Endocrine System

Study Guide (QUIZ # 1)

Extra Links:

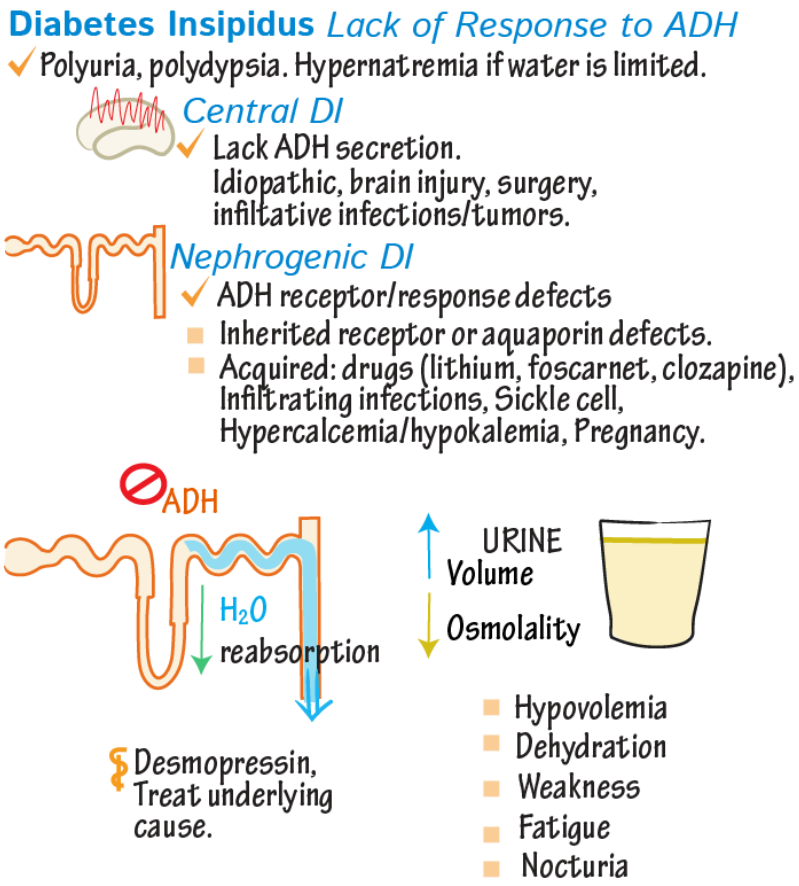
Prof Notes for quiz 1

Read out loud

1. **Describe the pathophysiology, clinical manifestations, diagnostic/lab tests, medications, nursing diagnoses, and nursing interventions for the following endocrine disorders:**
   a. **Diabetes insipidus**
      i. Understanding Diabetes Insipidus
   b. Pathophysiology:
      i. Disorder of the posterior pituitary in which ADH is deficient
      ii. A decrease in ADH results in electrolyte and fluid imbalances
      iii. Diabetes insipidus is characterized by significant polyuria and intense polydipsia
      iv. Patients with diabetes insipidus may have a urinary output exceeding 5-20 L per 24 hours
      v. The patient is weak, tired, and lethargic
      vi. Specific gravity is altered and skin turgor is poor
   c. Manifestation:
      i. Polyuria
      ii. Polydipsia
      iii. Tachycardia
      iv. Hypotension
      v. Loss or absence of skin turgor
      vi. Dry mucous membranes
      vii. Weak, poor peripheral pulses
   d. Diagnostic/Lab test:
      i. Diagnosed with urine spectrometry and lab values, along with a careful history
      ii. Medical management focuses on treatment ADH deficiency
      iii. Nursing interventions are aimed at protecting the patient from injury

iv. Patient should be weighed daily and I&O should be monitored closely
v. Encourage oral intake of fluids

e. Causes:
i. Head injury
ii. Lithium



iii.

b. Acromegaly

a. Pathophysiology:
i. Caused by an overproduction of growth hormone
ii. Usually begins in the third to fourth decade of life
iii. Characterized by bulging forehead, bulbous nose, thick lips, and coarse facial features

b. Manifestation:
i. Manifestations are widespread, including overgrowth of the skin; bones of the forehead, jaw, feet and hands; and enlargement of organs including the liver and the heart.

ii. If left untreated, acromegaly can cause hypertension, diabetes mellitus, and heart problems.
iii. Patient's ability to maintain normal body function and maintain quality of life should be closely assessed
iv. S/S: Severe headaches, Thick lips with coarse facial structures, Joint pain, muscle weakness, Enlarged hands and feet, Hyperglycemia, Lower jaw protrusion, Bulging of forehead, Sweating, Hypertension.

