NHS
Southport and Ormskirk Hospital
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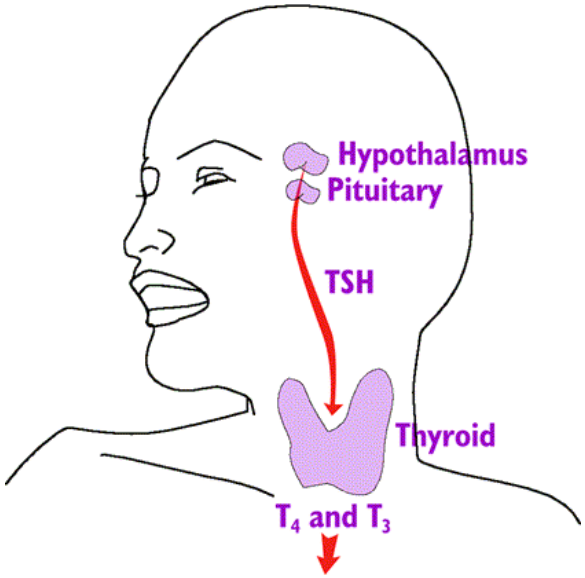
PATIENT INFORMATION

Thyroid Disorders

The Thyroid Gland

The thyroid is a butterfly-shaped gland that is located in the front of the lower part of the neck and consists of two connected lobes on each side of the windpipe. It begins to develop very early in the human embryo about three weeks after conception. It develops first at the base of the developing baby's tongue, and then migrates downwards into the neck to take up its final position below the thyroid cartilage (also called Adam's apple). Early in the pregnancy, the baby receives thyroid hormone from the mother. While the thyroid gland is developing, the hypothalamus and pituitary are also forming. The hypothalamus begins to send signals to the pituitary, which in turn stimulates the thyroid gland to grow and to produce thyroid hormone.

The function of the thyroid gland is to make thyroid hormone and secrete it into the bloodstream. The pituitary gland makes thyroid stimulating hormone (TSH), which is also called thyrotropin. When the thyroid gland is producing too little thyroid hormone, the pituitary is able to sense this. As a result, it increases its output of TSH, which circulates in the blood to the thyroid gland and stimulates it to produce more thyroid hormone. When the thyroid is secreting enough thyroid hormone, this causes the pituitary to decrease its secretion of TSH to a normal level. If the thyroid is secreting too much thyroid hormone, this causes the pituitary gland to reduce its secretion of TSH to a low level.



Actions of thyroid hormone

Normal levels of thyroid hormone are essential for normal physical growth and development throughout childhood. It is also necessary for normal brain growth in the first two years of life as well as for brain function throughout life. Thyroid hormone is important in regulating the body's metabolic rate, so that when there is a low level (deficiency) of thyroid hormone, the metabolism slows down, and when there is too much (excess), the metabolism speeds up.

Low thyroid hormone levels (hypothyroidism) may cause the following symptoms:

- fatigue
- insomnia
- weight gain
- problems with memory and concentration
- depression
- goiter (enlarged thyroid gland)
- dry skin
- extreme sensitivity to cold
- constipation
- poor feeding
- irregular menstrual periods

Congenital Hypothyroidism

The term congenital hypothyroidism describes a condition that is present at birth (congenital) and in which the thyroid gland is underactive or absent.

Congenital hypothyroidism can be divided into three categories:

1. Thyroid dysgenesis (the thyroid gland is either absent- athyreosis, or is in an abnormal position- ectopic)
2. Thyroid dyshormonogenesis (due to abnormal production or release of thyroid hormone)
3. Central hypothyroidism (due to abnormal formation or function of the hypothalamus and/or pituitary gland)

All babies born in UK are screened for congenital hypothyroidism due to dysgenesis or dyshormonogenesis in the newborn screening test whereby between two to five days after birth, a small amount of blood is taken from the baby's heel. A high level of TSH in the blood spot identifies babies who have congenital hypothyroidism due to dysgenesis or dyshormonogenesis. The test does not identify babies with central hypothyroidism. With early diagnosis and treatment almost all infants with congenital hypothyroidism, including those affected severely, will develop normally, both physically and mentally.

Autoimmune Thyroiditis

Autoimmune thyroiditis, also known as Hashimoto's disease, is a chronic inflammatory disorder of the thyroid gland that is caused by abnormal antibodies that mistakenly attack and damage healthy thyroid cells. It is a progressive disease that

may destroy the thyroid gland, causing thyroid hormone deficiency (hypothyroidism).

- Autoimmune thyroiditis is often diagnosed by:
- Enlargement of the thyroid, known as a goiter
- High levels of antibodies against thyroglobulin (TG) and thyroid peroxidase (TPO) antibodies detected by a blood test
- Ultrasound, which would show an enlarged thyroid gland
- A radioactive uptake scan, which would show diffuse uptake in an enlarged thyroid gland

Treatment of Hypothyrodism (underactive thyroid)

In all forms of permanent hypothyroidism, the thyroid gland is unable to make enough thyroid hormone for the body's needs, and therefore this hormone must be replaced as thyroxine. It is given in tablet form by mouth as a daily dose. The thyroid hormone (thyroxine) that is present in the tablets is exactly the same as the thyroid hormone that is naturally present in the body.

