



A REVIEW ARTICLE ON AYURVEDIC MANAGEMENT OF HYPOTHYROIDISM

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ABSTRACT

Thyroid disorders are among the most common and complex endocrine problems globally. Key thyroid disorders include hypothyroidism, hyperthyroidism, goiter or iodine deficiency, Hashimoto's thyroiditis, and thyroid cancer. Hypothyroidism, in particular, poses challenges due to its often subtle and diverse clinical symptoms. This condition is caused by a shortage of thyroid hormones, specifically triiodothyronine (T3) and thyroxine (T4). Mild or subclinical hypothyroidism is characterized by normal peripheral thyroid hormone levels but slightly elevated serum thyroid-stimulating hormone (TSH) levels. Currently, there is a lack of direct experimental, pharmacological, or preclinical evidence regarding the effectiveness of Ayurvedic and herbal treatments for hypothyroidism. This manuscript examines the potential of traditional Ayurveda and herbal remedies in mitigating hypothyroidism symptoms. Treatment approaches have progressed from using whole thyroid extract in the early to mid-20th century to contemporary thyroxine monotherapy with L-thyroxine. Despite these advancements, many individuals still experience symptoms of hypothyroidism. Although Ayurveda does not directly reference thyroid disorders, conditions like Galaganda and Gandamala, which exhibit similar symptoms, are commonly discussed. Given the available data, Ayurveda seems to be a promising option for both preventing and treating hypothyroidism.

KEYWORDS : Thyroid gland, Hypothyroidism, Mandagni**INTRODUCTION**

Hypothyroidism occurs when the thyroid gland does not produce enough thyroid hormone, which impacts functions like heart rate, body temperature, and metabolism. If untreated, hypothyroidism can result in conditions such as hypertension, dyslipidemia, infertility, and neuromuscular dysfunction.

In Ayurveda, while there is no direct mention of hypothyroidism, its symptoms can be correlated with several conditions described in Ayurvedic texts. Specifically, symptoms resembling Kaphaja Grahani (a gastrointestinal condition dominated by Kapha (Dosha), Mandagni Janya Vikara (disorders due to weakened digestive fire), Bahudosha Avashtha (conditions caused by multiple Dosha imbalances), and Galganda (goiter) can be observed.

Symptoms such as Gatradsadanam[1] (weakness of the body), Adhamana (abdominal distension), Gaurava[2] (feeling of heaviness), Shaitya (cold intolerance), Shula[3] (pain), Avasada (depression), Klama (fatigue), Sthoulya (obesity), Alasya (malaise), Dourbalya (weakness), and Avipaka[4] (indigestion) are mentioned in Ayurvedic texts. These symptoms bear similarities to those seen in hypothyroidism.

Therefore, while Ayurveda may not explicitly categorize hypothyroidism under a single disorder, its principles and descriptions of various dosha imbalances and related symptoms provide a framework for understanding and managing conditions that manifest similarly to hypothyroidism.

Treatment in other medical systems often involves hormone replacement therapy, specifically thyroxine. Given this context and the need for modern society to discover effective treatments, it is crucial to explore safe and efficient interventions for hypothyroidism. The rationale for conducting such a review is supported by several factors.

Here is a paraphrased version of the prevalence of hypothyroidism:

- In developed countries, hypothyroidism affects

approximately 4-5% of the population.

- Subclinical hypothyroidism is present in about 4-15% of individuals in developed nations.
- In India, the prevalence of hypothyroidism is notably higher, estimated at around 10%

Additionally, hypothyroidism is much more common in females, with reports indicating a prevalence 2-8 times higher than in males.

Aim And Objectives

To understand the concepts of Hypothyroidism in Ayurveda and its management.

MATERIALS AND METHODS

To obtain information on the preclinical efficacy and pharmacological activities associated with chemically induced hypothyroidism in mammals, research articles from a range of offline and online peer-reviewed journals and databases, including PubMed, MedlinePlus, Sodhganga, and Google Scholar, were reviewed. Classical Ayurvedic texts, such as the Charaka Samhita and Sushruta Samhita, were also consulted to derive insights from historical data.

