

It's Not Your Thyroid (May 3, 2017)

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Learning Objectives

1. Discuss non-specific symptoms that may occur in many thyroid disorders as well as non-thyroid conditions and in some people without any identifiable disease.
2. Review diagnostic testing for common thyroid conditions and the limitations of these tests to completely evaluate all aspects of potential thyroid pathophysiology.
3. Develop a practical approach to the evaluation and management of patients with symptoms and signs that may not (or may) be due to dysfunction somewhere within the complex hypothalamic-pituitary-thyroid-peripheral tissue axis.

Case 1

43 y.o. woman self-referred for thyroid evaluation and possible treatment. She endorses chronic fatigue, weight gain, constipation, cold intolerance, dry skin and hair loss. Exam and labs, including thyroid tests have been normal. But she has done online research and feels that it must be a thyroid problem.

PMH: Gluten Intolerance **Meds:** Vitamins, Supplements

PE: BP 130/72 P 76 Ht 5'8" Wt 182 lb.

General Exam: normal Thyroid: normal

Lab: TSH 1.2 mU/L (nl: 0.45-4.5)

Free T4 1.4 ng/dl (nl: 0.8-1.8)

You Say: "It's not your thyroid."

She Says: "I was told you'd say that. But I believe it is."

Questions:

Do we really know that nothing is wrong with the entire hypothalamic pituitary thyroid axis?

Are we sure that our current tests evaluate this axis completely?

Comments:

Hypothyroidism most often develops as a result of thyroid disease (primary hypothyroidism) but can also occur from disorders of the pituitary gland or hypothalamus (central hypothyroidism).

Overt primary hypothyroidism is diagnosed by finding elevated serum TSH levels associated with decreased serum FT4 levels. Mild hypothyroidism (also called subclinical hypothyroidism) is diagnosed when serum TSH levels are elevated but FT4 levels are within the reference range.

Central hypothyroidism is characterized by low (sometimes low normal) serum FT4 levels in association with TSH levels that are low, normal or slightly elevated. Primary hypothyroidism is most often due to autoimmune lymphocytic thyroiditis, surgery or radiation therapy.

Hypothalamic-pituitary-thyroid axis physiology is highly complex, involving hypothalamic and

pituitary regulation of thyroid hormone (TH) secretion from the thyroid gland, TH transport by proteins in the bloodstream, T4 conversion to T3 in the liver and other peripheral thyroid hormone responsive tissues, TH uptake across cellular and nuclear membranes into target cells, TH binding to nuclear receptors, TH regulation of transcription machinery to activate or suppress target genes, translation of mRNA into thyroid regulated proteins and subsequent actions of those TH regulated proteins. It is possible that symptoms could result from inherited (genetic) or acquired (epigenetic) abnormalities at any of these multiple steps of TH physiology for which we currently do not have adequate tests. Alternatively, symptoms could also result from the intrinsic thyroid inflammation due to lymphocytic thyroiditis, coexisting autoimmune disorders of other systems, post-surgical or post-ablative hypoparathyroidism, non-physiologic thyroid hormone delivery (altered circulating T3/T4 ratios, thyroid hormone entry through the intestine and possible Microbiome consequences), and deficiency of thyronamines (physiologically important or not). Recognition of these possibilities and the development of compassionate and supportive relationships with these patients are usually beneficial. There is so much to learn – exciting!

Discussion with Patient:

Honesty. “I’m not sure what is causing your symptoms. I have done all the appropriate tests and have not found an Endocrine disorder.”

Encouragement. “While we didn’t find a cause for your symptoms, your test results do indicate that you do not have any serious conditions.”

Compassion. “I hope that your symptoms will resolve soon with healthy lifestyle measures. I am certainly willing to repeat some of your tests in 3-6 months if the symptoms persist.”

Recommendations:

Good Sleep Habits, Regular Exercise, Good Nutrition, Stress Reduction, Depression Management, Treatment of Co-existing Illnesses, saying “I’m here for you if you need me.”

Case 2

32 y.o. man referred for persistent symptoms despite LT4 therapy. Hypothyroidism was diagnosed 6 months ago. He still experiences fatigue, mild depression and difficulty losing weight. He says that his TSH does not reflect his true thyroid status and requests further thyroid testing and medication adjustment.

PMH: Hypothyroidism Meds: Levothyroxine 150 mcg/day

PE: BP 122/84 P 76 Ht 6’1” Wt 203 lb.

General Exam: normal Thyroid: enlarged, granular

Lab: TSH 1.6 mU/L (nl: 0.45-4.5)
Free T4 1.4 ng/dl (nl: 0.8-1.8)

You Say: “It’s not your thyroid.”

He Says: “But what else could it be?”

Questions:

Do we really know that nothing is wrong with the entire hypothalamic pituitary thyroid axis?
Are we sure that our current tests evaluate this axis completely?

Discussion with Patient:

Honesty
Encouragement
Compassion

Recommendations:

Good Sleep Habits, Regular Exercise, Good Nutrition, Stress Reduction, Depression Management, Treatment of Co-existing Illnesses, saying “I’m here for you if you need me.”

Final Considerations:

What the Patient Says: Fix my thyroid condition
What the Patient Means: Please Help Me!
The Patient’s Quality of Life is Poor And He/She is Frustrated
It’s an Honor that She/He Entrusts You With an Opportunity to Help Her/Him

Furthermore:

We don’t know what we don’t know.
We are not really sure there is not an thyroid condition that is very subtle or for which we don’t even have a test.

Final Recommendations:

Listen attentively
Examine your patient
Offer additional testing, if appropriate
Admit that current testing options have some limitations
Always provide honesty, encouragement and compassion

Final Thoughts:

It’s An Exciting Time to be an Endocrinologist!
There is So Much Still to Learn.
And So Many People We May Be Able to Help!

References

Garber J, et al. Clinical practice guidelines for hypothyroidism in adults: cosponsored by the American Association of Clinical Endocrinologists and the American Thyroid Association. Endocr Pract. 2012 Nov-Dec;18(6):988-1028. Thyroid. 2012 Dec;22(12):1200-35.

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