Thyroid cancer is the most common endocrine malignancy worldwide. Iodine-131 is used in the treatment of thyroid cancer with dosage of 100 mCi. In the medical applications of ionizing radiation besides the advantages such as diagnosis and treatment of diseases, the risks arising from exposure should be considered as well.

**Aims:**

The present study aimed to evaluate the changes in expression levels of apoptotic Bax and Bcl-2 and the ratio of Bax/Bcl-2, in the peripheral blood lymphocytes (PBLs) of patients with differentiated thyroid cancer (DTC).

**Context:**

with 100 or 150 mCi iodine-131 was significantly higher than before treatment. Patients with DTC have a significantly higher level of apoptosis in PBLs after iodine therapy. Based on the results of this study, radiiodine therapy in patients with thyroid cancer has led to increased apoptosis as a marker of cytogenetic damage.

Therefore, it can be suggested that this method can be useful for monitoring and detecting destructive effects of ionizing radiation in nuclear medicine patients.

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**Conflicts of interest**

There are no conflicts of interest.

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