The dose of thyroid hormone that is required varies with body size and naturally, as the child grows, a higher dose may be needed. Once treatment has been started, blood tests are done at regular intervals in order to measure the amounts of thyroid hormone and TSH in the blood. These tests are usually done three to six weeks after starting thyroid hormone treatment, then every three months for the first two to three years of life, and at about four to six month intervals thereafter. The frequency of testing depends on various factors, such as a child's age and whether there has been a recent change in dose. The aim is to keep the

thyroid hormone level in the blood at about the upper limit of normal. Treatment for permanent hypothyroidism is life-long. If the tablets are not taken for a prolonged time, the symptoms of hypothyroidism will return.

Graves Disease

Graves' disease is an autoimmune disease in which the own immune system attacks the thyroid gland. An antibody called thyrotropin receptor antibody (TRAb) makes the thyroid gland produce large amounts of thyroid hormone (thyroxine). It most commonly affects the thyroid, frequently causing it to enlarge (goiter) and become overactive.

High thyroid hormone levels (hyperthyroidism) may cause the following symptoms:

- anxiety
- moodiness and irritability
- insomnia
- lethargy
- irregular heart beat
- accelerated heart beat
- Tremor in the hands and fingers
- Sensitivity to heat
- Weight loss, even though the patient eats properly
- Brittle hair
- Menstrual cycle changes
- Bowel movements are more frequent
- bulging eyes (exophthalmos)

Treatment of Hyperthyrodism (overactive thyroid)

There are no medications or treatment currently available today that can stop the patient's immune system from

attacking the thyroid gland and causing Graves' disease. However, treatment is given to ease symptoms and lower the production of thyroxine or block its action.

- *Beta blockers* - examples include propranolol, atenolol are generally effective medications for relieving the signs and symptoms of hyperthyroidism, such as accelerated heartbeat, anxiety and nervousness, and tremors. Beta blockers have no effect on the amount of thyroxine the gland produces.

- *Antithyroid* medicine- examples include Propylthiouracil and Carbimazole given in tablet form. They prevent the thyroid gland from producing excessive amounts of thyroid hormone. If you are pregnant, Propylthiouracil may be safer than Carbimazole.

  Side effects of antithyroid medicine include:
  - Rash and itching
  - Joint aches
  - Liver problems. Signs of liver problems are yellow eyes or skin, severe tiredness, or pain in your belly.
  - Low white blood cell count, which can make it hard for your body to fight infection. If you have a low white blood cell count, you may become sick easily and have symptoms such as fever and a sore throat. Call your doctor right away if you have any signs of side effects. Side effects can be serious. But they usually go away after you stop taking the medicine.

  If you take antithyroid medicine, you may develop low thyroid levels (hypothyroidism), which means your body is making too little thyroid hormone. If your thyroid hormone levels are too low, your doctor may

prescribe a small amount of thyroid medicine to take along with your antithyroid medicine. This is called a ‘block and replace’ method of treatment.

- *Surgery* - this involves surgically removing the thyroid gland (thyroidectomy). It may be an option for patients who cannot tolerate anti-thyroid medications, or those who do not wish to receive radioactive iodine therapy. Patients will subsequently require thyroxine treatment to make sure their blood levels of thyroid hormones are adequate. A thyroidectomy carries the risk of damage to the vocal cords and parathyroid glands. Parathyroid glands are very small glands located next to the thyroid gland; they produce a hormone which regulates blood levels of calcium. Complications are extremely rare if the patient has a good surgeon.

- *Radioactive iodine treatment* - iodine is needed for the gland to produce thyroid hormone. If a patient receives radioactive iodine it soon accumulates in the thyroid gland and the radioactivity slowly destroys the thyroid cells. Patients with severe Graves' eye symptoms may not be suitable for radioactive iodine treatment.

During your contact with us, it is important that you are happy with your care and treatment. Please speak to a member of staff and/or the ward/department Sister/Charge Nurse if you have any questions or concerns.

MATRON

A Matron is also available during the hours of 9.00 to 5.00 pm Monday to Friday. During these periods, ward/department staff can contact Matron to arrange to meet with you. Out of hours, a Senior Nurse can be contacted via the ward/department to deal with any concerns you may have.

INFECTION CONTROL REQUEST

Preventing infections is a crucial part of our patients' care. To ensure that our standards remain high our staff have regular infection prevention and control training and their practice is monitored in the workplace. We ask patients and visitors to assist us in preventing infections by cleaning their hands at regular intervals and informing staff of areas within the hospital that appear soiled.

As a patient there may be times that you are unsure whether a staff member has cleaned their hands; if in doubt please ask the staff member and they will be only too happy to put your mind at ease by cleaning their hands so that you can see them.

SPECIAL INSTRUCTIONS

None

ANY CONDITION SPECIFIC DANGER SIGNALS TO LOOK OUT FOR

CONTACT INFORMATION:

Your own GP –
Children's Ward – 01695 656912/656612

OTHER USEFUL TELEPHONE NUMBERS/CONTACTS:

NHS 111
Stop Smoking Helpline (Sefton) - 0300 100 1000
Stop Smoking Helpline (West Lancashire) - 0800 328 6297

Please call 01704 704714 if you need this leaflet in an alternative format

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Please remember to complete the **attached** *Friends and Family Test*.
Alternatively, you can complete the *Friends and Family Test* on-line by going to:
southportandormskirk.nhs.uk/FFT
Thank you

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