



Cancer Survivorship Patient Education on Post-Treatment Care

Hypothyroidism after Head and Neck Radiation

by Mark Zafereo, MD

What is it?

Hypothyroidism is a condition that occurs when the thyroid gland secretes less thyroid hormone than normal. The thyroid gland secretes hormones that regulate the body's metabolism, affecting a large variety of critical life functions including temperature regulation, heart rate, digestion, and muscle and brain function. Thyroid hormones are necessary for life. While external beam radiation therapy kills cancer cells, it can also damage the body's normal tissues. Many patients who have radiation therapy for head and neck cancer receive radiation to the area of the thyroid gland, an important organ located in the midline lower neck. Damage to the thyroid gland from radiation therapy can result in hypothyroidism.

How common is it among head and neck cancer patients?

Up to 50% of patients treated for head and neck cancer with radiation therapy develop hypothyroidism. This can occur years after completion of therapy.

What are the signs/symptoms?

The symptoms of hypothyroidism can include fatigue, weight gain, constipation, sensitivity to cold, dry hair and skin, hair loss, decreased memory, and depression. However, the initial symptoms of hypothyroidism can be subtle and sometimes patients have no symptoms at all. While hypothyroidism can develop as quickly as 3 months following completion of radiation therapy, it sometimes can take years to manifest.

How is it diagnosed?

There are simple blood tests to measure your thyroid function, the most common of which are thyroid stimulating hormone (TSH) and free T4. If your thyroid hormone blood tests are not within the normal range, you may have hypothyroidism.

How is it treated?

Your doctor will prescribe you thyroid hormone replacement, which is typically a daily pill taken in the morning. There are several different types of thyroid hormone replacement, the most common being levothyroxine. You will need to periodically check your thyroid hormone function after starting thyroid hormone replacement therapy, at least once a year, as your thyroid hormone levels can continue to change over time. With appropriate thyroid hormone therapy, the vast majority of people with hypothyroidism do not experience symptoms.

When should I call my doctor?

Your doctor may initially check your thyroid function at 3 months following completion of radiation therapy, and at least yearly thereafter for the rest of your life. You should see a physician if you have symptoms consistent with low thyroid hormone levels or have a history of radiation treatment to the neck.



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Where can I learn more?

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Fujiwara M, Kamikonya N, Odawara S et al. [The threshold of hypothyroidism after radiation therapy for head and neck cancer: a retrospective analysis of 116 cases.](#) Journal of Radiation Research. 2015. 577-582.