Your Guide to Hyperthyroidism

What is hyperthyroidism?

Hyperthyroidism is a condition where the thyroid gland produces more thyroid hormones than is needed by the body. It is also referred to as thyrotoxicosis, or an overactive thyroid. It can occur if you have:

- Graves' disease - the most common cause
- A toxic multinodular goitre (a goitre is an enlarged thyroid gland)
- A solitary toxic thyroid adenoma (an adenoma is a clump of cells)
- Thyroiditis (inflammation of the thyroid gland) when it is temporary and self-limiting

It can also occur when too much replacement thyroxine (levothyroxine) is taken as a treatment for an underactive thyroid (hypothyroidism).

The majority of patients with hyperthyroidism should be assessed, at least initially, by a specialist in thyroid disorders.

What are the symptoms of hyperthyroidism?

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

- weight loss, despite an increased appetite, although a few patients may gain weight
- palpitations/rapid pulse
- sweating and heat intolerance
- tiredness and weak muscles
- nervousness and irritability
- shakiness
- mood swings or aggressive behaviour
- looseness of the bowels and occasionally nausea
- warm, moist hands
- thirst
- passing larger than usual amounts of urine
- itchiness
- enlarged thyroid gland
- thyroid eye disease

Sometimes the symptoms are so subtle that they go unnoticed for a long time. In other cases they come on suddenly over a period of a few days or weeks and are severe. Many of the symptoms will start to clear up when your treatment takes effect, but some, including thyroid eye disease, may need separate treatment.

What is Graves' disease?

Graves' disease is the most common cause of hyperthyroidism in Europe and is much more common in women than in men. It was named after Robert Graves, an Irish physician, who described patients with this condition in the 19th century. Some patients with Graves' disease have an enlarged thyroid gland (a goitre). The enlarged thyroid gland produces increased amounts of thyroid hormones, which cause the symptoms of thyroid overactivity. About a third of patients with Graves' disease also develop eye problems, known as thyroid eye disease. The eyes may become prominent and feel gritty and sore, and occasionally double vision occurs. The presence of a goitre or involvement of the eyes should help your doctor recognise Graves' disease.

What causes Graves' disease?

Graves' disease is an autoimmune condition. The body's immune system turns against the thyroid gland, which in response becomes over-active. The disease has a strong genetic component and tends to run in families. Stress also seems to play a role and sometimes people with Graves' disease may have experienced major stresses in their lives a year or so before Graves' disease is diagnosed. Graves' disease is more common in people who smoke cigarettes. Smokers are also up to eight times more likely to develop thyroid eye disease than non-smokers.

How is hyperthyroidism diagnosed?

By a physical examination and blood tests. If the thyroid-stimulating hormone (TSH) blood level is low - below the reference range - and the thyroxine (FT4) blood level is high - above the reference range - this usually indicates an over-active thyroid. Another blood test to measure the antibody levels (the '**TSH receptor antibody**') in your blood can establish whether or not it is Graves' disease. Rarely, your specialist may also do a thyroid scan.

What is the treatment for hyperthyroidism?

Your treatment will depend on several factors, such as the type of hyperthyroidism you have, and the severity. The available treatments are antithyroid drugs to reduce the production of thyroid hormones; surgery to remove all or part of the thyroid gland; or radioactive iodine. In some cases, the thyroid over-activity may settle down without any specific treatment when caused by a thyroiditis. Each treatment has pros and cons. Your specialist will weigh these up with you to determine which suits your case best.

- Antithyroid drugs are often used as the first treatment and are the treatment of choice for children, and for women who are pregnant. In Europe the drug first used is **Carbimazole (CMZ)**. If this causes you side effects, or if you are or plan to be pregnant, **Propylthiouracil (PTU)** is used. A course of drug

treatment lasting up to eighteen months gives you approximately a 30-50% chance of a cure, depending on the size of the goitre and how severe the overactivity is. It is important to continue to take your tablets every day as forgetting to take them will affect your blood test results and your health. You should not stop them unless advised by a doctor even if another illness develops. Smoking reduces the chance of a cure after a course of antithyroid drugs.

- Surgery is usually the treatment of choice for younger patients with large goitres, for those with severe disease, and may be considered for those whose thyroid overactivity comes back after a course of antithyroid drugs. After surgery, you are likely to need to take levothyroxine for the rest of your life.

