



GOITER

Modified-release recombinant human TSH and its effect on large goiters treated with radioactive iodine

BACKGROUND

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 multinodular goiter. Sometimes multinodular goiters get large enough to cause symptoms such as difficult swallowing or choking. When this happens, surgery is often the main option. However, several studies have shown that treatment with radioactive iodine may produce enough shrinking in size of the goiter to improve symptoms. This is especially helpful if the patient cannot undergo surgery or refuses this option. The limiting factor in treating multinodular goiters with radioactive iodine is getting enough radioactive iodine into the gland to be effective. This study was done to determine if stimulating the goiter with a small dose of recombinant human TSH (modified-release recombinant human TSH, MRrhTSH) would allow a higher dose of radioactive iodine to get into the thyroid and cause more shrinking in the size of the goiter, resulting in a more effective treatment. This would provide patients with an alternative treatment to surgery for this condition.

THE FULL ARTICLE TITLE:

Graf H et al. Modified-release recombinant human TSH (MRrhTSH) augments the effect of ¹³¹I therapy in benign multinodular goiter: results from a multicenter international, randomized, placebo-controlled study. *J Clin Endocrinol Metab.* February 23, 2011.

SUMMARY OF THE STUDY

A total of 95 patients with multinodular goiters that

were working normally participated in this study. A total of 30 patients did not get the MRrhTSH and were compared to 65 patients who were treated with MRrhTSH before receiving the radioactive iodine. The age of patients ranged from 35-80 years. The results showed that treating with MRrhTSH caused a greater shrinkage in the goiter volume after radioactive iodine as compared to just treating with radioactive iodine alone. In the MRrhTSH group, one patient developed hyperthyroidism and one patient developed an abnormal heart rhythm. There were no complications in the patients that did not get the MRrhTSH.

WHAT ARE THE IMPLICATIONS OF THIS STUDY?

This study shows that radioactive iodine can be effective in treating large symptomatic goiters and that pre-treating with MRrhTSH can make radioactive iodine more effective. MRrhTSH was generally safe. Thus, patients with large multinodular goiters could potentially have an additional treatment option with radioactive iodine and MRrhTSH instead of surgery.

— Heather Hofflich, MD

ATA THYROID BROCHURE LINKS

Radioactive Iodine: http://thyroid.org/patients/patient_brochures/radioactive_iodine.html

Thyroid Surgery: http://thyroid.org/patients/patient_brochures/surgery.html

Goiter: http://thyroid.org/patients/patient_brochures/goiter.html

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.

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): a lower dose of rhTSH that may be used in patients with intact thyroid glands.

TSH: Thyroid stimulating hormone – produced by the pituitary gland that regulates thyroid function; also the best screening test to determine if the thyroid is functioning normally.