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THE EFFECT OF RADIOIODINE THERAPY IN PATIENT WITH NON-TOXIC GOITRE AFTER PRE-TREATMENT WITH A SINGLE DOSE OF RECOMBINANT HUMAN THYROID STIMULATING HORMONE (RHTSH)

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Introduction. There is no ideal treatment for benign multinodular goitre. Radioiodine therapy (RIT) in patients with non-toxic multinodular goitre recently becomes more common method in comparison to surgery which is recommended for large goitres or when malignancy cannot be excluded. Repeatedly low thyroid radioactive iodine uptake (RAIU) decreases effectiveness of RIT or makes it impossible. The recombinant human thyrotropin can increase RAIU, enhance the thyroid volume reduction and improve the results of RIT.

Aim: the aim of our study was to assess the effectiveness of radioiodine therapy on the reduction of thyroid volume after pre-treatment adjunct of rhTSH in patients with non-toxic goitre with low radioactive iodine uptake.

Material and methods. We treated 36 patients, aged 35–77 years. Initial 24 h RAIU was ranged between 5 and 17%, and thyroid volume ranged between 42 and 128 ml. Twelve patients had compressive symptoms. Malignant changes were excluded in all nodules by FNAB. All the patients received a single dose of 0.05 mg rhTSH given intramuscular. About 24 h later diagnostic dose of I-131 was administered. After 24, 48 and 72 h RAIU was estimated. On the third day of rhTSH administration therapeutic dose of I-131 was given. Serum TSH, fT4 and fT3 were determined, 24 h, 72 h after rhTSH administration and on the 3rd day after RIT. The activity dose calculated by Marinelli's formula and ranged between 400 and 800 MBq. The absorbed dose ranged between 160 and 300 Gy. Follow up control was done every 6 weeks. Thyroid ultrasound, and thyroid scan were done again after 12 months of radioiodine therapy.

Results. A significant 4-fold increase in 24 h RAIU up to 54% was observed. The significant increase in serum TSH from 1.4 ± 0.5 to a peak level 12.21 ± 4.62 was seen after 24h. After 12 months 91% of patient were in euthyroidism. Only 3 patients develop hypothyroidism. Thyroid volume was reduced to about 45% average. In all of the patients the compressive symptoms relieved and exercise tolerance improved.

Conclusions. Pre-treatment with rhTSH allows the therapeutic dose of I-131 to be reduced by 50–58% without compromising the result of thyroid volume reduction. This mode of therapy can be recommended, especially when RAIU is low and the dose of radioiodine to be administered is high.