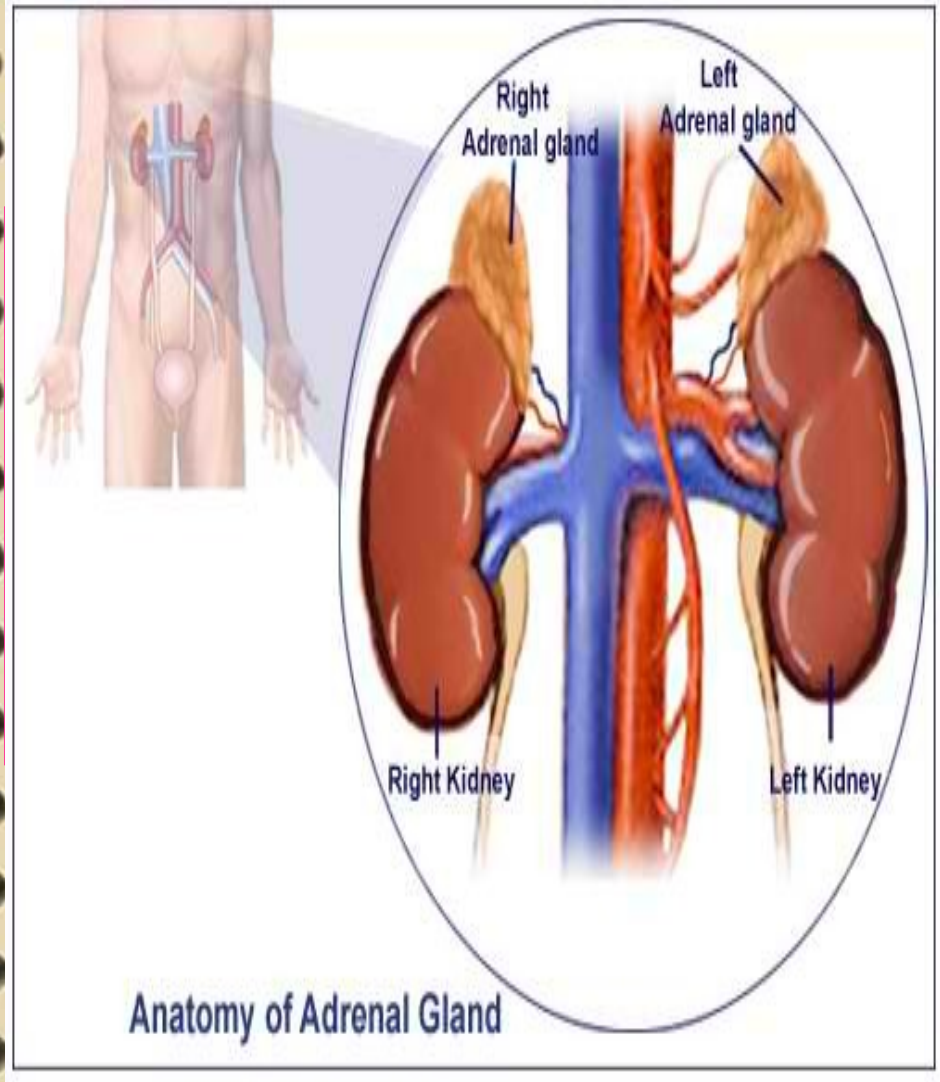
ADDISON'S DISEASE

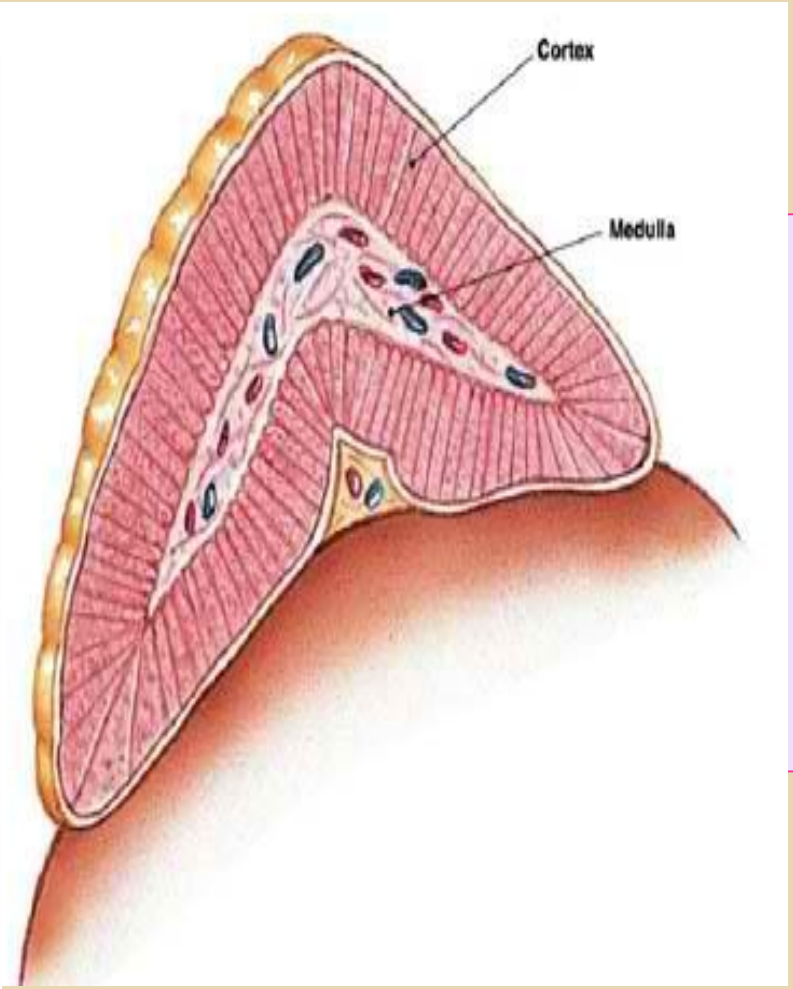
By: Asniah S Gorigao
BSN 3Y1-2

- An Endocrine or hormonal disorder that occurs due to the destruction or dysfunction of the entire adrenal glands

