CLINICAL THYROIDOLOGY **FOR THE PUBLIC**

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HYPERTHYROIDISM

A 10-year analysis of thyrotoxic periodic paralysis

BACKGROUND

Some people who make too much thyroid hormone, a disease state called hyperthyroidism or thyrotoxicosis, can have attacks of weakness or even whole body paralysis (inability to move). The weakness is associated with very low levels of potassium in the blood and therefore this condition is called thyrotoxic periodic paralysis (TPP). Graves' disease, an autoimmune thyroid disease that causes high thyroid hormone levels in the blood is most often associated with TPP. Asian men are the most common group to get TPP, but it can affect other groups of people. The cause of low potassium levels and paralysis in patients with hyperthyroidism is not altogether clear, although high sugar diets and increased exercise are thought to be triggers. This study was done in Taiwan where they were able to follow a large number of people with TPP over 10 years. Their goal was to gain an understanding of the factors that trigger TPP and to identify the degree of hyperthyroidism by patient symptoms and by blood levels of thyroid hormone that are associated with the attack of paralysis.

THE FULL ARTICLE TITLE

Chang C-C et al 10-year analysis of thyrotoxic periodic paralysis in 135 patients: focus on symptomatology and precipitants. Eur J Endocrinol 2013;169:529-36.

SUMMARY OF THE STUDY

Over a period of 10 years (2002 to 2012), 135 patients with TPP (130 men, 5 women) were studied, the largest group of patients followed over time in one hospital.

The majority of cases of TPP (96%) were due to Graves' disease, an autoimmune thyroid disease that causes high thyroid hormone levels in the blood. They found that TPP more frequently occurred in the mornings and in the summer and fall. Additionally, the extent of hyperthyroidism on the blood test did not correlate with the onset of TPP. In other words, even people with mild hyperthyroidism could develop TPP. Most people in the study (about 75%) found out for the first time about their thyroid abnormality when they presented to the doctor with paralysis. The best factor they found to trigger TPP was a high sugar load in the diet. It is important to correct the hyperthyroidism to prevent future attacks of low potassium and paralysis.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study showed that any degree hyperthyroidism, whether it is mild, moderate or severe by blood tests or by patient symptoms, can cause low potassium and paralysis.. High sugar diets and increased exercise can trigger TPP, but these are not the only factors. Quickly treating the low potassium and the thyroid problem is very important for patients. It is important for patients with hyperthyroidism to be aware of TPP.

—Wendy Sacks, MD

ATA THYROID BROCHURE LINKS

Graves' disease: http://www.thyroid.org/what-is-graves-disease

ABBREVIATIONS & DEFINITIONS

Thyrotoxic periodic paralysis (TPP): attacks of weakness or even whole body paralysis (inability to move) associated with very low levels of potassium in the blood. TPP is most commonly associated with Graves' disease.

Graves' disease: the most common cause of hyperthyroidism in the United States. It is caused by antibodies that attack the thyroid and turn it on.

Subclinical Hyperthyroidism: a mild form of hyperthyroidism where the only abnormal hormone level is a decreased TSH.

Antibodies: proteins that are produced by the body's immune cells that attack and destroy bacteria and viruses that cause infections. Occasionally the antibodies get confused and attack the body's own tissues, causing autoimmune disease.