



## THYROID CANCER

### Metformin inhibits thyroid cell growth and improves the treatment of thyroid cancer in patients with diabetes

#### BACKGROUND

Obesity and type 2 diabetes have both been associated with an increased risk for some types of cancer. Metformin is a diabetes drug that helps the body become more sensitive to insulin. Metformin has also been shown to have beneficial effects in various cancers, suggesting there may be a role for this drug as an additional cancer treatment in some cases. In a prior study, these authors found that metformin decreased the growth of some types of thyroid cancer cells when grown in a lab. This study examined the effects of metformin on the response of thyroid cancer to treatment in patients with diabetes.

#### THE FULL ARTICLE TITLE:

Klubo-Gwiedzinska J et al. Treatment with metformin is associated with higher remission rate in diabetic patients with thyroid cancer. *J Clin Endocrinol Metab* 2013;98:3269-79. Epub May 24, 2013.

#### SUMMARY OF THE STUDY

The authors reviewed the records of 240 patients with thyroid cancer who had been treated with surgery and radioactive iodine and who had previously been diagnosed with type 2 diabetes mellitus. These patients were followed for an average of 6.9 years. They divided the patients into three groups: group 1 had been treated with metformin, group 2 had not received metformin and group 3 had not received metformin and did not have a history of diabetes. The patients in group 1 and 2 were similar in age, sex, weight and use of diabetes medications.

The cancer size was significantly smaller in diabetics who were treated with metformin. The total amount of radioactive iodine given was higher in patients with diabetes who were not taking metformin. Group 2 patients had a significantly lower rate of response to treatment compared to groups 1 and 3. The absence of treatment with metformin was significantly associated with a risk for progression of cancer along with other established risk factors such as age at diagnosis of cancer and presence of spread of the cancer outside the thyroid.

#### WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study suggests a possible role for metformin in the treatment of thyroid cancer. The results raise the possibility that metformin treatment decreases cancer size, although it may also decrease the rate of cancer growth. In patients with diabetes who have thyroid cancer, metformin treatment improved response to cancer treatment and was associated with longer progression-free survival.

— Ronald B. Kuppersmith, MD, FACS

#### ATA THYROID BROCHURE LINKS

Thyroid cancer: <http://www.thyroid.org/cancer-of-the-thyroid-gland>

Radioactive Iodine Therapy: <http://www.thyroid.org/radioactive-iodine>

Thyroid Surgery: <http://thyroid.org/patients/patient-brochures/surgery.html>

#### ABBREVIATIONS & DEFINITIONS

**Metformin:** a diabetes drug that helps the body become more sensitive to insulin.

**Radioactive iodine (RAI):** this plays a valuable role in diagnosing and treating thyroid problems since

it is taken up only by the thyroid gland. I-131 is the destructive form used to destroy thyroid tissue in the treatment of thyroid cancer and with an overactive thyroid.