



Review Article

A CONCEPTUAL EXPLORATION ON THE SAMPRAPTI GHATAKAS OF HYPERTHYROIDISM

Devisree R*, Ragesh T H

Associate Professor, Department of Roganidana, Ahalia Ayurveda Medical College, Palakkad, Kerala, India.

Article info

Article History:

Received: 01-12-2021

Revised: 22-12-2021

Accepted: 09-01-2022

KEYWORDS:

Hyperthyroidism,
Galaganda,
Etiopathogenesis,
Agni, Samprapti
Ghataka.

ABSTRACT

Thyroid disorders are the commonest endocrine disorders worldwide with devastating health consequences. Hyperthyroidism is commonly referred as an overactive thyroid which enhances the rate of metabolism in multiple levels. Since this disorder is having multisystem effects, the pathology can't be restricted to the gland only. There is striking similarity between the functions of *Dhatwagni* and thyroid hormone metabolism. The far reaching metabolic disturbances in thyroid dysfunctions are attributed to *Dhatwagni vikruthi*. On a close review, it is evident that Ayurvedic concept available in this direction clearly demonstrates the pathology when juxtaposed against the advanced principles of modern medicine. In Ayurveda, the categorization of diseases had been made according to the involved *Doshas, Dooshyas, Srotas, Agni, Ojus* (the etiopathological factors) which are termed as the *Samprapti ghatakas*. These descriptions are largely based on factors and way of life prevalent in the period when they were compiled. Detailed studies may be undertaken to ascertain these factors of the diseases which are relevant in the current lifestyle and environment. It is striking that the treatment of hyperthyroidism has not changed greatly in the past several decades. Only conservative management is possible through Anti thyroid drugs, but about a 50% have relapse rate. A global epidemiological study reported a data of 50% of subclinical hyperthyroid subjects have arisen from excessive intake of thyroid hormones. A thorough understanding of the complete disease process with regard to the *Samprapti ghatakas* involved is of great importance in this subject which forms the basis of systematic approach in the Ayurvedic management.

INTRODUCTION

According to Indian philosophy, health is a prerequisite to pursue materialistic, social and spiritual upliftment of human being. Ayurveda, the ancient and comprehensive system of Indian medicine is the compilation of observations, experiences and research of a good number of scholars. It is a way of life, a culture, a health science and moreover a cross section of the scientific thoughts of many generations. The strength of Ayurveda lies in its unchanged, yet universally applicable principles, which are uniquely futuristic.

Endocrine system of the body plays an essential and pervasive role in both short term and long term regulation of metabolic processes.

Both underactive and overactive thyroid disorders result in diseases which are often debilitating or life threatening. An overactive thyroid gland secretes excessive amount of free and circulating thyroid hormones resulting in a high rate of metabolism in cellular level. Magnitude of symptoms depends upon excess hormone, duration of illness and presence of co-morbid conditions. Thyroid storm is a rare presentation which may occur after a stressful disease in patients with undertreated hyperthyroidism.

Ayurveda doesn't emphasize the exact nomenclature of the diseases; rather it insists on diagnosis of the constitutional status of the disease as mentioned by *Acharya Charaka*.^[1] Even though the direct descriptions are not available regarding the etiopathogenesis of thyroid disorders in Ayurveda, the various metabolic dysfunctions are attributed to *Agnidushti*. The features of *Athyagni* have striking similarity with the symptoms of hyperthyroidism and this concept is of great significance in this regard.

Access this article online

Quick Response Code



<https://doi.org/10.47070/ijapr.v10i1.2252>

Published by Mahadev Publications (Regd.)
publication licensed under a Creative
Commons Attribution-NonCommercial-
ShareAlike 4.0 International (CC BY-NC-SA 4.0)

MATERIALS AND METHODS

This study was based on literature research and critical review of the obtained facts from various researches. The clinical spectrum of hyperthyroidism and the relevant descriptions similar to the pathophysiology of hyperthyroidism were collected from classical Ayurvedic texts, modern medicine texts and journals from medical research databases.

