Lab Test Allows Biennial Thyroid Disease Screen

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Contributing Writer

WASHINGTON — Measures of thyroperoxidase autoantibody and thyroid-stimulating hormone once every 2 years are a reliable alternative to annual screens for thyroid disease in children with type 1 diabetes, Dr. Linda A. DiMeglio reported at the annual scientific sessions of the American Diabetes Association.

After thyroperoxidase (TPO) autoantibody results come back positive, thyroid-stimulating hormone (TSH) and thyroxine (T4) tests are performed annually.

Thyroid disease screening in children with diabetes often consists of annual TSH and T4 tests. Endocrinologists at the James Whitcomb Riley Hospital for Children in Indianapolis, decided to modify the protocol by using TPO testing, after the results of studies at their institution and others showed that elevated TPO levels were highly predictive of autoimmune thyroid disease, Dr. DiMeglio said.

Antibodies against TPO and thyroglobulin are found in approximately 10% of the general population and in up to 25% of people with type 1 diabetes, said Dr. DiMeglio of the Indiana University School of Medicine.

Although both are helpful in predicting the development of autoimmune thyroiditis in diabetic patients, "more patients with autoimmune thyroid disease have high TPO levels than have high thyroglobulin levels, and TPO levels correlate with the active phase of disease."

Investigators at Riley Hospital did a retrospective study of 462 diabetic children (mean age of 13) who had both TSH and thyroid-specific autoantibodies measured. The prevalence of thyroid autoimmunity was approximately 20% and the prevalence of autoimmune thyroid disease was about 5%, she said.

"All the patients in this population who were diagnosed with autoimmune thyroid disease also had thyroid autoimmunity," she said. Disease prevalence increased as autoantibody levels rose and as children got older.

More data are needed to predict the rate of progression from detection of autoimmunity to development of hypothyroidism. "The rate of decline in thyroid hormone secretion is slow, which is important to realize when you look at screening every 2 years versus annual screening," Dr. DiMeglio said. "By doing TPO as an anticipatory measure and TSH as a point-in-time measure, it's unlikely that you'll miss kids who have developed severe hypothyroidism over the 2-year period."

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Endocrinologists at Riley Hospital now perform their first screening for TSH and TPO at the first visit after the diagnosis of type 1 diabetes. After TPO antibodies are detected, the endocrinologists are divided about whether to measure total or free T4 at annual testing for TSH and T4. "I prefer using a total T4, but some of my colleagues feel differently," Dr. DiMeglio said.

Thyroid disease is difficult to diagnose clinically in diabetes. The presentation of hypothyroidism, in particular, can resemble that of nephropathy and neuropathy. And the symptoms of hyperthyroidism can be similar to those of poor glycemic control.

Hypothyroidism can directly affect the course of diabetes, reducing the insulin degradation rate and causing abnormalities in lipid metabolism such as elevated triglycerides and LDL cholesterol, Dr. DiMeglio said.

Hypothyroidism will affect 15%-30% of patients with diabetes over their lifetimes. As in the general population, thyroid disease is associated with increasing age, female gender, and white ethnicity.

Hyperthyroidism appears to affect people with diabetes at about the same rate as it does the general population, DiMeglio noted.

Although the TSH assay is the most reliable screening test for thyroid dysfunction of either type, "it's important to remember that it's not perfect," and that poorly controlled diabetes can result in "inappropriately low" serum TSH concentrations, she said. ■

Assessing patient activity: An important clinical measure in COPD

The decline of lung function in patients with chronic obstructive pulmonary disease (COPD) is insidious. Its impact usually first becomes evident when patients perform daily activities.[1]

Compensating for COPD

Too often, patients simply compensate for COPD by gradually changing their behavior to reduce physical exertion.[1] For example, they may take an elevator rather than climb the stairs—without even noticing that there is a problem. This behavior is compounded by the fact that early COPD is not always initially obvious on physical examination.[2] As a result, patients with COPD are typically not diagnosed until they have reached a moderate level of severity.[1]

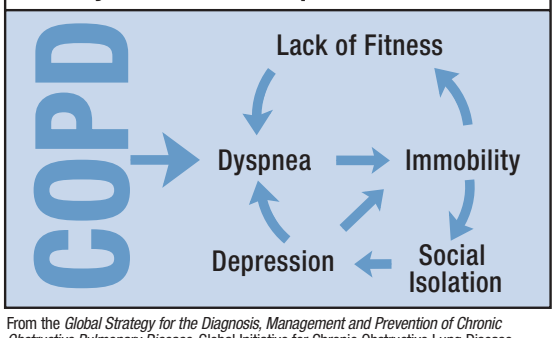
Establishing baseline activity levels

Once COPD is diagnosed, the physician's ongoing assessment should include the impact of the disease on patients' activity.[1] Establishing a baseline activity level is helpful because, in addition to using spirometry, physicians may use changes in activity levels to determine COPD severity. For instance, patients with moderate COPD may only have dyspnea on exertion, while those with severe COPD may experience fatigue and shortness of breath when doing everyday activities.[1]

Breaking the cycle of COPD

The impaired ability to exercise negatively impacts patients' quality of life.[1] By improving patients' exercise tolerance—an important goal in COPD management—physicians can affect the cycle of COPD. Helping patients consider what they can do physically, in addition to how they feel, can help lead to positive gains in other aspects of COPD and increase functional and social independence—another goal of COPD management.[3]

The Cycle of Physical, Social, and Psychosocial Consequences of COPD[1]



From the *Global Strategy for the Diagnosis, Management and Prevention of Chronic Obstructive Pulmonary Disease*, Global Initiative for Chronic Obstructive Lung Disease (GOLD): Updated 2005. Available from http://www.goldcopd.org.[1]

Conducting ongoing activity assessments

It is valuable to monitor the activity level of patients with COPD—both at the time of diagnosis and after diagnosis.[1,2] Activity assessment is a key indicator that may help physicians evaluate the clinical efficacy of COPD treatments.

References: 1. Global Initiative for Chronic Obstructive Lung Disease. *Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease: Updated 2005.* Bethesda, Md/Geneva, Switzerland: National Heart, Lung, and Blood Institute/World Health Organization; 2005. Available at: http://www.goldcopd.org. Accessed March 8, 2006. **2.** Celli BR, MacNee W, and ATS/ERS Task Force committee members. Standards for the diagnosis and treatment of patients with COPD: a summary of the ATS/ERS position paper. *Eur Respir J.* 2004;23:932-946. **3.** Chronic obstructive pulmonary disease. In: Beers MH, Jones TV, Berkwits M, et al, eds. *The Merck Manual of Geriatrics.* 3rd ed. Merck Research Laboratories: Whitehouse Station, NJ. Available at: http://www.merck.com/mrkshared/mmg/sec10/ch78/ch78a.jsp. Accessed March 8, 2006.

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