

Single dose planning for radioiodine-131 therapy of Graves' disease

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Objective: Patients with Graves' disease were studied one year after radioiodine-131 therapy to assess the relationship between the effectiveness of the therapy and the radioiodine doses used. **Methods:** Patients were classified into three groups according to thyroid function as hyperthyroidism, euthyroidism and hypothyroidism at one year after I-131 therapy. In these groups we compared the mean values of dose, dose per thyroid weight calculated with I-123 uptake before the therapy (pre D/W), dose per thyroid weight calculated with therapeutic I-131 uptake (post D/W), and absorbed dose. **Results:** No significant differences were found between the three groups in terms of dose or pre D/W. The mean values of post D/W and absorbed dose in the non-hyperthyroid (euthyroid and hypothyroid) group were significantly greater than those in the hyperthyroid group. Post D/W of 6.3 MBq/g was a threshold separating the non-hyperthyroid group from the hyperthyroid group. There was no correlation between pre D/W and post D/W; however, the mean post D/W was significantly greater than the mean pre D/W. All patients with pre D/W above 6.3 MBq/g showed non-hyperthyroidism at one year after the radioiodine treatment. **Conclusions:** No indicators before the radioiodine therapy had significant relationships with the effectiveness of the therapy at one year after the treatment. However, the single therapy planned for setting the pre D/W above 6.3 MBq/g will certainly make the patients non-hyperthyroid. As this proposal of dose planning is based on a small number of patients, further study is needed.

Key words: I-131 therapy, Graves' disease, dose per thyroid weight