

* Diabetes Insipidus:-

- Also called as Cranial diabetes Insipidus
- Diabetes $\rightarrow$ Urinary excretion
- Insipidus $\rightarrow$ Watery
- Normally ADH is secreted only in response of ^{hyp} Osmolality, Hypovolemia, Hypotension and psychological stress.
- $\rightarrow$ Failure in the secretion of ADH from the supraoptic nucleus leads to the Central Diabetes Insipidus.

Causes:-

- Injury $\rightarrow$ Head Trauma
- Infection $\rightarrow$ Meningitis, Encephalitis, Toxoplasmosis
- Inflammation
- Tumours - Pituitary adenoma, Craniopharyngioma, Meningioma
- Chemical toxin $\rightarrow$ Snake venom
- Vascular - Sheehan's Syndrome, Aneurysm
- Genetic Causes

Clinical features:-

Types:-

- Central - Due to lesion in supraoptic nucleus
- Nephrogenic - Normal ADH but defect in the Renal nephrons
- Gestational $\rightarrow$ Production of vasopressin
- Psychogenic $\rightarrow$ Compulsive watery drinking

Clinical features

- $\rightarrow$ Gross Polyuria (2.5 to 10 l or more in 24 hrs).
- $\rightarrow$ Polydipsia

- Osmolality may fall to 200 mosm/kg .
- Dehydration and hyponatremia may develop in the Coma patient. Fatigue, Nausea
- In the subjects where the disease is secondary to other disease, the primary abnormality may be evident.

Diagnosis:

- Presence of polyuria with a fall of specific gravity. It has to be differentiated with other types.

Investigation:

- X-ray of the skull, CT, MRI
- Measurement of 24 hrs urine volume.
- If the Osmolality of Early morning urine is $> 800 \text{ mosm/kg}$, it rules out diabetes insipidus.
- Water deprivation test and vasopressin administration.

Treatment:

- Vasopressin analogues.
- Chlorpropamide.
- Water deprivation.

Water Deprivation Test.

- Aim:
- ① To Diagnose Diabetes Mellitus.
 - ② To Differentiate Cranial and nephrogenic cause.

Protocol

- ① No coffee, No Tea, smoking on test day
- ② Free fluid until morning 7-30 hrs, but no stocking up of extra fluid.
- ③ No fluid after 7-30 hrs.
- ④ Measurement of Body weight, Plasma and Urine osmolality taken.

Normal Plasma $> 285 - 295 \text{ mosm/L}$ ($< 300 \text{ mosm/L}$)
Urine $> 600 \text{ mosm/L}$

- ⑤ Record body weight, Urine volume, Urine and plasma osmolality $\rightarrow$ for every 2 hrs upto 8 hrs.
- ⑥ Stop the test if weight reduces less than 3%.
- ⑦ If plasma osmolality reaches more than 300 mosm/kg and Urine $<$ than 600 mosm/kg then administer Desmopressin (Analogue of ADH).

Interpretation

- $\rightarrow$ Diabetes mellitus confirmed if plasma gets > 300 & Urine < 600 .
- $\rightarrow$ Cranial diabetes if Urine osmolality $\uparrow$ by 50% after Desmopressin.

- Nephrogenic if no increase in urine osmolality
- Primary polydipsia if low plasma osmolality at start of the test