

Diabetes Insipidus

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What is DI?

Diabetes insipidus (DI) is a disorder with high amounts of urination (polyuria) because the kidney cannot retain water. Usually a hormone called antidiuretic hormone (ADH or vasopressin) tells the kidney to reabsorb water. There are two major forms of DI:

Central DI: The brain and pituitary gland do not make or secrete ADH.

Nephrogenic DI: The kidney cannot respond to ADH to retain water. This may be a genetic disorder that is present from birth, or it may be acquired through many forms of kidney damage.

How do you diagnose DI?

Central DI is often diagnosed when a patient with brain problems has high urine output, especially if the level of sodium in the blood goes too high. Congenital nephrogenic DI may show up as a child who cannot gain weight. Because children with DI urinate a lot, they drink a lot of water to keep their blood levels of sodium balanced. They drink so much water that they do not take in enough calories for normal growth. Either form of DI may also present with severe dehydration with very high levels of blood sodium.

If the diagnosis is not obvious from the symptoms and simple blood tests, then a water deprivation test may be needed. During this study, water and other fluids are withheld from the patient while urine output, body weight, and blood sodium are closely monitored. This testing can be dangerous, and it is often not necessary to make the diagnosis.

How do you treat DI?

Central DI may be treated with replacement of the hormone that is not being made. A synthetic version of ADH, called DDAVP, is usually used in pill or nasal spray. Sometimes an injectable form may be used as well.

Nephrogenic DI cannot be cured. Many patients are able to keep themselves hydrated and their blood levels of sodium normal by drinking fluids freely. Other drugs such as nonsteroidal anti-inflammatory drugs (NSAIDs like indomethacin) may help reduce urination to manageable levels, especially in very young children with congenital disease.

Avoiding dehydration that may become severe, even fatal, very quickly, is the most important aspect of treating DI. Patients with DI will continue to urinate, even if fluids are restricted. They require access to water and the restroom as needed.