GOALS AND INSTRUCTIONAL OBJECTIVES

GOALS:

By the end of the week, the first quarter student will have an in-depth understanding of the diagnoses listed under Primary Diagnoses and Secondary Common Diagnoses.

The first quarter student will accurately perform an appropriate history and physical exam on a patient or patient model presenting with one of the endocrine diagnoses listed under Primary Diagnoses, Secondary Diagnoses, and Tertiary Diagnoses when seen at the student’s clinical site or during a practicum exam.

OBJECTIVES:

The first quarter student will complete the following:

! Accurately explain the epidemiology of primary and secondary common diagnoses.

! Name the (S) chief or common presenting complaint and relevant descriptors of the primary, secondary common and uncommon and tertiary diagnoses.

! Accurately distinguish between (O) Objective negative and positive findings while performing a routine or specialty physical exam technique when evaluating for, or in the presence of, the conditions listed for each primary, secondary common and uncommon, and tertiary diagnosis.

• Accurately lists relevant diagnostic tests to evaluate:
  ▶ Diabetes mellitus, Type I and II
  ▶ Hypothyroidism
  ▶ Hyperthyroidism

! Formulate a (A) Diagnosis and list relevant differential diagnoses from information gathered through history taking, physical exam, and diagnostic test results provided via case studies or reports or collected in the clinical setting.

• Identify risks associated with specific missed diagnosis

! Identifies on written exam or in case presentation of a patient model or clinic patient, a (P) Plan outlining the appropriate medication, non-medicinal treatment, patient education and follow-up evaluation for primary and secondary common diagnoses.
Accurately explain the pathophysiology of the following conditions:

- Diabetes mellitus
  - Type I
  - Type II
- Hypothyroidism
- Hyperthyroidism

The first quarter student will accurately describe the impact of the aging process on glucose tolerance.

(D) = definition only

ENDOCRINOLOGY: ANATOMY AND PHYSIOLOGY

The first quarter student will recognize and explain the anatomy, physiology, and common pathophysiology in sufficient depth for clinical application related to the following Endocrin components. To meet this objective the student will utilize textbooks, models, electronic, computer or web-based programs, radiographic resources, and lectures according to the standards identified in the Primary Care Associate Program required texts (see booklist in Student Manual).

The first quarter student will identify the location, histology, hormones, and functions of the following endocrine glands:

- Pituitary gland
- Thyroid gland
- Parathyroid glands
- Adrenal glands
- Pancreas
- Ovaries
- Testes
- Pineal
- Thymus
- Hypothalamus

The first quarter student will be able to describe the major effect of the following hormones and response systems:

- Releasing factors - understand the concept
- Feedback inhibition - understand the concept
- Epinephrine
- Norepinephrine
- ACTH
DISEASE

Primary Diagnoses:

The first quarter student will state the basic pathophysiology, etiological agents, and/or risk factors, preventive measures, signs and symptoms, differential diagnoses, investigative measures, management and patient education for the following diagnoses:

! Diabetes Mellitus
  • Controlled diabetes mellitus
    • Type I (Including the natural history of disease progression, its complications and guidelines for follow-up care.)
    • Type II (Including the natural history of disease progression, its complications and guidelines for follow-up care.)

! Diseases of the Thyroid Gland
  • Hypothyroidism
    • Controlled
    • Moderately uncontrolled
  • Hyperthyroidism
    • Controlled
    • Moderately uncontrolled

! Obesity
  • Mild
  • Moderate
  • Severe
Secondary Diagnoses (Common):

The first quarter student will state the basic pathophysiology, etiological agents, and/or risk factors, preventive measures, signs and symptoms, differential diagnoses, investigative measures, general principles of management and patient education for the following diagnoses. Physician consultation is expected.

- Diabetes mellitus
  - Uncontrolled
- Diseases of the Thyroid Gland
  - Hyperthyroidism
    - Uncontrolled
  - Hypothyroidism
    - Uncontrolled
- Dermatologic diseases
  - Acanthosis nigricans

Secondary Diagnoses (Uncommon):

The first quarter student will state the basic pathophysiology, signs and symptoms of the following diseases.