Also known as Adrenocortical Insufficiency

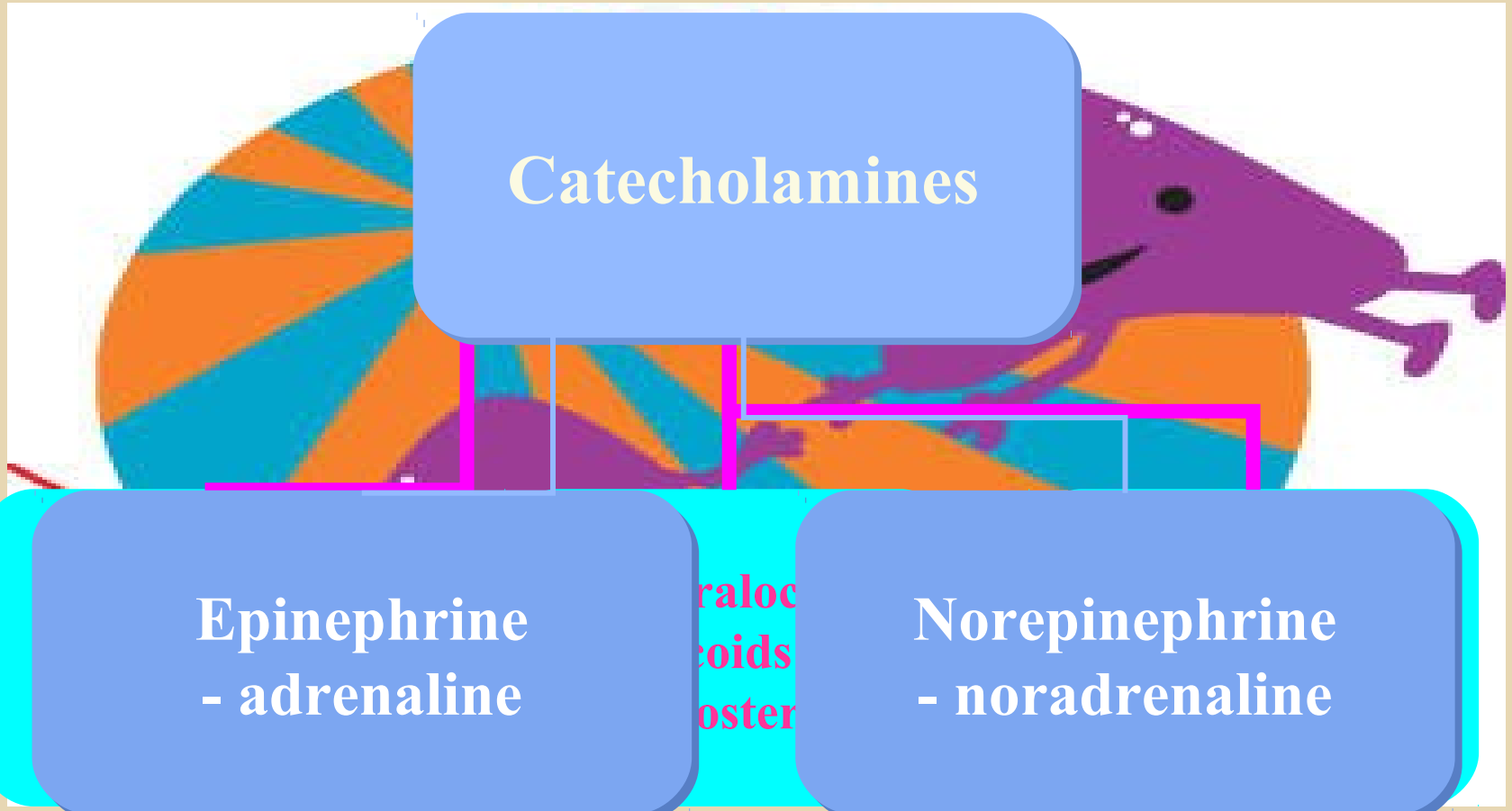
Anatomy & Physiology





Anatomy & Physiology

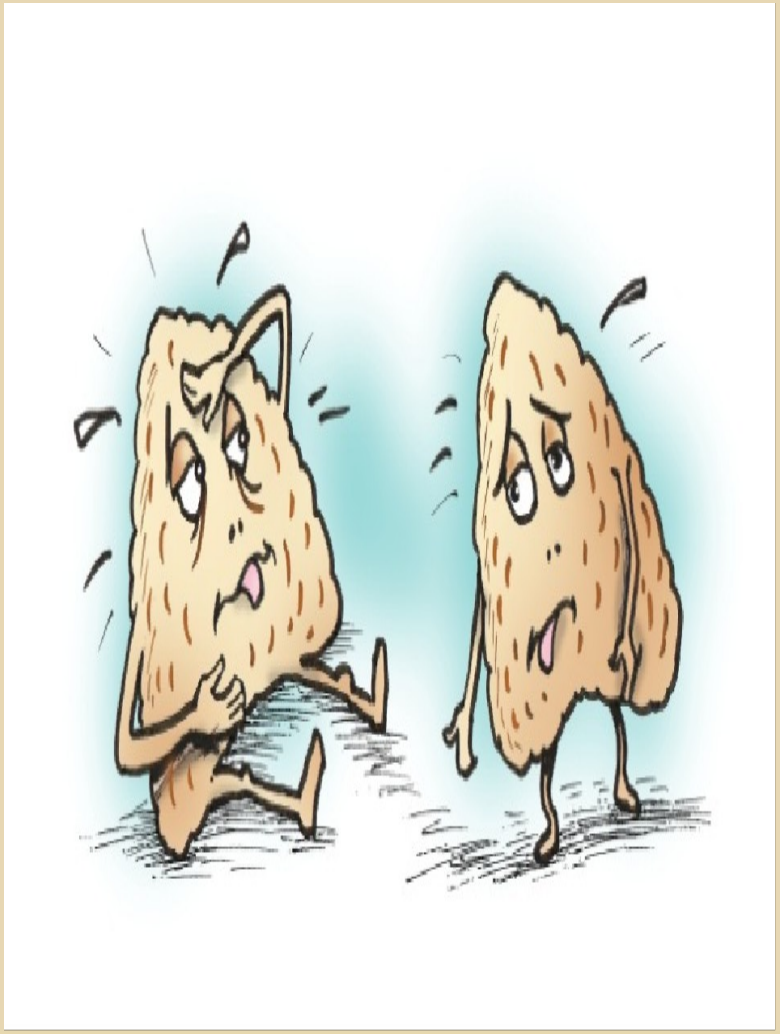
Adrenal Gland - Medulla



CRH causes the pituitary gland to secrete ACTH, which in turn causes the adrenal glands to secrete cortisol.

