

EFFECTIVE DOSES TO FAMILY MEMBERS OF PATIENTS TREATED WITH RADIOIODINE 131

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Abstract – Purpose: The purpose of this study was to evaluate the effective dose to family members of thyroid cancer and hyperthyroid patients treated with radioiodine 131; also to compare the results with dose constraints proposed by International Commission of Radiological Protection (ICRP) and Basic Safety Standards (BSS) of the International Atomic Energy Agency (IAEA).

Material and methods: for estimation of effective doses at sixty family members of thirty thyroid cancer and thirty hyperthyroid patients treated with radioiodine 131, the thermoluminescent dosimeters, Model TLD 100, were used. Thyroid cancer patients were hospitalized for three days, while hyperthyroid patients were treated on out-patient basis. The family members wore thermoluminescent dosimeter in front of the torso for seven days.

Results: The radiation doses to family members of thyroid cancer patients were well below recommended dose constraint of 1 mSv. The mean value of effective dose was 0.21 mSv (min 0.02 - max 0.51 mSv). Effective doses, higher than 1 mSv, were detected at 11 family members of hyperthyroid patients.. The mean value of effective dose at family members of hyperthyroid patients was 0.87 mSv (min 0.12 - max 6.79)

Conclusion: After three days of hospitalization and detailed given oral and written instruction, thyroid carcinoma patients maintain not to exceed the proposed dose limits. Hyperthyroid patients present a greater radiation hazard than thyroid carcinoma patients. The estimated effective doses were higher than the effective doses at family members of thyroid carcinoma patients. These findings may be considered when establishing new national guidelines concerning radiation protection and release of patients after a treatment with radioiodine therapy.