Etiology

The common cause of hypothyroidism is spontaneous atrophic hypothyroidism, which affects 10-15% of individuals, particularly those aged 20-50 years, with a higher prevalence in females. This form of hypothyroidism typically does not involve goiter. [5] Another prevalent type is Hashimoto's thyroiditis, an autoimmune disorder that can lead to goitrous hypothyroidism and lacks specific causes [6].

In the Sushruta Samhita, references to Galganda Nidana (goiter) are scattered across various sections[7]. Galganda is categorized as a Nanatmaja (specific) disease of Kapha dosha, and factors that provoke Kapha may be considered contributing causes. Sushruta notes in the Rasavisheshiya Adhyaya of Sutrasthana that excessive consumption of Madhura Rasa (sweet substances) can lead to Galganda.[8] Charaka also shares this view regarding Madhura Rasa. Additionally, Sushruta mentions [9]in the Drava Dhravya

Vidhi Adhyaya of Sutrasthana that water from the Himalayan region can cause Galganda. In present times, endemic goiter is more common in the Himalayan and Himachal Pradesh regions, largely due to insufficient iodine in the water.

Signs and Symptoms of Hypothyroidism [10]:

- Loss of appetite (anorexia)
- Weight gain
- Hoarseness of voice
- Anemia
- Constipation
- Excessive sleepiness
- Slowed heart rate (bradycardia)
- Rough and dry skin
- Menstrual irregularities
- Generalized pain
- Weakness
- Myxedema

Involvement of Dosha, Dhatu, and Dhatvagni in hypothyroidism can be understood through the following Ayurvedic perspective:

1. **Anorexia:** This is linked to Mandagni (weakened digestive fire) influenced by Kapha Dosha and Rasa Dushti (disturbance in bodily fluids).
2. **Weight Gain:** This is attributed to the Guru Guna (heavy quality) of Kapha Dosha and the Pruthvi and Jala Mahabhutas (earth and water elements) involved in Kapha. It can also be related to hypometabolism (reduced Dhatvagni function), leading to inadequate formation of Dhatus and accumulation of Upadhatus and Malas (by-products), which contributes to weight gain.
3. **Hoarseness of Voice:** The increase in Manda Guna (slow quality) of Kapha Dosha leads to hoarseness. Sharangdhara mentions hoarseness of voice as a Kaphaja Vikara (disease caused by Kapha) [11].
4. **Anemia:** According to Ayurveda, Panduta (paleness or anemia) is due to Rasa Dushti (impairment of bodily fluids) and Kapha Dosha [12].
5. **Constipation:** Due to increase Ruksha Guna of Vata Dosha constipation occurs.
6. **Excessive Sleep:** lack of nourishment due to impaired Agni and Ama Dosha leads to Tandra (drowsiness) and Atinidra (excessive sleep) [13]. Rasa Vriddhi (increased bodily fluids) also contributes to excessive sleep [14].
7. **Bradycardia:** This may result from the propagation of Kapha with its Mandaguna (slowness).
8. **Coarse and Dry Skin:** increased Vata Dosha, leading to dryness and coarseness of the skin.
9. **Menstrual Disturbances:** Augmented Rasa in hypothyroidism can be in Asthaya Avastha (excessive stage), leading to insufficient nourishment of Upadhatu Artava (menstrual tissue) and Uttar Dhatu Rakta (blood tissue). This disruption affects Artava Pravriti (menstrual flow).
10. **Generalized Pain:** Hypothyroidism can be seen as a Dhatvagnimadhyajanya Vikara (disorder caused by weakened digestive fire). Vata aggravation due to Dhatu Vaishmya (tissue weakness) leads to generalized pain. Angamarda (body ache) is mentioned as a Rasaja Vikara (disease caused by bodily fluids). [15]
11. **Weakness:** The ability for work or exercise depends on the normal state of Dehadhatu (body tissues). Dhatu Vaishmya leads to Daurbalya (weakness) and Klama (fatigue).
12. **Myxedema:** This non-pitting edema found in hypothyroidism is due to increased mucoproteins in the ground substance, associated with the Sthira Guna (stability) of Kapha Dosha.

Chikitsa

Unlike the modern approach to hypothyroidism, which often focuses on symptomatic treatment, Ayurveda emphasizes

addressing the root cause of the disease, specifically Agnimandya (weakened digestive fire) and related Dosha vitiation.

