LINCOLN MEMORIAL UNIVERSITY

Caylor School of Nursing
NURS 124/125
Spring 2010

LESSON PLAN: Metabolic/Endocrine Function: Diabetes Mellitus

DATES & TIMES: See Class Syllabus

OBJECTIVES: Upon completion of the unit, the student will demonstrate mastery of the following objectives in the clinical/campus laboratory, in individual and group conferences and on written materials, the ability to:

1. Define key terms as listed in assigned readings.
2. Using Roy's Adaptation Model (RAM), recognize human adaptive responses to behavior or stimuli that affect endocrine function as it relates to Diabetes Mellitus (DM).
3. Discuss the focal stimulus associated with Type 1 and Type 2 DM.
4. Identify important behaviors and common stimuli in the recognition of adaptive versus ineffective human responses related to DM.
5. Discuss adaptation techniques utilized by human persons with DM to maintain appropriate balance of this disease process to include diet, exercise, lifestyle changes including preventative health care measures, foot care, insulin, and oral anti-diabetic medications.
6. Explain how each of the following diagnostic tests are performed, pre and post-test nursing responsibilities, and normal values. Discuss the implications and significance of normal and abnormal results:
   a. Self Monitoring Blood Glucose (SMBG)
   b. Fasting Blood Sugar (FBS)
   c. Glycosylated Hgb A1C (HgA1C)
   d. Oral glucose tolerance test (OGTT)
7. Differentiate between Type 1 and Type 2 DM related to etiology, symptoms, diagnosis, and treatment modalities.
8. List and compare the six groups of insulin preparations. Discuss trade names, onset, peak and duration. Compare actions, side effects, and nursing implications associated with each insulin group.
9. List and compare oral anti-diabetic agents, actions, side effects, and nursing implications.
10. Compare and contrast defining characteristics, treatment modalities for diabetic ketoacidosis (DKA) and Hyperglycemic Hyperosmolar Nonketotic Syndrome (HHNS).
11. Explain the basic principles of meal planning utilizing carbohydrate counting and the ADA exchange list.
12. Identify teaching/learning strategies when providing care to adults by developing a teaching plan to include insulin and its administration, recognition of signs and symptoms of hyper/hypoglycemia and actions to take, blood and urine glucose testing, skin and foot care, diet, exercise, lifestyle changes, and pre-and postoperative care observing cultural and ethnic beliefs.

13. Explain recent trends in diabetic management and research including but not limited to insulin pumps, pens, injectors, new medications, and pancreatic cell transplantation.

TOPICAL OUTLINE*:*

I. Overview of Diabetes Mellitus (DM)

II. Common Diagnostic Tests
- A. Fasting Blood Sugar (FBS)
- B. Glycosylated Hgb A1C (HgA1C)
- C. Oral Glucose tolerance test (OGTT)
- D. Self Monitoring Blood Glucose (SMBG)

III. Utilize the RAM Nursing Process for care of patients with:
- A. Type 1 Diabetes
  1. Definition
  2. Risk Factors
  3. Clinical Manifestations
  4. Treatment
- B. Type 2 Diabetes
  1. Definition
  2. Risk Factors
  3. Clinical Manifestations
  4. Treatment
- C. Analysis/Nursing Diagnosis for Type 1 and Type 2 DM
- D. Nursing Interventions for Type 1 and Type 2 DM
  1. Nutritional Therapy
  2. Exercise
  3. Monitoring
  4. Pharmacologic Therapy
  5. Education
- E. Acute Complication of DM
  1. Diabetic Ketoacidosis (DKA)
  2. Hyper-Glycemic Hyperosmolor Nonketotic Syndrome (HHNS)
- F. Chronic Complications of DM
  1. Macrovascular
  2. Microvascular
     a. Diabetic Retinopathy
     b. Nephropathy
     c. Diabetic Neuropathies
- G. Nursing Interventions for the Hospitalized and Surgical Patient with DM
- H. Evaluation/Expected Outcomes

IV. Recent Trends in Diabetes Management: Alternate methods of insulin delivery
  1. Insulin Pens
  2. Insulin Pumps

3. Jet Injectors
4. Pancreatic Cell Transplantation

REQUIRED READINGS:

Fishbach, F., & Dunning, M. (2006). *Nurses' quick reference to common laboratory and diagnostic tests* (4th ed.). Philadelphia: Lippincott Williams & Wilkins. Pages 227-236, 238-239.

Kee, J., Hayes, E., & McCuistion, L. (2009). *Pharmacology: A nursing process approach* (6th ed.). St. Louis, MO: Saunders Elsevier. Chapter 51.

Silvestri, L. A. (2005). *Saunders comprehensive review for NCLEX-RN* (4th ed.). Philadelphia: W.B. Saunders Company. Chapter 53, pp. 700-707 (questions 1-8, 11-13, 19-23, 26-28, 37, 38), and alternate item on pp. 708-711.

Smeltzer, S. G., & Bare, B. G., Hinkle, J.L., & Cheever, K.H. (2007). *Brunner and Suddarth's textbook of medical-surgical nursing (11th ed.).* Philadelphia: Lippincott Williams & Wilkins. Chapter 41.

Wissmann, J. (2000-2007). *Adult medical-surgical nursing RN edition 7.1. Current mastery series review module.* Assessment Technologies Institute. Unit 6 (Ch. 59 & 60).

Wissman, J. (2000-2007). *Fundamentals of nursing edition 6.1. Current mastery series review module*. Assessment Technologies Institute. Unit 5 (Ch. 75).

CLNICAL OBJECTIVES:

1. Utilize the RAM nursing process for delivery of basic nursing care to adults experiencing adaptive versus ineffective responses associated with Diabetes Mellitus (DM).
2. Use the RAM in the development of individualized plans of care for adults with DM.
3. Review common diagnostic tests for the adult with DM.
4. Assess assigned adults for compromised or ineffective responses to endocrine function: DM
5. Develop a teaching/learning plan for a diabetic adult necessary to promote adaptation incorporating cultural and ethnic beliefs.
6. Accurately administer subcutaneous and IV insulin.
7. Accurately administer oral hypoglycemic agents.
8. Perform blood glucose monitoring of the diabetic patient.

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Diabetes Mellitus Drug Study Guide

1. A patient is experiencing a hyperglycemic reaction. What signs and symptoms might you observe?

2. List the 5 categories of antidiabetic medications and name one medication for each.

3. A patient is self-administering a combination of regular insulin and intermediate insulin. What important factors should be included in the patient teaching?

4. The nurse administers 10 units of regular insulin subcutaneously to a patient with Type 1 diabetes around 7 a.m. How soon after the injection should the patient plan to eat breakfast and why?

5. The effects of the oral antidiabetic medications may be prolonged or enhanced by what medications?

6. Which sites are used for an insulin injection?

7. A patient is receiving an IV of normal saline with regular insulin. What would the nurse need to monitor?

8. What is hypoglycemia and what important interventions must the nurse take?

9. You are developing a teaching plan for a newly diagnosed adult patient with diabetes. What important points would you include in this plan?

10. List risk factors for a person developing diabetes and indicate which factors the patient can control.

11. On the Venn diagram below write defining characteristics and treatment modalities for DKA and HHNS in the respective areas. In the middle section list those things that are common to both DKA and HHNS.