



HYPOTHYROIDISM

When is the best time to take thyroid hormone?

BACKGROUND

Hypothyroidism is treated by replacement of thyroid hormone in pill form, specifically levothyroxine. It is well documented that food and a number of medications can decrease the absorption of levothyroxine. This is especially true with calcium and iron pills. Consequently, many patients are instructed to take their levothyroxine on an empty stomach before breakfast and to wait up until an hour before eating. Some patients find this timing inconvenient. A prior study suggested that taking levothyroxine at bedtime was equally as effective in providing stable thyroid hormone levels. The goal of this study was to compare the effect of taking levothyroxine at bedtime as opposed to taking it before breakfast.

THE FULL ARTICLE TITLE:

Bolk N et al. Effects of evening vs. morning levothyroxine intake: A randomized double-blind crossover trial. Arch Intern Med. 2010;170(22):1996-2003.

SUMMARY OF THE STUDY

All patients had hypothyroidism and had been on stable doses of levothyroxine for 6 months when they were assigned to either take levothyroxine on an empty stomach 30 minutes before breakfast or at bedtime. After three months, they switched the timing of levothyroxine to the alternate time (either pre-breakfast or bedtime) for another 3 months, such that all patients experienced both schedules of levothyroxine ingestion. Thyroid

hormone, TSH and cholesterol levels were measured every 6 weeks and quality of life questionnaires were assessed every 12 weeks for the 6 month duration of the study. Bedtime levothyroxine ingestion resulted in significantly lower TSH values and higher thyroid hormone levels, indicating improved absorption of levothyroxine when taken at bedtime. There were no significant differences in cholesterol levels or quality of life measures.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests that taking levothyroxine at bedtime results in better absorption than taking it before breakfast. This confirms that taking levothyroxine at different times can result in different levels of thyroid hormones in the blood, emphasizing the need to take it at the same time every day. However, this also confirms that taking levothyroxine at bedtime is an effective alternative to taking it before breakfast. Further, bedtime may be better in patients who appear to have problems absorbing levothyroxine.

— Whitney Woodmansee, MD

ATA THYROID BROCHURE LINKS

Hypothyroidism: http://thyroid.org/patients/patient_brochures/hypothyroidism.html

Thyroid Hormone Treatment: http://thyroid.org/patients/patient_brochures/hormonetreatment.html

ABBREVIATIONS & DEFINITIONS

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.

Levothyroxine: the major hormone produced by the thyroid gland and available in pill form as Levoxyl™, Synthroid™, Levothroid™ 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.