Etiology

- PRIMARY
  - Idiopathic
  - Autoimmune (The immune system mistakenly attacking the gland).
  - Adrenalectomy
  - Tumors
  - Infections

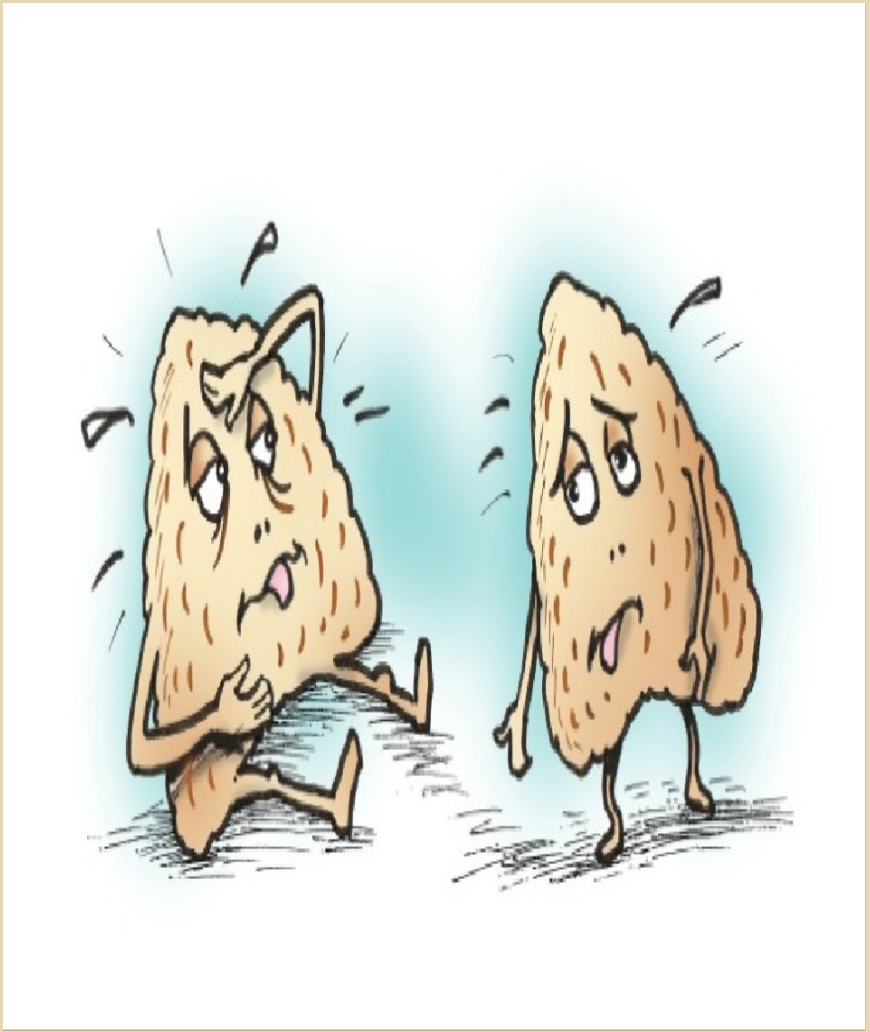


Risk factors for the autoimmune type of Addison's disease include other autoimmune diseases:

- Chronic thyroiditis
- Graves' disease- thyroid disease
- Hypoparathyroidism
- Hypopituitarism
- Myasthenia gravis
- Pernicious anemia
- Testicular dysfunction
- Type I diabetes

Etiology

- SECONDARY
  - Decrease secretion of ACTH
  - Pituitary neoplasm



Clinical Findings

Subjective	Objective
Fatigue	Hyperpigmentation
Muscle weakness	Hypotension
Muscle/joint pain	Hypoglycemia
Salt craving	Hyperkalemia
Nausea	Vomiting
Anorexia (decrease in appetite)	Diarrhea
Irritability	Mouth lesions
	Decrease in body hair

Clinical Findings

Addison's Pictures

Assessment & Diagnostic Findings

- Lab results
  - Increased plasma ACTH level (>22.0 pmol/L)
  - Decreased serum cortisol concentration (<165nmol/L)

- Hypoglycemia
- Hyponatremia
- Hyperkalemia
- Increased WBC (leukocytosis)

- **ACTH stimulation test:**
  - **Short test-compares blood cortisol levels before and after 250 micrograms of tetracosactide (IM/IV) is given.**
  - **Long test-uses 1 mg tetracosactide (IM). Blood is taken 1, 4, 8, and 24 hours later.**
    - **Increased ACTH level: Primary insufficiency**
    - **Decreased ACTH level: Secondary insufficiency**

