THE EFFICACY OF RADIOIODINE THERAPY IN PATIENTS WITH GRAVES' DISEASE

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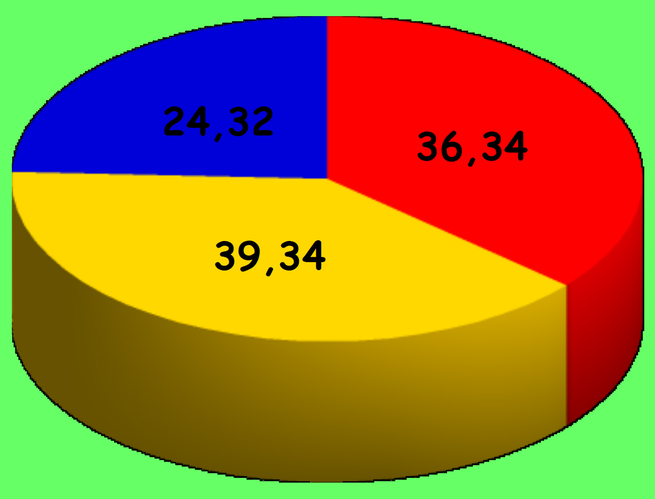
INTRODUCTION: Radioiodine **(RAI)** has been used for the treatment of Graves' hyperthyroidism since 1940s. It is relatively safe and considered as one of the **definitive therapies**. Achievement of **euthyroidism or hypothyroidism** is defined as a successful therapy.

METHODS: The study was conducted in **366 patients (80.60% of women) with Graves' disease (GD)**, aged 46.76 ± 13.52 years. We analyzed retrospectively hormonal and imaging findings (scintigraphy, ultrasonography), including isotopic results in subjects treated at Department of Nuclear Medicine and at Endocrinology Department during the eight-year period. The efficacy of RAI therapy has been assessed based on free thyroid hormones levels, measured 12 months after radioiodine administration.

RESULTS

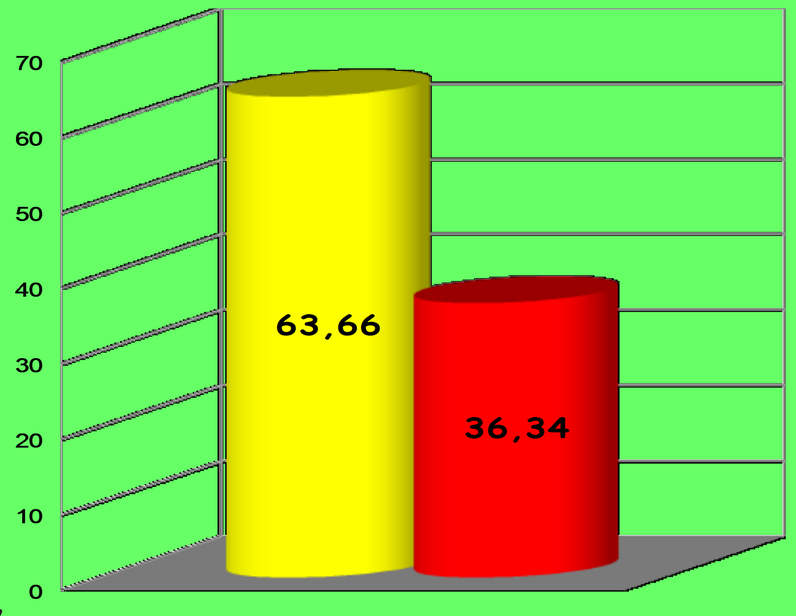
- Mean concentrations of **thyroid hormones before therapy** were: **FT4** – 38.40 ± 22.17 (12.0-22.0pmol/l) and **FT3** – 21.9 ± 17.11 (3.0-7.0pmol/l)
- The **thyroid mass** was estimated to be 69.67 ± 38.87g.
- Mean **RAI 24-h uptake** was 63.93 ± 16.15% and **therapeutic activity of RAI**, calculated using Marinelli's formula, was 544.28 ± 176.35MBq.
- The used **thyroid-absorbed doses of RAI (Gy)** were: ≤ 120, > 120 and ≤ 150, > 150 (49.18% vs 46.99% vs 3.83% of subjects with GD, respectively).

