



THYROID HORMONE THERAPY

The effect of celiac disease on the absorption of levothyroxine tablets

BACKGROUND

One of the most common causes of hypothyroidism is the autoimmune disease Hashimoto's thyroiditis. This occurs when the body generates antibodies that attack and destroy the thyroid. Hashimoto's thyroiditis is associated with other autoimmune diseases, including celiac disease. Celiac disease is an autoimmune disorder that affects the stomach when those affected eat gluten, a protein found in certain grains such as wheat. These patients develop antibodies that attack cells of the small intestine. While patients with celiac disease may exhibit severe stomach problems, some may have symptoms so mild as to not be aware there is a problem. Most of the symptoms of celiac disease improve on a gluten-free diet. In many patients with celiac disease there is some evidence of problems absorbing some nutrients and/or medications. In particular, celiac patients with hypothyroidism may have poor absorption of levothyroxine. In fact, problems absorbing levothyroxine can lead to a diagnosis of celiac disease. This study examined the dose of levothyroxine required to treat hypothyroidism in patients with Hashimoto's thyroiditis alone and with Hashimoto's thyroiditis and celiac disease. In addition, the effect of a gluten-free diet on the absorption of levothyroxine in these patients was examined.

THE FULL ARTICLE TITLE

Virili C et al. Atypical celiac disease as cause of increased need for thyroxine: a systematic study. *J Clin Endocrinol Metab.* January 11, 2012 [Epub ahead of print]. doi:10.1210/jc.2011-1851.

SUMMARY OF THE STUDY

This study examined 68 patients with Hashimoto's thyroiditis alone and 35 patients with Hashimoto's thyroiditis and celiac disease. The average dose of levothyroxine needed to treat patients with Hashimoto's thyroiditis alone was lower than the average dose required to treat patients with Hashimoto's and celiac disease. When the patients with celiac disease went on a gluten-free diet while staying on the same dose of thyroxine, their TSH level decreased, indicating that their absorption of thyroxine had improved.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

Patients with even mild celiac disease may need a higher dose of thyroxine and this increased requirement may be reversed by a gluten-free diet. Also, if a patient with hypothyroidism requires a very large dose of thyroxine, especially if they were previously doing well on a lower dose, the possibility that they have celiac disease should be considered.

— Glenn Braunstein, 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

Autoimmune disorders: A diverse group of disorders that are caused by antibodies that get confused and attack the body's own tissues. The disorder depends on what tissue the antibodies attack. Graves' disease and Hashimoto's thyroiditis are examples of autoimmune thyroid disease. Other Autoimmune disorders include: type I diabetes mellitus, Addison's disease (adrenal insufficiency), vitiligo (loss of pigment of some areas of the skin), systemic lupus

erythematosus, pernicious anemia (B12 deficiency), celiac disease, inflammatory bowel disease, myasthenia gravis, multiple sclerosis and rheumatoid arthritis.

Celiac disease: an autoimmune disorder of the small intestine that occurs in people of all ages from middle infancy onward. The antibodies that attack the small intestine are only active when the patients ingest the protein gluten, which is present in many grains, including wheat. Avoiding gluten in the diet markedly improves the symptoms of celiac disease.

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THYROID HORMONE THERAPY, continued

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

Primary hypothyroidism: the most common cause of hypothyroidism caused by failure of the thyroid gland.

Hashimoto's thyroiditis: the most common cause of hypothyroidism in the United States. It is caused by antibodies that attack the thyroid and destroy it.

Levothyroxine: the synthetic form of the major hormone produced by the thyroid gland, 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.