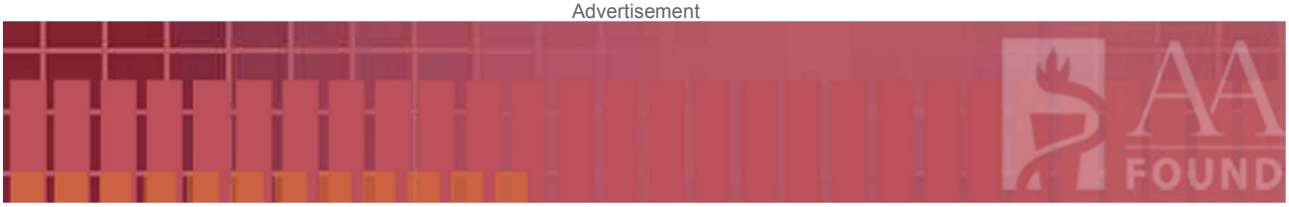

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Clinical Evidence Concise

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Hyperthyroidism

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This clinical content conforms to AAFP criteria for evidence-based continuing medical
CME Quiz on page 939.

What are the effects of drug treatments for primary hyperthy

LIKELY TO BE BENEFICIAL

Antithyroid Drugs (Carbimazole, Propyl-thiouracil, and Thiamazole)

We found no randomized controlled trials (RCTs) comparing antithyroid drug persons with hyperthyroidism, although there is consensus that treatment is b RCTs comparing antithyroid drugs (carbimazole, propylthiouracil, or thiamaz systematic review found that fewer persons relapsed with 18 months of highe treatments than with six months; however, it found no significant difference f compared with 12 to 18 months of lower-dose treatment. One systematic revi number of persons relapsed to hyperthyroidism with antithyroid drugs alone (drugs plus thyroxine (block replace). One RCT found a similar proportion of who became euthyroid between high-and low-dose thiamazole. However, it f were lower with titration regimens. There have been concerns about bone ma neutropenia, and agranulocytosis with antithyroid drugs. The doses of antithy studies are higher than are generally used in practice. (Based on consensus be considered unethical.)

Radioactive Iodine (in Persons Without Ophthalmopathy; May Increase Ophth with Graves' Disease)

We found no RCTs comparing radioiodine with placebo in persons with hype there is consensus that treatment is beneficial. Cohort studies found that radio thyroid and extrathyroid cancers but not overall incidence of cancer. RCTs fo worsen ophthalmopathy in persons with Graves' disease compared with other consensus because RCTs would be considered unethical.)

UNLIKELY TO BE BENEFICIAL

Adding Thyroxine to Antithyroid Drugs (Carbimazole, Propylthiouracil, and Th

One systematic review found that a similar number of persons relapsed to hyp antithyroid drugs plus thyroxine (block replace) and antithyroid drugs alone (found that adverse effects were higher with block replace regimens. Another s significant difference in relapse between thyroxine and no treatment after anti

What are the effects of surgical treatments for primary hype

LIKELY TO BE BENEFICIAL

Thyroidectomy

We found no RCTs comparing surgery with placebo in persons with hyperthy consensus that treatment is beneficial. One systematic review and subsequent thyroidectomy decreased hyperthyroidism and increased euthyroidism and hy with subtotal thyroidectomy. However, another subsequent RCT found no sig bilateral subtotal, unilateral total, and contralateral subtotal, and total thyroide Graves' ophthalmopathy. The systematic review and RCTs did not find suffic effects were worse with total or subtotal thyroidectomy. (Based on consensus considered unethical.)

What are the effects of treatments for subclinical hyperthyrc

LIKELY TO BE BENEFICIAL

Any Antithyroid Treatment

One controlled clinical trial found that thyroid-stimulating hormone (TSH; als and bone mineral density were higher in women given radioiodine compared women with no compression symptoms from a nodular goiter.

DEFINITION

Hyperthyroidism is characterized by high levels of serumthyroxine (T4), high triiodothyronine (T_3), or both, and low levels of TSH. Subclinical hyperthyroi decreased levels of TSH (less than 0.1 mIU per L) but with levels of T_4 and T (total T4: 5 to 11 mcg per dL [64 to 142 nmol per L]; total T3: 65.19 to 162.9 nmol per L], depending on assay type).[1] The terms hyperthyroidism and thyrc synonymously; however, they refer to slightly different conditions. Hyperthyı overactivity of the thyroid gland leading to excessive production of thyroid hc refers to the clinical effects of unbound thyroid hormones, whether or not the primary source.[2]

Secondary hyperthyroidism owing to pituitary adenomas, thyroiditis, iodine-i and treatment of children and pregnant or lactating women are not covered in Hyperthyroidism can be caused by Graves' disease (diffusely enlarged thyroic ophthalmopathy, and dermopathy), toxic multinodular goiter (thyrotoxicosis a uptake with multinodular goiter on palpation), or toxic adenoma (benign hype

neoplasm presenting as a solitary thyroid nodule).[1] We have not included trea ophthalmopathy in this review, although we do report on worsening of Grave radioiodine. We also have not included euthyroid sick syndrome (a condition for example, pneumonia, acute myocardial infarction, cancer, and depression; levels of TSH and T_3).

Diagnosis

The diagnosis of hyperthyroidism is established by a raised serum total or fre reduced TSH level, and high radioiodine uptake in the thyroid gland with feat usual symptoms are irritability, heat intolerance and excessive sweating, palp increased appetite, increased bowel frequency, and oligomenorrhea. Persons often have tachycardia, fine tremors, warm and moist skin, muscle weakness, lag.[1]

Incidence and Prevalence

Hyperthyroidism is more common in women than in men. One study (2,779 p Kingdom; median age 58 years; 20 years' follow-up) found an incidence of cl 0.8 per 1,000 women a year (95% confidence interval [CI], 0.5 to 1.4 per 1,0 study reported that the incidence was negligible in men.

In areas with low iodine intake, the incidence of hyperthyroidism is higher tha intake because suboptimal iodine intake induces nodular goiter, and by the tir autonomic, hyperthyroidism develops.[4] In Denmark, with moderate iodine ins incidence of hyperthyroidism (defined as low levels of TSH) is 9.7 percent co Iceland with high iodine intake. The prevalence in the Danish study was 38.7 and two per 100,000 men a year.[5]

Etiology

Smoking is a risk factor, with an increased risk of Graves' disease (odds ratio 3.5) and toxic nodular goiter (OR = 1.7; 95% CI, 1.1 to 2.5).[6] In areas with hi cause is Graves' disease, whereas nodular goiter is the major cause in areas w correlation between diabetes mellitus and thyroid dysfunction has been descri population with diabetes, the overall prevalence of thyroid disease was 13 per highest in women with type 1 diabetes (31 percent). As a result of screening, diagnosed in 7 percent of persons with diabetes (hyperthyroidism in 1 percent

Prognosis

Clinical hyperthyroidism can be complicated by severe cardiovascular or neu requiring hospital admission or urgent treatment.

MORTALITY

One population-based 10-year cohort study of 1,191 persons at least 60 years mortality among persons who had a low initial TSH level. The excess in mort cardiovascular diseases. However, the persons in this study who had a low TS higher prevalence of other illnesses, and adjustment was done only for age an We found another population-based study evaluating 3,888 persons with hype was found in all-cause mortality or serious vascular events in persons whose l treated and stabilized, but an increased risk of dysrhythmias was found in per hyperthyroidism compared with the standard population (standardized incide 1.63 to 4.24).[9]

ATRIAL FIBRILLATION IN PERSONS WITH OVERT HYPERTHYROIDISM

We found one cohort study evaluating the incidence of atrial fibrillation in pe with low serum TSH concentrations (0.1 mIU per L or less). It found that low were associated with an increased risk of atrial fibrillation (diagnosed by elec years (61 persons with low TSH and 1,576 persons with normal TSH; incider 28 per 1,000 person-years with low TSH values versus 11 per 1,000 person-y values; 13 out of 61 [21 percent] persons with low TSH values versus 133 ou persons with normal TSH values; relative risk [as calculated by *Clinical Evid* to 4.20).[10] A population-based study including 40,628 persons diagnosed with Denmark from 1977 to 1999 found that 8.3 percent were diagnosed with atria within 30 days from the date of diagnosis of hyperthyroidism.[11]

QUALITY OF LIFE

The quality of life of persons with thyroid problems can be reduced in many v this can continue in the long term. In a long-term follow-up (179 persons, trea before investigation), persons with Graves' disease had diminished vital and r aspects even after years of treatment compared with a large Swedish referenc

FRACTURE RATE AND BONE MINERAL DENSITY

Hip and spine bone mineral density levels can decrease if hyperthyroidism is when treated, bone mineral density can increase to normal levels. The risk of in persons with hyper-thyroidism. Progression from subclinical to overt hyper persons with nodular goiter but not in persons found by screening without oth disease.[14] A meta-analysis (search date 1996), based on data from screening s year 1.5 percent of women and 1.0 percent of men who had a low TSH level a levels developed an elevated free T_4 or T_3 level.14 Ophthalmopathy is a comp hyperthyroidism. Treatment can be problematic and usually involves topical c radiation of the eye muscles.

THYROID VOLUME AND THE NODULARITY OF THE GLAND INFLUENCE THE CI HYPERTHYROIDISM

In a controlled study of 124 persons with newly diagnosed hyperthyroidism, r calculated after treatment with a combined antithyroid drug plus T_4 for about Graves' disease who did not have a goiter or had a small goiter had a significa compared with persons with Graves' disease who had a medium- or large-size multinodular goiter had a relapse within the first year after stopping medicatio

Author disclosure: Nothing to disclose.

EDITOR'S NOTE In the United States, carbimazole is not available, thiamazole is call thyrotropin is only available in the injectable form.

SEARCH DATE: April 2006

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