FIG.1 The results of RAI therapy



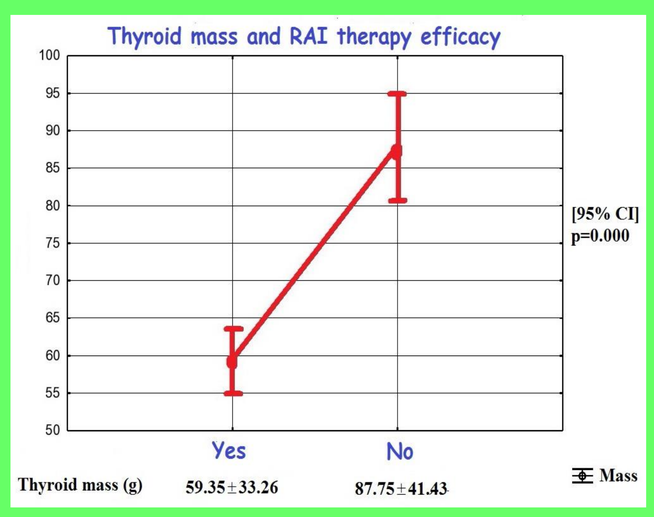
- EUTHYREOSIS - 24.32% (25.42% of F, 19.72% of M with GD)
- HYPOTHYROIDISM - 39.34% (39.34% of F, 39.44% of M with GD)
- HYPERTHYROIDISM - 36.34% (35.26% of F, 40.84% of M with GD)

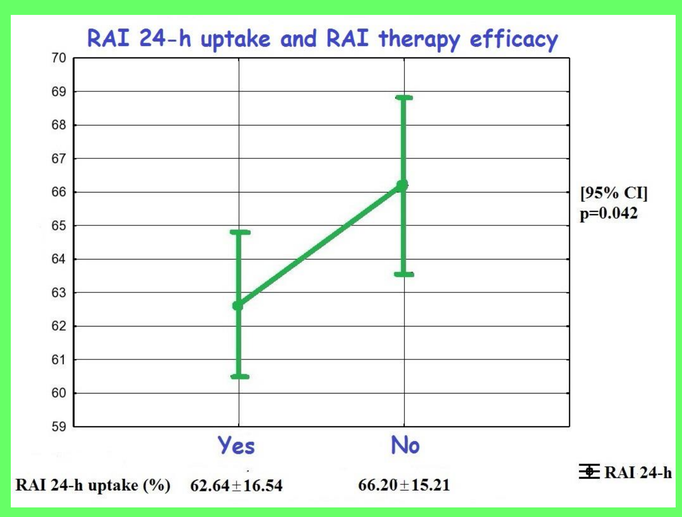
FIG. 2 The efficacy of RAI therapy

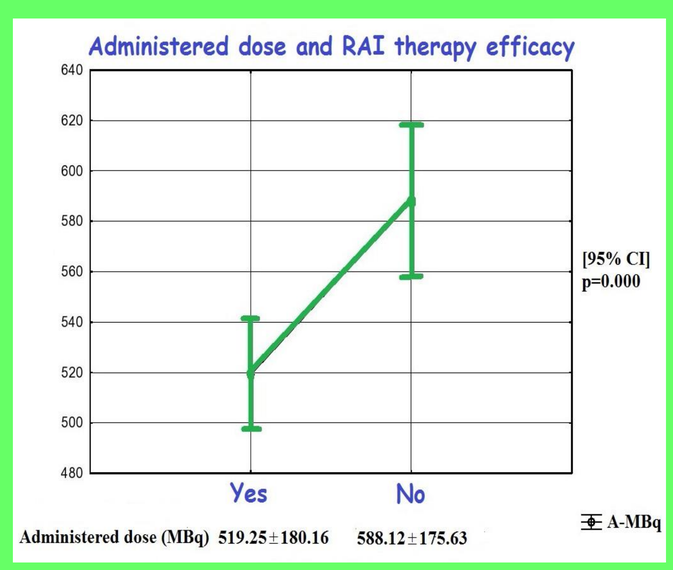


- Effective RAI therapy - 63.66% (64.75% of F, 59.15% of M with GD)
- Ineffective RAI therapy - 36.34% (35.25% of F, 40.85% of M with GD)

AN EFFECTIVE CURE OF HYPERTHYROIDISM WAS SIGNIFICANTLY CORRELATED WITH LOWER: thyroid mass / RAI 24-h uptake / administered dose







- **No** significant **associations** between successful therapy and:

- patients' **age** / - levels of free **thyroid hormones** before therapy / - **thyroid absorbed dose** were found.

CONCLUSIONS: RAI therapy was effective in **63.66%** of patients with **GD**. **Females** responded better to treatment than males. The cure correlated with thyroid mass, RAI 24-h uptake and dose of radioiodine.

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