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**THE EFFECT OF RADIOIODINE THERAPY I-131 IN PATIENTS WITH NON TOXIC NODULAR GOITRE**

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**Introduction.** A Simple goitre is defined as the enlargement of the thyroid gland, in the absence of autoimmune thyroid disease, malignancy, or inflammation, still constitutes a major diagnostic and therapeutic challenge. Radioiodine therapy (RAIT) is non-invasive, safe and cost effective method of therapy for goitre reduction. Studies have shown that levothyroxine has poor evidence of efficacy and is inferior to radioiodine therapy regarding goitre reduction.

**Aims:** the aim of our study was to evaluate the short term efficacy of radioiodine therapy to reduce thyroid volume with minimal risk of hypothyroidism in patients with non-toxic nodular goitre. Research Group 980 Patients aged 20-90 years. Qualification of these patients was based on normal levels of serum fT3, fT4, TSH and characteristic appearance on thyroid scans and ultrasound. Malignant changes were excluded in all suspected nodules by fine needle aspiration biopsy.

**Materials and methods.** The mean radioiodine uptake (RAIU) was 39% and thyroid volume ranged between 44-170ml. The activity dose was calculated by the use of Marinelli's formula and ranged between 200 -800 MBq ( $459 \pm 171$  MBq). The mean absorbed dose was  $199.4 \pm 23.8$  Gy, and was proportional to thyroid volume. Thyroid ultrasonography, and thyroid scan with RAIU at 24 hours was done before and after 12 months of RAIT. Follow up control for the evaluation of fT4, TSH was done every 6 weeks

**Results.** Volume of thyroid gland was reduced in 48% of patients after 12 months. Euthyroidism was achieved by 800 patients.

**Conclusions.** Radioiodine is an non-invasive, safe and cost effective method of therapy for reduction of the goitre volume .It should be used as first choice in every patient with non toxic nodular goitre with thyroid volume  $> 40$  ml. Surgery should be reserved as first choice if malignancy is suspected. The reduction of thyroid volume with low percent of hypothyroidism, were due to well accurate measurement of administered activity, relatively high effective half-life and well-organised follow up.