



GRAVES' DISEASE

Regular white blood cell counts are not helpful in monitoring patients with Graves' disease receiving antithyroid drugs

BACKGROUND

Graves' disease is the most common cause of hyperthyroidism in the United States. Initial therapy often includes the antithyroid drugs Methimazole or Propylthiouracil. These drugs block the formation of thyroid hormone by the thyroid gland, causing thyroid hormone levels to fall and returning the thyroid function to normal. A rare but serious side effect of antithyroid drugs is called agranulocytosis, which is a marked decrease in the white blood cell count to <1000. This causes a patient to be more likely to develop an infection and is commonly associated with a fever and/or a sore throat. It is usually reversible when the antithyroid drug is stopped. There remains some controversy as to whether or not routine measurements of white blood cells are helpful in monitoring for the development of agranulocytosis. Currently, this is not usual practice in the United States. In Japan, physicians, are strongly advised to monitor blood counts of patients treated with antithyroid drugs every two weeks for the first two months of therapy and are required by law to report all complications. This study examines data from Japan collected over a 30 year period from patients on antithyroid drugs who developed agranulocytosis or other blood disorders.

THE FULL ARTICLE TITLE

Nakamura H et al. Analysis of 754 cases of antithyroid drug-induced agranulocytosis over 30 years in Japan. *J Clin Endocrinol Metab.* September 20, 2013 [Epub ahead of print]. Doi: 10.1210/jc.2013-2569.

SUMMARY OF THE STUDY

Between 1981 and 2011, 670 of 33,500 patients taking antithyroid drugs were reported to have developed agranulocytosis and 84 patients were reported with more severe blood disorders. A total of 725 patients had been taking Methimazole and 28 were taking Propylthiouracil. It was calculated that approximately 0.12% of patients developed blood abnormalities on antithyroid drugs. Approximately 70% of disorders appeared within 60 days of starting medication and 85% within 90 days. In 20% of these cases a white blood cell count >1000 was documented within 1 week of the development of agranulocytosis and in another 50% the white blood cell count was reported to be normal within 2 weeks. Overall 96% of patients with agranulocytosis recovered completely while 4% died.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study confirms that agranulocytosis is a very rare complication of treatment with antithyroid drugs. Since 70% of cases occurred abruptly, routine monitoring of white blood cell counts is not helpful. Instead, all patients on antithyroid drugs need to know that upon any suggestion of sore throat, URI, fever or other sign of infection these drugs need to be stopped and a white blood cell counts needs to be checked.

— Frank Crantz, MD

ATA THYROID BROCHURE LINKS

Hyperthyroidism: <http://www.thyroid.org/what-is-hyperthyroidism>

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

ABBREVIATIONS & DEFINITIONS

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.

Agranulocytosis: a marked decrease in the white blood cell count to <1000. This causes a patient to be more likely to develop an infection and is commonly associated with a fever and/or a sore throat.

Methimazole: an antithyroid medication that blocks the thyroid from making thyroid hormone. Methimazole is used to treat hyperthyroidism, especially when it is caused by Graves' disease.

Propylthiouracil (PTU): an antithyroid medication that blocks the thyroid from making thyroid hormone. Propylthiouracil is used to treat hyperthyroidism, especially in women during pregnancy.