Hyperthyroidism

Hyperthyroidism is a condition in which an overactive thyroid gland is producing excessive amount of thyroid hormones that circulate in the blood. Thyrotoxicosis refers to the clinical syndrome of excess circulating thyroid hormones which is a toxic condition of the gland. Prevalence of hyperthyroidism is approximately 1.2% (0.5% overt and 0.7% subclinical)^[2]. Overt thyroid dysfunction (abnormal levels of both TSH and thyroid hormones) is one of the most common chronic endocrine disorders in the general population. An epidemiological survey report from Cochin reported that, overt and subclinical hyperthyroidism was present in 1.3% and 1.6% of subjects participated in that community survey^[3]. Subclinical hyperthyroidism is characterized by a low or undetectable concentration of serum thyrotropin (TSH) with free triiodothyronine (FT3) and free thyroxine (FT4) levels within laboratory reference ranges. On analysing the etiopathogenesis of hyperthyroidism, multiple factors influence the disease process including autoimmunity, iodine nutrition, aging, genetic susceptibility, ethnicity etc. Common causes of hyperthyroidism include Graves' Disease (GD), functioning adenoma ("hot nodule") and toxic multinodular goiter (TMNG), excessive intake of thyroid hormones, pituitary tumors (abnormal secretion of TSH), thyroiditis (inflammation of the thyroid gland) and excessive iodine intake^[4].

Symptoms^[5]

Excessive sweat	Palpitations
Heat intolerance	Weight loss
Increased bowel movements	Nervousness
Increased appetite	Extreme fatigue with inability to sleep
Tremor	Irregular menstruation

Diagnosis^[6]

The clinical presentation of hyperthyroidism is highly variable and so the precision of diagnosis depends on the biochemical analysis. Measuring the level of thyroid-stimulating hormone (TSH), produced by the pituitary gland in the blood is typically the primary level of investigation for suspected hyperthyroidism. A low TSH level typically indicates that the pituitary gland is being inhibited or

"instructed" by the brain to cut back on stimulating the thyroid gland, having sensed increased levels of T4 and/or T3 in the blood. Measuring specific antibodies, such as anti-TSH-receptor antibodies in Graves' disease, radioiodine uptake of thyroid gland, ultrasonography may also contribute to the diagnosis according to the cause and severity of the condition.

Ayurvedic Perspective

Thyroid hormone metabolism runs in hypothalamo-pituitary thyroid axis which is basically a feedback mechanism. Thyroid hormone production and secretion occurs in the gland itself, but the symptoms are not confined to the single organ since over all tissue metabolism is under the control of these hormones. The functional aspects regarding a single organ or system is not explained in Ayurveda. If we try to explore the pathogenesis of hyperthyroidism according to the principles of Ayurveda, dysfunctioning of *Agni* (the prime factor which carry out digestion and metabolism) is found to be the basic cause since the normal physiology of the thyroid hormones closely resembles different functions of *Agni* in the body. "Over activity of thyroid gland" induces a significant increase in normal basic metabolism leading to the pathology of hyperthyroidism. The wide range of metabolic disturbances in abnormalities of thyroid hormone secretions are due to *Dhatwagni Vikruthi*.^[7] According to *Ashtanga Hridaya*, part of *Kayagni* (digestive fire) is situated in the *Dhatu*s (seven basic structural elements) which is termed as *Dhatwagni* (tissue metabolism) and its hyper functioning always lead to *Dhatukshaya* (depletion of *Dhatu*s). In modern science, excessive thyroid hormones enhance all aspects of cellular metabolism. Like that, if *Atyagni* (hyper functioning of *Agni*) in *Koshta* can't counter balance the metabolic rate, energy sources are excessively utilized in the body or in other words unwanted destruction of *Dhatu*s occurs as a result of *Dhatupaka* (tissue destruction)^[8]. The condition described as *Atyagni* is also known as *Bhasmaka roga*. The term literally means 'to reduce to ashes'. *Vijayarakshita* in his *Madhukosa* commentary on "*Agnimandyadi rogas*" has taken note on the term *Bhasmaka*.^[9] Acharya Bhavprakash mentioned about *Bhasmaka Roga* in *Madhyam Khanda* as *Jatharagni-vikara*. He described that *Vatapitha prakopa* (vitiation) and *Kapha kshaya* (decrement) leading to the manifestation of *Bhasmaka*^[10].

DISCUSSION

Samprapti Ghatakas

Status of Vata Dosha in the Disease Pathology

Hyper functioning of *Prana*, *Samana*, *Apana* and *Vyana Vayu* is necessary in causation of the hyperthyroid activity since the normal physiology of digestion and metabolism is under the control of all these factors. *Vata pitha Vridhi Nidan*s (causes which

vitiates *Vata & Pitha*) initiates the pathology of the disease in the *Koshta*. The functions of *Agni* are attributed by *Vata* and *Pitha Doshas*. *Ushna guna vridhi* of *pitha* and *Rooksha Guna vridhi* of *Samana Vata*^[11] in *Koshta* always results in a hyper functioning of *Koshtagni*. If these changes occur in *Ksheena kaphavastha*, it will lead to a disease condition *Athyagni*. Transport of the nutritional elements is carried out through *Vyana Vayu*^[12] which plays the most important role in tissue metabolism. The hyper metabolic state in the tissues is contributed by the dysfunctions of *Dhatwagnis* and *Vyanavayu*.