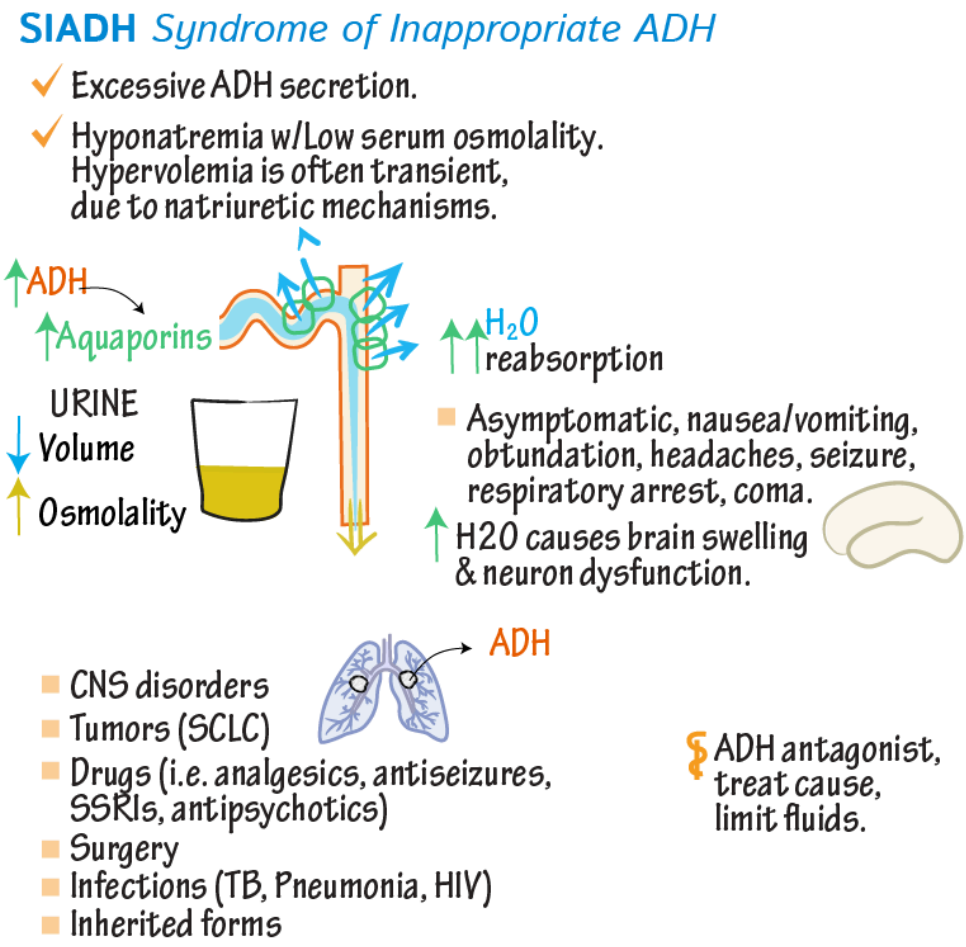
c. Diagnostic/Lab test:
i. Growth hormone suppression test
ii. Growth hormone level is measured as a baseline following administration of glucose.
iii. Elevated glucose levels are expected to suppress GH
iv. Clients who have acromegaly will show only a slight decrease or no decrease at all in GH levels.

d. MEDICATIONS
i. Dopamine agonists (bromocriptine mesylate, cabergoline)
1. inhibit the release of GH.
ii. Somatostatin analogs (octreotide, lanreotide)
1. inhibit GH release.
iii. Growth hormone receptor blocker (pegvisomant)
1. prevents GH receptor activity and blocks production of insulin-like growth factor.

