



GOITER

Long-term efficacy of modified-release rhTSH prior to radioiodine therapy for benign multinodular goiter

BACKGROUND

A goiter can grow big enough that it causes problems swallowing, speaking or breathing or becomes unsightly. In these cases, most patients have surgery (thyroidectomy) to remove the goiter. However, surgery is not an option for all people, particularly the elderly or for those who refuse surgery. Radioactive iodine is an alternative option for treatment that has been shown in many research studies to shrink a large goiter and relieve obstructive symptoms. Recombinant human TSH (rhTSH) can be given prior to the radioactive iodine treatment dose to improve iodine uptake with the goal of improving the decrease in goiter size. However, this can also cause short-lived hyperthyroidism. Modified-release rhTSH (MRrhTSH) is a lower dose of rhTSH that is released more slowly into the blood stream after injection to provide more sustained levels of TSH. In this study, the authors evaluated the effectiveness of modified-release MRrhTSH given prior to radioactive iodine in shrinking large multinodular goiters.

THE FULL ARTICLE TITLE

Fast S, et al Long-term efficacy of modified-release recombinant human TSH (MRrhTSH) augmented radioiodine (¹³¹I) therapy for benign multinodular goiter: results from a multicenter international, randomized, placebo-controlled dose-selection study. *Thyroid*. December 16, 2013 [Epub ahead of print].

SUMMARY OF THE STUDY

This study includes patients between the ages of 35-80 years treated with radioactive iodine to shrink their goiter. One day prior to the radioactive iodine treatment, patients were given an injection of either 0.01mg or 0.03 mg of MRrhTSH in the muscle or they received

an injection without the drug. A CT scan was done at 6 months and 36 months after treatment to evaluate the size of the goiter. Patients also filled out a questionnaire to determine whether their symptoms had improved since the radioactive iodine treatment.

The study reports results of 86 patients 36 months after the radioactive iodine treatment. While the patients who received MRrhTSH showed bigger volume decreases by 6 months after iodine ablation, there was no benefit noted by 36 months. In other words, the goiters decreased in size the same amount whether or not the subjects were given MRrhTSH. However, the use of MRrhTSH did have an additional negative effect as significant number of subjects (33% to 45%) became hypothyroid relative to those not receiving MRrhTSH (13%).

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study reinforces other publications that radioactive iodine can be used to shrink goiters effectively with up to 56% size reduction by 3 years. This is an important option for those patients who cannot undergo surgery. The use of MRrhTSH did not demonstrate any additional benefit in decreasing gland volume 3 years after treatment. Hypothyroidism was more common after MRrhTSH treatment. Thus, MRrhTSH cannot currently be recommended for this purpose.

—Wendy Sacks, MD

ATA THYROID BROCHURE LINKS

Goiter: <http://www.thyroid.org/what-is-a-goiter>

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

ABBREVIATIONS & DEFINITIONS

Goiter: a thyroid gland that is enlarged for any reason is called a goiter. A goiter can be seen when the thyroid is overactive, underactive or functioning normally. If there are nodules in the goiter it is called a nodular goiter; if there is more than one nodule it is called a multinodular goiter.

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.



GOITER, continued

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™.

Modified-release recombinant human TSH (MRrhTSH): modified-release rhTSH (MRrhTSH) is a lower dose

of rhTSH that is released more slowly into the blood stream after injection to provide more sustained levels of TSH.

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

Thyroid Awareness Monthly Campaigns Announced in Cooperation with PuraVida

The ATA will be highlighting a distinct thyroid disorder each month and a portion of the sales for PuraVida bracelets will be donated to the ATA. The month of May is **Graves' Disease Awareness Month** and a bracelet is available through the [ATA Marketplace](#) to support thyroid cancer awareness and education related to thyroid disease.

