REVIEW ARTICLE

Review of Hyperthyroidism as per Ayurveda

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ABSTRACT:

Hyperthyroidism is one of the most common disorder of Thyroid gland which is increasing day by day globally especially in developing countries. Ayurvedic classics have no direct reference of Hyperthyroidism. Considering various factors, it can be compared with *Atyagni* or *Tikshnagni* or *Bhasmaka Roga* (related to increased agni). Approximately 300 million people worldwide are affected by thyroid dysfunction as it is a common endocrine disorder. Globally about 1-5% population are affected by hyperthyroidism. The prevalence of thyroid disorders in Nepalese population is 4.32% and among them 13.7% population has Hyperthyroidism. Available treatments of Hyperthyroidism in contemporary medicine cause lots of adverse effects and complications in the long run. So, it is very necessary to find out an effective alternative treatment for hyperthyroidism. Therefore, this study was an attempt to get the understanding of disease Hyperthyroidism as per Ayurveda through various Ayurvedic principles so as to set its management strategies.

Keywords: Hyperthyroidism, *Atyagni*, *Tikshnagni*, *Bhasmaka rog*

INTRODUCTION

Ayurveda is an ancient system of medicine with lots of possibilities to treat many non-communicable diseases of present era including hyperthyroidism. Thyroid disorder has become a major health problem even in the developing countries.

Ayurveda describes health as a balanced condition of three dosha *Vata* (related to nervous system), *Pitta* (related to metabolism) and *Kapha* (related to anabolism) and disease (*Roga*) as the effect of the disequilibrium of those dosha. In Ayurveda there is no exact description of Hyperthyroidism. However, as hyperthyroidism is the condition where there

is hyper metabolism in the body due to the excessive production of thyroid hormone, it can be compared with *Atyagni* or *Tikshnagni* or *Bhasmaka Roga* (related to fire). *Bhasmaka Roga* and Hyperthyroidism both conditions affect the body metabolism. *Pitta Prakopa* (aggravation) plays important role in the pathogenesis and production of symptoms in both conditions. Two thyroid hormones called Tri-iodothyronine (T3) and Thyroxine (T4) hormones work in the body as *Pitta*. So, *Bhasmaka Roga* can be correlated with life style disorder Hyperthyroidism. There is excessive Agni in *Atyagni* or *Tikshnagni* or *Bhasmaka Roga*, which

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causes rapid digestion of food and later on consumption of *Dhatu* (tissues). The Ayurvedic system of medicine is very futuristic and it doesn't emphasize on naming the disease. It rather insists on understanding the constitutional status of the disease and adopting the appropriate treatment principles.

Ayurveda system of medicine is seen to be well tolerated by patients clinically. Knowledge of etiology, pathogenesis and diagnosis is very essential to find out an effective treatment of any disease. Hyperthyroidism is a very common disease among people of developing countries. In Nepal the prevalence of thyroid disorders in general population is 4.32% and among them 13.7% population has Hyperthyroidism. Hyperthyroidism is treated with anti-thyroid medications, radioactive iodine, beta-blockers and thyroidectomy in contemporary medicine which may cause lots of adverse effects and complications in the long run. So, it is very necessary to find out an effective alternative treatment for hyperthyroidism. Therefore this study was done to find out the treatments available in Ayurveda. In Ayurveda, non-invasive treatment along with some oral herbal medicines are given which is very safe and cost-effective in hyperthyroidism.

MATERIALS AND METHODS

This study was carried out by literature search and critical review of the obtained facts. The symptoms and treatment of Hyperthyroidism and Tikshnagni/Bhasmak roga were studied from modern and Ayurveda text books of various authors and by searching various online medical research databases like pubmed, google scholar etc.

