



HYPOTHYROIDISM

Use of a weekly dose of levothyroxine may be effective in patients that have difficulty taking daily medications

BACKGROUND

Hypothyroidism is a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills, usually in the form of levothyroxine (L-T₄). While most patients do well on a stable dose of L-T₄, some patients can have a lot of difficulty finding the best dose. For example, an elevated TSH can be seen even after they have a normal serum TSH while taking the same dose of L-T₄ previously. This may be due to taking L-T₄ at the same time as food, calcium, iron or certain drugs that decrease the absorption of the thyroid hormone or due to GI problems that prevent the usual absorption of the hormone. However, varying dose requirements may also be due to missing doses on an intermittent or regular basis. The current study had patients in whom this was a possibility take a weekly dose of L-T₄ under observation to determine if this was an effective alternative to daily doses.

THE FULL ARTICLE TITLE

Walker JN et al A thyroxine absorption test followed by weekly thyroxine administration: a method to assess non-adherence to treatment. *Eur J Endocrinol* 2013;168:913-7.

SUMMARY OF THE STUDY

A total of 23 patients in the United Kingdom were identified who had an elevated serum TSH despite seemingly adequate daily doses of L-T₄ and no evidence of interfering drugs or diseases. Patients had baseline measurements of FT₄ and TSH; then each patient received an oral weekly dose of L-T₄ with periodic blood draws after the dose. They continued on the same weekly dose of L-T₄ given under supervision for 4 weeks with serum TSH measurement 1 week after the final dose.

The average TSH before the study was 41 mU/L. In 19 of the 23 patients, the maximal rise in serum FT₄ occurred by 120 minutes after taking the L-T₄, with almost a

doubling of FT₄ at this time. The 3 patients with the most severe hypothyroidism had the lowest rise in FT₄ at 120 minutes. At the final blood test after 4 weeks of treatment, TSH was reduced in 17 of 23 patients. In 6 patients, the 4-week TSH was higher than the baseline.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed that taking weekly L-T₄ can adequately treat hypothyroidism. Further, measuring FT₄ 2 h after the dose can help determine if any absorption problems exist. Weekly L-T₄ dosing may be helpful for patients that have difficulty taking medications on a daily basis.

— Alan P. Farwell, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism: <http://www.thyroid.org/what-is-hypothyroidism>

Thyroid Hormone Treatment: <http://www.thyroid.org/thyroid-hormone-treatment>

ABBREVIATIONS & DEFINITIONS

Hypothyroidism: a condition where the thyroid gland is underactive and doesn't produce enough thyroid hormone. Treatment requires taking thyroid hormone pills.

Levothyroxine (L-T₄): the major hormone produced by the thyroid gland and available in pill form as Levoxyl™, Synthroid™, Levothroid™ and generic preparations.

TSH: thyroid stimulating hormone – produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.