Aggressive Case Finding: A Clinical Strategy for the Documentation of Thyroid Dysfunction

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Thyroid dysfunction is common, is readily diagnosed, and is treated in a cost-effective manner. Recently, the U.S. Preventive Services Task Force did not recommend screening for thyroid dysfunction in nonpregnant adults because of a lack of evidence that screening of asymptomatic patients affects clinical outcomes (1, 2). In contrast, over the last decade, 7 professional organizations, including the American Association of Clinical Endocrinologists, American Thyroid Association, and Latin American Thyroid Society, have given guidance on how and when to use thyroid-stimulating hormone (TSH) testing for the millions of Americans with undiagnosed thyroid dysfunction (**Table**) (3, 4).

Screening is defined as the application of a test (in this case, serum TSH) to detect a common disorder with no clinical manifestations (subclinical disease) for which a safe and cost-effective treatment is available. The American Association of Clinical Endocrinologists, American Thyroid Association, and Latin American Thyroid Society have recently recommended a different approach that has been designated as aggressive case finding for selected persons with certain clinical conditions or characteristics rather than screening for the general population (3, 4). Conditions and characteristics include a family history of thyroid disease, history of neck irradiation or thyroid surgery, dyslipidemia, atrial fibrillation, unexplained weight loss, hyperprolactinemia, certain autoimmune disorders, and the use of various medications that may induce thyroid dysfunction. For the purposes of this discussion, we define aggressive case finding as the process of identifying persons who are most likely to have thyroid disease, experience clinical consequences of the disease, and benefit from treatment. The important observation is that for all forms of thyroid dysfunction, both overt (abnormal TSH and free T_4 or free T_3 levels in hyperthyroidism) and subclinical (abnormal TSH and normal free T_4 levels and/or free T_3 levels in hyperthyroidism), the clinical symptoms may be absent while the morbidity and mortality risk associated with the disease exists (5, 6). For both hyperthyroidism and hypothyroidism, treatment leads to a predictable decrease in adverse outcomes (3, 7).

Subclinical hypothyroidism (elevated serum TSH levels and normal free T_4 levels) has adverse effects on cardiovascular consequences and merits case finding as documented in several evidence-based reviews, including our own (3, 7). An example is a meta-analysis of 12 observational studies of unselected community-dwelling participants that examined the prevalence and incidence of ischemic heart disease and cardiovascular mortality (8). A retrospective analysis of the United Kingdom General Practitioner Research Database suggested that L-thyroxine treatment of subclinical hypothyroidism reduced the risk for ischemic heart disease events, primarily in younger patients (9). These data support aggressive case finding to identify all degrees of hypothyroidism for the purpose of treating and decreasing cardiovascular morbidity (heart failure) and potentially mortality rates (8, 9). In addition, the National Cholesterol Education Program recommends that any person with an elevated low-density lipoprotein cholesterol level (>4.14 mmol/L [>160 mg/dL]) should be tested for hypothyroidism. The prevalence of hypothyroidism is 4.3% in patients with elevated cholesterol levels, which is similar to the prevalence in the general population. The possibility of correcting some of the dyslipidemia with a safe and effective medication, such as L-thyroxine, is warranted in lieu of a less physiologic intervention, such as statins (10). In addition to decreased efficacy, statin use in patients with overt hypothyroidism increases the risk for myositis (10).

Subclinical or overt hyperthyroidism (suppressed TSH levels and normal or elevated T_4 and T_3 levels) should be investigated in all persons with new-onset

Table 1. Recommendations of 8 Organizations on Screening Asymptomatic Adults for Thyroid Dysfunction*

Organization	Screening Recommendations
College of American Pathologists	Women aged ≥50 y should be screened "if they seek medical care"; all geriatric patients should be screened on admission to the hospital and at least every 5 y
American Academy of Family Physicians	Patients aged ≥60 y should be screened
American Congress of Obstetricians and Gynecologists	Women in "high-risk groups"† should be screened starting at age 19 y
American College of Physicians	Women aged ≥50 y with an incidental finding suggestive of symptomatic thyroid disease should be evaluated
U.S. Preventive Services Task Force	Insufficient evidence for or against screening
Royal College of Physicians	Screening of the healthy adult population is unjustified
American Association of Clinical Endocrinologists/ American Thyroid Association	Aggressive case finding
Latin American Thyroid Society	Aggressive case finding

* From references 3 and 4.
† Persons with autoimmune disease or a strong family history of thyroid disease.

atrial fibrillation or tachycardia, osteoporosis, unexplained weight loss, muscle weakness, or exertional dyspnea (7). Subclinical hyperthyroidism is also a risk factor for adverse cardiovascular events, such as new-onset atrial fibrillation, cardiac mortality, and heart failure, which were found among persons with persistent subclinical hyperthyroidism (7).

We agree with the U.S. Preventive Services Task Force that robust data do not exist to justify screening nonpregnant adult populations for thyroid disease. However, because large-scale randomized, controlled trials are unlikely to be undertaken to address this lack of evidence, we recommend that thyroid dysfunction be frequently considered as a potential basis of the nonspecific symptoms that physicians face daily. The application and success of safe and effective interventions are dependent on an accurate diagnosis. In conclusion, we recommend aggressive case finding, which is based on identifying persons who are most likely to have thyroid disease and benefit from treatment.

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