

DIABETES AND ENDOCRINE ASSOCIATES

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Monitoring Thyroid Function

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In this month's column, American Society of Endocrine PAs President Christopher Sadler, MA, PA-C, CDE, provides pearls of wisdom on how to monitor a patient's thyroid function and determine when and how to adjust treatment regimens.

I have questions about monitoring thyroid function and adjusting thyroid medication dosages. I am wondering which of the thyroid tests are needed to appropriately monitor the effectiveness of thyroid medications.

I have seen doctors adjust the medication, or keep the same dosage, based on the triiodothyronine (T3) and thyroxine (T4) levels. I have seen cases of a low thyroid-stimulating hormone (TSH) level (as low as 0.01) in which no changes were made to the medication regimen, or a low TSH in combination with another abnormal measurement in which an increase in the medication was made. I have also seen liothyronine added to levothyroxine or "natural" thyroid hormone in cases of a low TSH.

I have also heard of patients being treated according to symptoms. It confuses me as to the appropriate way to monitor and treat hypothyroidism. Can you please provide some input? Thank you!

Q: What do we know that has good evidence to support clinical decision-making in the management of patients with thyroid dysfunction?

Here are some pearls gleaned from the available literature and practical clinical experience:

The TSH is the single best screening test for diagnosing and monitoring ongoing therapy for hypothyroidism and hyperthyroidism. It is also the most sensitive test for detecting mild thyroid dysfunction (eg, subclinical hypothyroidism or hyperthyroidism) when the free T4 and total T3 levels are still in the normal range. The American Association of Clinical Endocrinologists (AACE) recommends 0.3 to 3.0 mIU/mL as the appropriate normal range for TSH. In older adults, a TSH up to 5 mIU/mL may be normal, and it is normal for TSH to be suppressed in first-trimester pregnancy.

Use of free T4 and total T3 is helpful when you need to check the immediate response to therapy before the TSH has had a chance to respond. The TSH typically takes six to eight weeks to accurately reflect thyroid hormone status after a change in therapy. Therefore, if you need to assess your patient's status prior to that point, measurement of the free T4 and total T3 would be most helpful. A common scenario is following treatment of hyperthyroidism with methimazole. You can determine an appropriate response to therapy when you see the free T4 and total T3 levels returning to normal, even though the TSH will still be suppressed for quite some time. If you find either a low free T4 or total T3 level on methimazole therapy, you would reduce the dose even though the TSH is still suppressed, because these tests more accurately reflect the acute change in thyroid hormone status. The TSH helps you fine-tune therapy once the free T4 and total T3 levels are in the normal range.

Symptoms and labs often don't match. A patient with a TSH of 100 may feel just fine, and another with a TSH of 6 may feel markedly symptomatic. What we should strive for is normalizing the TSH between 0.3 and 3.0. However, because of the varying sensitivity of patients, it may be appropriate to experiment with different doses if a patient still feels symptomatic—as long as the TSH remains in the normal range.

For example: If a patient has a TSH of 2.5 on 100 mg but still feels cold and fatigued, try raising the