly suspected. If they do not, then **NDI** is strongly suspected.

TREATMENT

The therapeutic goal is to reduce excessive urination and thirst, but often requires a life-long management strategy.

In patients with **CDI**, DDAVP shows the greatest success for treatment. However, because treatment is life-long, the overall cost of therapy often makes treatment not feasible.

With **NDI** patients, it is difficult to manage symptoms, concentrate urine, and ensure proper electrolyte balance. These cases often carry a guarded prognosis for long-term survival, because other than free access to water, there are no clear options for management.

TIPS FOR SUCCESS

- **DI** is a life-long condition, which is neither easy nor inexpensive to manage.
- Patients must always have free access to water.