



THYROID CANCER

In Patients with Low-Risk Thyroid Cancer, Radioactive Iodine Therapy after Thyroid Hormone Withdrawal or rhTSH Stimulation Is Equally Effective

WHAT IS THE STUDY ABOUT?

After surgery for thyroid cancer, patients frequently undergo radioactive iodine (I-131) treatment to destroy any normal and /or cancerous thyroid tissue that may be left in the neck. In order for the radioactive iodine to be effective, the patient's TSH levels need to be increased to stimulate the thyroid cells to take up the RAI and be destroyed. There are two ways to increase TSH: 1) withdraw the patient from thyroid hormone (THW), making the patient hypothyroid for a short period of time or 2) use recombinant human TSH (rhTSH) to allow patients to stay on their thyroid hormone and avoid the short term hypothyroidism. The present study compared rates of successful radioactive iodine treatment in patients prepared by THW as compared to those prepared by administration of rhTSH.

THE FULL ARTICLE TITLE:

Elisei et al. Follow-up of low-risk differentiated thyroid cancer patients who underwent radioiodine ablation of postsurgical thyroid remnants after either recombinant human thyrotropin or thyroid hormone withdrawal. *J Clin Endocrinol Metab* 2009;94(11):4171-9.

WHAT WAS THE AIM OF THE STUDY?

The aim of this study was to examine the rate of successful radioactive iodine treatment in patients prepared by THW as compared to those prepared by administration of rhTSH.

WHO WAS STUDIED?

The study group originally included 63 patients. Of these patients, 61 had papillary thyroid cancer and 2 had follicular thyroid cancer. In the current study, 48 patients of the original group were studied.

HOW WAS THE STUDY DONE?

After surgery, patients were randomly assigned to either THW or rhTSH to prepare for radioactive iodine treatment with a standard dose of 100 mCi of I-131. Patients were initially examined 8 months later with a

whole body scan. These results were previously published in 2006. The patients were then re-examined 3 to 4 years later with a whole body scan to evaluate the success of the radioactive iodine treatment.

WHAT WERE THE RESULTS OF THE STUDY?

In the THW group, 20 of 21 patients (95%) were successfully treated with radioactive iodine. In the rhTSH group, 26 of 27 patients (96%) were successfully treated with radioactive iodine.

HOW DOES THIS COMPARE WITH OTHER STUDIES?

This study is a follow-up to a 2006 study by Pacini et al. which also showed a similar rate of successful radioactive iodine treatment in patients prepared by THW and those prepared with rhTSH. The Pacini study also showed that those patients prepared with rhTSH maintained a substantially better quality of life and received less radiation exposure to the blood than patients prepared by THW. Another study by Tuttle et al. in 2008 also showed a similar rate of successful ablation in patients prepared with rhTSH compared to those prepared with THW.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study confirms that both THW and rhTSH preparation result in comparable rates of successful treatment with RAI in patients with low-risk thyroid cancer. With rhTSH, patients can avoid the symptomatic hypothyroidism that occurs with THW.

— Frank Cranz, MD

ATA THYROID BROCHURE LINKS

Thyroid cancer: http://thyroid.org/patients/patient_brochures/cancer_of_thyroid.html

Radioactive Iodine Therapy: http://thyroid.org/patients/patient_brochures/radioactive.html

continued on next page



THYROID CANCER, continued

ABBREVIATIONS & DEFINITIONS

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. I-123 is the non-destructive form that does not damage the thyroid and is used in scans to take pictures of the thyroid (Thyroid Scan) or to take pictures of the whole body to look for thyroid cancer (Whole Body Scan).

Recombinant human TSH (rhTSH) — human TSH that is produced in the laboratory and used to produce high levels of TSH in patients after an intramuscular

injection. This is mainly used in thyroid cancer patients before treating with radioactive iodine or performing a whole body scan. The brand name for rhTSH is Thyrogen™.

Thyroid Hormone Withdrawal (THW) — this is used to produce high levels of TSH in patients by stopping thyroid hormone pills and causing short-term hypothyroidism. This is mainly used in thyroid cancer patients before treating with radioactive iodine or performing a whole body scan.

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