

Primary Polydipsia

Primary polydipsia is characterized by increased free water intake, which is commonly caused by psychiatric diseases and results in polyuria and hyponatremia. It can be diagnosed by normal or decreased plasma osmolality, decreased urine osmolality, and significant elevation of urine osmolality during the water deprivation test. The main management strategy is water restriction.



PLAY PICMONIC

Characteristics

Increased Free Water Intake

Up-arrow Water

An increased water intake characterizes primary polydipsia. The patient may also consistently complain of a large volume of urine excreted which often exceeds 40-50 mL/kg body weight.

Psychiatric Diseases

Psycho in a Straight-jacket

Primary polydipsia can occur in patients with psychiatric illnesses, including bipolar disorder, schizophrenia, schizoaffective disorder, anxiety, and psychotic depression.

Diagnosis

Hyponatremia

Hippo-salt-shaker

Hyponatremia can be present in primary polydipsia due to inadequacy of the kidney to excrete excess fluid resulting in retained water. Excess fluid intake also contributes to this. It is characterized by sodium levels less than 135 mEq/L.

Normal or Decreased Plasma Osmolality

Normal-sign Down-arrow Plasma-TV Ozzy-mole

Primary polydipsia presents with normal or decreased plasma osmolality (≤ 280 mOsm/kg). This differentiates it from diabetes insipidus, which presents with an increased plasma osmolality (≥ 300 mOsm/Kg).

Decreased Urine Osmolality

Down-arrow Urinal Ozzy-mole

Primary polydipsia patients present with dilute urine. Labs will reveal a decreased urine osmolality (less than 100 mOsm/kg). Urine osmolality will be less than serum osmolality.

Water Deprivation Test

Water-bottle Restricted-belt Test-tubes

Water restriction through a water deprivation test will cause a significant rise in urine osmolality (> 700 mOsm/kg) in normal physiology and primary polydipsia. This will distinguish primary polydipsia from diabetes insipidus, which presents with no change or only a slight increase in urine osmolality.

Management

Water Restriction

Water-bottle Restricted-belt

Water restriction is the ideal treatment for patients with primary polydipsia.