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ICON

DIABETES INSIPIDUS

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a) Explain Diabetes insipidus and its management

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.

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

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

B) Nephrogenic diabetes insipidus

 Depression of aldosterone release or inability of the nephrons to respond to ADH,

 causing extreme polyuria and polydipsia

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-specifi c 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

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

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