Status of Pitha Dosh

Dosha prakopa should be understood in terms of its *Guna vikalpa* in the body. A disease with a hyper functioning state of *Agni* is never found without *Pitha Dosh*. An increased *Pitha dosha* with *Guna vridhi* of *Ushna Theekshna Gunas* always ignites *Agni*. *Agni is Pachaka pitha* in *Koshta* and the *Ushna, Rooksha* properties in their combined action leads to *Kapha soshana* in *koshta*. This *Dosha* state creates *Athyagni* in *koshta*. Considering the wide range of emotional disturbances in hyperthyroidism, *Sadhaka pitha* can also be considered as a factor complex which facilitates the psychological disturbances.

Status of Kapha Dosh

Kledaka kapha^[13] plays an important role in controlling the status of *Agni* in normal state. *Kaphadosha* is always a controlling factor of *Agni* due to its *Guru, Manda, Sthira, Snigdha gunas* which are opposite to the properties of both *Vata* and *Pitha*. So *Ksheena kapha* leads to hyperactivity of *Vata* and *Pitha dosha* leading to *Athyagni*.

Status of Dhatus

A hyper metabolic state is mediated by *Dhatwagni* and it is manifested as *Dhatukshaya* in the body. So there will be *Dhatukshaya* at different levels since thyroid hormones enhance all aspects of cellular metabolism. Short attention span, increased sensitivity to sound, increased fatigue are common clinical presentations which are *Rasa kshaya* (depletion of first *Dhatu*) in origin. Hyperthyroid subjects become anemic in the due course of the disease which is an objective parameter of *Rakta kshaya*. With respect to enhancement of the protein metabolism, protein degradation dominates which if persistent, leads to a decrease in muscle mass and muscle weakness. *Mamsa medo kshaya lakshanas* are evident in this pathology. Likewise, excess thyroid hormones enhance bone metabolism with bone resorption being affected to a greater extent than synthesis. This results in net loss of bone and reduced bone mineral density, accompanied by increased urinary excretion of calcium and phosphate^[14]. These effects can lead to hypercalcaemia and an increased risk of osteoporosis and fracture. Since *Artava* (menstrual blood) is the *Upadhatu* of

Rasa, Artava kshaya lakshanas (features of scanty bleeding) are also evident in this disease as hypo menorrhea/oligomenorrhea and irregular cycles.

Status of Agni

Paka is the process of conversion which is the essential part of all metabolic process in our body which is carried out by the factors having *Agneya Guna* in our body. Depending on the specificity of function and site of action, these factors are conveniently classified in to various groups. Concept of *Agni* arises from this categorization and the functions are concerned with digestion and metabolism by the action of *Jataragni* and *Dhatwagnis*. The enhancements in secretion of digestive enzymes are evident in hyperthyroidism. The utilization of food is rapid in order to compensate the high rate of metabolism. As per modern theory, the secretion of digestive enzymes and increased metabolic rate are the two levels of action of thyroid hormones. These two are the functional domains of *Agni* at the levels of *Koshta* and *Dhatu*. Increased *Koshtagni* results in voracious appetite and *Dhatwagnivridhi* results in *Dhatupaka*^[15]. *Dhatwagnivridhi* is a combined effect of *Vata* and *Pithavridhi* which result in *Dhatupaka* (unwanted tissue destruction). *Dhatupaka* is responsible for disease genesis and it eventually lead to '*Dhatukshayavastha*' (depleted *Dhatus*) which is evident in hyperthyroidism.

Role of Sweda as Mala

Excessive sweat (*Atisweda*) is an important clinical feature of hyperthyroidism. Generalized *Pitha vridhi* results in increased sweat in the body as *Sweda* is one among *Pitha sthanas*. *Ushnaguna vridhi* is the basic cause of *Sweda vridhi* (*Swedana* is *Karma* of *Ushna guna*). As per the disease pathology, excessive sweat is an important mechanism to expel the excessive body heat which is produced as a part of increased rate of metabolism. Excessive sweat is the prominent feature of *Malaroopa Pitha vridhi* in hyperthyroid subjects.