- Radioactive iodine is very effective, is safe and rarely causes side effects. You usually need to take levothyroxine for life after radioactive iodine treatment (RAI) if you have Graves' disease but not for as long if the cause of the thyroid over-activity is a toxic multinodular goitre or a solitary toxic thyroid adenoma. RAI also shrinks the goitre. This treatment is not advised if you have active thyroid eye disease unless you are also treated with steroids.

- Beta-blockers are tablets that are sometimes used in the first few weeks after diagnosing hyperthyroidism as they relieve some of the symptoms while waiting for other treatments (radioactive iodine or antithyroid drugs) to take effect.

- The hyperthyroidism associated with thyroiditis is temporary and settles down without any specific treatment. Beta-blockers are helpful to ease the symptoms.

There is a very rare and unpredictable side-effect of antithyroid drugs due to a lowering of the number of white blood cells, which is called agranulocytosis. Patients with low white blood cells may develop a sore throat, mouth ulcers, rash, or fever. Therefore, if you develop a sore throat, mouth ulcers, rash or an unexplained fever, **stop taking the tablets immediately and have your white cell count checked urgently either through your GP or by going to your local Accident and Emergency department.** In most cases, it turns out to be a false alarm and you can re-start your medication.

Very rarely, **serious liver injury** has been reported in patients, including children, taking PTU, especially during the first six months of taking the drug. Your doctor should monitor you for symptoms and discontinue the PTU if liver injury is suspected. **If you notice any yellowing of the eyes or skin you should see your doctor immediately.**

Due to the unpredictable and rare nature of these side effects, regular monitoring of blood count or liver functions is not recommended, though some doctors may do a baseline test which may help them monitor future changes.

After treatment - what then?

Blood tests are carried out every two to six months when you first start taking antithyroid drugs, and every 6-12 months during long-term treatment. After a single course of antithyroid drug treatment, your hyperthyroidism may be cured if the cause of the thyroid overactivity is Graves' disease. Provided you are symptom-free and your thyroid blood tests are normal one year after treatment you will need no further check-ups, other than occasional thyroid blood tests. It is, however, important to see your GP and to ask for a blood test if you notice any symptoms of hyperthyroidism in the future.

If you have had radioactive iodine or surgery, you should have frequent blood tests to check your thyroid function until you are stable, and once a year after that, as there is a long-term risk of developing hypothyroidism. Symptoms of hypothyroidism include weight gain, feeling the cold, dry skin and hair, pins and needles in the fingers, lack of energy, and puffiness of the face. Tell your doctor if you are taking any other prescription or over-the-counter medication as this may affect your blood tests.

If you have hyperthyroidism and are planning to become pregnant you should see your doctor. You should use contraception in the meantime. You should have a thyroid function test preferably before you become pregnant and very early in pregnancy, because you may need to change your medication and have more frequent blood tests. Do not stop taking antithyroid drugs before speaking to your doctor. There is greater risk to the pregnancy from an untreated overactive thyroid gland than from taking antithyroid medication.

You may have got used to increased food intake without weight gain during the period of thyroid overactivity (increased metabolism). Once the thyroid function and metabolism is normalised by any of the forms of treatment, you may have to reduce your food intake to avoid undesirable weight gain.

Some important points….

- You will normally be referred to an endocrinologist - a doctor specialising in thyroid and other endocrine disorders
- It is important to take your tablets every day as forgetting to take your tablets will affect your blood test results and your health
- You should not stop any thyroid medication unless advised by a doctor, even if other illness develops
- If you are pregnant, or are planning to have a baby, you should tell your doctor as you may need your medication adjusted and more frequent blood tests
- Some medications can affect the blood test results, so it is important to tell your doctor about all other medication you are taking even if it is over the counter or non-prescription
- If you are taking antithyroid drugs and develop a sore throat, mouth ulcers, rash, or an unexplained fever, **stop taking the tablets immediately and go to your GP or nearest Accident and Emergency department** and ask for a white cell count

- If you are taking PTU and notice yellowing of the eyes or skin you should see a doctor immediately and ask for a liver enzyme test

Thyroid problems often run in families and if family members are unwell they should be encouraged to discuss with their own GP whether thyroid testing is warranted.

If you have questions or concerns about your thyroid disorder, you should talk to your doctor or specialist as they will be best placed to advise you.

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