

Mildly Elevated TSH, High Free T3, and Normal Free T4: Antiidiotype Antibody Effect

Sir,

Thyroid function test is a common endocrine laboratory investigation. The common profiles of thyroid function test include thyrotropin (TSH), total and free thyroxine (T4), and triiodothyronine (T3).^[1] Similar to other clinical chemistry tests, the aberration of thyroid function due to interference is possible.^[2,3] The interference by antibody is possible but little mentioned in the literature. Here, the authors present a case with mildly elevated TSH, high free T3, and normal free T4. The case is a consulted case to the clinical laboratory by the physician in charge due to suspicious incorrect laboratory result. The result is a result of a female patient who is in euthyroid state. In this patient, the thyroid function test is mildly elevated TSH, high free T3, and normal free T4 (by analyzer 1, one-step chemiluminescent immunoassay based on a specific anti-T3 sheep monoclonal antibody) and the result for anti-thyroid peroxidase antibody and anti-thyroglobulin antibody is negative. The tests for TSH, free T3, and free T4 are repeated by a different analyzer with a different technique and the results are hereby presented in Table 1 (analyzer 2, one-step chemiluminescent immunoassay based on anti- β TSH antibody and anti- α TSH acridinium labeled conjugate).

The interesting issue is on the unexplained elevation of free T3 by the analyzer 1. Indeed, this is due to the interference by antiidiotype antibodies in the first method used by the analyzer 1. This is a possible but little mentioned interference problem in thyroid function test. The practitioner should recognize the possibility of antibody interference when interpreting an aberrant thyroid function test result.^[4,5] In a recent report, the aberrant false thyroid function test result leads to a lot of missed diagnosed and unnecessary patient management.^[3]

Table 1: The results of thyroid function test of the patient by different analyzers

Thyroid function test	Analyzer 1		Analyzer 2	
	Value	Reference range	Value	Reference range
TSH (mIU/L)	5.10	0.27-4.20	5.10	0.35-4.94
Free T3 (pg/ml)	6.40	2.00-4.40	2.20	1.88-3.18
Free T4 (ng/dl)	1.30	0.93-1.70	1.10	0.70-1.48
T3 (ng/ml)	0.60	0.80-2.00	56.00	64-152
T4 (μ g/dl)	6.10	4.60-12.00	6.20	4.87-11.72

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Conflicts of interest

There are no conflicts of interest.

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