DISCUSSION

Hyperthyroidism

It is the condition where there is hyper metabolism in the body due to the excessive production of thyroid hormones T3 and T4. For growth, neuronal development, reproduction and regulation of energy metabolism thyroid hormones are essential. Hypothyroidism and hyperthyroidism are common conditions which affect all populations worldwide with potentially devastating health consequences. A key determinant of thyroid disease risk is Iodine nutrition; however, thyroid disease epidemiology is influenced by ageing, smoking, genetic susceptibility, ethnicity, endocrine

disruptors and the advent of novel therapeutics, including immune checkpoint inhibitors too.⁶ Excess iodine intake, thyroiditis, tumor of ovary and testis, benign tumor of Thyroid or Pituitary, and medications are other factors responsible for Hyperthyroidism. Acting as a spark to pep-up body metabolism, thyroid hormone help to increase the oxidative phosphorylation in the mitochondria. Thyroxine is also one of the factors which regulate the metabolism.⁷

Hyperthyroidism is an emerging health problem in worldwide population. Approximately 300 million people worldwide are affected by thyroid dysfunction as it is a common endocrine disorder.⁸ Globally about 1-5% population are affected by hyperthyroidism. It is more prevalent in females.⁴ Thyroid hormones have a significant impact on cardiac function and structure. Excess thyroid hormone affects cardiovascular hemodynamics causing high-output heart failure and later on causes dilated cardiomyopathy.⁹ Hyperthyroidism is treated with anti-thyroid medications, radioactive iodine, beta-blockers and thyroidectomy in contemporary medicine which may cause lots of complications and adverse effects in the long run. So, a safe alternate treatment modality is very necessary to address that problem, for which Ayurveda is the best option.

Ayurvedic perspective on hyperthyroidism:

In Ayurveda there is no direct mention of the thyroid gland and hyperthyroidism. Since Hyperthyroidism and Bhasmak rog both have similar pathogenesis i.e, hypermetabolism, they can be correlated with each other. Bhasmak Rog is caused by *Atyagni* or *Tikshnagni*. *Tikshnagni* is due to *Pittaprakopa*. Symptoms of *Pittaprakopa* are similar to Bhasmak Rog. Various Acharya had mentioned about Bhasmak Rog in various centuries in various Ayurveda Samhitas. Acharyach Charak had mentioned Bhasmak Rog as *Tikshnagni* in *Grahanirog Chikitsa Adhyaya*. According to Charak, Ksheen Kapha and Prakopa of Vata and Pitta causes *Jatharagni vridhhi* (increased digestive fire). Because of this *Jatharagni vridhhi*, *Kshuddhavridhhi* (increased appetite) and *Trishnadi* (excessive thirst) etc. symptoms are seen. If the patient doesnot take food then this increased *Jatharagni* leads to *Dhatu-Pachan-Karshytwa* (depletion of tissue and cachexia) and *Mrityu* (death).¹⁰ Acharya Sharangadhar in 13th century had described four types of Agni with its respective *Dosh-Prakopa* (vitiation) in Sharangadhar Samhita Purvakhanda, *Rog-Gyana-Prakaran*

as *Agnivikar*, i.e., *Vishamagni-Vata*, *Tikhnagni-Pitta*, *Mandagni-Kapha* and *Bhasmakagni-Vata-Pitta*.¹¹ Acharya Madhavkar in *Rogvinishchaya adhyaya* had mentioned about Bhasmak Rog in 7th Century.¹² Acharya Bhavprakash in 16th Century had mentioned about Bhasmak Rog in *Madhyam Khanda* as *Jathragnivikar*. He described that intake of *Atiruksha* (excessive dry) food and *ativyaayam* (excessive exercise) causes *kshaya* (decrement) of Kapha along with Vata prakop (vitiation), so this *Prakupit* (vitiated) Vata leads to Pitta prakopa leading to the manifestation of Bhasmak rog with different symptoms.¹³ In 17th Century Acharya Yogratnakar explained about Bhasmak Rog in separate chapter as *Chikitsa Adhyaya*, where he mentioned Trishna, Daha, Murchha, Bhram, Kasa, Shofadi Lakshanas & Chikitsa of Bhasmak Rog.¹⁴

