

Diabetes Insipidus

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- Diabetes insipidus (DI) is a condition where the person →
- (1) passes large amounts of urine (polyuria) , &
- (3) feels thirsty most of the time
- (3) drinks excessive amounts of water (polydipsia)

- It differs from diabetes mellitus in that
- (1) urine is dilute
- (2) urine does not contain sugar (no glycosuria) , &
- (2) blood sugar is normal .
- Reduction of fluid intake does not change urine concentration .

• Types of Diabetes Insipidus

- Mainly 2 types :
- (1) Cranial DI (the commonest) : due to vasopressin (ADH) deficiency → defect in the posterior pituitary gland .
- (2) Nephrogenic DI : there is enough ADH is being but the kidney fails to respond to it → defect in the kidney .
- Other conditions that also manifest polydipsia and should not be confused with DI are →
- Psychogenic Polydipsia , &
- Diabetes mellitus (which will be discussed in other lectures)

- Central (Cranial) Diabetes Insipidus

- This is the most common type of DI
- It is due to Vasopressin deficiency
- Caused by damage to the Hypothalamus or Pituitary Gland, e.g., by tumor , infection, head injury or cranial surgery →
- Features →
- Patient is thirsty , lethargic & irritable .
- He passes large amounts of urine (polyuria) and needs to go to the toilet (to urinate) frequently.
- Urine is dilute (has very low Specific Gravity) & does not contain sugar

- Signs of hypovolemia (decreased ECF volume) & dehydration such as →
 - (1) poor skin turgor & dryness of the skin & mucous membranes ,
 - (2) small (weak) , rapid pulse (tachycardia) , &
 - (3) hypotension (fall in BP) .
- Haemoconcentration & increased plasma osmolarity .
- Increased body temperature & hyperthermia if treatment is delayed .
- If we decrease the patient's water intake , his urine output does not decrease → this proves that the patient can not produce ADH in response to decreased ECF volume .
- If left untreated, diabetes insipidus can result in severe dehydration, shock and death.

Management

- Strict measurement & recording of fluid intake & urine output + urine specific gravity & testing and osmolarity testing hourly in the early stages
- Recording the pulse and BP hourly in the early stages , to detect early any signs of shock
- Vasopressin test → If desired , Vasopressin can be injected subcutaneously → if urine output decreases → this is not nephrogenic DI
- Pitressin (aqueous vasopressin) can be used for treatment

- Psychogenic Polydipsia :

- In this condition the person has psychologic urge (strong desire) to drink much water though he doesn't need it .
- He has normal ADH secretion & normal kidney response to ADH , but the patient has psychiatric disturbance that produces urges to drink large amounts of water .
- Urine has large volume & is dilute
- However . if you deprive this person of water → urine volume decreases & urine osmolarity increases (urine becomes more concentrated)
- i.e., subject shows normal response to water restriction