

## ROLE OF DHATWAGNI IN HYPOTHYROIDISM

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### ABSTRACT

Hypothyroidism is a common endocrine disorder resulting from deficiency of thyroid hormone. The main action of thyroid hormone is to act as a spark to start-up body metabolism at cellular level. Even though there are no direct references in *Ayurvedic* classical texts in terms of hypoproduction of the hormone by the thyroid gland. In *Ayurveda*, it can be correlated with the actions of *Agni*. In Hypothyroidism this rate is slowed down and there is decreased tissue metabolism. This slows down the rate of ATP synthesis, protein synthesis, hampers carbohydrate and lipid metabolism. The hypometabolism that occurs in hypothyroidism is similar to the concept of *Manda Agni*. *Manda Agni* leads to the various clinical features similar to features of Hypothyroidism.

**KEYWORDS:** *Dhatwagni*, Hypothyroidism, Hypometabolism, *Mandagni*.

### INTRODUCTION

Hypothyroidism results when the thyroid gland fails to produce enough of the thyroid hormone, due to structural or functional impairment that significantly impairs its output of hormones, this leads to the hypo metabolic state of hypothyroidism. Incidence is more prevalent among the females with male female ratio being 1:6.<sup>[1]</sup> Hypothyroidism can be primary or secondary in cause.<sup>[2]</sup>

Hashimoto's Thyroiditis is the most common cause of primary hypothyroidism in which body's immune system mistakenly attacks the thyroid tissue impairing the ability to make the hormone. Secondary Hypothyroidism can be a result of Hypothalamus or Pituitary glands dysfunction or disease.

The main symptoms of hypothyroidism are fatigue, weakness, increased sensitivity to cold, constipation, hoarseness, unexplained weight gain, dry skin, hair loss or coarse dry hair, muscle cramps, headache, muscle weakness, joint stiffness and memory loss. The slower the metabolism gets, the more obvious the signs and symptoms will become. If hypothyroidism goes untreated, the signs and symptoms could become severe, such as a swollen thyroid gland (goiter), slow thought processes, or dementia and impaired fertility.

Diagnosis based on the Measurement of total serum thyroid hormone concentration. The modern treatment is hormone replacement therapy by Levothyroxine. Therapy should be started with small dose and normal dose should be maintained gradually.<sup>[3]</sup>

*Ayurveda* has endowed the function of thermogenesis and metabolism in the body to *Agni*. It is defined as substance or entity that brings about transformation / conversion in any form. The thirteen types of *Agni* bring about all the chemical reactions and transformations in the body. *Samagni* is one of the most important criteria of *Swastha Purusha*. *Agnimandya* is one of the commonest disorders of *Agni*. *Agnimandya* leads to formation of *Ama* – noxious form of *Rasa Dhatu* that causes various diseases.

### Involvement of Agni in hypothyroidism

Normalcy of *Agni* is must for body function rhythmicity. According to allopathic systems, metabolic activity of the body is controlled by thyroid hormone secretion and in *Ayurveda*, we will find that metabolic processes of the body are under the control of *Jatharagni*, *Bhutagni* and *Dhatwagni*.<sup>[4]</sup> So, the cause of disease i.e. impaired metabolism can be compared with vitiation of *Agni* according to *Ayurveda*.<sup>[5]</sup>

Hypofunctioning of *Jatharagni*, which in turn, affects *Dhatwagni*, leads to formation of *Ama* – noxious form of *Rasa Dhatu* eventually, brings out pathological sequence and ultimately, the diseased condition develops.<sup>[6]</sup>

### Correlation of Ama with Hypothyroidism

*Ama* plays a major role in pathogenesis. *Jatharagnimandhya* leads to *Dhatwagnimandhya* and production of *Ama*. It is the major cause of hypothyroidism. *Acharya Vagbhata*, described the

general symptoms of *Ama*<sup>7</sup> which may be correlated with features of Hypothyroidism.

**Table No. 2: Correlation of *Ama* with Hypothyroidism.**

Clinical features of <i>Ama</i>	Symptoms of Hypothyroidism
<i>Srotorodha</i>	Stunted growth, Hoarseness of voice
<i>Balbhransha</i>	General weakness
<i>Gaurava</i>	Weight gain, Swollen, Puffy, edematous face
<i>Anil mudhta</i>	Slow heart rate, Reduced respiratory rate, inability to concentrate
<i>Aalasya</i>	Lethargy, Sleepiness
<i>Apakti</i>	Decreased appetite
<i>Malsanga</i>	Constipation
<i>Aruchi</i>	Anorexia
<i>Klama</i>	Slowing down of thought process, Fatigue

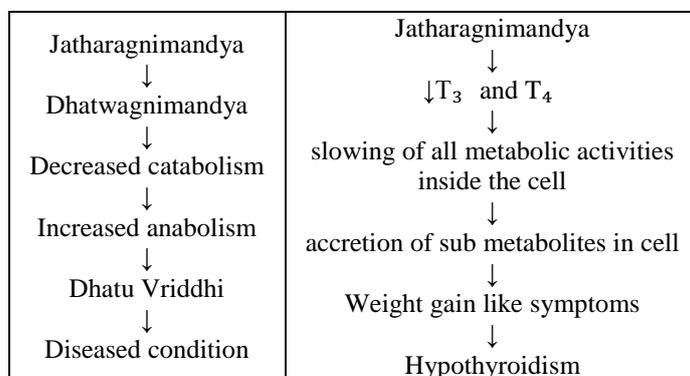
*Jatharagni* act on the ingested food break down into smaller particles. *Jatharagni* (1 type) looks after the functions of food digestion and absorption. *Bhutagni* (5 types) turns all the *Vijatiya Panchabhautika Dravyas* consumed to *Sajatiya Panchabhautika Dravyas*, i.e. conversion of heterogenous to homogenous. *Dhatwagni* (7 types) performs Synthesis and breakdown of tissues. Metabolic transformations occur after consumption of food. That leads to formation of two parts, *Prasada* and *Kitta Bhaga*. The *Prasada* part gives nutrition to the *Dhatu*s. *Kitta* part is to be excreted from the body in different forms.<sup>[8]</sup> *Kayagni* present in its own place, has portions of itself, present in the *Dhatu*s also.

