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A CRITICAL REVIEW ON CONCEPTUAL ASPECTS AND TREATMENT MODALITIES OF HYPOTHYROIDISM IN AYURVEDA

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ABSTRACT

Hypothyroidism is a common disease with various causes.[1] Primary hypothyroidism is due to disease of thyroid itself, which accounts for 99% of the cases. Secondary or central hypothyroidism is the second variety with <1% being due to TSH deficiency. In India the prevalence and incidence of hypothyroidism is increasing and at present 42million people in India have thyroid disorders, affecting one in ten adults.[2] These disorders are frequently under-diagnosed. There is an increasing demand to understand the disease on Ayurveda lines and to establish the management through Ayurvedic system of medicine. The analysis of the pathogenesis and manifestation of Hypothyroidism based on principles of Ayurveda shows that it occurs due to the dysfunction of agni. **Materials and methods:** Thorough extensive literary research through Ayurvedic literature inclusive of samhitas, and other electronic databases are done, and based on understanding the subject, interpretations are drawn. **Result:** Hypothyroidism does not have any direct parlance in Ayurveda Classics. But the thyroid hormone is found to influence the metabolic activity of the body, which can be interpreted as the action of 'Agni' (in Ayurveda). Dysfunction of the agni results in hypothyroidism and by appropriate ahara, vihara, oushadha and Pathya proper functioning of the agni can be restored. **Discussion:** On detailed critical analysis, it is established that agni dushti is the root cause of majority of thyroid disorders. Treating agni vaishamyata could be considered as the ardha chikitsa in Hypothyroidism. Ascertaining clinical implementation of the agni from prakriti assessment, disease assessment, and by decrease in signs and symptoms in the patients after

the oushadha sevana will pool scientific evidence for clinical practice. **Conclusion:** Agni chikitsa is considered as the main line of treatment in all the thyroid disorders followed by Shodana, Shamana along with Pathya ahara and vihara.

KEYWORDS: Agni, Ayurveda, Hypothyroidsm, Biotransformation, Chikitsa, Jataragni and Dhatvagni.

INTRODUCTION

roga sarve api mandagnou[3]

The metabolism and catabolism in the human body is regulated by Agni. One of the prime factors responsible for the Agni Vaishamya is unhealthy dietary habits and sedentary lifestyle due to modernization causing various disorders including metabolic disorders. Hypofunctioning of Agni leads to indigestion and formation of ama which in turn is the root cause for various ailments.

Thyroid hormones, T3 (triiodothyronine) and T4 (thyroxine), can be interpreted with Dhatwagni in Ayurveda, as both play a crucial role in metabolism and tissue transformation. Dhatwagni refers to the metabolic fire present in each of the seven dhatus (tissues) which is responsible for their nourishment and proper function. Similarly, thyroid hormones regulate basal metabolic rate, growth, and overall physiological balance. When thyroid hormones are low, metabolism slows down, resembling dhatwagni mandya (weak tissue metabolism).

Thyroid hormone affects every organ system in the body, including the heart, CNS, autonomic nervous system, bone, GI and metabolism. In general, when the thyroid hormone binds to its intranuclear receptor, it activates the genes for increasing metabolic rate and thermogenesis. Increasing metabolic rate involves increased oxygen and energy consumption.[4] Hence the functionality of thyroid hormones can be understood at the level of Dhatwagni.

Hypothyroidism results from low levels of thyroid hormone with varied etiology and manifestations. It makes the affected person remain dependent on hormonal supplement till the end of the life. Thyroxine replacement only increases the level of thyroid hormones in the blood stream but do not treat the cause of the disease. The long-term usage of levothyroxine is shown to have accelerated osteoporosis, drug intolerance, hypersensitivity and serious long term metabolic complications.[5] The treatment modality in modern science has limitations as

they are only palliative. Hence there is increased demand to understand the disorder in Ayurveda and its line of management.

MATERIALS AND METHODS

The etiology, clinical features and pathogenesis of hypothyroidism is studied from modern textbooks of various authors and by electronic data bases like pubmed, google scholar and other national research databases. The conceptual aspects of Hypothyroidism in Ayurveda are interpreted by gathering various scattered references from Brihatrayi and Laghutrayi. Interpretation was drawn from the reference and an effort is made to understand the etiopathogenesis of Hypothyroidism in terms of Agni, Dosha, Dhatu and Srotas.

ETIOLOGY/ NIDANA OF HYPOTHYROIDISM

Hypothyroidism is caused by the inadequate production of thyroid hormones. Hypothyroidism is primarily categorized as primary and secondary (i.e., central) hypothyroidism. In primary hypothyroidism, the thyroid gland cannot produce adequate thyroid hormone. The less commonly seen secondary or central hypothyroidism occurs when the thyroid gland functions normally; however, hypothyroidism results from the abnormal pituitary gland or hypothalamus function. Untreated hypothyroidism increases morbidity and mortality.[6] In ayurveda, the etiological factors related agni dushti, kapha vata prakopakara nidana and rasapradoshaja nidana are involved in the manifestation of the disease.

