

ENDOCRINE CARE

Module 9

I. Statement of Purpose

The purpose of this module is to provide learning experiences that will prepare the nurse assistant to safely carry out procedures which support the patient in meeting the endocrine care needs that the patient cannot perform independently.

II. Terminology

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|-----------------------------------|---|
| 1. Acetone breath | 17. Insulin dependent diabetes mellitus (IDDM) |
| 2. Adrenal glands | 18. Insulin shock |
| 3. Antidiuretic hormone (ADH) | 19. Ketosis |
| 4. Blood glucose monitoring (BGM) | 20. Kussmaul respirations |
| 5. Diabetes insipidus | 21. Neuropathy |
| 6. Diabetes mellitus | 22. Non-insulin dependent diabetes mellitus (NIDDM) |
| 7. Diabetic coma | 23. Pancreas |
| 8. Diabetic ketoacidosis (DKA) | 24. Parathyroid glands |
| 9. Endocrine | 25. Pituitary |
| 10. Gestational diabetes | 26. Polydipsia |
| 11. Glucose/blood sugar (BS) | 27. Polyphagia |
| 12. Gonads | 28. Polyuria |
| 13. Hormones | 29. Syndrome of inappropriate ADH (SIADH) |
| 14. Hyperglycemia | 30. Thyroid |
| 15. Hypoglycemia | |
| 16. Insulin | |

III. Performance Standards (Objectives)

Upon completion of 3 hours of class plus assignments and 3 hours of clinical experience, the learner will be able to:

1. Define basic terminology.
2. Describe the basic structure, function and common disorders of the endocrine system.
3. Recognize abnormal signs and symptoms seen in diabetic patients.
4. Describe the role of the nurse assistant in caring for the diabetic patient.
5. Discuss effect of diabetes on other body systems.

ENDOCRINE CARE

Module 9

IV. References

1. Gerdin, J. (2004) *Health careers today* (3rd ed.) St. Louis: Mosby.
2. Gerdin, J. (2004) *Workbook to accompany health careers today*. (3rd ed.) St. Louis: Mosby.
3. Hegner, B., & Caldwell, E. (2003). *Nursing assistant: A nursing process approach* (9th ed.). Albany, NY: Delmar.
4. Chancellor's Office, California Community Colleges (2004). *Model curriculum for nurse assistants (CNA-MC)*. Sacramento, CA: Chancellor's Office, California Community Colleges.
5. Sorrentino, S. A. (2004). *Mosby's textbook for nursing assistants* (6th ed.). St. Louis: Mosby Lifeline.

MODULE 9 - ENDOCRINE CARE

Content Outline Theory Objectives	Suggested Learning Activities/Evaluation	Clinical Activities
Objective 1 Define basic terminology A. Terminology B. Clinical application	A. Lecture/ Discuss B. Written test	
Objective 2 Describe the basic structure, function, and common disorders of the endocrine system. A. Major hormones 1. Pituitary gland 2. Thyroid gland 3. Parathyroid glands 4. Adrenal glands 5. Pancreas 6. Gonads B. Common disorders 1. Hypothyroid 2. Hyperthyroid 3. Diabetes mellitus	A. Lecture/ Discuss B. Handout 9.2 - Endocrine Match-up C. Appendix 9.2 - Endocrine Match-up key	
Objective 3 Recognize abnormal signs and symptoms seen in diabetic patients. A. Polydipsia 1. Thirst is very common in elevated blood sugar (BS) 2. Kidneys are washing out high BS, pulling fluids from the body, leaving the patient dehydrated. 3. Do not restrict fluids unless ordered. Keep patient hydrated even if water carafe frequently needs to be refilled. Unlimited water; black tea or coffee (may use non-sugar sweetener, but creamer/milk may be restricted); diet soft drinks or broth (unless sodium restriction). B. Polyphagia	A. Lecture/ Discuss B. Clinical observation C. Written test	Accurately reports signs and symptoms of hyper and hypoglycemia to licensed nurse.

