

AMELIORATIVE FUNDAMENTAL REVIEW ON THE CLINICAL ASPECT OF AGNIMANDYA JANYA HYPOTHYROIDISM

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ABSTRACT

Background- 42 million people of Indian population are suffering from thyroid disorders. Indian women are more prone compared to men and it's seen in about 1 in 4000 newborns. The Thyroid gland produces two related hormones Thyroxine [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. Hypothyroidism occurs due to the hypo functioning of thyroid gland which results in decrease in BMR. Hypothyroidism is posing a major health challenge in both developing as well as developed world. There is 2 - 5 % prevalence of hypothyroidism in developed world. The prevalence of subclinical hypothyroidism in the developed world is approximately 4-15%. The prevalence of hypothyroidism in

urban India is 10.95%. Major portion of hypothyroidism (approximately 3.47 %) remains undetected. The physiological manoeuvre of the thyroid gland hormones are analogous to the actions of *agni*. All the Srotasa of the body are influenced by the thyroid gland hormones mainly Rasavaha Srotasa, Mamsavaha Srotasa, Medovaha Srotasa, Asthivaha Srotasa and Shukravaha Srotasa. 'Hypometabolism' due to insufficient production of thyroid hormones is the characteristic feature of diminished function of *Agni* according to Ayurveda classics. **Aim & Objective-** to correlate *Agnimandya* with Hypothyroidism. **Methodology** - Data was collected by thorough literature review of Samhita's and the review with contemporary modern text along with published research articles and online research database peer-

reviewed scientific research journals on Pub Med, Scopus, and Elsevier. **Conclusion**-Based on critical analysis of ancient ayurveda classics we can concluded that manda agni is leads to destruction of thyroid follicles as result the hypo functioning of thyroid gland which results hypothyroidism.

KEYWORD: HYPOTHYROIDISM, MANDAGNI, AGNI, PACHAKPITTA, JATHARAGNI.

INTRODUCTION

Hypothyroidism is the most common endocrine disorder of Thyroid gland. It is estimated that more than 42 million people suffer from thyroid disorders in India. Women are more prone compared to men. It occurs in about 1 in 4000 newborns.^[1] Thyroid gland disorders are hypothyroidism, hyperthyroidism, goiter and iodine deficiency disorders, Hashimoto's thyroiditis & thyroid cancer. The Thyroid gland produces two related hormones Thyroxine [T4] and Tri-iodothyronine [T3].^[2] 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. Hypothyroidism occurs due to the hypo functioning of thyroid gland which results in decrease in BMR. and Thyroid gland is considered to be one of the most important organs of the endocrine system as it regulates nearly all the bodily functions including metabolic, respiratory, cardiovascular, digestive, nervous and reproductive system either directly or indirectly. Lack of thyroid hormone or resistance of the body tissue to the thyroid hormone with respect to metabolic demand results in disorder called hypothyroidism. Hypothyroidism is posing a major health challenge in both developing as well as developed world. There is 2 - 5 % prevalence of hypothyroidism in developed world.^[3] The prevalence of subclinical hypothyroidism in the developed world is approximately 4-15%. The prevalence of hypothyroidism in urban India is 10.95%. Major portion of hypothyroidism (approximately 3.47 %) remains undetected. Incidence of hypothyroidism is more in females and elderly patients.^[4] In Himalaya region and some other countries as Nepal, Central Africa, where the dietary iodine is less, and the person of those areas are more prone to develop the disease.^[5] Among countries after Brazil, maximum numbers of thyroid disorders are reported from India.^[6] Thyroid gland consists of numerous spherical follicles composed of thyroid follicular cells. Colloid, a proteinaceous fluid containing a large amount of thyroglobulin which is the protein precursor of thyroid hormones. The follicular cells secrete Triiodothyronine T3 & Tetraiodothyronine (Thyroxine)

T4. In between follicular cells, the Para follicular cell is present which secrete calcitonin. T3 & T4 are iodine containing derivatives of amino acid tyrosine. Synthesis of Thyroid hormones it consists of mainly 5 steps.^[7] This step are as bellow-

- I. Thyroglobulin secretion
- II. Iodide pump
- III. Oxidation of Iodide
- IV. Iodination of Tyrosine
- V. Iodothyronins

Transportation of Thyroid Hormones^[8,9]- 80 % of thyroid hormones is transported by thyroxine binding globulin and 10% by albumin and transthyretin respectively. Any defect in the stages of synthesis or transport of thyroid hormones will leads to Hypothyroidism. The signs of hypothyroidism include Dry & coarse skin , Cool extremities, Myxedema, Diffuse alopecia, Bradycardia, Peripheral oedema, Delayed tendon reflexes, Carpel Tunnel syndrome and Serous cavity effusions.

The symptoms of hypothyroidism include tiredness, weakness, dry skin, feeling cold, and hair loss, difficulty in concentrating, poor memory, impaired hearing, constipation and weight gain with poor appetite, dyspnea, hoarse voice, menorrhagia and paresthesia.

