



Conceptual Study Of Hypothyroidism And Agnimandya

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ABSTRACT:

Thyroid gland is one of the important glands of the endocrine system. Principal function of thyroid gland is to act as a ‘catalyst’ for the maintenance of oxidative metabolism.

Hypothyroidism is the most common endocrine disorder observed all over the world in present time. It occurs about 7-8 times more frequently in females than males. In infants, symptoms do not appear till six months because enough hormone is present in mother’s milk. It affects the quality of life of individuals. The only treatment available is synthetic thyroxine tablets which patients had to take lifelong.

Agni is the unique concept of *Ayurveda* related to *Pachana* or conversion, *Dhatupaka* or Metabolism, etc. i.e. various chemical reactions occurring in the body. It is responsible for and controls each and every process of conversion. The normal as well as abnormal functions of thyroid gland can be correlated to healthy and altered status of *Agni*. So hypothyroidism can be considered as a stage of *Agnimandya* resulting in the formation of *Ama*.

Key words – Thyroid gland, Hypothyroidism, *Agni*, *Agnimandya*, *Ama*, *Dhatupaka*, Metabolism

Introduction:

Thyroid disorders are the most common disorders of the endocrine glands. It is estimated that about 42 million people suffer from thyroid disorders in India. Women are six times more prone than men.¹ In general; disorders of thyroid gland are hypothyroidism, hyperthyroidism, goitre and iodine deficiency disorders, Hashimoto’s thyroiditis & thyroid cancer.

The Thyroid gland produces two related hormones Thyroxin [T₄] and Tri-iodothyronine [T₃]. These hormones play a critical role in cell differentiation during development and help maintain thermogenic and metabolic homeostasis in the body. Deficiency of these hormones is known as Hypothyroidism.²

Hypothyroidism is one of the most common functional disorders of thyroid gland³. It occurs due to the hypo functioning of thyroid gland which results in decrease in body's basal metabolic rate [BMR].

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.

Management of Hypothyroidism with synthetic thyroid hormone derivatives may bring the value of TSH and T4 to normal range but the increased dosage and continuous medication are cost expensive and makes the patient drug dependent till the end of mortal life. So, a better, safer and long lasting therapy is needed for the present society and now it is the need of hour to search the management for this type of ailment through the alternative medicine. *Ayurveda* has not mentioned endocrine disorders, instead for treatment of unspecified syndromes, it emphasizes on careful observation of symptoms and patho physiology.

The normal and abnormal functions of Thyroid gland and *Agni* are similar. Also the symptoms of Hypothyroidism and *Agnimandya* are almost same. So the present article aims to correlate Hypothyroidism and *Agnimandya* and to ascertain treatment of Hypothyroidism in *Ayurveda*.

Aims & Objectives:

- To study the concept of Hypothyroidism in Modern Science
- To study the concept of *Agnimandya* and *Ama* in *Ayurveda*
- To correlate the symptoms of Hypothyroidism and *Agnimandya* and ascertain treatment of Hypothyroidism in *Ayurveda*

Materials and Methods:

This study is carried out by literature search and critical review of the obtained facts. The pathogenesis of hypothyroidism is obtained by searching various medical research databases like PubMed, Google scholar, Embase and other national research databases. The study of various *Ayurvedic* texts were made critically and an effort is made to understand the pathogenesis of hypothyroidism.

Hypothyroidism:

The thyroid gland is one of the most important endocrine glands affecting almost every system in the body. It is situated at the root of throat, having two lateral lobes each about 5×2×2 cm, one on either side of trachea, joined by isthmus. The normal weight of thyroid gland in adult is 20- 25 gm. The thyroid gland produces three hormones viz. **Thyroxine, Tri – iodo – thyronin** and **Calcitonin**.

The major function of thyroid hormones is to stimulate the synthesis of protein once they have entered the cell nucleus. Another important function is to stimulate the activity of cell mitochondria, the site of controlled exchange of energy. Some energy is conserved for the normal functioning of body while the remainder is dissipated as heat. The proportion of energy devoted to each of these processes is controlled by thyroid hormones.

