

Location: Office

Vitals:

Her temperature is 36.1 C (97 F), blood pressure is 150/90 mm Hg, pulse is 50/min and respirations are 16/min. She weighs 105 kg (231.5 lbs) and is 162.5 cm (5'4") tall.

HPI:

A 53-year-old African-American woman comes to the physician because of fatigue, constipation, cold intolerance, and impaired sleep. She has had these symptoms for the past three months. The symptoms are progressively getting worse. She also says that she gained almost 20 lbs of weight during the past three to four months. She denies fever, cough, nausea, vomiting, abdominal pain, and black stools. Her other medical problems include hypertension, carpal tunnel syndrome, and allergic rhinitis. She does not use tobacco, alcohol, or drugs. Family history is not significant. Her medications include hydrochlorothiazide and loratadine. She has no known drug allergies. She is in a monogamous relationship with her husband. She has not seen a physician in two years. Her LMP was two years ago. Her last Pap smear and mammogram were performed two years ago and were normal. A colonoscopy performed at age 50 was also reported to be normal. Her vaccinations are up-to-date.

How would you approach this patient?

She has bradycardia, hypertension, constipation, weight gain, cold intolerance, and impaired sleep. This is a classic presentation of hypothyroidism. Perform a physical examination.

Order:

Complete physical exam.

Results:

On examination, patient appears to be obese. Skin is cool and dry. Lungs are clear to auscultation. Heart sounds are normal. Examination of the abdomen is unremarkable. Neurologic examination shows delayed relaxation of ankle reflexes. The rest of the exam is normal.

Order:

CBC, routine
BMP, routine
FOBT, stat
Serum TSH, routine
12-lead EKG, stat

Results:

FOBT is negative. EKG shows sinus bradycardia.

*Schedule appointment in three days with results

Results:

CBC shows Hb of 11.8 g/dL, WBC of 7,000/cmm (normal differential), and platelet count of 200,000/cmm. MCV is 86 fl. The peripheral smear shows normochromic normocytic anemia with normal-appearing WBCs and platelets. BMP shows a Na of 133 mEq/DL; TSH is 24 µU/mL (Normal is 0.5-5.0 µU/mL). Stool is heme negative.

*If the patient is floridly hypothyroid - TSH should be higher than 70-90.

Order:

Free T4, routine
Lipid panel, routine
Levothyroxine, oral, continuous
Low-fat diet
Vitamin D, oral continuous

Calcium carbonate, oral, continuous

Counseling:

Patient counseling
Medication compliance
No smoking
No alcohol
Regular exercise
Seat belt use
Safe sex

*Follow-up in one week

Results:

Free T4 is 0.03 ng/dL (Normal is 0.9-2.4 ng/dL). The lipid panel showed increased total cholesterol.

*Follow-up in six weeks

Order:

Serum TSH, routine

Primary diagnosis:

Primary hypothyroidism

Discussion:

The clinical diagnosis of hypothyroidism is straight forward, as depicted in the above case. The best screening test is TSH measurement. Once it is elevated (> 10), confirmation of hypothyroidism is made by measuring free T4. Both TSH and free T4 identifies whether the problem is primary (free T4 is decreased and TSH is elevated) or secondary (both TSH and free T4 are decreased).

Hypothyroidism is associated with normocytic and normochromic anemia from bone marrow hypoproliferation and usually responds to thyroxine replacement. In female patients, menorrhagia resulting from thyroid dysfunction can cause iron deficiency anemia (microcytosis). 10% of patients may have pernicious anemia (macrocytosis). Routine iron studies and B12 levels are not generally indicated if the patient have mild normocytic normochromic anemia, as seen in the above patient. There appears to be an increased risk of celiac disease with autoimmune thyroid disorders, which leads to microcytic anemia due to iron malabsorption. Screening for celiac disease is warranted if patients with autoimmune hypothyroidism develop unexplained microcytic anemia. Screening for hypothyroidism is indicated in patients presenting with unexplained hyponatremia, hypercholesterolemia, or elevated CK. The other commonly tested associated conditions for board exams are:

1. Sleep apnea
2. Carpal tunnel syndrome
3. Depression

Hashimoto's thyroiditis is the most common cause of primary hypothyroidism in the United States. Antibody measurement is not required in the work-up of overt hypothyroidism. Measurement of anti-thyroid antibodies (anti-thyroid peroxidase and anti-thyroglobulin) is performed in subclinical hypothyroidism (TSH is between 5 to 10, but normal free T4) to predict the probability of developing permanent hypothyroidism. Patients with subclinical hypothyroidism with high titers of anti-thyroid antibodies are more likely to develop permanent hypothyroidism.

Thyroxine replacement should be started, and TSH is rechecked in six weeks to monitor the response. This patient is postmenopausal; therefore, calcium and vitamin D supplementation should be started.