Content Outline Theory Objectives	Suggested Learning Activities/Evaluation	Clinical Activities
1. Hunger occurs with high BS as well as low BS. 2. With high BS, glucose is trapped in the blood stream and does not get to the cells, so they send a hunger message to the brain, not knowing there is plenty of sugar in the blood. 3. Patients are not necessarily “non-compliant” if they crave foods. Insure a proper balanced diet. 4. If the patient seems to be eating only carbohydrates or only protein on their tray, have the nurse explain the importance of eating balanced meals. Do not supplement the tray with other foods unless approved by the licensed nurse. 5. In diabetes we must think of food as medicine. 6. Polyuria a. When BS reaches a certain level (renal threshold), the kidneys start letting the glucose out into the urine and the patient starts urinating in large volumes and frequently. b. The symptoms recede when the BS drops below that patient’s renal threshold. Report frequency and output volume. C. Hypoglycemia 1. Low blood sugar (below 60 mg/dl) 2. Report immediately to licensed nurse even if patient is not symptomatic, since this may lead to coma and death. 3. Patient will require immediate treatment 4. Symptoms include restlessness, apprehension, irritability, trembling, weakness, sweating, headache, hunger, difficulty thinking, blurred or double vision, difficulty walking, tachycardia, changes in level of consciousness D. Hyperglycemia 1. High blood sugar (over 125 mg/dl) 2. Report all blood sugar levels to licensed nurse, since patient may require treatment 3. Very high BS may lead to diabetic ketoacidosis		

Content Outline Theory Objectives	Suggested Learning Activities/Evaluation	Clinical Activities
(DKA) or hyperosmolar syndrome which may lead to coma and death. 4. Symptoms include excessive thirst, excessive urination, hunger, weakness, flushed and dry skin, headache, nausea, vomiting, abdominal cramps, weak/rapid pulse, low blood pressure, acetone (sweet) breath, rapid breathing (Kussmaul respirations), change in level of consciousness (LOC).		
Objective 4 Describe the role of the nurse assistant in caring of the diabetic patient. A. Dietary issues: 1. Restrictions 2. Accurate measurement of intake 3. Reporting lack of food intake B. Skin care/foot care C. Reinforcing patient teaching as directed by licensed personnel D. Reportable signs and symptoms for hypoglycemia 1. Irritability/anxiety 2. Shakiness 3. Sweaty 4. Slurred speech 5. Dizziness 6. Hunger 7. Impaired vision 8. Headache 9. Weakness/fatigue E. Reportable signs and symptoms for hyperglycemia 1. Extreme thirst 2. Frequent urination 3. Dry skin 4. Hunger 5. Blurred vision 6. Drowsiness	A. Lecture/ Discuss B. Role play the symptoms of hypo and hyperglycemia and ask students to differentiate C. Clinical observation D. Written test	Verifies diet order and checks patient's tray for correct foods and reports/corrects any errors. Accurately measures and reports food intake. Provides care to diabetic patient considering dietary needs, skin care, and foot care. Reinforces patient teaching.

Content Outline Theory Objectives	Suggested Learning Activities/Evaluation	Clinical Activities
7. Nausea and vomiting 8. Deep breathing pattern 9. Sweet or fruity odor breath		
Objective 5 Discuss effect of diabetes on other body systems. A. Kidney a. Watch patient's urine output: volume, frequency, odor, casts (particles which can indicate infection) or foamy (which indicates excess protein or vegetarian diet). b. Polyurea = higher blood sugar c. Often urinary tract infections in diabetics do not have the typical symptoms. B. Eyes a. Increased risk of intraocular bleed (especially, Type 1) - no heavy lifting or straining with bowel movements. Report immediately any complaints of double vision or "curtain dropping." b. Complaints of blurred vision with rapid onset could mean low blood sugar or more likely high blood sugar (often takes 6 weeks to improve). c. Cataracts are more common in diabetics due to the years of glucose and sorbitol seeping back and forth in and out of the lens. C. Heart a. Hypertension often occurs before diagnosis of diabetes mellitus. Increased blood pressure correlates often with increased blood sugar. b. Heart attack in diabetics may not have the usual symptoms. Important to report vague chest discomfort, sub-scapular pain, diaphoresis, etc. D. Integumentary	A. Lecture/ Discuss B. Written test	

Content Outline Theory Objectives	Suggested Learning Activities/Evaluation	Clinical Activities
a. Impaired wound healing with increased blood sugar and impaired immune system = greater risk of infection than general population. Imperative to have good hand washing! b. SKIN CARE IS THE NURSING ASSISTANT'S MOST IMPORTANT CONTRIBUTION TO PATIENTS WITH DIABETES! c. Report increased wound drainage or change in color or odor. d. Minimize number of skin breaks (i.e., insure only poking once for blood sugar testing and hold pressure on injection site to clot off. e. Essential q 2-hour position changes. f. Exemplary skin and perineal care g. Do not soak feet more than 5 minutes. h. Report any reddened areas or wounds even if the patient states it doesn't hurt. i. Always have patient wear shoes/slippers when out of bed. E. Nervous a. Decreased sensation due to nerve damage over time with high blood sugar, usually in the feet first. b. Patient may not feel hot and cold, pain or pressure. Observe feet q shift, use lotion and any pressure relieving devices even if patient does not complain. c. If feet in poor condition, report to nurse; perhaps a Podiatry consult is in order. d. Patients may have autonomic neuropathies as well, such as: neurogenic bladder or bowel= incontinence. e. Some patients may lose the ability to feel effects of a low blood sugar—especially when taking certain heart medications. f. Check blood sugar if patient not arousable. Also, report a low BS reading even if the		

