

Endocrinology

Hyperthyroidism due to Graves' disease

What is the thyroid gland?

The thyroid gland is an important organ of the endocrine system. It is located in the front of the neck just below the voice box. This gland releases the hormones thyroxine (T4) and triiodothyronine (T3), which control body metabolism. Controlling metabolism is critical for regulating mood, weight, and mental and physical energy levels.

What is Graves' disease?

Graves' disease or thyrotoxicosis is an autoimmune disorder and is the most common cause of an overactive thyroid (hyperthyroidism). It is much more common in women than in men. A family history of goitre or thyroid under or over activity is quite common as hereditary factors are involved.

Patients with Graves' disease usually have an enlarged thyroid gland (a goitre). The swelling can be seen in the front of the neck below the Adam's apple. The enlarged thyroid gland produces increased amounts of thyroid hormones which cause the hyperthyroidism.

About 20% of patients with Graves' disease also develop eye problems (see information on Thyroid related eye disease).

A small minority of patients develop painless red lumps, usually on the shins, called localised myxoedema and a few patients have curving of the finger tips and nails (thyroid acropachy).

Causes

Antibodies to the thyroid gland are produced, one type of which causes stimulation of the thyroid, while others damage the thyroid, leading eventually to an under active gland. The causes of the eye problems, localised myxoedema and acropachy are unknown

Symptoms

Hyperthyroidism leads to an increase in the body's metabolism (energy production) causing:

- Anxiety nervousness and irritability
- Sweating, heat intolerance,
- Thirst
- Tremor



Patient Information

- Palpitations (undue awareness of the heart's action)
- Difficulty in concentrating
- Fatigue
- Insomnia
- Looseness of the bowels and weak muscles.
- Menstrual irregularities
- Goitre.

It causes:

- a rapid pulse;
- warm, moist hands;
- and weight loss, despite an increased appetite;
- The eyes may become prominent and feel gritty and sore, and occasionally double vision occurs.

The features resemble an anxiety state resulting from stress. Graves' disease may also be brought on by stressful circumstances. The presence of a goitre or involvement of the eyes should help your doctor to recognise your thyroid problem.

Tests

- **Physical examination**

May show increased heart rate

Enlarged thyroid gland (goitre)

- **Blood test**

To measure hormone levels

Radioactive iodine optate

Treatment

The available treatments consist of:

- Drugs to reduce the formation of thyroid hormones (antithyroid drugs);
- Surgical removal of part of the gland (partial thyroidectomy);
- Slowly quenching the gland's activity by giving radioactive iodine.

Factors determining the recommended treatment vary from patient to patient

Anti-thyroid drugs

In Britain the drug first used is carbimazole or, if side effects occur, propylthiouracil is the second choice. Drugs are the treatment of choice for patients with mild disease and small goitres, for children, and for women who are pregnant.

Most courses of treatment are continued for a year or eighteen months. High doses are used for six to eight weeks to control thyroid over activity. Then small doses which are adjusted to keep a euthyroid (normal thyroid function) state are given. Others use a "block and replace" regime, where the high dose of carbimazole is maintained, but when the euthyroid state is achieved, a small, daily replacement dose of thyroxine is given.

Patient Information

Side effects are uncommon but may include:

- skin rashes
- hair loss
- itching of the skin
- rarely, fever, joint pains and jaundice.

The most important side effect is rare and is due to a lowering of the number of white blood cells. You would recognise this by the development of a sore throat or ulcers in the mouth, in which case you should stop the tablets and report immediately to your doctor who will check the level of white cells in the blood.

Some patients with severe sweating and palpitations may benefit from beta-blocking drugs, for example, propranolol or nadolol.

The main problem is that the hyperthyroidism may come back after medical treatment is stopped. Relapse is particularly common in patients with large glands or those requiring persistently high doses of medication. Relapse commonly occurs in the first year after withdrawal of treatment and the symptoms are similar to those in the first episode. If you suspect a relapse you should contact your doctor again who will arrange for a further blood test and treatment if necessary.

Radioiodine

This is by far the simplest and most convenient form of treatment. It is given by mouth as a tasteless drink or capsule and is concentrated in the thyroid gland where in time it reduces the over activity. It takes several weeks or months to have its full effect and some doctors treat you with carbimazole or propranolol during this interval. If the thyroid remains overactive further doses of radioiodine may be required.

All patients given radioiodine must be followed up because of the long-term risk of an under active thyroid (hypothyroidism). Symptoms of hypothyroidism include weight gain, feeling the cold, a dry skin, tingling in the fingers, lack of energy, and puffiness of the face (see information on Hypothyroidism).

In Britain radioiodine is the treatment of choice for older patients. There is no evidence of any harmful effects from radioiodine treatment, except that it should not be used for pregnant women, where it can permanently damage the thyroid of the baby.

Thyroid surgery (partial thyroidectomy)

This is generally the treatment of choice for younger patients with large goitres, particularly those pressing on the wind pipe or oesophagus, for those with severe disease and for those who relapse after a course of anti-thyroid drugs. It is only performed after the patient's thyroid activity has been controlled by tablets.

Rare complications of the operation

- Damage to the nerves in the neck causing hoarseness of the voice
- Damage to the parathyroid glands causing tetany (which is cramp and tingling of the fingers and the mouth) see information on Thyroid Surgery

Patient Information

Further Information

Further information can be obtained from:

British Thyroid Foundation

01423 709707 / 01423 709448

www.btf-thyroid.org

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Document History

Author	Rose Gaynon
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Published	July 2010
Reviewed	May 2019
Review	May 2022
Version	4.1
Reference No	HIC/LFT/1075/10