

Topic: **THE COST OF TREATING HYPERTHYROIDISM**

Title: **The cost effectiveness of treatment modalities for thyrotoxicosis in a United Kingdom center.**

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SUMMARY

Objective: The present study determined the cost effectiveness of treating thyrotoxicosis using thionamide therapy, radioiodine or surgery in the United Kingdom.

Design: One hundred thirty-five patients diagnosed with thyrotoxicosis (62% Graves' disease, 7% nodular disease, 5% thyroiditis, and 27% unknown etiology) referred over a period of twelve months were offered a fully informed choice of treatment modality. Thirteen patients with transient thyrotoxicosis were subsequently excluded from the analysis. Seventy-four patients (61%) received an 18-month course of thionamide therapy, 43 received radioiodine therapy (35%), and 5 had a thyroidectomy (4%) within the first year of diagnosis as their primary treatment. A successful outcome ("cure") was defined as euthyroidism 12 months after thionamide therapy or euthyroidism or hypothyroidism on thyroxine replacement at 24 months following radioiodine or thyroidectomy. Costs were calculated for outpatient attendances, laboratory tests, and initial and subsequent treatment.

Main outcome: In the thionamide group, 73% were "cured" at 30 months after initiating treatment compared to 95% in the radioiodine group and 100% treated by thyroidectomy at 24 months. Cost per "cure" was calculated to be 3.763 £ (5.645 €) per patient who received thionamides, 1.375 £ (2.063 €) per patient given radioiodine and 6.551 £ (9.826 €) per patient who underwent thyroidectomy.

Conclusion: The most cost-effective primary treatment modality for thyrotoxicosis is radioiodine.

COMMENT

In these times of heavy budgetary constraints, it is important to consider the cost-benefit ratios of the treatments we use, especially in the field of hyperthyroidism where three effective therapeutic options exist: antithyroid drugs (ATD), radioiodine (RI-131), and surgery (Tx). The present study aimed at comparing costs in what can be considered a homogeneous group of patients with hyperthyroidism, followed in a teaching hospital in London. All patients (except for a few with recurrences of thyrotoxicosis) had a first episode of thyroid disease. For the patients with ATD

therapy, a low dose titration regimen was used (CMI or PTU) for 18 months. For the patients with RI-131 therapy, a single dose of 400-600 MBq was used, followed by ATD treatment during one month. For the patients submitted to Tx, all were rendered euthyroid prior to surgery by a short course of treatment with ATD.

Nevertheless, there are obvious queries and criticism relating to this study:

1) Is one population (UK) comparable to another (Belgium)?

2) The study was retrospective and it is difficult to truly believe that the patients effectively made the choice of their therapy. When I try to do this in my practice, most patients (after listening carefully to my long and precise explanations) usually conclude “you are the doctor and therefore I will accept the choice you consider to be the best for me”.

3) Costs of treatments and others costs (scintigraphy, consultations, lab tests, etc.) may be quite different from one country to another and, therefore, results of this study in the UK cannot (and should not) be extrapolated to other countries without seriously pondering the implications.

4) Therapeutic options were not randomised and the authors admit that some treatment choices may have been dependent on the clinical presentation or by personal preference among the five endocrinologists who participated into the study.

5) Etiology of hyperthyroidism was not homogeneous, and was unknown for 27% of the patients.

6) Therapy groups were quite different in size, with two thirds of them receiving ATD treatment, one third RI-131 administration, and finally only 5 patients submitted to Tx.

Finally and despite the limitations alluded to above, this retrospective study has shown that RI-131 and Tx had a better overall rate of success (95-100%) than ATD administration (73%), a well known fact whose advantage is limited, however, by the advantage of giving the patient a chance to be cured without radical therapy. Based on cost and success rates, the authors conclude by favouring RI-131 administration for the treatment of hyperthyroidism.

(Daniel Glinoe, M.D.; Ph.D.)

See Table below

	N	Cure rate	Cost/patient	Cost/cure
ATD	74	73%	3.279 €	5.644 €
Tx	5	100%	9.826 €	9.826 €
RI-131	43	95%	1.919 €	2.063 €

(table reconstructed from Table 2)