



Bari,
7-10 novembre 2013

Medical treatment of nodular goiter: still to be considered? Take Home Messages

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A common clinical problem (Epidemic?)



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In iodine-sufficient areas the prevalence of palpable thyroid nodules ranges between 3-7% of the population

In mild to moderate iodine-deficient areas (i.e.: Italy) the prevalence is higher (~10%)

The widespread use of ultrasonography (US) has resulted in a dramatic increase in the prevalence of clinically inapparent thyroid nodules

Thyroid US can detect thyroid nodules in 19%-76% of randomly adult individuals



THM 1



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- The efficacy of thyroid hormone suppressive therapy in euthyroid patients with solitary benign thyroid nodules or sporadic nontoxic multinodular goiters is controversial
- Most studies have shown that few thyroid nodules regress in patients taking thyroid hormone
- Furthermore long-term side effects have been reported from the induction of subclinical hyperthyroidism (at bone in postmenopausal women and heart level in pts >60 yrs old and in younger pts if comorbidities are present)



THM 2



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- Current Guidelines on Thyroid Nodular Disease do not recommend routinely use of suppression therapy for benign thyroid nodules
- The use of T4-suppression has therefore dramatically declined in the last 10 yrs and the game seemed over but ..
- Recent data suggests that thyroid hormone suppressive therapy could reduce the risk of thyroid oncogenesis (The risk of thyroid cancer in patients with thyroid nodules increases with increasing serum TSH levels)
- Furthermore in old studies of thyroid cancer, 13-15% of malignant nodules were found to regress with thyroxine



The evidence



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- The natural history of thyroid nodules suggests that a third of benign nodules will spontaneously grow to more than 15% of its initial size in one year and this increases to almost all (89%) at five years if these nodules are not treated somehow
- The majority of growth has been found in those nodules that have a more solid component and TSH is presumed to be necessary if not sufficient
- LT4 suppressive therapy, reducing the TSH levels, does appear to interfere with goitrogenesis in many patients and with oncogenesis in nodular goiter



The evidence 1



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- Thyroid hormone suppressive therapy has been shown effective in reducing goiter volume and preventing the development of new nodules in some patients (particularly in patients from regions of the world with borderline or low iodine intake)
- A decrease $>50\%$ in nodule volume is reported in one more patient for every six treated with LT4 compared to placebo
- Many of the trials published are nonrandomized and have a wide variation in the number of patients, target levels of TSH suppression and treatment duration **but** a significant effect in reducing nodule volume is evident in trials from the year 1995



The evidence 2



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- T4 therapy use seems prevent goiter recurrence after partial thyroidectomy
- Efficacy of thyroid hormone suppressive therapy in reducing nodular thyroid growth in population exposed to external radiation during childhood has been reported
- The benefits of T4 therapy seems not require suppression to subnormal serum TSH concentrations
- The efficacy seems be amplified by combined use with iodine



Clinical Judgment



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Because T4-suppressive therapy results (by definition) in subclinical hyperthyroidism, treated patients are at increased risk for atrial fibrillation, other cardiac abnormalities, or reduced bone density

For this reason, uncertainty and controversy remains regarding the efficacy, risks, and benefits of thyroid hormone suppressive therapy for thyroid nodules and benign goiter.

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DS Ross, DS Cooper, JE Mulder
UpToDate access 30/11/2013



LT4 therapy for nodular goiter

Who should not be treated



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- Older patients (taboo in pts >65 yrs)
- Presence of comorbidities
(osteoporosis, cardiovascular and/or systemic disease)
- Voluminous Multinodular Goiter
- Hyperplastic or fibrotic changes at cytology
- Subnormal TSH concentrations or evidence of functional autonomy



LT4 therapy for nodular goiter

The candidate



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- Young patient
- Recent nodule (< 3 cm)
- Solid echostructure of the nodule
- Presence of abundant colloid at cytology
- Normal TSH levels
- Iodine-deficient area (from)



Often the man stumbles into the truth, but usually gets up and keeps on walking



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Eventhough a greater degree of LT4 suppression is associated with a better outcome, low levels, not suppressed, of TSH (>0.1 to 0.5 mU/L), may be a solution to concerns about the risk of subclinical thyrotoxicosis, when medical therapy has been considered.



Thank You for your attention



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