LECTURE OBJECTIVES:

1. Identify the endocrine glands of the body and discuss their normal function and hormone secretion.

2. Discuss the pathophysiology of disease processes associated with hyper- and hypo-function of the endocrine glands.

3. Apply the nursing process to patients experiencing disorders of the endocrine glands.

4. Review and be able to discuss the pathophysiology of Diabetes Mellitus.

5. Apply the nursing process to Diabetes Mellitus.

6. Know the types of insulin and identify their peaks and duration.

7. Discuss the pathophysiology of DKA.

8. Identify the primary medical and nursing interventions used to treat and reverse DKA.

9. Discuss the pathophysiology of HHNS.

10. Identify the primary medical and nursing interventions used to treat and reverse HHNS.

11. Discuss the pathophysiology of DI.

12. Identify the primary medical and nursing interventions used to treat and reverse DI.

13. Discuss the pathophysiology of SIADH.

14. Identify the primary medical and nursing interventions used to treat and reverse SIADH.

15. Review and discuss the different laboratory tests used to diagnose and treat patients experiencing endocrine disorders.
LECTURE OUTLINE:

I. Review normal anatomy and physiology of endocrine glands and their related hormones. (See handout)

II. Thyroid
   A. Characteristics
   B. Hormones
   C. Goiter
   D. Hyperthyroidism (Graves disease)
   E. Hypothyroidism (Myxedema)

III. Parathyroid
   A. Characteristics
   B. Hormones
   C. Hyperparathyroidism
   D. Hypoparathyroidism
IV. Adrenal Glands

A. Characteristics

B. Hormones
   1. Adrenal Medulla
   2. Adrenal Cortex

C. Pheochromacytoma

D. Cushing’s disease

E. Addison’s disease

V. Pituitary

A. Characteristics

B. Hormones

C. Giantism/Acromegaly

D. Diabetes Insipidus (discussed later in this content)

E. SIADH (discussed later in this content)
VI. Diabetes Mellitus (D.M.)

A. Diabetes is a chronic disorder of carbohydrate metabolism

B. Main characteristics of Diabetes is an inadequate amount of insulin to meet bodies needs.

C. Prevalence/statistics

D. 4 classic signs of D.M.
   1. Polyuria
   2. Polydipsia
   3. Polyphagia
   4. Weight loss

E. Types I and II, and their differences.

F. Assessment of diabetic patient
   1. Head to toe
      a. Chronic hyperlipidemia, look for physical assessment findings
      b. Slowed healing response- look for new or pre-existing lesions
   2. Psycho-social
   3. Lab studies
   4. Diet
   5. Activity
   6. Insulin/oral hypoglycemic agent
G. Plan of care for diabetic patient
   1. Diet and its purpose

   2. Monitoring of serum glucose/B.S.

   3. Exercise and its purpose

   4. Insulin- types and their peaks and onsets. Syringes

H. Somogyi effect

VII. Diabetic Ketoacidosis (D.K.A.)
   A. Causes

   B. Pathophysiology
      1. Incomplete lipid metabolism
      2. Dehydration
      3. Metabolic acidosis
      4. Electrolyte imbalance

   C. Treatment of DKA
      1. Insulin IV
      2. Fluids
      3. Correct electrolyte imbalance
VIII. Hyperglycemia Hyperosmolar Nonketonic Syndrome (HHNS)
   A. Causes
   B. Pathophysiology
      1. Mortality- higher because of risk of hypovolemic shock
   C. Treatment

IX. Diabetes Insipidus
   A. Causes
   B. Pathophysiology
   C. Treatment

X. SIADH
   A. Causes
   B. Pathophysiology
   C. Treatment

XI. Hypoglycemia
   A. Cause
   B. Pathophysiology
   C. Treatment
BAPTIST HEALTH SCHOOL OF NURSING
NSG 4017: CRITICAL CARE NURSING

ENDOCRINE

STUDY GUIDE:

1. Explain the following statements “Diabetes is a chronic disorder of carbohydrate metabolism”.

2. Explain why diabetics tend to have an increased incident of atherosclerotic heart and vascular diseases.

3. Explain how a patient’s blood sugar would be affected if their diet (calories) was increased.
   – What if it was reduced?
   – What if their exercise level was increased?
   – What if their exercise were decreased?
   – What if their insulin intake was increased?
   – What if their insulin intake was decreased?

4. What is meant by u-100 insulin? How does it compare with u-40 insulin?

5. Compare and discuss various types of insulin. Know their peaks, their durations and other drug specific information.
6. What is insulin resistance? Discuss the pathophysiology.

7. Discuss the nursing interventions implemented with caring for a patient diagnosed with DKA.

8. A patient with DKA may experience both hyper- and hypo-kalemia during the illness and subsequent treatment. Explain why.

9. Discuss some precipitating factors of HHNS.

10. Regarding DKA and HHNS, which has the higher mortality rate? Why?

11. When initiating rehydration therapy of patients with DKA and HHNS, which IV solutions should be considered? Why?

12. When comparing DKA and HHNS:
   - What are the differences in dehydration?
   - What are the differences in ketosis?
   - What are the differences in serum potassium levels?
   - What are the differences in blood gases? (Remember, the changes here are metabolic, not respiratory!)
   - What are the differences in serum osmolality?
13. Which is the bigger emergency: A BS of 25 mg/dl? or a BS of 600 mg/dl? Why?

14. Why is the pancreas considered an endocrine gland as well as an exocrine gland?

15. Describe a typical patient with Graves disease.

16. Describe the two diseases which are related to hypothyroidism? What are the symptoms and treatments for each?

17. Explain the relationship that PTH (parathormone) and calcitonin have on the serum calcium level.

18. Explain the importance of checking a patient’s calcium level before giving Digitalis to a patient with a positive history of hyperparathyroidism.

19. Explain the relationship between the nervous system and the endocrine system.
20. What is the difference between a primary disorder of a gland and a secondary disorder of a gland?

21. Describe a typical patient with Cushing’s syndrome.

22. Explain why the administration of exogenous steroids places the patient at risk for Cushing’s syndrome.

23. Explain why patient’s should never abruptly discontinue their prescribed dose of steroids.

24. How does the endocrine/glucagon ratio help maintain a normal blood glucose level?

25. Explain how ADH (antidiuretic hormone) maintains both serum osmolality and blood volume.

26. Why are seizure precautions indicated for patient’s with SIADH?

27. Explain dilutional hyponatremia.
28. Discuss the various laboratory abnormalities that a nurse might see when caring for a patient with the following disorders:
* Diabetes insipidus
* SIADH
* Cushing’s
* Addison’s
* DKA
* HHNS
* Kidney stones