

DIABETES INSIPIDUS

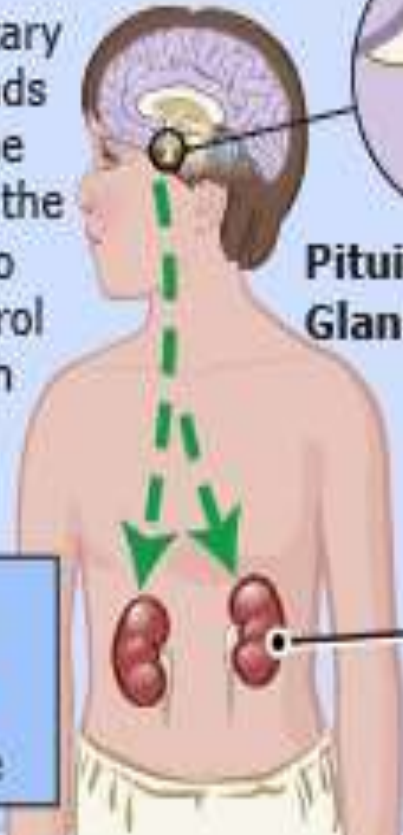
BY :- Mr. Baljinder Singh
Assistant Professor
PIMS, Panipat

Definition

Diabetes insipidus is a disorder of the posterior lobe of the pituitary gland characterized by a deficiency of antidiuretic hormone (ADH), or vasopressin. Great thirst (polydipsia) and large volumes of dilute urine characterize the disorder.

Normal

The pituitary gland sends a hormone (ADH) to the kidneys to help control how much urine is made.



Pituitary Gland

Central Diabetes Insipidus

Because the pituitary gland doesn't make enough ADH, the kidneys make a lot of urine.



Kidneys

Types of DI


A) Central diabetes insipidus

B) Nephrogenic diabetes insipidus

Causes

A) Central diabetes insipidus :-

- Head trauma or surgery
- Pituitary or hypothalamic tumor
- Intracerebral occlusion or infection

