***Management of hypothyroidism in adults***

*BMJ 2008; 337 doi: http://dx.doi.org/10.1136/bmj.a801 (Published 28 July 2008) Cite this as: BMJ 2008;337:a801*

* [Article](http://www.bmj.com/content/337/bmj.a801)
* [Related content](http://www.bmj.com/content/337/bmj.a801/related)
* [Article metrics](http://www.bmj.com/content/337/bmj.a801/article-info)
* [Rapid responses](http://www.bmj.com/content/337/bmj.a801/rapid-responses)
* [Response](http://www.bmj.com/content/337/bmj.a801/rapid-responses)

**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

**07 August 2008**

Shirwan A. Mirza, MD, FACP, FACE

Consultant Endocrinologist

Auburn, New York, 13021 USA