ADH Abnormalities

Diabetes insipidus

- "without taste"
- Caused by Deficiency of ADH "neurogenic"
  - damage to the hypothalamus or pituitary
- or by an insensitivity of the kidneys to that hormone "Nephrogenic"
- hereditary causes
- Acquired
  - Drugs
    - amphotericin B
  - polycystic kidney disease
  - sickle-cell disease
  - electrolyte disturbances
    - hypokalemia
    - hypercalcemia
- "Dipsogenic"
  - defect or damage to the thirst mechanism in the hypothalamus
- "Gestational"
  - Due to vasopressinase in the placenta
  - During Pregnancy
- or iatrogenically
- polyuria, polydipsia
- Severely diluted urine
- Signs of dehydration
- interfere with appetite, eating, weight gain, and growth
- Diagnosis
  - hypernatremia
  - Urinalysis demonstrates a dilute urine with a low specific gravity
  - Urine osmolarity and electrolyte levels are typically low
  - distinguish between the main forms, desmopressin stimulation
- Treatment
  - adequate hydration
  - Central DI and gestational DI respond to desmopressin
  - hydrochlorothiazide in Nephrogenic

Syndrome of inappropriate antidiuretic hormone

- excessive release of antidiuretic hormone
- dilutional hyponatremia
- Water Intoxication
- ECF expands without edema or hypertension
- cerebral edema Causing: headache, nausea, vomiting, and confusion
- Severe hyponatremia may cause convulsions or coma
- Laboratory findings
  - Hyponatremia
    - <130 mEq/L, and POsm <270 mOsm/kg
  - Urine sodium concentration >20 mEqlL
  - Maintained hypervolemia
  - Suppression of renin-angiotensin system
  - No equal concentration of atrial natriuretic peptide
  - Low BUN, creatinine, uric acid, albumin
- most common causes is the secretion of ectopic ADH by malignant neoplasms (particularly small-cell carcinomas of the lung)
- Other Causes
  - meningitis, Subarachnoid hemorrhage, Brain and Lung abscess, Pneumonia, some Drugs: Cyclophosphamide, MDMA, Chlorpropamide.
- Differential diagnosis
  - Cerebral salt wasting syndrome
  - due to excessive sodium excretion
  - CSWS leads to a relative or overt hypovolemia
  - Random urine sodium concentrations tend to be >100 mEq/L in CSWS. SIADH rarely, if ever, leads to a random urine sodium of >100 mEq/L.
  - Treated by fludrocortisone
- Management
  - Treating underlying causes when possible
  - Fluid restriction to 800-1,000 ml/d
  - Intravenous Hypertonic saline
  - Drugs
    - Demeclocycline
    - Conivaptan
    - Tolvaptan