***Management of hypothyroidism in adults***

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**Unveiling the mysteries of the thyroid**

Bijay Vaidya and Simon H S Pearce present a comprehensive review on  
hypothyroidism in adults, but miss some important diagnostic and  
therapeutic points of clinical relevance.

1. Some relatively common symptoms of hypothyroidism include nasal  
stuffiness, sinus congestion, and impaired hearing. These are explained by  
accumulation of glycosaminoglycans, the same chemical substance that  
causes puffiness of the face. Hence, if a patient has nasal and sinus  
congestion and impaired hearing and is not responding to anti-allergy  
medications, one should think of the possibility of hypothyroidism.

2. The authors do not mention what to do with a vast segment of the  
population with significant symptoms of hypothyroidism, who have their TSH  
between 2.5-5 mU/l, with positive thyroid perxidase (TPO) antibodies and  
clinical goiter. Recent studies have shown that the true biological normal  
range of TSH is 0.4– 2.5 mIU/L. This means that the currently used  
reference range of TSH between 0.5-5 mU/L is skewed by including samples  
of the population by subjects with unidentified Hashimoto's thyroiditis,  
undetected goiter or subjects with a positive family history of  
Hashimoto's thyroiditis and hypothyroidism. If you remove these subjects  
from the samples from which the current reference range is derived, the  
true TSH range will be between 0.4- 2.5 mU/L. In such patients with TSH  
levels between 2.5-5, we treat only during pregnancy, in patients with  
significant hypothyroidism symptoms who have goiter or thyroid nodules and  
have elevated TPO antibodies. These features usually indicate that  
hypothyroidism is almost inevitable. If the patient has a TSH level  
between 2.5-5 but asymptomatic and has not palpable thyroid nodules, a  
watchful waiting is warranted.

However, A TSH of 2.5 or higher is a mandatory cutoff to treat pregnant  
women; otherwise one would risk a lower IQ in the offspring of such women.  
The development of fetal brain and skeleton is entirely dependent on  
maternal thyroid supply in the first trimester, and thyrotrophs appear in  
the pituitary gland at the 12th week of gestation.

3. The authors recommend a full-dose levothyroxine replacement for  
almost every one without coronary artery disease. This relies on the  
assumption that by the time a person develops hypothyroidism, the whole  
thyroid gland has failed. In our clinical experience, most people with  
thyroid failure present with partial thyroid failure and they lose thyroid  
function slowly over months or even years. Prescribing 100 mcg of  
levothyroxine to a person with a TSH of 10 for example is a recipe for  
suppressed TSH and symptoms of palpitations, tremors, anxiety, and other  
symptoms of overtreated thyroid failure. Hashimoto's thyroiditis, which is  
the precursor for thyroid failure, does not evolve into hypothyroidism  
over night. Since the hypothyroidism is evolving, the treatment should  
also be titrated gradually. This is even more cost effective, since it  
saves many unnecessary phone calls, visits (including visits to the  
Emergency department), and blood tests.

In our experience, a levothyroxine dose of 12.5 mcg a day would reduce TSH  
by 2 digits. This simple math will allow you to have a rough estimate of  
levothyroxine dose. The goal is to reach a TSH of 1-1.5 mU/L.

If you achieve a TSH of 1-1.5 and your patient is still symptomatic, do  
not waste your time on thyroid and look for other reasons for the  
patient's symptoms.

Vitamin B12 and vitamin D deficiencies are the most 2 common causes of  
patients with residual symptoms. One should also look into sleep apnea,  
depression, adrenal insufficiency, prediabetes (or diabetes), undiagnosed  
celiac disease with other nutritional deficiencies such as iron  
deficiency.

One common mistake that we see is to get blinded by the thyroid and forget  
that these patients do get other illnesses.

4. Recently, we have seen cases of  
persistent elevation of TSH above 20 in compliant patients. Accusing such patients with non-  
compliance would be very insulting to them, unfair and wrong. We diagnosed  
such cases after extensive testing, with the deficiency of the enzyme  
deiodinase at the level of the pituitary gland. The partial enzyme deficiency means that T4 cannot be converted to T3 completely  
and that the pituitary glands are not “sensing” T3. This is the only  
circumstance, in which we use T3. We added a small dose of T3 (as cytomel)  
to the levothyroxine regimen and TSH returned to normal within 6 weeks.

References:

1. Vaidya B, Pearce SH. Management of hypothyroidism in adults. BMJ.  
2008; 337:a801

2. Dickey RA, Wartofsky L, Feld S. Optimal thyrotropin level: normal  
ranges and reference intervals are not equivalent. Thyroid 2005;15(9):1035-9.

3. Roberts CG, Ladenson PW. Hypothyroidism.  
Lancet. 2004;363(9411):793-803.

Competing interests:  
None declared

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