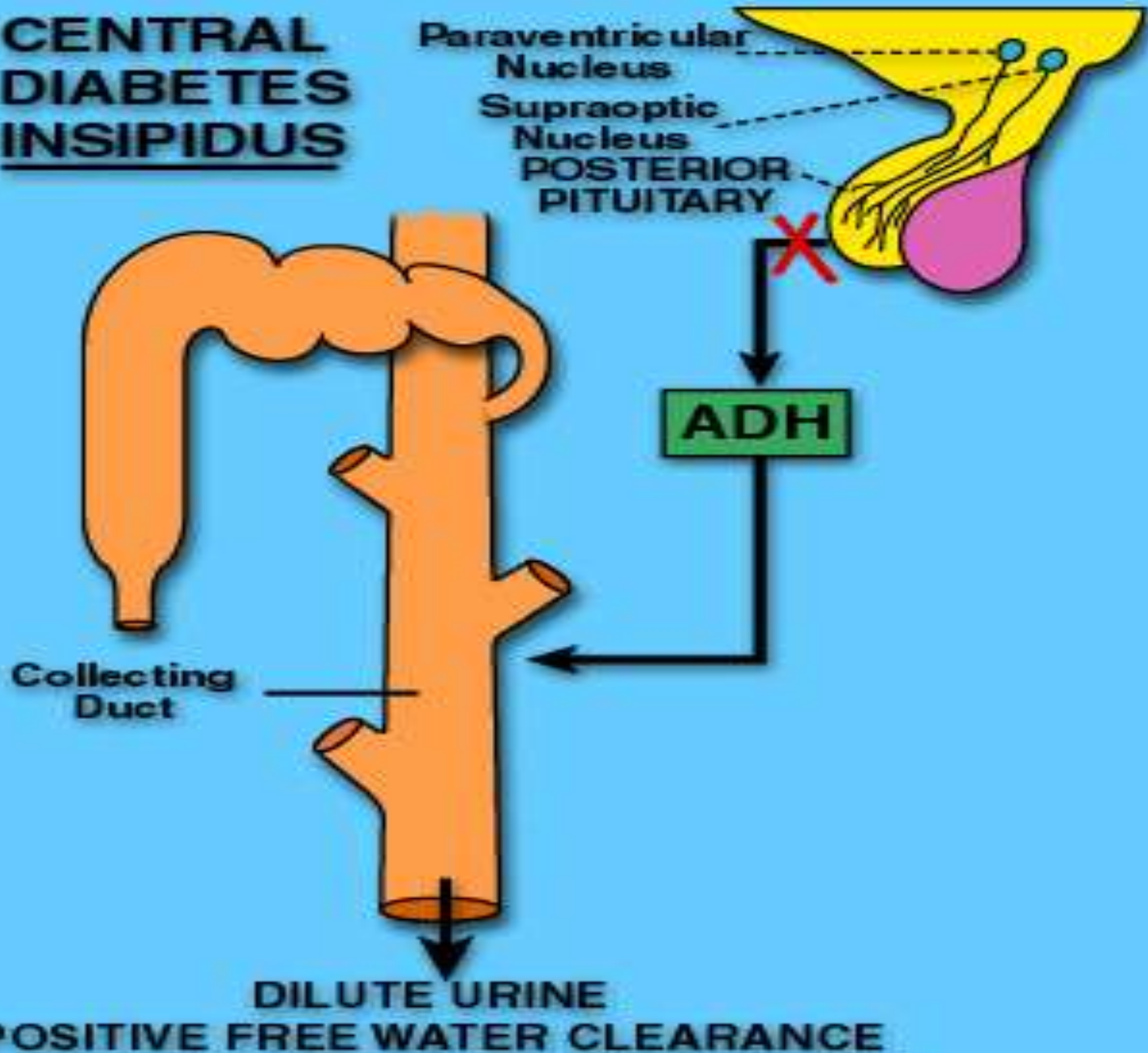
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- **B) Nephrogenic diabetes insipidus**
 - Systemic diseases involving the kidney
 - Multiple myeloma
 - sickle cell anemia
 - Polycystic kidney disease
 - Pyelonephritis
 - Medications such as lithium

Pathophysiology

A) Central diabetes insipidus :-

- Loss of vasopressin-producing cells,
- Causing deficiency in antidiuretic hormone (ADH) synthesis or release;
- Deficiency in ADH, resulting in an inability to conserve water,
- leading to extreme polyuria and polydipsia

