

Understanding Thyroid Disorders

Dr K Kumaresan

Thyroid is a very important gland in the front of the neck. It is butterfly or shield shaped and is prominently seen in some young ladies with thin neck. A normally working thyroid gland with normal levels of circulating thyroid hormones in the blood is essential to maintain our all organ systems 'in tune'. Some people mistake the word *thyroid* itself as a disease!

Medical problems of thyroid gland – 'Hypo and Hyper'

The production of hormones by thyroid gland is monitored and controlled by a master gland called Pituitary through release of a messenger circulating in the blood called 'TSH' ie Thyroid Stimulating Hormone. For some reason, the thyroid gland can behave erratically with under or over production of the hormones resulting in the whole body going into Hypothyroid or Hyperthyroid State respectively. These conditions may or may not be associated with swelling of the thyroid gland. These are diagnosed based on the clinical findings in the patient as well as based on laboratory blood estimations of the hormone levels. These are handled easily by General Physicians, Internists and Medical Endocrinologists.

Hypothyroidism:

When there is deficiency of thyroid hormones in the body, patient suffers from any of the following – lethargy, lack of appetite, excessive weight gain, puffy face, constipation, sleepiness, hoarseness of voice, dry skin and forgetfulness. These patients are treated with life long replacement of thyroid hormones using daily tablet medication. The right dose of the tablet is decided based on clinical response and blood reports. One has to remember that it will take 4 to 6 weeks to expect any change in the body when the dose is changed. Getting the blood investigations done at any time is not only unnecessary but can also cause confusion.

Hyperthyroidism

Patients with excessive thyroid hormones in their blood are likely to suffer with any of the following manifestations - loss of weight, unusually high appetite, anxiety, tremors, palpitations, increased sweating, irritability, easy fatigability, etc. Anti-thyroid medication in the form of tablets can be tried in different doses for 6 to 18 months duration to bring down the level of thyroid hormones in the blood. By this treatment, in some patients, the thyroid gland may be 're-set' to proper function, but in others an alternative permanent solution may need to be considered. Few patients may be referred to the surgeon for removal of the thyroid gland. Many other patients are recommended destruction of the thyroid tissue with a single dose of radio-isotope Iodine -131 which is given orally in the form of capsule or liquid. It is preferred to make the patient hypothyroid with radio-iodine and then switch over to life long thyroid hormone replacement.

Radio-iodine Therapy for Hyperthyroidism is safe.

Patients accept many tests which involve high radiation exposure like CT scan and many powerful drugs and antibiotics without any questioning when prescribed by their doctors. But when it comes to treatment with Nuclear Medicine, there is lot of apprehension in the mind of the general public due to lack of knowledge on the safety of this treatment even with medical doctors. This treatment involves oral administration of a single dose radioactive salt I-131 (Sodium Iodide) in the form of a capsule or drops, just similar to a pinch of the table salt Sodium chloride. This isotope selectively accumulates in the thyroid gland without any risk of unnecessary radiation to other parts of the body and there is no room for concern about developing any cancer later due to this treatment! Only pregnant and breast feeding women cannot undertake this treatment. It is safe to give this treatment to even children who need this. Many doctors have wrong idea that this treatment can be given to women only after menopause or after completing family!

Surgical problems of thyroid gland – ‘Goitre, Nodule & Thyroid Cancer’

Some patients present with diffuse swelling of thyroid gland (Goitre) or with a localized growth (Nodule) from the thyroid gland. Most of the diffuse swellings are usually innocent and do not warrant any surgery. Similarly all nodules are not cancerous. However proper clinical assessment by an expert surgeon and appropriate investigations like scanning procedures & a needle test are to be carried out to identify more serious conditions like thyroid cancer which can be cured completely if diagnosed early. When partial thyroid surgeries could be performed by most surgeons, more extensive surgeries should be done by those who are specially trained for this and who happen to perform this operation on a regular basis.

Thyroid Cancer

Most of the thyroid cancers are relatively slow growing and hence not affecting the life of the patient for several years. If diagnosed early when the tumor is small, surgical removal of not only the tumor but also the entire gland is carried out with good long term results. If the patient is aged, if the tumor is large, or if the tumor has gone beyond the thyroid gland locally or spread to the nearby lymph nodes, then even after good surgical clearance, high dose radio-iodine therapy is recommended to ‘clean up’ any remaining thyroid cells invisible to the surgeon.

Radio-iodine Therapy in Thyroid Cancer

When external beam radiotherapy is commonly used in many other cancers, radio-iodine therapy is unique for selectively targeting both normal and diseased thyroid tissue within the body. With radio-iodine administered to the patient, one can obtain nuclear scan of the body to know the presence of remaining disease as well as treat them. Higher doses of radio-iodine I-131 required for thyroid cancer treatment can be administered only in isolation room within hospitals taking into consideration radiation safety for the family and the public. The radioactive medicine not taken by thyroid tissue is excreted via urine, saliva, feces and sweat; By 24 to 48 hours, the radiation exposure from the patient comes down to levels safe enough for discharge.

Successful elimination of residual thyroid tissue after surgery has been proved to be of great benefit to the patient who lives longer without cancer recurrence or spread. Even in patients in whom the disease has already spread to distant parts of the body like lung and bones, it is possible to treat them with repeated high doses of radio-iodine and give good quality longer life. Radio-iodine treatment will be effective only if the medicine enters the cancerous tissue and for this to happen the tissue has to be stimulated by the patient's own pituitary hormone called TSH (Thyroid Stimulating Hormone). Normally to control the disease, this TSH level in the blood is kept suppressed by regular intake of thyroid hormone tablets. Whenever radio-iodine treatment is planned we have to withdraw the thyroid hormone tablets for at least four weeks to raise the TSH level in the blood which can be uncomfortable to the patients. Nowadays thanks to genetic engineering recombinant human TSH injections are also available for this purpose. Without stopping thyroid hormone tablets, with two intramuscular injections of this new TSH, one can go ahead with the radio-iodine treatment and achieve equally good results. There is a growing need for more and more Nuclear Medicine facilities in our country to meet the requirements of the increasing population of patients with thyroid diseases.

The author is an eminent Nuclear Medicine Specialist in the country who is a Consultant at KK Nuclear Scans Hyderabad. drkkumaresan@gmail.com