The physiological manoeuvre of the thyroid gland hormones are analogous to the actions of *agni*. All the Srotasa of the body are influenced by the thyroid gland hormones mainly Rasavaha Srotasa, Mamsavaha Srotasa, Medovaha Srotasa, Asthivaha Srotasa and Shukravaha Srotasa. 'Hypometabolism' due to insufficient production of thyroid hormones is the characteristic feature of diminished function of *Agni* according to Ayurveda classics. Diminished function of *Agni* leads to the formation of 'Ama' (malfunctioning metabolic byproduct). Furthermore diminished function of *Agni* alter the 'Ojus' (essence of tissues), which is the leading factor for maintaining the body immune system. Hypothyroidism is one of the autoimmune disorders. So *Agni* plays a major role in its pathogenesis and manifestation of systemic clinical features. So; keeping in view the above facts a comparative literary study has been done on Agnimandya janya hypothyroidism.

MATERIAL AND METHOD

Data was collected by thorough literature review of Samhita's like-Charak Samhita, Sushruta Samhita & Astanga Hridaya etc and the review with contemporary modern text along with

published research articles and online research database peer-reviewed scientific research journals on Pub Med, Scopus, and Elsevier.

STUDY DESIGN- it is an observational review study.

DISCUSSION

अग्नेर्जठरान्नस्य मान्द्यं पाचनकुण्ठता। - (वाचस्पत्यम्) as per the etymology *Agnimandya* is the fragile digestive power/*agni*. None of *Brihatrayi* have dealt with *Agnimandya* or *Jatharagnimandya* as a *Roga*. Just the etiological factors of *Agnidushti* and the *lakshana* of different types of *Ajirna* are given in *Samhita*. There are given pathogenesis of weaken *Agni* by independently *Tridosha* in different chapters. Meanwhile in *Kashyapa Samhita*, *Amlapitta* chapter, there is given quotation about *Jatharagnimandya* due to any of the three *Dosha*. In *Laghutrayi*, like-*Sharangdhara* and *Bhavamishra* have given short descriptions of *Agni prakara* viz. *Vishmagni*, *Tikshnagni* and *Mandagni* likewise types of *Ajirna* namely *Vishtabdh*, *Vidagdha* and *Amajirna*. *Acharya Madhava* has recognized *Agnimandya* as a disease. *Acharya Chakrapani* says that to understand the *Vikriti*, to knowledge of *Prakriti* is essential. That is why before going through the discussion of the pathogenic process involved in the manifestation of the *Jathar-agnimandya* it is essential to go through the physiological process of the *Jatharagni*. Ayurveda we found that it is basically caused due to dysfunction of *Agni*. *Abhyantara Roga Marga* marked by inhibited activity of the *Pachakagni* resulting in delayed or partial digestion or indigestion of food taken even in small measures at proper intervals is termed as “*Agnimandya*”.

Clinical representation of Hypothyroidism and *Agnimandya*.

Hypothyroidism ^[10]	<i>Agnimandya janya lakshana</i> ^[11,12]
Fatigue	Alasya
Decreased hear rate	Usnakamita
Progressive hearing loss	Indriya Daurbalya
Goiter	Prapidita Sopha
Dry skin	Khara-Parusa-BhinnaTwaka & Roma
Constipation	Bibandha
Extreme sensitivity to cold	Saitya
Hoarseness of voice	Kshamaswara
Muscle pain & weakness	Daurbalya

The normal and abnormal functions of Thyroid gland and *Agni* are similar. Also the symptoms of Hypothyroidism and *Agnimandya* are almost same. So for the better understand

the concept of *agnimandya* and hypothyroidism; an ameliorating steps taken to elaborate the applied aspect of *agnimandya* janya hypothyroidism.

REVIEW OF LITERATURE

Synonyms of *Agnimandya*

Synonyms	Classical Reference with Shloka Number
<i>Mridvagni</i>	चरकसंहिता – विमानस्थान-रसविमानम्-27
<i>Agnimardava</i>	चरकसंहिता – चिकित्सास्थान- गुल्मचिकित्सितम्-36
<i>Durbalagni</i>	चरकसंहिता – चिकित्सास्थान- ग्रहणीदोषचिकित्सितम्-51
<i>Shantagni</i>	चरकसंहिता – चिकित्सास्थान- ग्रहणीदोषचिकित्सितम् -30
<i>Vahnimandya</i>	चरकसंहिता – चिकित्सास्थान- श्वयथुचिकित्सितम् -14
<i>Hatanala</i>	चरकसंहिता – चिकित्सास्थान- पाण्डुरोगचिकित्सितम्-13
<i>Nashtagni</i>	चरकसंहिता – चिकित्सास्थान- पाण्डुरोगचिकित्सितम्-38
<i>Agnim – Upahanana</i>	चरकसंहिता – चिकित्सास्थान- अतिसारचिकित्सितम्-7
<i>Agninasha</i>	चरकसंहिता – चिकित्सास्थान- विसर्पचिकित्सितम्-34
<i>Mandanala</i>	चरकसंहिता – चिकित्सास्थान- त्रिमर्मीयचिकित्सितम्-121
<i>Agnisanga</i>	सुश्रुतसंहिता- सूत्रस्थान- व्रणप्रश्नाध्याय:-33
<i>Agnivadha</i>	अष्टाङ्गहृदयम्- सूत्रस्थान- रोगानुत्पादनीयाध्याय: -2
<i>Agnisadana</i>	अष्टाङ्गहृदयम्- सूत्रस्थान- दोशाहिविज्ञानीयाध्याय:-7

