Assessment and Management of Patients With Endocrine Disorders

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Major Hormone Secreting Glands of the Endocrine System

Figure 42-1, pp. 1442
FIG. 46-6 General model for control and negative feedback to hypothalamus-pituitary target organ systems. Negative feedback loops include short and long feedback loops.
MECHANISM OF ADH DEFICIENCY

- Decreased antidiuretic hormone (ADH) release from pituitary
  - Decreased renal tubular permeability to water
    - Decreased water reabsorption
      - Excessive urine output (polyuria)
      - Decreased urine osmolality and specific gravity
      - Increased serum osmolality
      - Increased thirst (polydipsia)
**Laboratory Values for Patients with Diabetes Insipidus**

<table>
<thead>
<tr>
<th>Value</th>
<th>Normal</th>
<th>Diabetes insipidus (DI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum ADH</td>
<td>1 to 5 pg/ml</td>
<td>Decreased in central DI, may be normal with nephrogenic or psychogenic DI</td>
</tr>
<tr>
<td>Serum osmolality</td>
<td>285 to 300 mOsm/kg</td>
<td>&gt;300 mOsm/kg</td>
</tr>
<tr>
<td>Serum sodium</td>
<td>135 to 145 mEq/L</td>
<td>&gt;145 mEq/L</td>
</tr>
<tr>
<td>Urine osmolality</td>
<td>300 to 1400 mOsm/kg</td>
<td>&lt;300 mOsm/kg</td>
</tr>
<tr>
<td>Urine specific gravity</td>
<td>1.005 to 1.030</td>
<td>&lt;1.005</td>
</tr>
<tr>
<td>Urine output</td>
<td>1 to 1.5 L/24 hr</td>
<td>30 - 40 L/24 hours</td>
</tr>
<tr>
<td>Fluid intake</td>
<td>1 to 1.5 L/24 hr</td>
<td>&gt;50 L/24 hours</td>
</tr>
</tbody>
</table>

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DIABETES INSIPIDUS

History of →
- Head Injury
- Pituitary Tumor
- Craniotomy

Rx:
Vasopressin DDAVP

S&S
- Up to 20L Urine/Day
- ↓ Specific Gravity
- ↓ Osmolarity
- Hypovolemia
- ↑ Thirst
- Tachycardia
- ↓ BP

Nursing Care
- Monitor Fluids
- Replace Fluids
- ↑ Neuro Status
- Vital Signs
- Mucous Membranes
Thyroid Gland (cont.)

Figure 42-3, pp. 1449
Hypothalamic-Pituitary-Thyroid Axis

Figure 42-4, pp. 1449
HYPOTHYROIDISM

Intolerance to Cold
Receding Hairline
Facial & Eyelid Edema
Dull-Blank Expression
Extreme Fatigue
Thick Tongue - Slow Speech
Anorexia
Brittle Nails & Hair

Hair Loss
Apathy
Lethargy
Dry Skin (Coarse & Scaly)
Muscle Aches & Weakness
Constipation

Menstrual Disturbances

Late Clinical Manifestations
Subnormal Temp
Bradycardia
Weight Gain
↓LOC
Thickened Skin
Cardiac Complications
HYPERTHYROIDISM

- Intolerance to Heat
- Fine, Straight Hair
- Bulging Eyes
- Facial Flushing
- Enlarged Thyroid
- Tachycardia
- ↑ Systolic BP
- Breast Enlargement
- Weight Loss
- Muscle Wasting
- Localized Edema
- Menstrual Changes (Amenorrhea)
- Tremors
- ↑ Diarrhea
- Finger Clubbing
Parathyroid Gland (cont.)

Figure 42-5, pp. 1470

4 glands on the posterior thyroid gland
PATHOGENESIS OF HYPERPARATHYROIDISM

Tumor or hyperplastic tissue secretes excess PTH

Thyroid cartilage

Superior parathyroid glands

Thyroid gland

Inferior parathyroid glands

Renal tubule
Enhanced calcium reabsorption and phosphate excretion

Bone
Enhanced calcium and phosphate resorption

GI tract
Enhanced calcium absorption
Adrenal Glands (cont.)

Adrenal Gland Hormones

- **S** Sugar (Glucocorticoids)
- **S** Salt (Mineralcorticoids)
- **S** Sex (Androgens)

Figure 42-6, pp. 1474
ADRENAL HORMONE SECRETION

Adrenal hormones

Adrenal gland

Adrenal gland cross section

Cortex
- Mineralocorticoids
- Glucocorticoids
- Androgens
- Estrogens

Medulla
- Norepinephrine
- Epinephrine
ADDISON’S DISEASE
Adrenocortical Insufficiency

Bronze Pigmentation of Skin
Changes in Distribution of Body Hair
GI Disturbances
Weakness

Hypoglycemia
Postural Hypotension
Weight Loss

Adrenal Crisis:
- Profound Fatigue
- Dehydration
- Vascular Collapse (↓BP)
- Renal Shut Down
- ↓Serum NA
- ↑Serum K

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CUSHING’S SYNDROME

- Personality Changes
- Hyperglycemia
- Moon Face
- CNS Irritability
- ↑Susceptibility to Infection
- Males: Gynecomastia
- Fat Deposits on Face and Back of Shoulders
- NA & Fluid Retention (Edema)
- Thin Extremities
- GI Distress -↑Acid
- Females: Amenorrhea, Hirsutism
- Thin Skin
- Purple Striae
- Bruises & Petechiae
- Osteoporosis

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