

THYROID CANCER

Patient Information Book 1

THE

THYROID GLAND

AND

THYROID CANCER

Introduction, Tests and Treatment

THE THYROID GLAND

What is the thyroid gland?

The thyroid gland is an endocrine gland, which means that it manufactures hormones which are then secreted into the bloodstream and subsequently act as messengers to affect cells and tissues in other parts of the body.

Where is the thyroid gland?

The thyroid gland is made up of two lobes (each about the size of half a plum) which are joined together by a ridge of thyroid tissue called the isthmus. The two lobes lie on either side of your windpipe, with the gland as a whole lying just below your Adam's Apple.

What does the thyroid gland do?

- The thyroid gland produces three hormones which it secretes into the bloodstream. The first is called 'Thyroxine' which contains four atoms of iodine and is often called T4. If low or no thyroxine is produced it can easily be replaced with medication.
- The second is called 'Triiodothyronine' which contains three atoms of iodine and is often called T3. In the cells and tissues of the body the T4 is converted into T3, and it is the T3 (derived from T4, or secreted as T3 from the thyroid gland) that is active and influences the activity of all the cells and tissues of the body. If little or no T3 is produced it can easily be replaced with medication.
- The third is called 'Calcitonin' which is produced in response to increased levels of calcium in the blood. Calcitonin helps to lower calcium and phosphate levels in the blood by promoting their excretion. This hormone is produced in excess when medullary thyroid cancer is present. If low or no calcitonin is produced the body can manage to balance quite well without it having to be replaced.

What do the thyroid hormones do?

The T4, and the T3 derived from T4, influence the metabolism of your body cells; that is, it regulates the speed at which your body cells work. If too much of the thyroid hormones are secreted, the body cells work faster than normal, and you have 'hyperthyroidism'. However if too little of the thyroid hormones are secreted then the body cells work slower than normal, and you have 'hypothyroidism'.

How is the thyroid gland controlled?

Most glands work in conjunction with other glands, and the thyroid gland works with the pituitary gland. The thyroid is controlled by the pituitary, which lies underneath your brain in your skull and senses the levels of thyroid hormones in your bloodstream. If the levels drop below normal, the pituitary reacts by secreting a hormone called the 'thyroid stimulating hormone' which is often called TSH. TSH stimulates the thyroid gland to secrete more T3 and T4. Should the thyroid hormone levels rise above normal levels the pituitary senses this and stops secreting TSH and so the thyroid gland slows down its secretion of T3 and T4. If

you need thyroxine medication this does not cause any problems to TSH.

How is thyroid activity measured?

Your doctor will be able to get a good assessment of your thyroid gland activity by taking a history of your symptoms and by a physical examination. However, to gain an exact level of the thyroid hormones, it is necessary to take a small sample of blood, which when analysed in the laboratory will show how much T4 and T3 is being secreted, and how active your pituitary is, by measuring the level of TSH. These tests are sometimes called thyroid function tests or TFTs.

What are the parathyroid glands and how do they affect calcium levels?

Another set of glands that work in conjunction with the thyroid gland are the parathyroid glands. The parathyroids are attached behind the thyroid and normally are four in number, although this can sometimes vary. The parathyroids produce Parathyroid Hormone (PTH) and this regulates the concentration of calcium in the blood. Normal calcium levels in the blood are essential for healthy bones, blood coagulation, cardiac rhythm and cellular permeability as well as for general well-being. When there is an increase in blood calcium the parathyroids are inhibited and the reverse when the blood calcium is low.

Do remember all of the mentioned hormones and chemicals can easily be replaced with medication if there is a problem and will not effect your pituitary gland function.

THYROID CANCER

Cancer of the thyroid gland is very slow growing and it may be many years before the symptoms present themselves.

Are all differentiated thyroid cancers the same?

No, there are different types:-

Papillary cell carcinoma -

This is the most common thyroid cancer. It is more common in younger people, particularly women.

Follicular cell carcinoma -

This is less common, and tends to occur in slightly older people than those with papillary cancer.

Medullary cell carcinoma -

This is a rare cancer, which is often but not always hereditary. Ask your specialist if your family would need or wish genetic counselling.

**** MOST THYROID CANCERS ARE VERY TREATABLE AND CURABLE ****

What is the Cause of Thyroid Cancer?

