

Location: Office

Vital signs: B.P: 148/90 mm Hg; P.R: 110/min, regular; R.R: 24/min; Temp: 37.0 C.

C.C: Rapid heart beat and palpitations.

HPI:

A 48-year old white female presents to your office for evaluation of recent onset of rapid heartbeat and palpitations. They occur without warning, are regular in rhythm, and resolve spontaneously. She also reports that she has lost 12 pounds, during the last two months, despite a good appetite. She says she's having trouble getting to sleep. She denies any constipation, diarrhea, blood in the stools, or melena. She denies any heat or cold intolerance. She has noticed decreased duration of her menstrual cycles recently, and thinks she's reaching menopause. She denies any chest pain, dizziness, syncope, leg swelling, shortness-of-breath, orthopnea, or PND. PMH: No H/O heart disease, HTN, or DM. Nothing significant except an anxiety disorder. She has no known allergies. FH: There is no family H/O sudden death. SxH: The patient is sexually active with husband. They use condoms as contraception. SH: She denies smoking, alcohol, or IV drug abuse. Medications: None. ROS: Unremarkable.

How would you evaluate this patient?

Complete physical examination

Results:

On exam she has rapid speech. Her hands are warm and moist. Mild diffuse nontender enlargement of the thyroid is noted. Rest of her exam is completely normal.

Orders:

CBC with diff, stat
BMP, stat
ECG, 12 lead, stat
Serum TSH
Serum Free T3, and T4

Results:

CBC with diff is within normal limits
BMP is within normal limits
EKG showed sinus tachycardia
TSH is low - 0.08 μ U/mL
T3 and T4 are elevated

Review order:

24-hour radioiodine uptake
Follow-up with the results

Results:

Radioiodine uptake is increased

Review order:

Propranolol, oral, continuous
Methimazole, oral, continuous
Follow up in 4 weeks. Advise to stop methimazole 4 days prior to follow up.

Review order:

CBC with diff
Stop Methimazole
Radioiodine, one time
Follow up in one month

Discussion:

A 48-year old white female presented with palpitations, weight loss (despite having a good appetite), difficulty sleeping, and menstrual problems. This is one of the classic presentations of hyperthyroidism. The combination of weight loss and good appetite is classic for hyperthyroidism.

Approach of a patient with palpitations:

A complete history and physical examination should be performed in all hemodynamically stable patients. There are no evidence-based guidelines to direct the laboratory workup on patients with palpitations. We routinely obtain 12 lead ECG, CBC with diff, BMP, and TSH levels. Identify common causes like anemia, electrolyte imbalance, and thyroid abnormalities. If the initial approach does not establish the definitive diagnosis, further evaluation is indicated. Patients are classified as either low risk or high risk depending on the risk factors.

High-risk patients:

- Patients with H/O syncope or dizziness.
- Patients with a family history of sudden death, arrhythmias, or long QT syndrome.
- Any patient with underlying organic heart disease, which include scarring from prior MI, cardiomyopathy, significant valvular disease, and HOCM.
- These patients are at high risk of developing ventricular tachycardia so should be evaluated with either ambulatory monitoring or an inpatient electrophysiological study.

Low-risk patients:

- Patients with no family or personal history of arrhythmias.
- No H/O dizziness or syncope.
- No underlying organic heart disease.
- These patients should be reassured. However, ambulatory monitoring (24-hour Holter monitor) is indicated if the ECG shows sustained arrhythmia.

Hyperthyroidism:

The most cost effective approach to a patient with suspected hyperthyroidism is to obtain serum TSH levels. A patient with normal TSH is very unlikely to have hyperthyroidism. However, it is reasonable to obtain a simultaneous free T3 and T4 if the index of suspicion is very high. If the TSH is less than 0.1 mIU/L and free T4 is elevated, hyperthyroidism is confirmed. If the TSH, free T4, and T3 are elevated, a TSH producing pituitary tumor should be suspected and MRI of the brain should be ordered. Once the diagnosis of hyperthyroidism has been established, the underlying cause should be determined.

Basically, hyperthyroidism is categorized into two broad classifications:

1. Graves' disease and toxic multinodular goiter.
2. Postpartum thyroiditis, iodine induced, or factitious hyperthyroidism.

Often, Graves disease is diagnosed on clinical grounds (diffuse goiter, ophthalmopathy) alone. Measurement of TSH receptor-stimulating autoantibodies (TSI), is not routinely recommended for the diagnosis of Graves disease. However, a 24-hour radioiodine uptake is necessary to confirm Graves disease and to exclude other possibilities (it will be elevated in the first group and decreased in the second group). Once the diagnosis is made, treatment should be started. Sub acute and postpartum thyroiditis are usually transient and require only symptomatic treatment.

Radioiodine is the treatment of choice for people over 20 years old. Obtain a pregnancy test before you take a radioiodine uptake because it is contraindicated in pregnancy. Radioiodine causes destruction of the thyroid and often associated with a small risk of thyrotoxicosis. So, all elderly and patients with cardiac problems should be pretreated with antithyroid drugs for at least one month. Antithyroid drugs must be stopped 3 to 5 days prior to the radioiodine treatment to achieve optimum iodine uptake. Ophthalmopathy may be aggravated by

radioiodine treatment. So, physicians often start tapering course of steroids at the time of radioiodine treatment if the patient has evidence of ophthalmopathy. Symptoms of hyperthyroidism can be seen upto 2 to 3 months after the treatment of radioiodine. Either antithyroid drugs or beta blockers can be used to control the symptoms during this period. Patients should be followed at 4-6 week intervals with clinical examinations, and the free T4 level (not TSH). If symptomatic hyperthyroidism persists after six months, radioiodine uptake should be repeated.

Antithyroid drugs are primarily used in pregnancy, when radioactive iodine is contraindicated or in a patient of less than 20 years old. Propylthiouracil is the drug of choice in pregnancy. These are associated with granular cytopenia, so always obtain a baseline CBC with differential before starting the treatment. PTU is also associated with hepatotoxicity so, baseline LFTs are important. Finally, surgery is indicated in pregnant patients who do not respond to propylthiouracil therapy. Euthyroid state is usually achieved in two to four months. Follow the patient in six weeks with free T4 levels.

Beta-blockers (eg, propranolol or atenolol) can be used if the patient is tachycardic, anxious, sweating, or having tremors. If beta-blockers are contraindicated, such as in symptomatic bronchial asthma patients, verapamil can be given.

Primary Diagnosis:

Hyperthyroidism

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