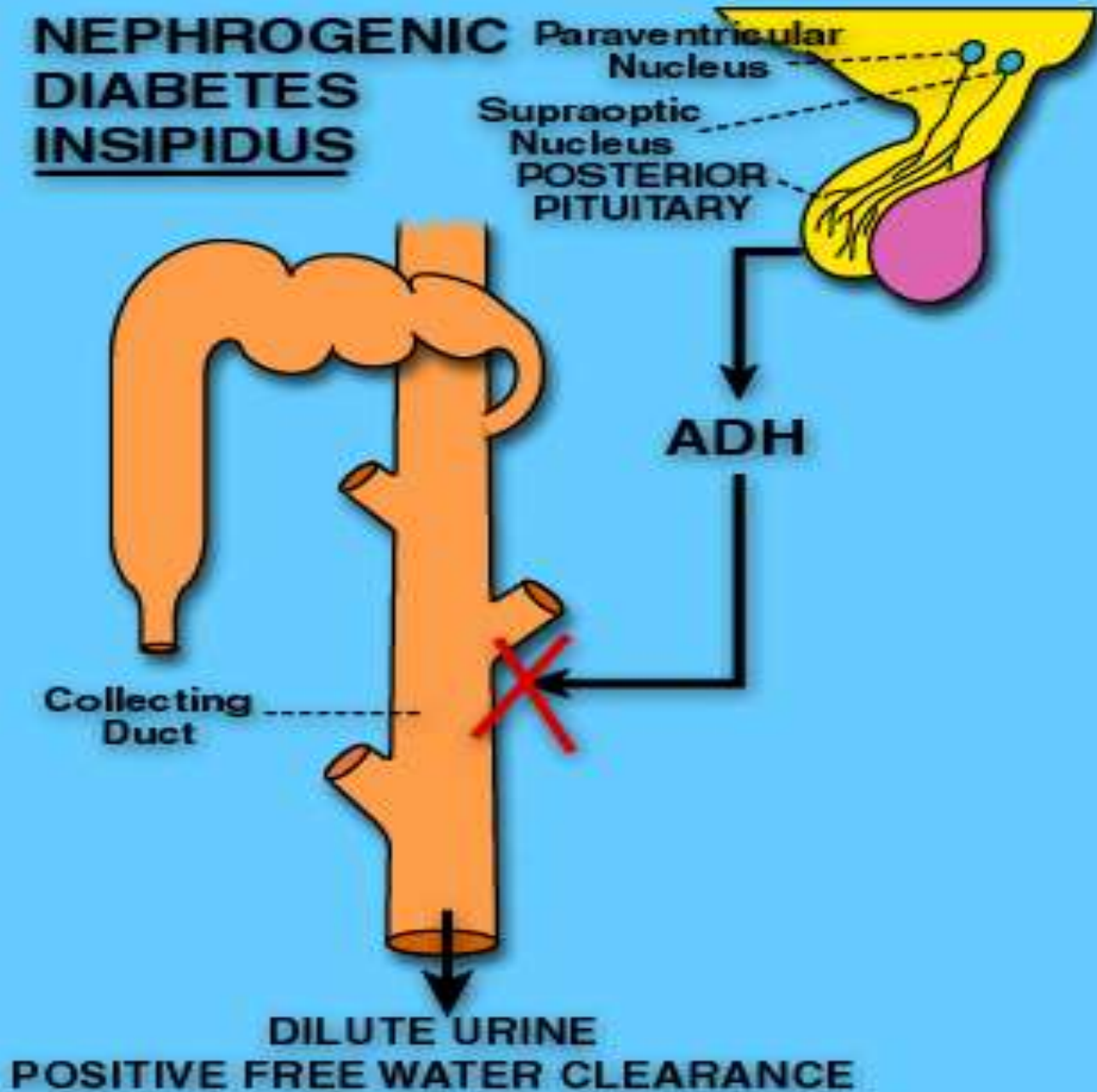
CENTRAL DIABETES INSIPIDUS



B) Nephrogenic diabetes insipidus

- Depression of aldosterone release or inability of the nephrons to respond to ADH,
- causing extreme polyuria and polydipsia

NEPHROGENIC DIABETES INSIPIDUS



Signs and symptoms

- Polyuria with urine output of 5 to 15 L daily
- Polydipsia, especially a desire for cold fluids
- Marked dehydration, as evidenced by dry mucous membranes, dry skin, and weight loss
- Anorexia and epigastric fullness
- Nocturia and related fatigue from interrupted sleep

Diagnostic test results

- High serum osmolality, usually above 300 mOsm/kg of water
- Low urine osmolarity, usually 50 to 200 mOsm/kg of water;
- low urine-specific gravity of less than 1.005
- Increased creatinine and blood urea nitrogen (BUN) levels resulting from dehydration
- Positive response to water deprivation test: Urine output decreases and specific gravity increases

Goals of management

- The objectives of therapy are
 - (1) to replace ADH (which is usually a long-term therapeutic program),
 - (2) to ensure adequate fluid replacement, and
 - (3) to identify and correct the underlying cause

Treatments

- Replacement vasopressin therapy with intranasal or I.V. DDAVP (desmopressin acetate)
- Correction of dehydration and electrolyte imbalances

Treatment

- A thiazide diuretic to deplete sodium and increase renal water reabsorption
- Restriction of salt and protein intake