Physiological actions:

- Principle function of Thyroid gland is to act as catalyst for maintenance of Oxidative Metabolism (Increase of BMR)
- Thyroid hormones help in proper development during the foetal period and the first few months after birth.
- Necessary for normal growth, maturation and tissue differentiation.
- Accelerates energy production (Calorigenic)
- Regulates metabolism of carbohydrates, proteins, fats, calcium and phosphorus.

Hypothyroidism is a common condition with various causes like Autoimmune, Iatrogenic, Transient Thyroiditis, Iodine Deficiency, Stressful life style, Drugs, Congenital, Infiltrative, Secondary Hypothyroidism.⁴ The clinical presentation depends on the duration and severity of the Hypothyroidism. A state of Hypothyroidism may be due to primary disease of the thyroid gland itself or lack of Pituitary TSH [Thyroid Stimulating Hormone] or Hypothalamic TRH [Thyrotropine Releasing Hormone].⁵

The signs and symptoms of Hypothyroidism at the initial stage are vague and ambiguous which is often missed in its early stages and instead treated for infertility, hyperlipidaemia, depression etc. In primary stage the signs and symptoms are in general but later on affect the different systems of the body and worsen the condition of patient. Hence, Hypothyroidism is an important public health issue.⁶

Hypothyroidism is caused due to under secretion of thyroid hormones. It produces **Cretinism** in young and **Myxoedema** in adults.

Clinical Presentation of Hypothyroidism:

Cretinism	Myxoedema
Delayed developmental milestones	Swollen, puffy oedematous look of face
Stunted growth	Hoarseness of voice
Deformed bones and teeth	Hair fall
Rough, thick, dry, wrinkled skin	Decreased appetite, BMR
Bloated face, idiotic look	Low blood sugar, high serum cholesterol
Pot belly	Slow heart rate
Decreased appetite, BMR	Reduced respiratory rate
Altered mental growth	Thought process slow down
Low blood sugar, high serum cholesterol	Lethargy
Lowered resistance	Apathy, impotency
Cold intolerance	Amenorrhoea

Table no 1 (clinical presentation of hypothyroidism)

Agnimandya & Ama:

Agni is the unique concept of *Ayurveda* related to *Pachana* or conversion i.e. various chemical reactions occurring in the body. It is defined as "*Nayate Parinaamyati*" that which brings about changes in an organism or a substance, indicating that it is a key factor in transformation of consumed *Aahara Viharadi Dravya* of *Vijatiya* (heterogenous) origin into *Sajatiya* (Homogenous) nature. It is responsible for and

controls each and every process of conversion. Of the thirteen types of *Agni* (*Jatharagni* – 1, *Bhootagni* – 5, *Dhatvagni* - 7), *Jathargni* is the one of prime importance controlling other *Agni*⁷.

Jatharagni is responsible for initial digestion of ingested food and its conversion into *Rasa Dhatu*. *Agnimandya* is the vitiated state where *Agni* is unable to digest even the meagre quantity of ingested food. Due to improper digestion, *Agnimandya* results in formation of abnormal *Rasa Dhatu* (*Apachit Rasa Dhatu*) i.e. *Ama*⁸. The dictionary meaning of *Ama* means raw or undigested.

The sole causative factor of *Ama* formation is *Agnimandya*. Thus the etiology of *Agnimandya* can be considered as etiology of *Ama*.

Etiology of *Agnimandya*⁹:

- *Abhojanat* – Fasting
- *Ajeerna bhojana* – Eating even after indigestion
- *Ati bhojana* – Over eating
- *Vishamashana* – Improper eating
- *Asatmya, Guru, Shita, Ati Ruksha, Samdushta bhojanat* – Ingestion of allergic, heavy, frozen, excessive dry and contaminated food
- *Virechan, Vaman, Sneha Vibhramat* – Deranged *Sneha, Vamana* and *Virechana Karma*
- *Vyadhi Karshanat* – Emaciation of body due to chronic disorders
- *Desha, Kala, Ritu Vaishmyat* – Alteration in *Desha* (Region), *Kala* (Time) and *Ritu* (Season)
- *Vega Vidharanat* – Suppressing natural urges