Nidana of *Agnimandya*^[13]

1) *Aharaja Hetu*

A) According to quality of food –

- I. *Atiruksha* (Dry food)
- II. *Atisnigdha* (Unctuous food)
- III. *Guru Bhojana* (Heavy food)
- IV. *Vidahi Bhojana* (Spicy food)
- V. *Ama (Apakva) Bhojana* (Uncooked food)
- VI. *Madhura Rasa Ati Upayoga* (Sweet food items)
- VII. *Shita Bhojana* (Cold food)

B) *Dagdha Bhojana* (Overheated food)

- I. *Samadushta Bhojana*
- II. *Ashuchi Bhojana*
- III. *Dvishta Bhojana*

c) Faulty dietary habits –

- I. *Atyambupana* (Over drinking of water)

- II. *Ajirhashana* (Intake of food when previous food is not digested)
- III. *Vishamashana* (Incompatible diet)
- IV. *Abhojana* (No intake of food even on hunger)
- V. *Atilanghana* (Fasting)
- VI. *Atibhojana* (Overeating)

2) *Viharaja Hetu*

- I. *Swapnaviparyaya* (Improper sleeping schedule)
- II. *Vegavidharana* (Suppression of natural urges)

3) *Manasika Hetu*

- I. *Chinta* (Worry)
- II. *Shoka* (Anxiety)
- III. *Bhaya* (Fear/phobia)
- IV. *Krodha* (Anger)

4) *Agantuja Hetu*

- I. *Virechana – Sneha Basti Vyapada* (Therapeutic errors)
- II. *Sneha Vibhrama*
- III. *Desha, Kala, Vaishamya* (Climate)

5) *Vyadhiyukta* - Physical and mental diseases

6) *Upavasa* – Starvation

Etiology of hypothyroidism

1. Primary hypothyroidism- It is due to inadequate function of the thyroid gland itself. Most common causes of Primary hypothyroidism are iodine deficiency, autoimmune thyroid disease, Congenital, drugs and iatrogenic causes.

2. Secondary Hypothyroidism- it is due to not getting enough stimulation by thyroid stimulating hormones.

***Samprapti Ghatakas*^[14]**

Dosha – Vata-Kapha

Dushya – Rasa, Rakta, Mamsa, Meda, Asthi, Shukra

Agni – Jatharagni

Srotodushti – Sanga, Vimargagamana

Udbhavasthana -Amashaya

Sancharasthana - Sarvashareera

Rogamarga – Bahya, Abhyantara, Madhyama

VyadhiSwabhava - Chirakari

Due to excessive consumption of *Vata Prakopaka Ahara Vihara*, *Pitta* could not be got proper nourishment of *Pitta* and contraction of *Srotas* of *Pachaka Pitta* occurs. These all phenomenon creates vitiation of *Pachaka Pitta*, which leads to *Agnimandya*.

Primary Hypothyroidism has two mechanisms. This are as bellow

1. Deficiency of Thyroid Hormones – caused by destruction of thyroid follicles, as in Hashimoto's *thyroiditis* (Autoimmune disorder)
2. Resistance of peripheral tissues to thyroid hormones.

CONCLUSSION

The symptoms of Hypothyroidism mimic the symptoms of other systemic diseases and this remains undiagnosed for long time. The treatment of Hypothyroidism in modern science is unsatisfactory. Majority of the patients must take thyroid extract (Levothyroxine Sodium) throughout their whole life. It has been noted that this lifelong hormonal replacement therapy (HRT) is associated with detrimental effects on heart and bones. Studies showed that HRT (Levothyroxine Sodium) only increases the level of thyroid hormones in the blood but do not treat root cause of the disease i.e., inflammation and autoimmunity.

In Ayurveda, we can consider these two pathologies in the following way -*Dhatukshaya janya (Beejadosha janita)* and *Avarana janya*- Thyroid hormone functions are similar to the functions of *Agni (Jatharagni, Dhatwagni and Bhootagni)* in our body causing transformations/tissue metabolism at various levels and thus maintaining the BMR. *Agni mandya* at any level due to *Kaphakara nidana* results in increased *Dhatugata mala sanchaya*, resulting in *Srotorodha* causing compromised *Dhatusaras* leading to both physical and mental features in hypothyroidism. *Vata* acts as a *Yogavahi* in aggravating the *Kapha dushti*. Thus, it is a *Vata-kapha samsarga* condition.

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