In Ayurvedic management of hypothyroidism, various treatment modalities are outlined, including lifestyle modifications, single drug preparations, combination drug, Panchakarma. Ayurvedic treatment can be categorized under three main headings:

1. **Nidana Parivarjana (Avoidance of Causative Factors):** This involves identifying and avoiding all etiological factors (Nidan) like sedentary life style, stress that contribute to the disease. By eliminating or reducing these causative factors, one can prevent the aggravation of the condition.
2. **Sanshamana (Palliative Treatment):** This approach focuses on alleviating the symptoms and balancing the Doshas (body energies) to bring relief to the patient. It includes the use of herbs, dietary changes, and other therapeutic practices to manage symptoms and restore balance.

Various classical drugs and treatments have been studied for their potential benefits in managing hypothyroidism. These include:

Kanchanara (*Bauhinia variegata* L.) and Jalakumbhi [*Eichhornia crassipes* (Mart.) Solms] Extracts

Bauhinia variegata, also known as Kanchnar, has been investigated for its potential benefits. In a study, the water-soluble fraction of its total alcoholic extract was administered to rats with neomercazole-induced hypothyroidism for 20 days. The treatment resulted in enhanced thyroid function, as evidenced by an increase in thyroidal weight ($p < 0.001$), improved I131 uptake, reduced serum cholesterol levels ($p < 0.05$ for both), and active thyroid histology. The effects of this extract were found to be comparable to those of eltroxine. [16] Similarly, research showed that the water-soluble portion of Jalakumbhi (*E. crassipes*) at a dose of 2 g/kg/day over 20 days also stimulated thyroid hormone release, showing effects similar to *B. variegata* ($p < 0.001$ in all cases) [17].

Ashwagandha [*Withania somnifera* (L.) Dunal] and Kovidara (*Bauhinia purpurea* L.)

The anti-hypothyroid effects of extracts from Ashwagandha (*Withania somnifera* L.) and purple Kovidara (*Bauhinia purpurea* L.) have been documented in diabetic mice models induced by dexamethasone, followed by metformin treatment. Hypothyroidism became evident after dexamethasone administration, which was further aggravated by metformin. However, extracts from *W. somnifera* and *B. purpurea* significantly restored serum T3 and T4 levels in these diabetic animals. Other researchers conducting randomized preclinical trials have confirmed similar findings. [19]

Brahmi (*Bacopa-monniieri*-L.-Wettst) Leaf-Extract

Brahmi, long associated with Indian traditional medicine, has demonstrated therapeutic potential in regulating hypothyroidism. A study involving *Bacopa monniieri* leaf extracts (200 mg/kg) in mice revealed an increase in T4 levels, suggesting its role as a thyroid stimulant without raising hepatic lipid peroxidation (LPO). However, the extract only increased T4 levels, not T3, indicating its efficacy in releasing or directly converting T4 rather than influencing peripheral conversion to T3. Notably, this thyroid-stimulating effect was observed without using an induced hypothyroidism model, highlighting Brahmi's potential as a thyroid stimulant, comparable to conventional allopathic medications. [20]

Apamarga (*Achyranthes-aspera*-L.) Leaf-Extract

Research has shown that *Achyranthes aspera* leaf extract can elevate T3 and T4 levels in male rats when administered at 200 mg/kg body weight for 7 days. The thyroid-stimulating

properties of this plant were further supported by a significant ($p < 0.05$) increase in blood glucose levels in the treated group.[21]

Varuna(Crataeva-nurvala-Buch.-Ham)Extract

Crataeva nurvala, or Varuna, has been studied for its effects on PTU-induced hypothyroidism in adult female mice. Results indicate that the ethanolic extract of Varuna can alleviate symptoms by increasing free T4 levels in the serum and reducing thyrotropin (TSH). Additionally, the extract exhibited a dose-dependent response against PTU-induced hypothyroidism. Higher doses of *C. nurvala* showed the ability to maintain euthyroid levels by promoting the peripheral conversion of T4 to T3, preserving iodothyronine deiodinases activity, and maintaining normal thyroid gland histology compared to lower doses.[22]

Shigru(Moringa-oleifera-Lam.)Leaf-Extract

The aqueous extract of *Moringa oleifera* leaves has been studied for its potential to regulate hypothyroidism in rat models. Male albino rats weighing 120–150 g was given oral doses of 500 mg/kg body weight (bw) and 250 mg/kg bw of the *Moringa* leaf extract. The group receiving the highest dose (500 mg/kg bw for 14 days) showed the greatest increase in T3 and T4 hormone levels and the most significant decrease in TSH levels, suggesting that *Moringa oleifera* leaf extracts could be effective in treating hypothyroidism.[23]

Haridra(Curcuma-longa-L.)