*Dhatwagnis* are considered as part of *Kayagni*. Increase of *Dhatwagni* brings *Dhatu Kshaya* (diminished tissue

elements) and decreased *Dhatwagni* will lead to *Dhatu Vriddhi* (increased tissue elements). In case of hyperthyroidism patient will lose weight. It is due to the increased *Dhatwagni* which cause *Dhatu Kshaya*. In hypothyroidism, weight gain is due to decrease in *Dhatwagni*.

Hence if *Dhatwagni* gets more *Vriddhi*, tissue delivers more action and there by more catabolic activity (*Dhatu Kshaya*). If *Dhatwagni* is of low profile only tissue synthesis takes place resulting in *Dhatuvriddhi*.<sup>[9]</sup>

Their functions have two aspects i.e. synthesis of new protein (anabolic) and to yield energy for tissue function (catabolic).<sup>[10]</sup>



**Thyroxine and Agni**

- ❖ Thyroxine (an iodine-containing hormone) iodine can be considered as *Tejomahabhutamsha*. So it can be said that that thyroid hormones have *Agni Amsha*.<sup>[11]</sup>
- ❖ *Dahana, Pachana, Satmikarna* are the functions of *Agni* which can be correlated with metabolic activities in the body. Thyroid hormones control all metabolic activities of the body.
- ❖ Without thyroid hormones from thyroid gland, almost all the chemical reactions of the body would become slow. So they can be considered as part of *Kayagni* on which the entire metabolic activities depend on.<sup>[12]</sup> Every cell in the body has receptors

for thyroid hormone. Hence thyroid hormones can be considered as *Kayagni Amsha*.

**DISCUSSION**

Inactive T<sub>4</sub> is converted into active form of thyroid hormone T<sub>3</sub>. About 20% of T<sub>4</sub> is converted to T<sub>3</sub> in the gastrointestinal tract, in the form of T<sub>3</sub> sulfate (T<sub>3</sub>S) and tri-iodoacetic acid (T<sub>3</sub>AC). The conversion of T<sub>3</sub>S and T<sub>3</sub>AC into active T<sub>3</sub> requires an enzyme called Intestinal sulfatase. This intestinal sulfatase is released from healthy gut bacteria. Intestinal dysbiosis, an imbalance between pathogenic and beneficial bacteria in the gut, significantly reduces the conversion of T<sub>3</sub>S and T<sub>3</sub>AC to

T<sub>3</sub>. Thus, Poor gut health can suppress thyroid function.<sup>[13]</sup>

*Agni* is the prime factor for causation of diseases including hypothyroidism. *Agni* is the principle component of body for every physiology. Metabolism, catabolism, transformation, digestion, destruction of toxins all are brought about by *Agni*. *Agni* in body is responsible for good health, strength, luster and longevity of life. Vitiating of *Doshas* also depends on the vitiations of *Agni*. But, if the *Agni* of a person is vitiated, the whole metabolism in his body would be disturbed, resulting in ill health and disease. Thus *Agni* act in the same way as the thyroid hormone does for the body.

Main action of thyroid hormone is to maintain proper metabolism in the body. In *Ayurveda* it can be correlated with actions of *Agni*. If we try to understand pathogenesis of hypothyroidism according to principles of *Ayurveda*, we find that it is caused due to dysfunctioning of *Agni*. At first functions of *Jatharagni* get reduced which further affects *Dhatwagni*. Hypofunctioning of *Agni* generates symptoms as that of hypothyroidism.

In this context an alternative approach with the principle of *Mandagni* in *Ayurveda* shows promising results. Since in Hypothyroidism the main underlying pathology is hypometabolism, it seems to fit into the concept of *Agnimandya* (*Dhatwagnimandya*) given in *Ayurveda*.

In modern medical science there is no absolute cure of this disease but *Ayurveda* can be a ray of hope in such cases. *Ayurveda* aims not only at alleviating the symptoms but acts on the origin-root cause. The treatment of hypothyroidism is *Pachana* (digestion of existing *Ama Dosh*), *Deepana* (increasing digestive power), *Anulomana* (purge).

## CONCLUSION

Pathogenesis of hypothyroidism according to the principles of *Ayurveda* can be interpreted as dysfunctioning of the *Agni* particularly *Dhatwagni*.

We have come to an understanding that Hypothyroidism is primarily under activity of *Agni*. Due to various *Hetus*, there is diminished *Agni* at *Dhatu* level. If we approach for the treatment of Hypothyroidism by enhancing the metabolism in the tissues then most of the features due to tissue hypothyroidism can be overcome and by feedback mechanism euthyroid status can also be achieved. In other words if we increase the *Agnibala* of the patient, more specifically the *Dhatwagni* then this condition of tissue hypothyroidism can be reversed.

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