SAMPRAPTI/ PATHOGENESIS

In Ayurveda, the development of the disease can be interpreted through two different pathways of pathogenesis.

1) Jataragni and Dhatwagni mandya janya: The functions of thyroid gland can be understood at the level of Agni (jataragni, bhutagni and Dhatwagni) in the body causing biotransformation/ tissue metabolism at various level and maintaining the basal metabolic rate. Hypothyroidism is caused by atisantarpana nidana leading to mandagni and vata kapha dushti. Based on the critical view of guna, it is manda, laghu and sheeta guna working at the cuboidal follicular cells of thyroid gland resulting in the inadequate production of thyroid hormones. This result in the dhatugata malasanchaya causing Srotorodha resulting in both physical and psychological features in hypothyroidism.

2) Dhatwagni kshaya and beeja dosha: Due to apathya nidana sevana and beeja dushti, there is jataragni mandya leading to the formation of ama and vata kapha dushti. This causes

dhatwagni mandya, leading to uttarottara dhatu kshaya thus affecting the vyadhi kshmatva of the body. Ama can trigger an abnormal immune response which leads to inflammation and tissue destruction which aligns with the pathology Hashimoto's thyroiditis.

CLINICAL PRESENTATION

TABLE 1

Signs and symptoms[7]	Srotas involved[8]	Dosha involved[9]
Weight gain	Medovaha	Kapha
Cold intolerance	Rasavaha	Vata, kapha
Fatigue	Rasavaha	Vata
Decreased appetite	Rasavaha	Kapha
Lethargy, drowsiness	Rasavaha	Kapha
Dry skin and hair	Asthivaha	Vata
Menorrhagia	Artavavaha	Vata kapha
Constipation	Purishavaha	Vata
Hoarseness	Pranavaha	Vata
Alopecia	Rasavaha	Vata
Anaemia	Rasavaha, raktavaha	Vata, kapha
Muscle stiffness	Asthivaha	Vata, kapha
Deafness	Rasavaha	Vata
Depression	Manovaha	Vata
Infertility	Artavavaha	Vata, kapha
Paraesthesia	Rasavaha, majjavaha	Vata
Bradycardia	Rasavaha, raktavaha	Kapha
Periorbital puffiness	Rasavaha	Kapha
Non pitting edema	Rasavaha	Kapha
Goiter	Mamsavaha	kapha

Based on the observed signs and symptoms, this condition can understood be as vata kapha dushti with the involvement of rasavaha, raktavaha, medovaha, mamsavaha, shukravaha and manovaha sroto dushti, affecting all systems leading to widespread metabolic, reproductive and psychological imbalances.

Complications: Cardiac functions are regulated by the thyroid hormone. Hypothyroidism causes decreased cardiac output and contractility as well as increased peripheral resistance.[10] This can be interpreted with rasavaha srotas dushti. Hypothyroidism patients show elevated total cholesterol and Low-density lipoprotein (LDL) cholesterol, and reduced levels of HDL cholesterol, thereby causing higher chances of atherosclerosis and other cardiovascular disease (CVD) risk factors, this can be understood as an abnormality of Medovaha Srotas in the pathogenesis of hypothyroidism, indicating impaired fat metabolism and imbalance in

lipid regulation.[11] Hypothyroidism is also known to induce various neurological and mental dysfunctions which supports abnormality in Manovaha Srotas.

SAMPRAPTI GHATAKA

Dosha – vata kapha

Dushya – rasa, rakta, mamsa, meda, shukra

Agni – jataragni, dhatwagni

Ama – jataragni and dhatwagni janya ama

Srotodushti – sanga

Adhishtana - gala pradesha

Sanchara sthana – sarva shareera

Roga marga – bahya and abhyantara

Sadya sadyata – krichra sadya

TREATMENT PRINCIPLES

Vikaraanam kushalo nahi jihyat kadachana

Nahi sarva vikaranaam naamoto asti dhruvataha:[12] Ayurveda doesn't emphasize on the exact nomenclature of the disease rather it insists on the diagnosis of the constitutional status of the disease. Disintegration of the pathological factors (samprapti vighatana) is one of the main principles of treatment. Whatever may be the etiology of the disease, it results in under active condition of the thyroid gland and ultimately slowing down the metabolism. So, the treatment should aim to stimulate the thyroid gland. The four main principles include Deepana pachana, srotoshodhana, vata kapha shamana and rasayana.

