

Puzzles of Thyroid Hormones



**Board Certified Family Practice and
Board Certified Emergency Medicine (ABPS)**

One of my patients once referred to me as a “diagnostic hound-dog.” I took this as a great compliment—her way of acknowledging that I never give up in the search to find out what ails a patient and what is the underlying cause of the problem. One of the most interesting and sometimes challenging areas of diagnosis—and of treatment—is in the area of hormones and thyroid diseases.

SALLY

“Sally” came in for her first appointment looking upset and distressed. She had seen a number of doctors for her problems and had done a lot of research on her own. She is an attractive, slim blond, about 30 years old, a PhD college professor who jogs 2-5 miles three times a week. Sally had severe pain with her menstrual periods due to endometriosis; she sometimes missed periods; was diagnosed with Irritable Bowel Syndrome; and had many signs of hypothyroidism, such as hair loss, dry skin, fatigue, abnormal periods, moodiness, and feeling cold all the time.

Blood tests revealed her pituitary gland was under-functioning. The pituitary, in the brain, sends signals to the thyroid and ovaries (and other organs) and, in Sally’s case, it was not sending the right messages to these glands. Thus, we monitored her thyroid hormone replacement by free blood levels of thyroid hormone rather than the TSH, which is the pituitary hormone.

The pituitary also affects the ovaries, and thus affected Sally’s ability to ovulate and produce progesterone. Having regular periods was also a problem. Later, after she responded to

treatment and was feeling very well, she decided to get pregnant. She went to two fertility specialists in state who offered her a number of treatments to get pregnant, but could not tell her the nature of the problem preventing pregnancy. She went to a fertility “guru” in another state who told her that her pituitary was hypo-functioning. She called me and said, “You told me that on my second visit!” She is now the proud mother of a beautiful baby girl.

KAREN

“Karen” came into my office sad and frustrated. She stated, “I have been sick for 12 years, I have seen over 15 doctors, and if you do not help me I am giving up on doctors!”

Among the many approaches and treatments prescribed for her chronic fatigue and fibromyalgia, her thyroid was checked. In her case, the pituitary and thyroid were both functioning properly but the T4 (the main hormone produced by the thyroid) was not changing into the more active form, T3, in her tissues. In her case, a very low dose of long-acting T3 was prescribed. As her health improved, her dosage was reduced until she no longer needs any thyroid hormone. This poor conversion of T4 to T3 is a common problem in patients with fatigue, stress, diabetes, or carbohydrate intolerance, or in any chronic debilitating disease.

ROBERTA

“Roberta” came into my office stating, “I feel like I am on the biggest roller coaster ever! One week I have good energy, and the next week I can hardly get out of bed.” Roberta’s blood work showed very high levels of antibodies against her thyroid. Her TSH did not “match” her free thyroid hormone levels, meaning that there were frequent ups and downs of her thyroid levels.

Sometimes the thyroid becomes very inflamed by an autoimmune disorder called “Hashimoto’s Thyroiditis.” In this disease, the body is attacking its own thyroid tissue. This leads to inflammation, which in turn leads to fluctuation of hormone levels and eventually scarring and destruction of the gland itself with total loss of function. This is the process by which many people become low in thyroid. Patients such as Roberta, who make enough or even too much hormone one week and not enough the next week, pose a special challenge. The best way to help her, we found, was to repair the underlying causes of the thyroiditis.

PAUL

Another interesting case of thyroid problems was a patient named “Paul.” He had been diagnosed with hypothyroidism by several

doctors, but when he took thyroid hormone, such as Synthroid and other preparations, he would within a few days develop symptoms of hyperthyroidism. He became nervous, shaky with heart palpitations and rapid heart rate. When he did not take thyroid hormone he felt symptoms of hypothyroidism: fatigue, moodiness, dry skin, constipation, etc.

In taking Paul’s history, I came upon an interesting fact. He claimed that he was very sensitive to a number of medications. He had a very bad reaction to one medication in particular. I discovered this sensitivity was not truly an allergic reaction, but a toxic effect of the drug. When the drug was used to perform a routine eye exam, his eyes stayed dilated for two and a half weeks! I checked the manner in which this drug is detoxified (removed from the body) and found that the chemical pathway in the liver that was needed to remove the medication was the exact same pathway used to remove T4. So it became clear that his body could not properly excrete T4 hormone, the main component of thyroid replacement medications. Because he could not properly excrete T4 hormone, it built up in his system and made him clinically hyperthyroid. I did find, however, that his T3 hormone excreted mostly through the kidneys. We tried a preparation of long-acting T3, and he is doing great! Meantime, we are also working on helping his body to be able to properly remove chemicals and other substances, even hormones, from his body normally.

And so is this diagnostic work “art” or “science”? It is both. The “art” part of what I do comes in listening carefully, and at length, to the patient so that I can use all available tools to assess the physical, mental, and emotional issues that may underlie the patient’s distress. Though the clues may be subtle, they need to be pursued. The “science” part of this diagnostic work is the critical, complementary component of what I do. Often our scientific pursuit of reliable information is as subtle as the clue we’re checking out. And science helps us understand how to fine-tune the system so it is working at its optimal level, for as long as possible. That’s a good goal for all of us! **llh**

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