Research has shown that hypothyroidism can modulate the body's antioxidant defense system, leading to decreased body temperature due to hypometabolism. Several studies have highlighted curcumin, a common spice in Indian households, for its ability to enhance the expression of superoxide dismutase (SOD) in the cerebral cortex and cerebellum of the rat brain under PTU-induced hypothyroidism. PTU-induced hypothyroidism in adult rats increased lipid peroxidation (LPO) in the cerebellum, indicating oxidative stress, but not in the cerebral cortex. Curcumin supplementation in hypothyroid rats significantly reduced LPO levels in both brain regions. The decreased levels of SOD1 and SOD2 and unchanged SOD activity in the cerebral cortex of PTU-treated rats were improved with curcumin supplementation. Similarly, curcumin alleviated the decreased SOD1 and SOD2 levels in the cerebellum of PTU-treated rats, although the already reduced SOD activity in the cerebellum was further decreased with curcumin administration. These studies suggest that curcumin differentially affects SOD expression in the cortex and cerebellum of PTU-induced hypothyroid animals.[24]

3. Shodhana Chikitsa

Vamana [25]

According to Vagbhata, Vamana therapy is used to eliminate the Kapha Dosha that is associated with Pitta. Hypothyroidism is characterized by Kaphavritta Samanavayu and an increase in Pitta, so Vamana helps to eliminate these Doshas and clear blockages. Kapha is considered the waste product of Rasa Dhatu, and when there is impaired digestion of Rasa Dhatu (Rasadhathvagnimandya), it leads to an increase in Kapha. Therefore, Vamana helps in eliminating Kapha. Langhana (fasting or lightening therapy) is a line of treatment for disorders related to Rasa Dhatu. Since Vamana is a type of Langhana, it helps to alleviate symptoms associated with Rasa Dhatu disturbances. Hypothyroidism is primarily a condition of blocked channels (Srotorodha), so Vamana assists in clearing these channels and normalizing the disturbed Vata. The hot, sharp, and penetrating qualities of Vamana substances allow them to reach the heart and circulate throughout the body. They liquefy the morbid Doshas and expel them through the oral route, directly affecting Agni (digestive fire). Thus, Vamana is effective in Samprativighatan Chikitsa (treatment to break the

pathogenesis).

Virechana[26]

Virechana Karma eliminates blockages (Avarana) and purifies the channels (Srotoshodhana), acting at the level of Dhatvagni to correct and improve Agni.

Nasya

Nasya therapy may offer a promising alternative for managing hypothyroidism, as the thyroid gland is located in the Urdhwajatu region, which is associated with Kapha in Ayurveda. The nose, considered the gateway to the head in Ayurvedic practices, is an ideal route for administering medicine in Urdhva-Jatrugata diseases [27]. Nasya Dravya works by stimulating the peripheral olfactory nerves, which act as chemoreceptors, activating the olfactory bulb. This, in turn, stimulates the upper centers of the hypothalamus and pituitary, promoting normal secretion of thyroid hormones and influencing the endocrine system [28]. The Sneha used in Nasya penetrates the brain and impacts key areas that regulate endocrine functions, leading to various beneficial effects.

Basti

Basti therapy impacts the enteric nervous system and influences cellular functions, stimulating the hypothalamic-pituitary-thyroid (HPT) axis through the thyroid-gut connection. Research has shown that Lekhana Basti is effective in managing hypothyroidism by pacifying Vata, which is obstructed by Kapha Dosha [29]. Additionally, studies have found that the Dwipanchamooladi Niruha Basti combination is beneficial in treating the signs and symptoms of hypothyroidism [30]. Kshara Basti is also considered highly effective in the management of hypothyroidism [31].

From overall observation -

- Hypothyroidism with swelling/weak digestion with constipation = Kanchnar Guggulu with Haritki or Khadira kwatha, Vaman KaramA.