Clinical Features of *Ama*¹⁰:

- *Srotorodha* – Obstruction to body channels
- *Balbhrinsha* – Loss of body strength
- *Gaurava* – Heaviness
- *Anil Mudhata* – Abnormal movement of *Vata Dosha*
- *Aalasya* – Laziness
- *Apakti* – Indigestion
- *Nisthiva* – Excess drooling
- *Malsanga* – Obstruction to *Mala* eg. *Purisha*, etc.
- *Aruchi* – Loss of Taste
- *Klama* – Letahrgy

Also the *Ama Dosha* has tendency to attach with the local *Dosha* (*Vata*, *Pitta* & *Kapha*) and *Dushya* (*Dhatu*, *Upadhatu* & *Mala*) and produce typical symptoms. The disorder is considered as *Sama* when *Ama* is associated with *Dosha* and *Dushya* (*Dhatu* & *Mala*) and shows above clinical features and *Nirama* otherwise. The line of treatment of diseases changes as per the *Sama / Nirama* state.

Dosha	Sama Dosha Lakshana	Nirama Dosha Lakshana
Vata	<ul style="list-style-type: none"> ➤ <i>Vibandha</i> – Obstruction ➤ <i>Agnisada</i> – decreased digestive fire ➤ <i>Stambha</i> – Stiffness of affected body part ➤ <i>Aantrakujana</i> – Rumbling sound of bowel ➤ <i>Vedana</i> – Various types of pain ➤ <i>Shopha</i> - Inflammation ➤ <i>Nistoda</i> – Pricking pain <p>The above symptoms are episodic in nature and aggravates especially during application of <i>Sneha</i> (in any form), sunrise, night and cloudy weather.</p>	<ul style="list-style-type: none"> ➤ <i>Vishada</i> – Aridness ➤ <i>Ruksha</i> – Excess dryness ➤ <i>Nirvibandha</i> – Without Obstruction (Free) ➤ <i>Alpa Vedana</i> – Decreased Pain ➤ <i>Viparit Guna Shanti</i> - Symptoms subside on application of drugs with opposite <i>Guna</i> as that of <i>Vata Dosha</i> e.g. <i>Snigdha Guna</i> drugs.
Pitta	<ul style="list-style-type: none"> ➤ <i>Durgandhi, Harita, Shyava, Amla, Ghana, Guru, Pitta</i> – Expulsion of foul smelling, greenish black, sour taste, thick and bulky <i>Pitta Dosha</i> ➤ <i>Amlika</i> – Sour belching ➤ <i>Kantha Hrid Dahakar</i> – Burning sensation in throat and epicardium region 	<ul style="list-style-type: none"> ➤ <i>Aatamra, Pita, Ati Ushnam, Katu Rasa, Asthiram, Vigandhi Pitta</i> – Golden yellow, warm, fluid <i>Pitta</i> without any odour ➤ <i>Ruchi</i> - Proper Taste ➤ <i>Pakti Balapradam</i> – Proper Digestion
Kapha	<ul style="list-style-type: none"> ➤ <i>Aavil, Tantul, Styana Durgandhi Kapha</i> - Turbid, sticky, foul smelling, thick and dense <i>Kapha</i> that remains in throat ➤ <i>Kshut Vighatkrita</i> – Loss of appetite ➤ <i>Udgara Vighatkrita</i> – restricts eruption 	<ul style="list-style-type: none"> ➤ <i>Phenwan, Pindit, Pandu, Nissara, Agandhi, Chhedvan</i> – Frothy, formed, whitish, odourless, easily expelled <i>Kapha</i> ➤ <i>Vaktra Shuddhi</i> – freshness of mouth

Table no. 2 (sama and nirama dosha lakshana)

Principle of Treatment:

The line of treatment of *Ama Dosha* revolves around *Pachana* (digestion of *Ama*) then *Deepana* (igniting digestive fire) and lastly *Shodhana* after *Sneha & Sweda Karma*¹¹. The *Shodhana Karma* is strictly contra indicated in first place since *Ama Dosha* is not localised. *Shodhana* without *Ama Pachana* results in further complication as *Ama Dosha* is amalgmated with body tissues. The therapy focuses on *Pachana* (digestion of existing *Ama Dosha*), *Deepana* (increasing digestive power), *Anulomana* (purge) and *Shamana* (medicine) to avoid further formation of *Ama*.