The cause of thyroid cancer is unknown. However, a recognised risk factor is radiation exposure and it has been found in people who have had external radiotherapy to the neck 10 or 20 years previously as well as in “Chernobyl children”. Research into the causes of thyroid cancer is ongoing. Medullary cancer can be hereditary and on the very rare occasionally so can papillary

What are the Symptoms of Thyroid Cancer?

A painless lump in the neck which gradually increases in size.

Difficulty in swallowing (Dysphagia) - due to the anatomical position of the thyroid gland and the oesophagus (eating pipe).

Difficulty in breathing (Dyspnoea)- due to the anatomical position of the thyroid gland and the trachea (windpipe).

Hoarseness of voice.

Often there are no symptoms and it is found “by chance”.

Hyperthyroidism and Hypothyroidism are rare, as cancer cells do not excessively affect hormone production from the thyroid.

What tests will I need?

Following presentation to your GP with one of the above symptoms, you will need to have some special investigations to confirm the diagnosis.

Fine needle aspiration - is done in the out-patient department. A sample of cells is extracted by means of a very small needle passed into any swelling you may have in your neck. These cells are then analysed under a microscope to reveal any abnormalities and what type of growth or cancer it may be. This will be one of the main tests that will help confirm your diagnosis.

Blood test - is done to see if the thyroid hormone levels are within normal limits. While this does not in itself diagnose a cancer it does help with the overall diagnosis and safety when planning treatment.

Ultrasound scan - of the thyroid gland is obtained by use of sound waves to show a picture of any solid lumps or cysts. Again this in itself cannot confirm cancer but it can help with the overall diagnosis and in planning treatment.

Radioisotope scan - is done by giving you a radioactive iodine injection then after 20 minutes a gamma camera is placed over the neck. The camera measures the amount of radioactive substance taken up by the thyroid gland. Cancer cells do not absorb radioactive substances as well as normal thyroid cells, so the scan will be able to locate areas where cancer cells may be present. However it is not a reliable first line test, and many so-called 'cold' nodules are benign. The test is particularly helpful for planning treatment.

What Treatment will I be offered?

You may be offered Surgery (thyroidectomy)

Surgery is usually the first line of treatment for thyroid cancer. The whole (total thyroidectomy) or part of the thyroid gland (partial thyroidectomy) may need to be removed depending on various factors such as your age, size of the lump and results of the mentioned tests. The parathyroid glands may be or may not be removed. After a total thyroidectomy, thyroxine tablets will need to be taken as prescribed for the rest of your life, and regular blood tests will be needed to monitor that the thyroid hormone levels are within normal limits. Eventually you should only need a blood test and check once or twice a year. If a partial thyroidectomy is done you may not need thyroxine tablet replacement but your specialist centre will advise.

Following surgery you will need to have monitoring of your hormone levels.

Following your thyroid surgery you will be monitored by your General Practitioner (GP) regarding your thyroid replacement medication and check up blood tests will be done. In the initial post treatment time please contact your GP or treatment centre if you feel extremely tired, or have feelings of pins and needles in hands/feet/face, or feel shaky or become very over-active, or generally feel very unwell. This may mean you need to have your thyroxine or calcium levels checked and your medication dose increased, or decreased as the case may be. Once your body has settled you will be able to lead a normal life but you will need to continue to take the thyroxine tablets for the rest of your life.

You may also need to have Radio-Iodine Treatment

Some people may need radioactive iodine treatment following surgery. Your doctor will tell you if this is the case. Radio-Iodine Therapy is painless, taken as one or two capsule-type tablets in a single dose. You should not feel sick or lose any hair or have any other side effects with the usual dose required. It is a very low dose of radiation but for the safety of others for the first two to four days a person needs to reduce their social contact and to come into hospital. If you need this treatment you will be informed by your specialist consultant and given an information booklet before you start treatment.

**** Most thyroid cancers are very treatable and curable ****

Please contact your Specialist Treatment Centre Staff or your General Practitioner if you have any questions or concerns after reading this information book. Together we can help you through your investigations, information, treatment and recovery.

Useful Contact Numbers

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Asian language line 0171 713 786

Cancer BACUP 0800 800 1234 www.cancerbacup.org.uk

CancerHelp UK <http://medweb.bham.ac.uk/cancerhelp>