



THYROID CANCER

Selenium may protect salivary glands from radioactive iodine therapy for thyroid cancer

BACKGROUND

Radioactive iodine therapy is an important part of the treatment of advanced thyroid cancer. It works because the radioactive iodine is taken up and concentrated in thyroid cells, both normal and cancerous, and destroys these cells. Radioactive iodine is also taken up in the salivary glands but is not concentrated in the cells, minimizing any damage. However, inflammation of salivary glands, dryness in the mouth and consequently dental problems are known complications of radioactive iodine therapy that are seen in at least 10% of thyroid cancer patients treated with high dose radioactive iodine. Many agents have been studied in the past (lemon drops, sour candy, vitamin E and C, chewing gum, etc.) in order to preserve salivary gland function. Unfortunately, we still not have an effective treatment to protect salivary glands from the radiation. Selenium is a known antioxidant that has shown to decrease side effects of radiation therapy in other cancers. In this study the authors explore the role of selenium in preservation of salivary glands function after radioactive iodine therapy.

THE FULL ARTICLE TITLE

Son H et al Effect of selenium supplementation for protection of salivary glands from iodine-131 radiation damage in patients with differentiated thyroid cancer. *Hell J Nucl Med.* 2017 Jan-Apr;20(1):62-70.

SUMMARY

A total of 16 patients with thyroid cancer undergoing their first radioactive iodine therapy were enrolled in

the study. They were divided into two groups: 8 patients in the selenium group received selenium for 10 days, 3 days before and 6 days after radioactive iodine therapy, the other 8 patients in control group received a placebo. Patients were treated with 100-150 mCi of radioactive iodine. The authors measured amylase, a protein produced by salivary glands before, 2 days and 6 months after radioactive iodine therapy. Also salivary gland scintigraphy, a study measuring salivary gland ability to produce saliva, was done before and 6 months after radioactive iodine therapy. A questionnaire evaluating symptoms of salivary gland dysfunction were given before and 6 months after radioactive iodine therapy.

Results of the study showed significantly higher increase of serum amylase 2 days after radioactive iodine therapy in control group compared to selenium group that reflects more injury to salivary glands in the placebo group. Moreover, the results of salivary scintigraphy and scores on the questionnaire 6 months after radioactive iodine therapy were significantly different in the selenium and placebo groups reflecting that the long term damage of salivary glands was higher in control group.

IMPLICATIONS

This study suggests that selenium supplementation during radioactive iodine therapy may be protective to salivary glands. Studies with larger number of patients are needed to further evaluate the clinical significance of changes in laboratory work up and imaging studies.

—Valentina Tarasova, MD

ATA WEB BROCHURE LINKS

Thyroid Cancer (Papillary and Follicular): <https://www.thyroid.org/thyroid-cancer/>

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





THYROID CANCER, continued

ABBREVIATIONS AND 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.

mCi: millicurie, the units used for I-131.

Salivary glands: glands in the neck that produce saliva to keep the mouth lubricated. Between 0.5 and 1.5 liters of saliva are produced every day. Damage to

these glands can produce dryness in the mouth and consequently dental problems

Selenium: a mineral found naturally in various foods that is important for making thyroid hormones and for normal thyroid function. It is needed in small amounts by the body. It also has antioxidant properties

Antioxidants: substances that prevent cell damage caused by oxidation in the body which has been linked to cancer and aging.



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