- Diseases of the Thyroid Gland
  - Hyperparathyroidism
  - Hypoparathyroidism
  - Thyroiditis
  - Hashimoto’s thyroiditis
  - Graves’ disease

- Diseases of the Adrenal Glands
  - Cushing’s disease/syndrome
  - Corticoadrenal insufficiency

- Diseases of the Pituitary Gland
  - Acromegaly gigantism
  - Dwarfism
  - Diabetes insipidus

- Dermatologic diseases
  - Xanthomas
  - Acanthosis nigricans
  - Alopecia

Tertiary Problems:
Problems Requiring Emergency Management or Hospitalization: The first quarter student will be able to recognize these disorders and initiate treatment. As well, they should be able to describe and identify the basic pathophysiology, risk factors, preventive measures, patient education and appropriate referral sources:

! Diabetes Mellitus
  • Ketoacidosis / diabetic coma - hyperosmolar nonketotic acidosis
  • Hypoglycemia / Insulin shock
! Diseases of the Thyroid Gland
  • Thyroid storm

CLINICAL PROBLEMS

For each problem the student will be able to perform a focused history and physical, generate a differential diagnosis, and order appropriate diagnostic tests. They will be able to present the problem orally, do a write-up in SOAP format, and manage the diagnoses in Primary Diagnoses.

! Galactorrhea
! Thyroid nodule
! Goiter
! Hypoglycemia
! Polyuria, polydipsia, polyphagia
! Weight gain/inability to lose weight
! Weight loss
! Fatigue
! Temperature intolerance
! Alopecia

OBJECTIVE

In addition to the basic exam of this system, the student will be able to perform the following physical exam maneuvers:

! Thyroid exam
! Diabetes exam

Recognize the listed abnormalities:

! Moon face
! Buffalo hump
! Striae and other skin changes
! Acromegaly facies
Exaggerated or slowed recovery of deep tendon reflexes
Proptosis
Lid lag
Fundoscopic changes with diabetes
Skin pigmentation changes
Hair texture / quantity changes
Thyromegaly / goiter
Thyroid nodule
Exophthalmos
Endomorphic obesity

PLAN

Evaluation studies: State the indications for the following tests. Explain the significance of a normal vs abnormal result and describe the general cost effectiveness of the following tests:

- **Lab**
  - Urine for sugar and acetone
  - T3 uptake, T4, TSH level (TFT)
  - Thyroid antibodies
  - Fasting glucose
  - 2-hour post prandial (PP) blood sugar
  - Glucose tolerance test (GTT)
  - Home blood glucose monitoring
  - Glycosylated hemoglobin A1c
  - Cortisol levels
  - Prolactin levels
  - FSH
  - LH
  - Adrenal function tests

- **Radiology-Nuclear Medicine**
  - Thyroid scan and uptake
  - Skull films
  - Sella turcica films
  - CT scans (head, abdomen, pelvis)

- **Treatment**
The first quarter student will identify the indications, contraindications, adverse effects and describe the general cost effectiveness of the following treatment approaches:

  - Medication (*Focus on the principles of management. Ongoing diabetes management will be covered in Spring Quarter.*)
    - Insulin
• Regular
• NPH
• Lente
• Multi-dose preparations
• Lispro
• Insulin pen

➤ Oral hypoglycemics
  ➤ Sulfonlureas
  ➤ Metformin
  ➤ Alpha-glucosidase inhibitors
  ➤ Insulin resistance reducer

➤ Thyroid, desiccated
➤ Thyroxine (Synthroid)
➤ Radioactive iodine
➤ Prophythiouracil (PTU) methimazole
➤ Glucocorticoids

• Surgical Interventions: state indications for the following procedures.
  ➤ Thyroidectomy

**Patient Education:** The first quarter student will be able to identify and then explain to patients the following topics:

! Diabetes mellitus
  • Weight loss/gain
  • Foot care
  • Exercise
  • Infections
  • Insulin drug interaction
  • Diet
  • Hypoglycemia/shock
  • Genetic counseling in regard to diabetes as a familial disease

! Hazards of abrupt steroid withdrawal
! Weight management
November 8-11, 2004
Endocrinology

READING ASSIGNMENT

Tortora 10th ed
Bates 8th ed
BBZ 6th ed
Tierney 2004 43rd ed
Morrison 2nd ed
Fischbach (Lab text)
Wasson 5th ed

PHARMACOLOGY:

Handouts in class for Diabetes, Thyroid, Steroids
Pharmacotherapeutics for Advanced Practice

**In diabetes and thyroid disease the focus is on understanding pathophysiology, being able to make a diagnosis and understanding the principles of management. On-going management will be covered in a later quarter.**