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patient feels fine. F. Circulatory - If blood sugar is elevated, the blood is literally thicker. It may be more difficult getting blood for finger stick. Try warm compress before "poking"; do not use alcohol on the finger; use the earlobe if unable to use finger. - Do not use the fingers if they are really swollen as this would give a false low blood sugar reading. G. Fetus - High blood sugar is teratogenic especially in very early pregnancy. If patient states she might be pregnant, report any blood sugar higher than 140 immediately. Later in the pregnancy, a higher than 140 blood sugar will "feed" the baby too much and the baby will grow too large (often 15 lbs or more) - Normal blood sugar during pregnancy is 50-110mg/dl.		

SAMPLE TEST QUESTIONS

Directions: Circle the best answer

1. Your patient has had a thyroidectomy. You should
 - a. Keep the patient flat in bed.
 - b. Watch for and report signs of respiratory distress.
 - c. Check for ketones in the urine using Multistix Urine reagent strips.
 - d. Position the patient in the Sims position.
2. Lack of iodine in the diet can result in
 - a. Hypothyroidism.
 - b. Hyperthyroidism.
 - c. Diabetes mellitus.
 - d. Diabetes insipidus.
3. The pituitary gland is responsible for secreting hormones that
 - a. Stimulate ovulation.
 - b. Manage sodium and potassium levels.
 - c. Control calcium and phosphorus.
 - d. Regulate blood sugar.
4. The gland that secretes epinephrine which stimulates the body to produce energy during an emergency is:
 - a. Pineal
 - b. Adrenal
 - c. Thyroid
 - d. Parathyroid
5. Your patient is an insulin-dependent diabetic. You know this
 - a. Is a stable form of the disease.
 - b. Affects only older persons.
 - c. Requires hypoglycemic drugs.
 - d. Is a less stable form of the disease.
6. Insulin is an important hormone because it
 - a. Lowers blood sugar.
 - b. Raises blood sugar.
 - c. Stimulates the conversion of glycogen to glucose.
 - d. Breaks fat down to form glucose.
7. Hyperglycemia may be brought on by all of the following **except**:
 - a. Stress
 - b. Skipped meal
 - c. Illness
 - d. Dehydration
 - e.
8. In caring for a patient with diabetes, the nurse assistant should:
 - a. Give nourishments ad lib
 - b. Cut the patients toe nails
 - c. Know the signs and symptoms of hypoglycemia
 - d. Use heating pads on the feet

SAMPLE TEST QUESTIONS – KEY

1. Your patient has had a thyroidectomy. You should
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Name: _____ Date: _____

ENDOCRINE MATCH-UP

DIRECTIONS: Place the correct letter in the blank to match the endocrine gland with its function.

- | | |
|--------------------------------|--|
| ___ 1. Pituitary Gland | A. Produces testosterone for development of the male secondary sex characteristics. |
| ___ 2. Thyroid Gland | B. Produces adrenalin and helps us respond to stress. |
| ___ 3. Parathyroid Gland | C. Produces estrogen and progesterone for development of female secondary sex characteristics. |
| ___ 4. Adrenal Glands | D. Produces insulin and regulates the blood-sugar level. |
| ___ 5. Islet Cells of Pancreas | E. Maintains blood calcium and phosphorus levels. |
| ___ 6. Testes | F. Growth of bones and other organs. Signals puberty to begin. |
| ___ 7. Ovaries | G. Metabolic rate and growth and development. |

Name: _____ **Date:** _____

**ENDOCRINE MATCH-UP
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 F 1. Pituitary Gland

A. Produces testosterone for development of the male secondary sex characteristics.

 G 2. Thyroid Gland

B. Produces adrenalin and helps us respond to stress.

 E 3. Parathyroid Gland

C. Produces estrogen and progesterone for development of female secondary sex characteristics.

 B 4. Adrenal Glands

D. Produces insulin and regulates the blood-sugar level.

 D 5. Islet Cells of Pancreas

E. Maintains blood calcium and phosphorus levels.

 A 6. Testes

F. Growth of bones and other organs. Signals puberty to begin.

 C 7. Ovaries

G. Metabolic rate and growth and development.