



## THYROID HORMONE THERAPY

### Taking levothyroxine with breakfast may be fine for many patients

#### BACKGROUND

Levothyroxine is the most common therapy for the treatment of hypothyroidism as it is the same as the major thyroid hormone produced by the thyroid gland. The absorption of levothyroxine in the gut is decreased when taking the hormone at the same time as calcium, iron and some foods and other drugs. Because of this, patients are usually instructed to take levothyroxine on an empty stomach 30-60 minutes before food intake to avoid erratic absorption of the hormone. For many patients, this means first thing in the morning before breakfast. This is often difficult for many patients, especially those on multiple medications. This study was performed to see if patients can take their levothyroxine with food in the morning and not have to wait 30-60 minutes.

#### THE FULL ARTICLE TITLE

Perez CL et al. Serum thyrotropin levels following levothyroxine administration at breakfast. *Thyroid* 2013;23:779-84. Epub June 21, 2013.

#### SUMMARY OF THE STUDY

This study was performed in Brazil and included 45 patients who had a diagnosis of hypothyroidism and a normal TSH level on levothyroxine therapy. For 90 days patients were assigned either to take the levothyroxine 30-60 minutes before a meal or during the morning meal. Then after 90 days, they switched to the other regimen. TSH levels were assessed at baseline, 45, 90, 135 and 180 days after the start of the study. Patients reported all of their food intake at breakfast. As expected, 90% of the patient population was women.

The average TSH at the start of the study was 1.7. The TSH level was higher when levothyroxine was taken during breakfast (TSH 2.9) as compared with group who waited 30-60 minutes before taking levothyroxine (TSH 1.9). Patient preference was assessed at the end of the study and 41% preferred taking levothyroxine and waiting, 33% preferred taking the levothyroxine with breakfast and 26% indicated no preference.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that the absorption of levothyroxine is indeed decreased when taking the hormone with breakfast. Despite an increase in TSH while taking the hormone with breakfast, the TSH remained within the normal range. Thus, while taking levothyroxine with breakfast could be an alternative regimen for patients who have difficulties taking the hormone on an empty stomach, this regimen is more likely to cause variability in the TSH level. It is still advised that patients with a history of thyroid cancer, those who are pregnant or those who are very sensitive to changes in their TSH level need to likely wait 30-60 minutes prior to taking their levothyroxine.

— Heather Hofflich, DO

#### 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 (T<sub>4</sub>):** the major hormone produced by the thyroid gland and available in pill form as Synthroid™, Tyrosint™ and generic preparations.

**Thyroid hormone therapy:** patients with hypothyroidism are most often treated with Levothyroxine in order to

return their thyroid hormone levels to normal. Replacement therapy means the goal is a TSH in the normal range and is the usual therapy. Suppressive therapy means that the goal is a TSH below the normal range and is used in thyroid cancer patients to prevent growth of any remaining cancer cells.

**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.