1-Minute Pearls/Pitfalls for the Clinician

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Kwame Dapaah-Afriyie, MD, MBA, FSHM[1,2]

[1] Division of Hospital Medicine, Department of Medicine, Miriam Hospital,
[2] Department of Medicine, Warren Alpert Medical School at Brown University

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Abstract

This article describes some pearls/pitfalls pertinent to empty sella and levothyroxine dose adjustment with certain medications/conditions.

QUESTION 1: DOES MY PATIENT ON TESTOSTERONE INJECTIONS NEED HIGHER DOSES OF LEVOTHYROXINE?

A 52-year-old man with a history of hypothyroidism and hypertension presents with palpitations and insomnia. He was recently diagnosed with testosterone deficiency in the setting of chronic use of Methadone, resulting in hypogonadotropic hypogonadism. Except for the addition of Testosterone injections to his medication about eight weeks ago, he reports no change in his dose of levothyroxine or other medications. Lab results reveal elevated Free T4 and low TSH levels. CBC and BMP are normal. What is the likely cause of his hyperthyroid status?

A: Levothyroxine requires an acidic environment for absorption, and therefore, the use of PPI, H2 blockers, or patients with Type A gastritis (autoimmune) require higher doses to achieve therapeutic serum levels. Calcium, Iron, and Cholestyramine also negatively affect its absorption. Additionally, protein binding plays a role in determining metabolically active serum-free levothyroxine levels. Patients who are on medications that reduce TBG (Thyroid-binding globulin levels) end up with higher serum levels in the absence of any dose adjustments. The reverse effect is seen with the use of medications that increase TBG. Androgens reduce TBG levels, and this is the cause of this patient's abnormal labs in the absence of any dose adjustments. Estrogens have the opposite effect; therefore, patients started on or taking estrogens need to have their Free T4 and TSH levels followed closely in order to make the required dose adjustments.[1]

QUESTION 2: HOW EMPTY IS EMPTY SELLA?

A 64-year-old woman with a history of hypertension and diabetes mellitus presents with a transient episode of left-sided weakness and dysarthria. Symptoms fully resolved within 14 hours. She denies headaches, visual changes, fevers, weight loss, or vomiting. She reports compliance with all her current medications. Head CT scan is unremarkable. Brain MRI showed no infarct, bleed, or mass. Per the radiology report, she has an empty sella. Carotid studies show no stenosis. What are the next steps regarding the empty sella?

A: Empty sella is not a medical condition but rather a radiologic diagnosis seen in MRI images, which show an enlarged sella turcica not entirely filled by pituitary tissue. It is typically seen in imaging studies done for a non-pituitary gland-related reason. The pituitary gland may be small or compressed. The lining of the sella may sometimes not be visualized. This finding is often incidental with a higher incidence in women, reported ratio of 5:1. Primary empty sella is caused by herniation of subarachnoid space and fluid into the sella, compressing the normal pituitary gland. Secondary empty sella can be related to pituitary tumor infarction (typically macroadenomas: \10mm), autoimmune hypophysitis, infection, trauma, or sequelae of radiation therapy. Patients with empty sella usually have normal pituitary function. It is, however, imperative to exclude the most common associated pathology, Prolactinoma, and assess for other features of pituitary gland dysfunction. Recommended screening tests for asymptomatic patients are serum Prolactin, AM cortisol level, TSH, and Free T4 levels. Because of the risk for progression, all asymptomatic patients need repeat endocrine and radiologic evaluation in 24 to 36 months. Additional or further is limited to those with concerning clinical and laboratory data.[2]

CONFLICTS OF INTEREST

The author has no conflicts of interest.

CORRESPONDING AUTHOR

Kwame Dapaah-Afriyie, MD
Professor of Medicine, Clinical Educator
Warren Alpert Medical School at Brown University
Division Director Division of Hospital Medicine
The Miriam Hospital,
164 Summit Avenue, Providence, RI 02906

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