c. Syndrome of inappropriate antidiuretic hormone (SIADH)

a. Pathophysiology:
i. Syndrome of inappropriate ADH (SIADH) or Schwartz-Bartter syndrome occurs when the pituitary gland releases too much ADH
ii. As a result, excess water is reabsorbed by the kidneys
iii. Characterized by hyponatremia, hemodilution, and fluid overload
iv. Signs and symptoms include nausea, vomiting, irritability, confusion, tremors, seizures, stupor, and coma
v. Diagnosed through urine spectrometry and lab values, with careful history
vi. Treatment includes strict fluid restriction

b. Manifestation:
    i. Early manifestations include headache, weakness, anorexia, and weight gain (without edema because water, not sodium, is retained).
    ii. As the blood sodium level decreases, the client experiences personality changes, hostility, nausea, vomiting, diarrhea, and oliguria with dark yellow concentrated appearance.
    iii. Confusion, lethargy, and Cheyne-Stokes respirations herald impending crisis. When the blood sodium level drops further, seizures, coma, and death can occur.
    iv. Manifestations of fluid volume excess include tachycardia, bounding pulses, possible hypertension, crackles in lungs, distended neck veins, taut skin, and weight gain without edema. Intake is greater than output.
    v. Older adults are at increased risk for hyponatremia because certain medications can decrease kidney function.
c. Diagnostic/Lab test:
    i. Urine testing: Think CONCENTRATED.
        1. ● Increased urine sodium
        2. ● Increased urine specific gravity
        3. ● Increased urine osmolarity
        4. ● As urine volume decreases, urine osmolarity increases
    ii. Blood testing: Think DILUTE.
        1. Decreased blood sodium (dilutional hyponatremia)
        2. Decreased blood osmolarity (less than 270 mEq/L)
        3. As blood volume increases, blood osmolarity decreases
        4. Decrease in BUN, Hgb, Hct, creatinine clearance



iii.

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2. **Discuss the indications/actions, side/adverse effects, and nursing considerations of the following medications:**
   - **a. Desmopressin (DDAVP)**
     a. Drug Class: Hormone
     b. Indication/Actions:
        i. is used to treat central cranial **diabetes insipidus**
        ii. is a synthetic ADH is administered intranasally, orally, or parenterally. Vasopressin can be administered intranasally or by injection.

iii. It works by replacing vasopressin, a hormone that is normally produced in the body to help balance the amount of water and salt.
iv. This results in increased water absorption from kidneys and decreased urine output

c. Adverse Effect:
i. low levels of sodium in the body--headache, confusion, hallucinations, muscle cramps, severe weakness, vomiting, loss of coordination, feeling restless or unsteady;
ii. flushing (sudden warmth, redness, or tingly feeling);
iii. swelling, weight gain;
iv. a seizure;
v. weak or shallow breathing; or
vi. a light-headed feeling, like you might pass out.
vii. hypertension
viii. Do not give if patient is experiencing headaches/HTN

d. NURSING ACTIONS
i. Dose can be adjusted depending on urine output.
ii. Give vasopressin cautiously to clients who have coronary artery disease, because the medication can cause vasoconstriction.
iii. Monitor for a severe headache, confusion, drowsiness, abdominal cramps, or other indications of water intoxication.

e. CLIENT EDUCATION
i. For neurogenic DI, lifelong self-administration of vasopressin therapy is required.
ii. To administer intranasal vasopressin, clear nasal passage and sit upright prior to inhalation.
iii. Monitor weight daily and notify the provider of a gain greater than 0.9 kg (2 lb) in 24 hr.
iv. Restrict fluids if directed and notify the provider of headache or confusion.

b. Declomycin

a. Is an Antibiotic
b. Drug Class: tetracycline antibiotics
c. Indications/actions:

i. used to treat sustained hyponatremia in patients with **SIADH**
ii. Unlabeled use to correct fluid and electrolyte imbalances in mild SIADH by stimulating urine flow.
iii. Contraindicated in clients who have impaired kidney function.

d. Adverse Effects:
i. Diarrhea, loss of appetite, nausea, vomiting, headache, dizziness, lightheadedness, or rectal discomfort may occur.

e. NURSING ACTIONS:
i. Monitor for effective treatment (increased blood sodium/osmolarity and decreased urine sodium osmolarity).

f. CLIENT EDUCATION
i. Avoid taking demeclocycline at the same time as calcium, iron, magnesium supplements, antacids containing aluminum, or milk products.
ii. Monitor for indications of a yeast infection (a white, cheese-like film inside the mouth).
iii. Avoid prolonged exposure to sunlight. Protective clothing and sunscreen should be used.
iv. Notify the provider if diarrhea develops.

