

The incidence of recurrence and hypothyroidism after radioiodine treatment in patients with hyperthyroidism in Trakya, a mild iodine deficiency area, during the period 1991–2003

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Objective: The purpose of this retrospective study was to evaluate the incidence of recurrence and the success of radioiodine treatment (RIT) in the Trakya region of Turkey, an area with mild iodine deficiency, and to compare the effect of dose regimen selection (fixed (FD) or calculated dose (CD)) on treatment success. **Material and Methods:** The study sample included 148 patients (40 male, median age 50) treated with radioiodine between the years 1991–2003. Patients were categorized into three diagnostic groups: Graves' disease (GD) (n = 65), solitary toxic adenoma (TA) (n = 29), and toxic multinodular hyperthyroidism (TMH) (n = 54), and each divided into two subgroups according to treatment method; the first group was treated with a FD of 370 MBq (10 mCi), and the second with CD. **Results:** The largest group was GD (44%), followed by TMH (36%). Median duration of follow-up was 28 months (range 6–147). FD was given to 52.7% of all patients and CD was given to 47.3%. There was a partial difference in the dose regimen between all groups, but did not reach statistically significant levels (FD vs. CD: 65%–35%; 38%–62%; 46%–54%; GD, TA, TMH respectively, $p > 0.05$). Total cure rate in FD and CD was 46 (59%) and 37 (52.9%), respectively. The rates of hypothyroidism for GD, TA, and TMH groups were 28 (43.1%), 6 (20.7%) and 16 (29.6%), respectively. The incidence of hypothyroidism did not vary significantly between any groups ($p > 0.05$). At the end of the follow-up period, a total of 104 patients (70.3%) were treated successfully. There was no significant difference in the cure rate between any groups ($p > 0.05$). **Conclusions:** The treatment success in all groups and subgroups did not differ significantly between FD and CD. Our lower cure rate than in previous studies may be related to iodine deficiency. Higher doses of radioiodine may be required to increase final treatment success in endemic goiter areas. If this true, dosimetry and calculated dose regimen would be required in all groups of patients instead of an FD concept. However, our findings should be verified in larger series of patients, with longer follow-up period, and urinary iodine concentration measurements.

Key words: radioiodine therapy, iodine deficiency, Graves' disease, toxic adenoma, toxic multinodular goiter