- CRH stimulation test: corticotropin-releasing hormone.
  - The doctor will draw some blood and measure the cortisol level.
  - Next, synthetic CRH is injected into your bloodstream. Blood cortisol is measured every 30 minutes for about an hour and a half after the injection.
    - If CRH injection causes an ACTH response, but no cortisol response, the pituitary is functioning but the adrenal glands are not. Such results are consistent with the diagnosis of primary adrenal insufficiency or Addison's disease.
    - If CRH injection does not generate ACTH response, the problem is the pituitary gland (secondary adrenal insufficiency).
    - CRH injection produces a delayed ACTH response, the problem is the hypothalamus.

- **Imaging:**
  - **usually in the form of ultrasound, computed tomography or magnetic resonance imaging (MRI).**

Complications

Addisonian crisis - characterized by cyanosis and signs of circularory shock:

- pallor
- rapid and weak pulse
- rapid respirations
- low blood pressure
- severe vomiting and diarrhea
- lethargy
- hypercalcemia

Complications

- **Shock**
- **Coma → Death**

- Complications also occur if you take too little or too much adrenal hormone supplement.
- Complications also may result from the following related illnesses:
  - Diabetes
  - Hashimoto's thyroiditis (chronic thyroiditis)
  - Hypoparathyroidism
  - Ovarian hypofunction or testicular failure
  - Pernicious anemia
  - Thyrotoxicosis

Medical Management

- **Circularoty shock:**
  - restoring blood circulation
  - administering fluids & corticosteroids.
  - monitoring VS: BP
  - recumbent position w/ legs elevated
  - Hydrocortisone (Solu-Cortef) via IV followed by 5% dextrose in normal saline.
  - Vasopressor amines (if hypotension persists).
  - Antibiotic (if infection)

Medical Management

- corticosteroids & mineralocorticoids (lifelong replacement if adrenal gland does not regain function).
- dietary intake with added salt during fluids losses.

CORTISONE

- **Action**: Inhibits multiple inflammatory cytokines; produces multiple glucocorticoid and mineral corticoid effects.
- **Adrenal insufficiency**: 25-300mg PO QD-QOD
- **Major side effects**: Circulatory collapse, thrombophlebitis, embolism, necrotizing angiitis, CHF, GI hemorrhage, pancreatitis, thrombocytopenia
- **Nursing Considerations**: Monitor BP; weight; 2hr postprandial glucose; chest x-ray if prolonged tx; Electrolytes (k+); I&O ratio (decreasing output and increasing edema); Plasma cortisol levels (norm: 6-23mcg/dL); signs of infection (drug masks infection); cardiac symptoms (edema, HTN)

Nursing Management

Assessing the patient

- monitoring VS: BP
- monitor fluid deficit and I&O
- assess skin color & turgor
- assess weight

Restoring fluid balance

- select foods high in sodium (GI disturbances)
- increase fluid intake
- administer hormone replacement as prescribed

Avoid:

- cold exposure
- overexertion
- infection
- emotional distress

With addisonian crisis

- replacement of missing **steroids hormones**
- vasopressors (hypotension)
- immediate treatment with IV administration of fluids, glucose & electrolytes, specially **sodium**

Maintain safe environment

- provide assisstant ambulating
- raise side rails to prevent falls
- encouraged high caloric diet

Nursing Diagnoses

- Electrolyte imbalance r/t nausea and vomiting as evidenced by hyperkalemia and hyponatremia.
- Imbalanced nutrition: less than body requirements r/t anorexia as evidenced by decrease in weight and inadequate food intake.

Sample Question

- A nurse is reviewing serum laboratory results for a patient with Addison's disease. Which of the following findings should be the nurse to expect?

1. Sodium=130mEg/L
2. Potassium=5.5mEg/L
3. Calcium=11.6mEg/L
4. Glucose=60mg/dL
5. Magnesium=2.5mEg/L
6. Phosphorus=2.4 mg/dL

A. 1,2&6

B. 1,3,2&4

C. 4,5&6

D. AOTA

Answer

- B. 1,3,2&4

1. Sodium=130mEg/L
2. Potassium=5.5mEg/L
3. Calcium=11.6mEg/L
4. Glucose=60mg/dL


Get well soon!
Thank you!