c. Diabinese(Chlorpropamide)

a. Anti-diabetic medication
b. It can treat sugar diabetes (diabetes mellitus).
c. FOR DIABETES INSIPIDUS
d. Indication/Action:
i. effective antidiuretic agent in vasopressin-sensitive **diabetes insipidus**.
ii. Chlorpropamide and thiazide diuretics facilitate vasopressin action (for clients who have neurogenic DI).
iii. Clients who have nephrogenic DI are prescribed prostaglandin inhibitors and thiazide diuretics, and mild salt depletion.

d. Somatropin (Humatrope)

a. is a human growth hormone (hGH) analog.
b.
c. Drug class: Growth Hormone Analogs
d. Indication/action:

i. Used to replace growth hormone in adults and children with growth hormone deficiency.
ii. It works by replacing growth hormones that are normally produced in the body, which may result in increased growth, body weight, and improved absorption of nutrients and fluids from the intestines in patients with growth hormone deficiency.
iii. A deficiency in GH prevents somatic growth throughout the body.
iv. GH is important for normal growth, development, and cellular metabolism.

e. Side effect
    i. Watch out for hyperglycemia

e. Sandostatin (octreotide, lanreotide)

a. inhibit GH release.
b.
c. Drug class: Somatostatin analogs, octapeptides
d. Indications/Action:
    i.
    ii. It can lower levels of excess growth hormone (acromegaly). It can also treat diarrhea associated with certain types of tumors.

f. Insulin

a. is a hormone created by your pancreas that controls the amount of glucose in your bloodstream at any given moment.
b. acts as the "key" that allows sugar into the cell

g. Tetracycline

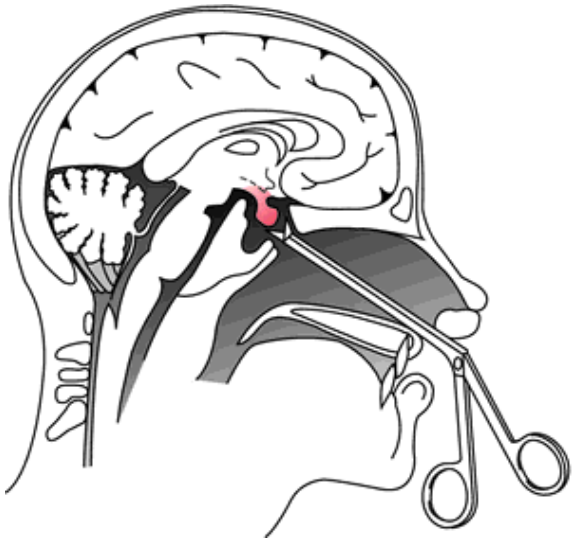
a. Antibiotic
b.

h. Vasopressin (Pitressin)

a. A hormone
b. It can treat Diabetes Insipidus
c. Vasopressin or antidiuretic hormone (ADH) or arginine vasopressin (AVP) is a nonapeptide synthesized in the hypothalamus.

3. **Discuss the health teaching after a transsphenoidal hypophysectomy.**
    a. THERAPEUTIC PROCEDURES
        i. Hypophysectomy
        ii. Removal of the pituitary gland through an endoscopic transnasal or oronasal (transsphenoidal) approach.
    b. PREOPERATIVE CLIENT EDUCATION:
        i. Do not brush teeth, blow the nose, or bend at the waist postoperatively. These actions can increase intracranial pressure.
    c. POSTOPERATIVE NURSING ACTIONS
        i. Monitor neurologic status.
        ii. Monitor vital signs.
        iii. Monitor drainage to mustache dressing (nasal drip pad).
        iv. Notify provider of the presence of a clear watery drainage that could be indication of glucose in the drainage (indication of leakage of cerebrospinal fluid).
        v. Maintain the client in a semi- to high-Fowler's position.
        vi. Monitor fluid balance, especially greater output than intake (DI).
        vii. Encourage deep breathing exercises, but limit coughing as this increases intracranial pressure and can cause a leak of cerebrospinal fluid (CSF).
        viii. Monitor for manifestations of meningitis.
        ix. Reinforce with the client that nasal packing will remain for 2 to 3 days following procedure.
        x. Encourage the client to breathe through their mouth.
        xi. Note and report any change in vision or mental status.

xii.



xiii.