CONCLUSION

Even though no classical description of thyroid disorders is available in Ayurveda literature, a common physical sign *Galaganda*^[16] (goitre) is described in *Brihatrayis*. The *Rogapareeksha* in this context is still an unexplored area in Ayurveda. On analysing the symptomatology of hyperthyroidism, most of the clinical features show *Vatapitha* predominance. *Vatapitha vridhi* leads to *Dhatupaka Avastha* in multiple *Dhatus* which eventually leads to the *Kshaya* of *Rasadi Dhatus*. The whole process is mediated by *Athyagni* in *Koshta* and *Dhatu*. Greatly increased cellular respiration liberates so much of heat that the affected individual feels hot all the time. When the high rate of metabolism cannot counter balance the food intake, the stored energy sources are utilized

which makes the basic pathology of the disease. A better understanding of the pathogenesis of hyperthyroidism through the fundamentals of Ayurveda helps to obtain a cure that is safe, conservative, and definitive which is possible through Ayurveda.

REFERENCES

1. Acharya Yadavji Trikamji, Charakasamhita (Ayurveda dipika), Varanasi, Chaukhambha prakashan, 2009, p.108.
2. Taylor PN, Albrecht D, Scholz A, Gutierrez-Buey G, Lazarus JH, Dayan CM, Okosieme OE. Global epidemiology of hyperthyroidism and hypothyroidism, Nat Rev Endocrinol. 2018 May; 14(5):301-316.
3. Unnikrishnan, Ambika Gopalakrishnan, and Usha V Menon. Thyroid disorders in India: An epidemiological perspective. Indian journal of endocrinology and metabolism vol. 15, Suppl 2 (2011): S78-81. doi:10.4103/2230-8210.83329
4. Peter PAS eds. Epidemiology of Thyroid dysfunction- Hypothyroidism and hyperthyroidism. Thyroid International 2009; 2:1-16.
5. Nicki R Colledge, Brian R Walker, Stuart H Ralston, Davidson's principles and practice of Medicine, Churchill livingstone, 21st edition.
6. De Leo S, Lee SY, Braverman LE. Hyperthyroidism. Lancet. 2016; 388 (10047): 906-918. doi:10.1016/S0140-6736(16)00278-6.
7. VD. Bhagwan Dash, concept of Agni in Ayurveda with special reference to Agnibala pariksa, Varanasi, Chaukhambha Amarabharati Prakashan, 1993.
8. Ravi Dutta Tripait, Charaka Samhita of Agnivesa part 1, Delhi, Chaukhambha Sanskrit Pratishtan, 2017, p.386.
9. Yadunandan Upadhyay, Madhavanidana, part1, Delhi, Chaukhambha Prakashan, 2019, p.42
10. Ganesh Nanal, Sartha Bhavaprakash, Jatharagni vikara adhikar, Delhi, Chaukhambha Sanskrit pratishtan, p. 217-220.
11. Kaviraj Agnidev Gupta, Ashtanga Hridayam (vidyotini commentary), chapter 11, Varanasi, Chaukhambha prakashan, 2009, p.120.
12. Kaviraj Agnidev Gupta, Ashtanga Hridayam (vidyotini commentary), chapter11, Varanasi, Chaukhambha prakashan, 2009, p.120-122.
13. Kaviraj Agnidev Gupta, Ashtanga Hridayam (vidyotini commentery), chapter 11, Varanasi, Chaukhambha prakashan, 2009, p.120-122.
14. Effect of subclinical hyperthyroidism on osteoporosis: A meta-analysis of cohort studies. Endocrine 69, 39-48 (2020). <https://doi.org/10.1007/s12020-020-02259-8>
15. Sri Vijayarakshita and Srikanthadatta, Madhavanidana (madhukosa) chapter 2 jwaranidana, Varanasi, Chaukhambha Sanskrit Sansthan, p.47.
16. Kaviraj Ambikadatta Sastri, Susruta Samhita (Ayurveda tatwa sandeepika poorvardha), Varanasi, Chaukhambha sanskrit sansthan, 2010, p.356.

Cite this article as:

Devisree R, Ragesh T H. A Conceptual Exploration on the Samprapti Ghatakas of Hyperthyroidism. International Journal of Ayurveda and Pharma Research. 2022;10(1):109-112.

<https://doi.org/10.47070/ijapr.v10i1.2252>

Source of support: Nil, Conflict of interest: None Declared

*Address for correspondence

Dr. Devisree R

Associate Professor,
Department of Roganidana,
Ahalia Ayurveda Medical College,
Palakkad, Kerala.

Mail id: devisree191@gmail.com

Contact number: 9947501805

Disclaimer: IJAPR is solely owned by Mahadev Publications - dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJAPR cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of IJAPR editor or editorial board members.