

## **Abstract**

*Objectives:* Radiation therapy is often applied to patients with head and neck cancer because of a high sensitivity to these cancers. It improves treatment outcomes and permits the preservation of functions and physical form. However, it has been shown that various complications can result from radiation therapy. Hypothyroidism can be one of them as the thyroid gland is frequently included in radiation fields. In spite of that, thyroid hypofunction is not commonly considered a complication of radiotherapy for head and neck cancer. The purpose of this retrospective study was to determine the frequency of thyroid dysfunction in patients after radiotherapy, to compare thyroid hormone levels in irradiated patients with control group and to predict development of thyroid hypofunction in time.

*Material and method:* Thyroid function was measured by means of thyroid stimulating hormone (TSH), free thyroxine (FT4) and free triiodothyronine (FT3) in 43 patients who had nonthyroid head-neck carcinomas treated by radiotherapy or radiotherapy in combination with other treatment modalities. These data were compared with hormone levels of 40 control group patients treated solely by surgery.

*Results:* In median follow-up period 34 months after radiation, hypothyroidism was found in 35% of irradiated patients. In comparison with control group there were significant differences between TSH and FT4 levels, difference between FT3 levels was insignificant. A correlation between hormone levels and follow-up was detected.

*Conclusion:* Our results indicate that hypothyroidism is a frequent late side effect of radiotherapy to head and neck. Lifelong monitoring of thyroid function appears to be justified when radiotherapy is a part of treatment protocol.