TABLE 2

Deepana pachana (Dhatwagni deepana and dhatugata mala pachana)	Shaddharana churna[13] Hinguvachadi vati[14] Chitrakadi vati[15] Gorakh mundi swarasa[16] Chitrakadi Kashaya[17] Pachanamruta kwatha[18]
Srotoshodhana	Vamana Virechana Nasya
Vata kapha shamana	Varunadi Kashaya[19] Guggulu tiktaka Kashaya[20] Asanadi kashaya[21] Punarnavadi kwatha[22] Navaka guggulu[23]

Deepana pachana: deepana pachana in the context of Hypothyroidism means dhatwagni deepana and dhatugata mala pachana.

Srotoshodhana: agni mandya at any level is due to Kaphakara nidana resulting in Dhatgata mala sanchaya and Srotorodha causing compromised Dhatu sara leading to the disease manifestation. Thus, Srotoshodhana by vamana, virechana and nasya is the prime line of treatment in hypothyroidism.

Vamana – Rasadhatwagni mandya leads to vriddhi of malarupi kapha. Vamana is one among the type of langhana which pacifies the symptoms related to rasa dushti. The ushna, teekshna and Sukshma guna of vamana Dravya has the potency to circulate all over the body which liquify the morbid dosha and expel it out through the oral route. It does kapha chedhana and has direct effect on the agni.

Virechana – hypothyroidism results from impaired metabolism leading to toxin build up in the body. Virechana eliminates accumulated ama from the gastrointestinal tract which restores metabolic efficiency and by cleansing the dosha, dhatus and srotas it helps in better functioning of endocrine system.

Nasya – thyroid gland is situated in urdwajatru and kapha sthana, nasya helps in eliminating the morbid doshas from Uttamanga. Nasya delivers the medicated substance directly to the nasal passage which are closely connected to the brain and stimulates the hypothalamus and pituitary gland which helps in regulating thyroid hormone production.

Vata kapha Shamana – Doshapratyanika chikitsa: Planning the appropriate therapeutic principles after considering the conglomeration of dosha-dushya and their symptoms.

PATHYA- APATHYA IN HYPOTHYROIDISM:[24] The diet should be fibre rich and low in calorie. Food should also contain adequate amount of protein, fat, minerals and vitamins. High protein diet will worsen constipation if that is one of the symptom. The fat allowance should not exceed more than 30 gm per day. Goitrogenic foods such as rapeseed, Brussels sprouts, broccoli, cauliflower, sweet potatoes, lima beans, soya and pearl millet should be limited. These foods contain natural goitrogens, which cause the enlargement of the thyroid gland by interfering with thyroid hormone synthesis. Cooking is known to make the goitrogens elements less effective hence these vegetables should not be eaten raw. Fats, sugars, red meat and egg intake should also be restricted. Caffeine drinks like coffee and cola

should be avoided as they interfere with T3 metabolism in the body. Another important factor in the treatment of hypothyroidism is exercise. Exercise increases tissue sensitivity to the thyroid hormone and stimulates thyroid gland secretion. An exercise regime of 20-30 minutes per day will be beneficial with hypothyroidism. This exercise needs to be strenuous enough to raise the heartbeat, an exercise such as walking, swimming, running and cycling. But in patients who have hypothyroidism have generalized hypotonia and may be at risk for ligamental injury, particularly from excessive force across joints. Thus, patients should exercise caution with certain activities, such as contact sports or heavy physical labour. Patients with uncontrolled hypothyroidism may have difficulty maintaining concentration in low-stimulus activities and may have slowed reaction times. Patients should use caution if an activity has a risk of injury. Physical and emotional stress inhibits the thyroid gland secretion due to reduction of thyrotrophin output. So reduction of the stress is very essential for proper functioning of the gland.

Yoga: Sarvangasana is the most suitable and effective asana for the thyroid gland. An enormous pressure is placed on the gland by this posture. As thyroid gland has one of the largest blood supplies of the any organ, the pressure has dramatic change on its function, improving circulation and squeezing out stagnant secretions. After Sarvangasana practice of matsyasana and halasana is beneficial. Other effective asanas include surya namaskara, pavanamuktasana, bhujangasana with emphasis on head and neck exercises.

DISCUSSION

The anukta vyadhi concept explained by charaka and vagbhata[25] helps in understanding the etiopathogenesis and management of disease which are not mentioned in the classics. The line of treatment in hypothyroidism involves identifying the dosha vikalpa, involvement of dhatu, srotas and the status of agni. Based on the vikalpa samprapti, hypothyroidism have imbalanced state of Agni (impaired metabolism), involvement of rasadi dhatu. Ascertaining clinical implication of agni chikitsa in patients can augment gut priming which regulates natural physiological process. Ayurveda owing to its individualistic approach advocates patient-centric therapy in thyroid disorders.

CONCLUSION

Agni chikitsa is considered as the ardha chikitsa in hypothyroidism followed by Shodhana, dosha pratyaneeka chikitsa along with Pathya ahara and vihara. Thus scattered reference has been pooled and put forward for further wide scientific implication.

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