Observation & Discussion:

There is no direct mention of Thyroid gland and Hypothyroidism in *Ayurveda*. However, a disease named *Galganda*, characterised by neck swelling is well known. *Aacharya Charaka* has included it under 20 *Shleshma Vikara*¹². *Aacharya Sushruta* has mentioned the seat of *Galganda* as *Rohini Twacha*, the sixth layer of skin¹³. *Charaka* described it as a solitary swelling¹⁴ while *Sushruta* has mentioned it as two encapsulated, big or small swelling, hanging like scrotum, in the anterior angle of neck¹⁵.

Bhela describes *Shleepada* and *Galganda* are more common in *Prachya Desha* (eastern parts of country) and that of consumption of fish predominantly are liable to develop *Galganda*. *Harita* has described the role of *Dushtambu* (contaminated water) and *Krimi Dosha* (infections) in the precipitation of disease. *Kashyapa* has further added that regions that are cold, damp, with densely grown trees, water stagnation and heavy rains may be prone for *Galganda*¹⁶.

Although these facts are mentioned centuries ago, it is still an accepted fact that environmental factors, especially iodine, plays an important role in the functioning of thyroid gland. From the above description, *Galganda* can be correlated with the Simple Goitre, the non- inflammatory, non – neoplastic condition of thyroid gland. It is observed both in hypothyroidism and hyperthyroidism. Any imbalance in iodine metabolism, either too much or too little iodine can result in development of goitre. Goitre is a localised condition but hypothyroidism is related to many systems of the body.

The comparative study shows that almost all symptoms of Hypothyroidism can be incorporated in *Ama Lakshana*.

Comparison of *Ama Lakshana* and Hypothyroidism symptoms:

Ama Lakshana	Symptoms of Hypothyroidism
Srotorodha	Stunted growth, Hoarseness of

	voice
Balbhrinsha	Delayed development milestones, Cold intolerance, Lowered resistance, Mental impairment
Gaurava	Swollen, puffy oedematous look of face, Bloated Face, idiotic look, Pot Belly, Weight gain
Anil Mudhata	slow heart rate, reduced respiratory rate, decreased hearing, joint pain, inability to concentrate
Aalasya	Lethargy, sleepiness
Aruchi, Apakti	Decreased appetite, BMR
Malsanga	Constipation, decreased perspiration
Klama	Thought process slow down, loss of energy, apathy, fatigue

Table no. 3 (comparison of *ama lakshana* and hypothyroidism symptoms)

The causes of *Ama Dosha* are mainly dietary. It is observed that *Nidan Sevana* of *Ama Dosha* further aggravates the symptoms of Hypothyroidism. *Nidan Parivarjana* is the basic treatment of any disease in *Ayurveda*. The *Nidan Parivarjana* of *Ama Dosha* gives symptomatic relief and restrains further advancement of disease.

The *Deepana – Pachana* therapy of *Ama Dosha* strengthens *Jatharagni* and in turn regularizes *Bhootagni* and *Dhatvagni*. Thus the *Ayurveda* therapy not only gives symptomatic relief but also metabolism at the cellular level is kept into check.

So it can be concluded that the treatment of *Ama Dosha* can be useful in Hypothyroidism.

Conclusion:

- Thyroid gland is essential for metabolism in the body.
- *Agni* is entity that brings about all kind of transformations in the body according to *Ayurveda*.
- *Agnimandya* is precursor factor of all the diseases resulting in *Ama* formation.
- Symptoms of *Ama* and Hypothyroidism are almost similar.

➤ Treatment of *Ama* gives significant result in Hypothyroidism.

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