Outcome after radioidine therapy in patients with Grave’s disease: interrelation between demorphysics and disorders properties.


Abstract
Graves disease is an autoimmune condition and the main cause of hyperthyroidism. The present study consists of the analysis of the evolution after radioidine therapy treatment in patients with Graves’ disease, which took place at the Thyroid Dysfunction Unit of Endocrinology Division, HC-Unicamp, according to its patients charts review. Radioidine therapy (RIT) was indicated in 68% of the patients (171/251), of whom 80.1% (n=137) of these cases after RIT presented definitive control of the disease with one radioidine administration. Therefore, the outcome of the patient related to the RIT failure was the thyroid volume according to the ultrasound and the scintigraphy uptake, and in addition, the thyroid volume was reported as a predictor factor for the failure to control hyperthyroidism.

Key words: Hyperthyreoidism, Graves Disease, Radioiodine Therapy.

Introduction
Graves’ disease is the main cause of hyperthyroidism. This condition is associated to the presence of antibody against TSH-receptor (TRAb), which leads to an uncontrolled synthesis of T3 and T4 hormones and the thyroid hyper tropthy. The therapy for Graves’ disease involves antithyroid drugs, radioidine therapy or thyroidectomy. Radioidine iodine (RIT) is the administration of 131-I to promote the thyroid cells progressive necrosis and consequently, the hyperthyroidism control. Our aims were to evaluate the outcome after RIT in patients with Graves’ disease, and factors associated to the success of the treatment.

Results and Discussion
This study evaluated 251 patients diagnosed with Graves’ hyperthyroidism, in both genders, followed in the Thyroid Dysfunction Unit of Endocrinology Division, HC-Unicamp. According to the reviews, 78.09% were female and 73.88% were white. In 79.73% of the patients Trab was elevated, as well as in 75.92% to antibodies anti-TPO, in 45.49% to antibodies anti-TG. Thyroid volume by ultrasound (US) and thyroid scintigraphy uptake before RIT were evaluated. Radioidine therapy was indicated in 68% (171/251) of the patients, of whom 80.1% (n=137) of these cases presented definitive control with one radioidine administration. The mean radioactive iodine dose was 14.05 mCi. Twenty patients needed 2 doses of radioactive iodine and 2 patients received 3 doses. After RIT, hypothyroidism was observed in 72.5% of the cases, 7.6% evolve to euthyroidism and 19.9% maintained hyperthyroidism. On the other hand, 82.35% submitted to a second RIT developed hypothyroidism, and only 5.9% of the cases remained in hyperthyroidism. Thus, it was demonstrated that higher thyroid volume (Mean Volume US (cm³): Eu/Hypothyroidism 28.7 ± 18.0 (N=114) vs Hyperthyroidism 45.4 ± 23.0 (N=30), p=0.0003) and thyroid uptake (Mean thyroid uptake: Eu/Hypothyroidism 11.0 ± 7.9 (N=133) vs Hyperthyroidism 18.7 ± 12.3 (N=32), p<0.0001) pre-RIT were associated to failure of RIT, however, only thyroid volume was reported as a predictor factor to the failure of hyperthyroidism control (p=0.0076, OR = 1.042, CL95% 1.011-1.074).

Conclusions
In conclusion, RIT was an effective treatment, allowing that 80% of the Graves’ disease patients obtained the hyperthyroidism control with the administration of only one dose of 131-I. Additionally, higher thyroid volume was appointed as a predictor factor to the hyperthyroidism control failure, suggesting that thyroidectomy would be a better therapeutic option for patients with larger goiters.

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