Comparison between Symptoms of Bhasmak Roga and Hyperthyroidism:¹⁰⁻¹⁵

S. N.	Lakshan of Bhasmak Rog	Symptoms of Hyperthyroidism
1	Trishna	Thirst
2	Daha	Heat intolerance
3	Moha	Nervousness, Irritability, Loss of Concentration
4	Shwas	Exertion Dyspnea, Asthma
5	Kasa	Exacerbation of asthma
6	Sweda	Sweating
7	Shoph	Pruritus
8	Murchha	Fatigue
9	Bhrama	-
10	Dina	Loss of weight
11	Shramakarmakari	Hyper reflexia
12	Vitshosh	Constipation, increase frequency of stool
13	Kshudha vruddhi	Increase Appetite

Ayurvedic Management

In light of above discussion, the drugs that have their effect at *Agni* level and possess *Pitta-Vatashamaka* properties are supposed to be ideal agents for treating hyperthyroidism. The dietary rules and proper lifestyle (*Dinacharya* and *Ritucharya*) as described in Ayurvedic texts should also be followed for proper control of Hyperthyroidism. Ayurveda has advised three fundamental modalities to manage every disease i.e. *Nidana Parivarjana*, *Samsodhana Chikitsa* and *Samshaman Chikitsa*.

1. **Nidana Parivarjana:** Avoidance of the various causative factors of the disease is called *Nidana Parivarjana*. It is the first line of treatment of any disease. Hyperthyroidism manifests as a result of *Pitta-Vatavridhi* and *Tikshnagni*. Therefore, all the *Pitta-Vatadosha* aggravating and *Tikshnagnikaraka* *ahaara-vihaara* should be avoided in Hyperthyroidism.

2. **Shamsamana Chikitsa:** *Mahatikta ghrit* and *Ksheerabala* (a preparation of *Sida cordifolia* in milk) were found to be effective in patients of both the genders and different conditions of thyroid disorders including hyperthyroidism.¹⁶

a. Yoga Recommendation for Hyperthyroidism:¹⁷

Meditation, *Pranayama* and *Yogasanas* play a vital role in maintaining thyroid health. Yoga therapy for the *Vishuddha* or fifth throat chakra helps to heal the thyroid gland. Chanting of 'Om' while meditating balances thyroid function. *Sheetali*, *Sheetkari*, *Nadi Shodhan*, *Bhramari*, and *Ujjayi Pranayam*, and practice of *asanas* like *Suryanamaskar* at slow pace, shoulder stand (*Sarvangasana*), plough (*Halasana*), fish (*matsyasana*), and lion poses are beneficial.

b. Some pathya ahara and medicines described for Atyagni/Bhasmak Rog

Payasa (milk pudding), *krishara* (thick gruel prepared of rice and lentils), *snigdha* (unctuous), *paiṣṭika* (resembling flour paste), various jaggery products, meat of aquatic animals or marshy area especially fish which is mainly in smooth (not salty) and stable water and roasted meat of sheep may be given to pacify the *atyagni*.¹⁸

Yavagu (thick gruel) mixed with bee wax or *ghrita* should be given whenever patient feels hungry. *Mantha* prepared from wheat flour or venesection may be advised. Milk medicated with *jeevaniya* group of drugs along with sugar and *ghrita* may be given.¹⁹

Paste of fruits, substances containing oil like *tila* (sesame seeds) with sugar and meat soup with ghee pacifies the *agni*.²⁰

The patient should take *ghrita* with beeswax along with cold water as *anupana*. Patient may take wheat flour with milk and ghee. Patient may be advised to take

three sneha i.e. ghee, abinal fat, bone-marrow fortified with meat soup of animals residing in marshy areas. Milk mixed with wheat flour and curd along with three sneha (ghrita, vasa, majja) may be given. