Hyperthyroidism and the GP's role

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8 February 2020
Thyroid disease: assessment and management
NICE guideline [NG145]  Published date: November 2019

Guidance

This guideline covers investigating all suspected thyroid disease and managing primary thyroid disease (related to the thyroid rather than the pituitary gland). It does not cover managing thyroid cancer or thyroid disease in pregnancy. It aims to improve quality of life by making recommendations on diagnosis, treatment, long-term care and support.
Recommendations

1.1 Information for people with thyroid disease, their families and carers
1.2 Investigating suspected thyroid dysfunction or thyroid enlargement
1.3 Managing primary hypothyroidism
1.4 Follow-up and monitoring of primary hypothyroidism
1.5 Managing and monitoring subclinical hypothyroidism
1.6 Managing thyrotoxicosis
1.7 Follow-up and monitoring of hyperthyroidism
1.8 Managing and monitoring subclinical hyperthyroidism
1.9 Diagnosing, managing and monitoring thyroid enlargement with normal thyroid function

Terms used in this guideline
OVERVIEW

• What is hyperthyroidism?
• How does hyperthyroidism present to GP's?
• Causes of hyperthyroidism
• Graves' disease
• Overview of NICE guidelines on management of hyperthyroidism
• GP's role in care of patients with hyperthyroidism
• Patient thyroid resources
• Primary care thyroid projects
1-4% Population have thyroid disorders
Hyperthyroidism

Any condition in which there is too much thyroid hormone produced in the body. In other words, the thyroid gland is overactive.
# Symptoms and Signs

<table>
<thead>
<tr>
<th></th>
<th>Symptoms</th>
<th>Signs</th>
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<tbody>
<tr>
<td>Constitutional</td>
<td>weight loss despite increased appetite</td>
<td>weight loss</td>
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<tr>
<td></td>
<td>heat related symptoms – heat intolerance, sweating, polydypsia</td>
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<tr>
<td>Neuromuscular</td>
<td>tremor</td>
<td>tremor of the extremities</td>
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<td></td>
<td>nervousness</td>
<td>hyperactivity</td>
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<td></td>
<td>anxiety</td>
<td>hyper-reflexia</td>
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<td></td>
<td>fatigue</td>
<td>pelvic and girdle muscle weakness</td>
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<td></td>
<td>weakness</td>
<td></td>
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<td></td>
<td>disturbed sleep</td>
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<td></td>
<td>poor concentration</td>
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<tr>
<td>Cardiovascular</td>
<td>palpitations</td>
<td>tachycardia</td>
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<td></td>
<td></td>
<td>systolic hypertension</td>
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<td></td>
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<td>irregular heartbeat (atrial fibrillation)</td>
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<tr>
<td>Pulmonary</td>
<td>dyspnoea</td>
<td>tachypnoea</td>
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<td>Gastrointestinal</td>
<td>hyperdefecation</td>
<td>abdominal tenderness</td>
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<td></td>
<td>nauses</td>
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<tr>
<td></td>
<td>vomiting</td>
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<tr>
<td>Skin</td>
<td>increased perspiration</td>
<td>warm and moist skin</td>
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<tr>
<td>Reproductive</td>
<td></td>
<td>menstrual disturbances</td>
</tr>
<tr>
<td>Ocular</td>
<td>diplopia</td>
<td>proptosis</td>
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<tr>
<td></td>
<td>sense of irritation in the eyes</td>
<td>eyelid retraction and lag</td>
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<tr>
<td></td>
<td>eyelid swelling</td>
<td>peri-orbital oedema</td>
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<tr>
<td></td>
<td>retro-orbital pain or discomfort</td>
<td>conjunctival injection and chemosis</td>
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<tr>
<td></td>
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<td>ophthalmoplegia</td>
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</tbody>
</table>
Why is hyperthyroidism important?

- Atrial Fibrillation
- Memory problems
- Infertility / Miscarriage
- Heart failure
- Worsening diabetes
- Osteoporosis
- Apathy, weakness (elderly)
Project 1: How hyperthyroidism presents to GPs

Presentations

80 patients with newly diagnosed hyperthyroidism (73% Graves, 18% toxic goitre, 5% thyroiditis):

• 59% presented with typical symptoms
  – Most common PS: weight loss, palpitations, fatigue
  – Present but not PS: weight loss, palpitations, tremor, fatigue, heat intolerance

• 11% part of routine screening

• 6% had no symptoms

• 24% had atypical symptoms – weight gain, headache, sleeping too much, anorexia, impotence, heavy periods, depression
NICE
THYROID GUIDELINES
2019
This guideline covers investigating all suspected thyroid disease and managing primary thyroid disease (related to the thyroid rather than the pituitary gland). It does not cover managing thyroid cancer or thyroid disease in pregnancy. It aims to improve quality of life by making recommendations on diagnosis, treatment, long-term care and support.
NICE interactive flowchart - Thyroid disease

https://www.nice.org.uk/guidance/ng145/chapter/Recommendations#managing-thyrotoxicosis
1. Confirm thyrotoxicosis

- Person with confirmed thyrotoxicosis
  - Information and support
    - Management in people under 16 years
    - Management in people 16 years or over
      - Follow-up and monitoring of hyperthyroidism
        - After radioactive iodine treatment
        - After surgery
        - During and after treatment with antithyroid drugs
1. Confirm thyrotoxicosis

Confirmation is based on thyroid function results:
- Suppressed TSH
- High thyroid hormone levels
Thyrotoxicosis vs Hyperthyroidism

- **Thyrotoxicosis**
  - The *clinical syndrome* of hypermetabolism that results from high thyroid hormone levels in the bloodstream, irrespective of their source

- **Hyperthyroidism**
  - Any condition in which there is too much thyroid hormone production in the body, i.e. the thyroid gland is overactive
2. Thyrotoxicosis with or without hyperthyroidism?
Case 1 – What caused thyrotoxicosis?

25F, BMI 19
Having infertility investigations
Some weight loss, feeling hot, no neck pain
Family history of thyroid problems
Now feels tired
TFT from Gynae clinic 2 months ago:
- TSH <0.05 (0.5-5.5)
- T4 21.9 (10-23)

Repeat TFT:
- TSH 77.9 (high)
- FT4 9.6
TPO antibodies positive
CAUSES OF THYROTOXICOSIS

With hyperthyroidism:
- Graves' disease (70-80%)³
- Toxic goitre / nodules (20-30%)³
- Drugs
- Other rare causes

Without hyperthyroidism:
- Thyroiditis (viral, postpartum etc.) - <5% ³
- Hashitoxicosis
- Overtreated with thyroid hormones

Nature Reviews Endocrinology volume 14, pages 301–316
GRAVES' DISEASE

Autoimmune
F>M
Diagnostic TSH-Receptor antibody
Thyroid is smoothly enlarged (goitre)
Eye symptoms
Other signs
Initial treatment

Refer patients with confirmed thyrotoxicosis for specialist endocrine assessment

Initial treatment in primary/non-specialist care

1.6.5 Be aware that transient thyrotoxicosis without hyperthyroidism usually only needs supportive treatment (for example, beta-blockers).

1.6.6 Consider antithyroid drugs\(^2\) along with supportive treatment for adults with hyperthyroidism who are waiting for specialist assessment and further treatment.
Treatment

Person 16 years or over with confirmed thyrotoxicosis

Identifying if thyrotoxicosis is with or without hyperthyroidism

Discussing treatment options for thyrotoxicosis with hyperthyroidism

Treating Graves' disease

Treating toxic nodular goitre

Follow-up and monitoring of hyperthyroidism
Treatment options and monitoring

- Person with confirmed thyrotoxicosis
  - Information and support
    - Management in people under 16 years
    - Management in people 16 years or over
      - Follow-up and monitoring of hyperthyroidism
        - After radioactive iodine treatment
        - After surgery
        - During and after treatment with antithyroid drugs
Monitoring of antithyroid drugs

1.7.9 For adults, children and young people who are taking antithyroid drugs for hyperthyroidism, consider measuring:

- TSH, FT4 and FT3 every 6 weeks until their TSH is within the reference range, then
- TSH (with cascading) every 3 months until antithyroid drugs are stopped.

1.7.11 For adults who have stopped antithyroid drugs, consider measuring:

- TSH (with cascading) within 8 weeks of stopping the drug, then
- TSH (with cascading) every 3 months for a year, then
- TSH (with cascading) once a year.
Monitoring after radioactive iodine treatment

1.7.1 Consider measuring TSH, FT4 and FT3 levels in adults, children and young people every 6 weeks for the first 6 months after radioactive iodine treatment until TSH is within the reference range.

1.7.3 For adults, children and young people with TSH in the reference range 6 months after radioactive iodine treatment, consider measuring TSH (with cascading) at 9 months and 12 months after treatment.

1.7.4 For adults, children and young people with TSH in the reference range 12 months after radioactive iodine treatment, consider measuring TSH (with cascading) every 6 months unless they develop hypothyroidism (then follow recommendation 1.7.2).
Case 2: What caused this patient's eye symptoms?

- 50F non smoker
- RAI for Graves' disease 9m ago
- Developed hypothyroidism 3 months later - started on Levothyroxine (LT4)
- Latest thyroid function normal
- C/o persistent eye watering & blurred vision since on LT4, no previous eye problems
TED early warning card

For more information on TED go to www.btf-thyroid.org/teamed or visit Thyroid Eye Disease Charitable Trust www.TEDct.org.uk British Thyroid Foundation www.btf-thyroid.org

Thyroid Eye Disease Early Warning Card
If you have been diagnosed with Graves’ Disease (an overactive thyroid gland) you have a 20% chance of developing Thyroid Eye Disease (TED).

TED may develop months or even years after Graves’ disease has been diagnosed.

Smoking increases the risk of TED.

Common symptoms are:
- Redness in the eyes or lids
- Swelling or feeling of fullness in one or both upper eyelids
- Bags under the eyes
- Eyes seem to be too wide open
- Pain in or behind the eyes
- Gritty eyes; sensitivity to light
- Blurred vision or double vision

If you develop any of these symptoms contact:
Name
Tel

https://www.btf-thyroid.org/teamed-page
Thyroid Eye Disease Amsterdam Declaration Implementation Group UK

TEAMeD-5 Improving outcomes in Thyroid Eye Disease

1. **DIAGNOSE** Graves’ disease accurately
   - Measure TSH receptor antibody (TRab)

2. **SCREEN** all Graves’ patients for TED
   - Use the DioGO clinical assessment tool

3. **ALERT** all Graves’ patients to the risk of TED
   - Give patients TEAMeD Early Warning Cards

4. **PREVENT** TED
   - Encourage smoking cessation
   - Achieve and maintain euthyroidism rapidly
   - Avoid hypothyroidism after I-131
   - Avoid I-131 in active TED

5. **REFER** to a specialist clinic early
   - Refer patients with TED to a specialist multidisciplinary joint thyroid-eye clinic

For more information, visit: [http://www.btf-thyroid.org/teamed-5](http://www.btf-thyroid.org/teamed-5)
GP's ROLE

- Diagnose / confirm thyrotoxicosis
- Initial assessment
- Initiate treatment
- Refer endocrine (+/- eye)
- Prescribe ongoing anti-thyroid treatment
- Monitor:
  - Check thyroid function between hospital visits if required, as part of shared care agreement with secondary care
  - Check FBC / liver function if indicated
  - Monitor thyroid function at least annually after patient is discharged from hospital care
- Re Refer if hyperthyroidism relapses
Patient resources

British Thyroid Foundation: https://www.btf-thyroid.org/

Thyroid Eye Disease Charitable Trust: http://tedct.org.uk/

Guide to anti-thyroid drug therapy, covering risks including agranulocytosis: https://www.btf-thyroid.org/antithyroid-drug-therapy-to-treat-hyperthyroidismleaflet

BTF Thyroid eye disease warning card: https://www.btf-thyroid.org/teamed-page

BTF Thyroid and pregnancy warning card: https://www.btf-thyroid.org/pregnancy-and-thyroid-disorders-guidance-for-patients
PRIMARY CARE
THYROID
PROJECTS
Sustained improvements in monitoring and biochemical control of hypothyroidism in primary care with the use of an electronic protocol at two year follow up

Anh Tran1,2, Steve Hye1, Andrew Rodin3, Nikhil John4, Janis Hickey5, Colin Dayan6 & Onyebuchi Okosie6,7

https://www.endocrine-abstracts.org/ea/0065/ea0065op2.3

Thyroid disorders and pregnancy

An undiagnosed or uncontrolled thyroid disorder can make it harder to conceive and can cause problems during pregnancy. We have guidance to help patients understand more about their thyroid disorder and how it may affect, or be affected by, pregnancy.

In addition, we have resources for medical professionals, consisting of two protocols, a template and a leaflet (information prescription) which have now been adopted by EMIS Health.

If you’ve been diagnosed with a thyroid disorder you should let your doctor know that you’re trying for a baby because they may need to make changes to your medication. Women with a history of thyroid disease in their families and trying for a baby can be at risk of thyroid disease.

If you’re pregnant or want to get pregnant and you have thyroid disease or a history of thyroid disease in your family, please see the information on the following links:

- Pregnancy and Thyroid Disorders - Guidance for Patients
- Pregnancy and Thyroid Disorders - Information for Professionals
- Thyroid in Pregnancy - FAQs

https://www.btf-thyroid.org/thyroid-disorders-and-pregnancy
PROJECT 2 \textsuperscript{6,7}

Hypothyroidism e-alerts (EMIS)

Sustained improvements in monitoring and biochemical control of hypothyroidism in primary care with the use of an electronic protocol at two year follow up

5 GP Practices, 74511 patients, 2418 with hypothyroidism
- TSH check improved from 77\% to 83\%
- TSH within range improved from 68\% to 72\%

Tran et al. Endocrine Abstracts (2019) 65 OP2.3
PROJECT 3
EMIS alerts for optimising thyroid hormone replacement in the preconception period and pregnancy

Pregnancy and thyroid disorders - information for professionals

BTF thyroid and pregnancy information prescription now available in EMIS

We are pleased to announce the launch of the EMIS 'BTF Thyroid disorders and pregnancy' information prescription for women of reproductive age who are on thyroid hormone treatment for primary hypothyroidism.

https://www.btf-thyroid.org/pregnancy-and-thyroid-disorders-information-for-professionals
An undiagnosed or uncontrolled thyroid disorder can make it harder to conceive and can cause problems during pregnancy. We have guidance to help patients understand more about their thyroid disorder and how it may affect, or be affected by, pregnancy.

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https://www.btf-thyroid.org/thyroid-disorders-and-pregnancy
Pregnancy and Thyroid Disorders - Guidance

The guidance below was written by the British Thyroid Foundation (BTF) for patients with thyroid disease who are female and of reproductive age. The guidance is endorsed by the British Thyroid Association (BTA) and is based on currently available UK thyroid guidelines. The guidance is subject to further change as guidelines are updated (http://www.btfthyroid.org.uk/patient-pregnancy/172-pregnancy-and-thyroid-disorders-guidance).

<table>
<thead>
<tr>
<th>Patient name: Minnie Mouse</th>
<th>Date: 3 May 2019</th>
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<tbody>
<tr>
<td>Latest TSH: No events found.</td>
<td>Date of last TSH: No events found.</td>
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</table>

Thyroid disease, if undiagnosed or uncontrolled, can make it harder to conceive and can cause problems during pregnancy. Monitoring and relevant dose changes are especially important in the first trimester (or first 12 weeks of pregnancy).

The following information is designed to help patients understand more about their thyroid disorder and how it may affect, or be affected by, pregnancy. If any of the information is not clear please discuss it with your GP, specialist or midwife and ask them to explain it to you.

If you are pregnant and have a history of thyroid disease (even if you are not on treatment now) for example:

- Subclinical hypothyroidism
- Thyroiditis
- Radioactive iodine treatment
- Thyroidectomy
- Goitre
- Positive thyroid antibodies

Speak to your GP and arrange thyroid blood tests as soon as you have a positive pregnancy test.

If you have an underactive thyroid (hypothyroidism)

- If you are planning a pregnancy you should speak to your GP to arrange thyroid blood tests and ideally aim for a Total Triiodothyronine (T3) level of less than 1.5 pmol/l at the time of conception
- It is recommended that your TSH should be less than 2.5 mU/l in the first trimester of pregnancy and less than 3.0 mU/l after that
- As soon as you know you are pregnant it is usually recommended that your levothyroxine is increased immediately by 25-50mcg daily. You should then contact your GP and arrange to have a thyroid blood test
- If you have had thyroid cancer and are already on doses of levothyroxine that keeps your TSH level suppressed, you will probably not need to increase your levothyroxine but you should discuss this with your GP or specialist
- Thyroid blood tests should be checked every four to six weeks during pregnancy

- Breastfeeding is safe while taking levothyroxine
- If you have an overactive thyroid (hyperthyroidism)

Discuss your plans for pregnancy with your endocrinologist before you try to conceive as it may be necessary to change your medication, or in some cases it can be stopped

Arrange to have thyroid blood tests checked as soon as pregnancy is confirmed

- If you are being treated with antithyroid drugs (e.g. carbimazole or Propylthiouracil (PTU)) and you haven’t already discussed your pregnancy plans with them beforehand, you should contact your endocrinologist or GP as soon as possible after pregnancy is confirmed as it may be necessary to adjust your medication
- You may need to have your thyroid blood tests checked every four weeks throughout the pregnancy but not all patients will need checks this frequently. This will be decided by your endocrinologist
- If you are using antithyroid drugs and develop a rash, sore throat or an unexplained fever you must see a doctor immediately and ask for a full blood count to be arranged due to the small risk of agranulocytosis (low white blood cells)
- People using PTU have a very small risk of liver problems so if you notice any itching or yellowing of your eyes you must see a doctor immediately
- Breastfeeding while taking antithyroid drugs is generally safe but check with your endocrinologist

For further information or advice please speak to your GP or specialist doctor.

This information is endorsed by the British Thyroid Association

www.british-thyroid-association.org

www.btf-thyroid.org

June 2018
The guidance is endorsed by the British Thyroid Association (BTA), and is based on currently available UK thyroid guidelines. ... Thyroid disease, if undiagnosed or uncontrolled, can make it harder to conceive and can cause problems during pregnancy.

Pregnancy and Thyroid Disorders - Guidance for Patients - British ...  
Hyperthyroidism is not a complete diagnosis. Management depends on underlying cause which needs to be established, usually by secondary care.

All cases with confirmed thyrotoxicosis (including T3 toxicosis) need to be referred to secondary care.

Do not forget there are transient causes of thyrotoxicosis (postpartum/viral thyroiditis, Hashitoxicosis, drug, CT contrast, supplements, over-treatment with thyroid hormones etc.).

If in doubt, repeat thyroid function every 4-8 weeks. Trend in TFT may offer clues to diagnosis.
THANK YOU

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Dr Steve Hyer, Consultant Endocrinologist, St Helier Hospital
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Prof Colin Dayan, Prince Charles Hospital, Cardiff
The Endocrine and Chemical Pathology departments, Epsom & St Helier University Hospitals NHS Trust
The British Thyroid Foundation & Association
REFERENCES

1. NICE NG145. https://www.nice.org.uk/guidance/ng145


4. TEAMeD5. https://www.btf-thyroid.org/teamed-page