(Because Kanchnar Guggulu contain Trikatu, Triphla, Trijata which are Deepneeya and Pachyneeya (good for Mandagni), Abhya is laxative.

- Hypothyroidism with fatigue, stress = Ashwagandha Ghrita ,Basti chikitsa.

(It is Ashwagadha Sadhita Ghrita which is good in weakness, stress and Mandagni, constipation, hair fall like all Vataja symptoms)

- In anxiety stress and depression Ashwagandha Churna, Ashwagandha Ghan Vati, Ashwagandharistha, Ashwagandha Ghrita ,Brahmi Vati,Smritisagar Ras ,Nasya Karma shows great relief.
- In weight gain condition Triphla Guggulu, Salsaradi Gana Sara + Gomutra Kshar Basti, Lekhana Basti is very usefull.
- Hypothyroidism with weight loss / loss of libido =Ashwagandha Leham.

(Because it is Leham so it has Rasyana properties which is good in weight loss and loss of libido)

DISCUSSION

The selection of drugs for managing hypothyroidism in Ayurveda primarily depends on the underlying pathology and the desired site of action. For example, thyroid-stimulating drugs are used if the issue is at the thyroid gland level, Medhya (nootropic) drugs target the hypothalamus-pituitary level, Deepana-Pachana drugs are chosen for metabolic correction, and immunomodulatory drugs are utilized for autoimmune hypothyroidism. Ayurveda, with its individualistic approach, emphasizes patient-centric therapy for hypothyroidism. From an Ayurvedic perspective, the clinical manifestations of hypothyroidism can be linked to the

symptoms of Kapha-avrat Samana Vata, where the movement and function of Samana Vata are hindered by Kapha, leading to metabolic disturbances such as Agnisada (weakening of the digestive fire). Therefore, the recommended treatment involves appropriate Srotoshodana (purification) procedures followed by the administration of Shamana (palliative) drugs. Clinical outcomes from various Ayurvedic treatments for hypothyroidism indicate that palliative drugs are most effective when administered after purificatory therapy [32].

Many of the herbal drugs discussed in the paper are widely used by Ayurvedic practitioners in the palliative management of hypothyroidism, based on their pharmacological properties described in Ayurvedic texts through Rasapanchak (the five fundamentals that govern the action and therapeutic use of a drug). Notably, Guggulu, Varuna, and Shigru are effective in countering Kapha Avarana (obstruction by Kapha Dosha) due to their Tikshna (sharp), Rooksha (dry), and Laghu (light) properties. Jalakumbhi (water hyacinth) Bhasma is specifically recommended for managing Galaganda [33], and studies have shown that the vitamin C content in weeds like water hyacinth is relevant to its medicinal use in treating goiter. Ascorbic acid has been clinically proven to improve abnormalities in serum-free T4, T3, and TSH levels by regulating the absorption of levothyroxine in hypothyroid patients [34]. Water hyacinth contains ascorbic acid at 10.19 mg/100 g as determined by cyclic voltammetry (CV) and 16.34 mg/100 g by titration with N-bromosuccinimide (NBS), which supports its medicinal use in goiter and related conditions [35].

In autoimmune thyroid disease, lymphatic infiltration leads to tissue damage, further disrupting normal thyroid function. In such cases, drugs with immunomodulatory and antioxidant properties, such as Ashwagandha and Brahmi, are recommended alongside symptomatic management. The concept of reverse pharmacology, which essentially revisits the roots of modern pharmacology, suggests that evaluating these herbal drug claims at the biomolecular level could reveal their specific mechanisms of action. Despite the availability of various Ayurvedic treatments for thyroid disorders, further research in this area is necessary to close the knowledge gap in Ayurvedic pharmacology and drug development. Thyroid disorders can impact almost all physiological systems and are directly or indirectly linked to many lifestyle-related diseases, including neural, cardiovascular, gastrointestinal issues, diabetes, and even cancer.

CONCLUSION

The key to advancing and clinically validating natural resources as alternative medicine lies in thoroughly understanding the molecular mechanisms involved in each healing process mentioned in the text. Based on the scientific and pharmacological insights discussed in this review, it can be concluded that hypothyroidism can be effectively managed with Ayurvedic medicines, provided there is careful consideration of the patient's signs, symptoms, timing, and appropriate drug selection.

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