Case Study, Chapter 52, Assessment and Management of Patients With Endocrine Disorders

1. Don Smart, 55 years of age presents to the family physician to follow up on some symptoms he recently developed. The patient states that he is extremely tired and is having trouble concentrating. He states that his skin is dry and flaky. His nails are brittle and his hair is dry, dull, and falls out as he showers. He is 8 weeks postop after a modified radical neck procedure for laryngeal cancer and has completed the external radiation therapy. He is using a Blom--Singer prosthesis for speech. He states that his appetite is poor, yet he is gaining weight. The patient's current medications include metformin (Glucophage) for a history of type 2 diabetes, digoxin 0.25 mg every day for a history of atrial fibrillation, and warfarin therapy being managed by the family physician for thromboembolism prophylaxis related to atrial fibrillation. The physician orders the following lab work: CBC with differential, serum albumin, TSH, FT4, PT, and INR. (Learning Objective 3)

a. **What is the rationale for the labs ordered, based on the symptoms that the patient is exhibiting?**

CBC with differential: Thyroid hormone is involved in the function of many organ systems, and hypothyroidism is associated with various forms of anemia.

Serum albumin: Albumin functions as a carrier for thyroid hormones.

TSH: Mr. Smart is exhibiting symptoms of hypothyroidism – weight gain with decreased appetite, fatigue, hair thinning and falling out, difficulty with concentration. If Mr. Smart will be receiving thyroid hormone replacement therapy, his dosage will be based on his serum TSH concentration. TSH is used to diagnose thyroid dysfunction, and to differentiate between problems with the thyroid gland versus problems with the hypothalamus or pituitary.

FT4: Mr. Smart is exhibiting symptoms of hypothyroidism – weight gain with decreased appetite, fatigue, hair thinning and falling out, difficulty with concentration. FT4 levels are decreased in hypothyroidism.

PT: Mr. Smart is on warfarin therapy related to thromboembolism prophylaxis, has a diagnosis of a-fib. PT and INR are used to monitor the therapeutic level of warfarin. If Mr. Smart will be receiving thyroid hormone therapy as a treatment for hypothyroidism, it may be necessary to decrease his dose of warfarin due to an increased risk of bleeding.

INR: Mr. Smart is on warfarin therapy related to thromboembolism prophylaxis, has a diagnosis of a-fib. PT and INR are used to minotor the therapeutic level of warfarin. If Mr. Smart will be receiving thyroid hormone therapy as a treatment for hypothyroidism, it may be necessary to decrease his dose of warfarin due to an increased risk of bleeding.

b. **The physician follows up with the patient with the diagnosis of hypothyroidism. What are reasons why the patient developed hypothyroidism?**

   Mr. Smart had received external radiation therapy for laryngeal cancer, which is associated with hypothyroidism in men.

c. **Based on the results of the TSH and FT4, the physician starts the patient on levothyroxine (Synthroid) 0.025 mg/day and to have follow-up TSH and FT4 labs and visit to the oncologist in 4 weeks. The physician informs the patient that he will continue to have lab tests and monthly follow-up until the TSH and FT4 are stable. What is the rationale for this treatment plan?**

Repeated TSH and FT4 is indicated to determine if the dose of levothyroixine Mr. Smart is taking is appropriate, or if a dose adjustment is indicated. He should follow up with his oncologist to monitor and manage his cancer diagnosis.

d. **What nursing interventions should the nurse provide the patient?**

Mr. Smart is visiting his PCP at the office, and is not receiving inpatient acute care. Thus, interventions should focus on improving his home care.The nurse should educate the patient on his medications, assess how his condition impacts his ability to perform ADLs, and what accommodations he may need to perform them. Mr. Smart should be educated on what signs and symptoms may indicate his dose of thyroid hormone is inadequate or excessive. If needed, the nurse should advocate for a referral to home-care services.

2. Mrs. Ramirez was admitted to the hospital for wrist surgery secondary to rheumatoid arthritis. Postoperatively, she is stabilized and transferred to the general surgery unit. Mrs. Ramirez’s medications include digoxin, Lasix, captopril, Synthyroid, aspirin, Protonix, and prednisone. When administering

morning medications, Mrs. Ramirez refuses her aspirin and prednisone, and the nurse holds the medications. Over the next 3 days, Mrs. Ramirez continues to refuse the prednisone, and the medication is not administered. On the third postoperative day, Mrs. Ramirez becomes hypotensive, tachycardic, and has a decrease in level of consciousness. STAT labs are sent for a complete blood cell count and chemistry panel, and the physician is notified of the change in patient status. On review of the patient's record, the physician notes that Mrs. Ramirez has not received her prednisone for 4 days. Mrs. Ramirez has been on Prednisone for the past 5 years for her rheumatoid arthritis, and the physician begins to treat the patient for acute adrenal insufficiency. (Learning Objectives 7 and 9)

a. **What other clinical manifestations should the nurse monitor for with suspected adrenal insufficiency?**

Other than hypotension, tachycardia, and decreased LOC, the nurse should monitor for fatigue, dark pigmentation of the mucosa and skin, low blood glucose, and electrolyte imbalances (low sodium, high potassium). Also monitor for depression.

Addisonian crisis signs include cyanosis, fever, NV, and signs of shock. They may complain of headache or GI disturbances like diarrhea.

b. **The physician prescribes a STAT dose of IV hydrocortisone. What is the rationale for this medication in this situation?**

Immediate administration of corticosteroids is indicated to mitigate the risk of circulatory shock.

REFERENCES

Dorgalaleh, A., Mahmoodi, M., Varmaghani, B., Kiani Node, F., Saeeidi Kia, O., Alizadeh, S. h., Tabibian, S. h., Bamedi, T., Momeni, M., Abbasian, S., & Kashani Khatib, Z. (2013). Effect of thyroid dysfunctions on blood cell count and red blood cell indice. *Iranian journal of pediatric hematology and oncology*, *3*(2), 73–77.

Hinkle, J.L, & Cheever, K.H. (2018) *Brunner & Suddarth's textbook of medical-surgical nursing* (14th ed.). Wolters Kluwer

Baratlena, L., Robbins, J. (1993). Thyroid hormone transport proteins. Clinical Lab Medecine 13(3): 583-598. https://www.ncbi.nlm.nih.gov/pubmed/8222576