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## Thyroid and its Complications

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### Thyroid and its Complications

#### Thyroid Gland

Thyroid is said to be the largest among all the endocrine glands, having two lobes and is situated in the neck below the thyroid cartilage. This gland actively participates in controlling the body activities and observes how sensitive the body is to the other hormones. The So called T3 and T4, [1] commonly called as triiodothyronine and tetraiodothyronine are synthesized from iodine and tyrosine; plays a vital role in regulating the growth and functioning of many other systems in the body. [2-5] But, the whole hormonal output is regulated by TSH i.e. (Thyroid-Stimulating Hormone), where itself being regulated by TRH (Thyrotropin Releasing Hormone); produced by hypothalamus.

The hormones of the Thyroid organ, T3 & T4, help the body to deliver & control adrenaline, epinephrine, and dopamine; each of the three of which is dynamic in cerebrum science. [6-10] Different hormones from this organ likewise help in controlling the digestive system. If there is no proper functioning of thyroid, the body would not have the capacity to separate proteins, and it would not have the capacity to process sugars and vitamins.

So, these glandular issues may lead to wild over-weight problems. For some individuals, these anomalies can be controlled through pharmaceutical, and a change in their eating regimen. On the other hand, there is one other controlling element. [7-9] The organ can't create hormones all alone. It needs the help of the pituitary organ, which creates thyroid stimulating hormone (TSH). Accordingly, a nonfunctional pituitary organ, at the end can lead to thyroid-organ related issues. TSH will either trigger the generation of thyroxine and triiodothyronine. [11-14]

#### Common Thyroid Conditions and their Complications

##### 1. Hypothyroidism

Hypothyroidism commonly called as underactive thyroid, is a condition where the gland does not sufficiently secrete hormones. It can be brought on by the immune system issue Hashimoto's thyroiditis, illumination or surgical evacuation of the thyroid organ, and medicines that diminish thyroid hormone levels. Anybody can have hypothyroidism; however individuals who are most at danger incorporate the individuals who are over age 50 and female. [15,16] Notwithstanding, just a little rate of individuals have out and out (plain) hypothyroidism.

Common Complications:

- **Goiter**

A condition in which the the thyroid gland enlarges in size due to excessive stimulation of the hormone is commonly called as goiter. Hashimoto thyroiditis is one of the most common causes of a goiter. [17] This enlargement affects daily lives in many ways; it is generally not comfortable, affects the appearance and also infers with swallowing and breathing.

- **Heart problems**

Hypothyroidism might also cause an expanded danger of coronary illness, basically in light of the fact that abnormal amounts of low-density lipoprotein (LDL) cholesterol — the "bad" cholesterol — can happen in individuals with an underactive thyroid [18]. Indeed, even subclinical hypothyroidism, a harmless condition than genuine hypothyroidism, can bring about an increase in total cholesterol levels and disable the pumping capacity of your heart.

- **Mental health issues**

Depression is one of the most common mental health issues that can be seen with the individuals having Hypothyroidism. It also slows down the functioning of the brain [17-20].

- **Myxedema**

This is the most life-threatening condition which is a result of long-term, undiagnosed hypothyroidism. Intense cold intolerance and drowsiness followed by profound lethargy and unconsciousness are some of the signs and symptoms of this disease [19]. Myxedema in extreme conditions can be treated with the use of sedatives.

- **Infertility**

Thyroid hormone in much lower levels can interfere with menstrual patterns, which increases the chance of causing infertility [21]. Fertility can be restored by treating it with Thyroid replacement therapy.

- **Birth defects**

A recent study revealed that babies of untreated thyroid patients have a higher risk of birth defects than babies born to healthy mothers. So, these babies of untreated patients have more chances of getting prone to developmental issues; which includes both physical and mental development [22]. However, it can be treated if the condition is diagnosed at earlier stages.

## 2. Hyperthyroidism

Hyperthyroidism is an abnormal condition in which the gland releases thyroid hormone in excessive amounts than that required by the body. This condition is commonly referred to as Overactive Thyroid or Overactive Thyroid Disease.

As, thyroid gland is located in the front of your neck; hormones released by the thyroid affect nearly every part of your body from your brain to your skin and muscles. They play a crucial role in controlling how your body uses energy, a process called metabolism.

Common Complications:

- **Graves' disease**

The most common cause of hyperthyroidism is an autoimmune condition called Graves' disease [23]. The body's immune system creates an antibody that causes the gland to make an excessive amount of thyroid hormone. Graves' disease runs in families, and usually affects younger women.

- **Thyroiditis**

Thyroiditis is inflammation of the thyroid [24-27]. A virus or problem with the immune system causes the gland to swell, leaking thyroid hormone into the bloodstream. There are several types of thyroiditis.

- **Thyroid nodule**

One or more lumps, or nodules, can grow in the thyroid gland, gradually increasing the gland's activity and the amount of thyroid hormone in your blood. If one nodule causes hyperthyroidism, it is called a single toxic nodule [28-30]. If several nodules cause the thyroid to become overactive, the condition is called toxic multi-nodular goiter.

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