

Diabetes Insipidus

Definition

Diabetes insipidus is caused by the inability of the kidneys to conserve water, which leads to frequent urination and pronounced thirst.

Causes, Incidence & Risks

- Uncommon condition
- Caused when the kidney cannot conserve water as it filters the blood
- Water conservation is controlled by ADH (anti-diuretic hormone) which is secreted by the **Posterior Pituitary**

2 Types Of DI

Central and Nephrogenic

- Central DI is caused by damage to the hypothalamus or pituitary gland as a result
 - Surgery
 - Infection
 - Tumor (1° & 2°)
 - Head injury
 - Idiopathic self limiting (50%)
- Results in undersecretion of ADH which increase water excretion
- Central DI is more common than nephrogenic DI.

- Nephrogenic DI involves a defect in the parts of the kidneys that re-absorb water back into the bloodstream.
- Occur as an
 - Inherited disorder in male children
 - Polycystic kidney disease
 - Pregnancy (rare due to placenta producing vasopressinase)
 - Electrolyte imbalance
 - Pyelonephritis
 - Drugs such as lithium

Effect Of DI

- If thirst mechanisms are normal and adequate fluids are consumed, there are no significant effects on body fluid or salt balance.
- If inadequate fluids are consumed, the large amount of water lost in the urine may cause dehydration and high sodium levels in the blood.

Symptoms

- Polydipsia (Excessive thirst)
 - May be intense or uncontrollable
 - May involve a craving for ice water
- Polyuria (Excessive urination)

Signs & Tests

- Urinalysis (dilute urine)
- Urine output:
 - Central DI: urine output suppressed by a dose of ADH
 - Nephrogenic DI: urine output not suppressed by a dose of ADH
- MRI of the head

Treatment

- Find casue, Test pituitary
- Central DI controlled with vasopressin (desmopressin, DDAVP)
- Nephrogenic DI if caused by medication (stop medication)
- Hereditary nephrogenic DI is treated with fluid intake to match urine output and drugs that lower urine output. (Diuretics hydrochlorothiazide (HCTZ) and amiloride)

Additional Information

- Once a medicine has been approved for marketing for a certain use, experience may show that it is also useful for other medical problems. Although these uses are not specifically included in product labeling, thiazide diuretics are used in certain patients with the following medical conditions:
 - Diabetes insipidus
 - Kidney stones (calcium-containing)
 - For patients taking this medicine for *diabetes insipidus*
- Some thiazide diuretics are used in the treatment of diabetes insipidus. In patients with water diabetes, this medicine causes a decrease in the flow of urine and helps the body hold water. Thus, the information given above about increased urine flow will not apply to you.

Prognosis

The outcome depends on the underlying disorder.

If treated, diabetes insipidus does not cause severe problems or reduce life expectancy

Complications

- Dehydration
 - Dry skin
 - Dry mucous membranes
 - Sunken appearance to eyes
 - Sunken fontanelles (soft spot) in infants
 - Fever
 - Rapid heart rate
 - Weight loss
- Electrolyte imbalance
 - Fatigue, lethargy
 - Headache
 - Irritability
 - Muscle pains