

Underactive Thyroid Function after Treatment with Sunitinib for Gastrointestinal Cancer

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The full report is titled “Hypothyroidism after Sunitinib Treatment for Patients with Gastrointestinal Stromal Tumors.” It is in the 7 November 2006 issue of *Annals of Internal Medicine* (volume 145, pages 660-664). The authors are J. Desai, L. Yassa, E. Marqusee, S. George, M.C. Frates, M.H. Chen, J.A. Morgan, S.S. Dychter, P.R. Larsen, G.D. Demetri, and E.K. Alexander.

What is the problem and what is known about it so far?

A relatively new kind of cancer chemotherapy involves the use of chemicals that kill malignant cells by blocking the action of certain essential enzymes. Enzymes are specialized proteins that help speed up the process of chemical reactions within living cells. There are many different kinds of enzymes in the human body; one of the important types is known as “tyrosine signaling enzymes.” Chemicals that block the action of these enzymes are called tyrosine kinase inhibitors. Doctors have found that tyrosine kinase inhibitors can be used to treat certain types of stomach and intestinal cancer (gastrointestinal stromal tumors) and certain types of kidney cancer. Sunitinib is a tyrosine kinase inhibitor that has recently been approved by the U.S. Food and Drug Administration for use in patients with these types of cancer. Because tyrosine signaling enzymes are present in many different tissues of the body, doctors have been concerned that use of tyrosine kinase inhibitors might have some unexpected consequences.

Why did the researchers do this particular study?

Many patients being treated with sunitinib report fatigue, a symptom that is commonly caused by underactivity of the thyroid gland. As a result, doctors who were performing a study of the effectiveness of sunitinib began to monitor thyroid function in these patients. After they found 2 patients with underactivity of the thyroid gland, they decided to test thyroid function in all of the patients under study.

Who was studied?

42 patients being treated with sunitinib for gastrointestinal stromal tumors. Only patients who had normal thyroid function at the beginning of therapy were accepted for this study.

How was the study done?

The researchers monitored patients who were being treated with sunitinib by using results from blood tests to evaluate thyroid function throughout the course of their chemotherapy.

What did the researchers find?

Fifteen of 42 patients (36%) who were receiving sunitinib developed clinically significant underactivity of thyroid function during the course of treatment. Abnormal results on blood tests indicating at least some level of underactivity of the thyroid occurred in a total of 26 of 42 patients (62%). The longer sunitinib was administered, the greater was the chance of developing underactivity of thyroid function. Two patients whose blood tests showed decreased thyroid function underwent ultrasound evaluation of the neck to determine how much thyroid tissue was present. No thyroid tissue could be identified in these patients, suggesting that the thyroid gland had wasted away during the course of sunitinib treatment.

What were the limitations of the study?

A relatively small number of patients were studied.

What are the implications of the study?

Although sunitinib is potentially a very useful chemotherapy agent for certain types of cancer of the gastrointestinal tract and kidney, underactivity of the thyroid gland appears to be a common side effect that increases in frequency the longer the patient is taking the drug. Despite tyrosine kinase inhibitors' great value in treating resistant cases of cancer, they are likely to have a number of unanticipated adverse effects.

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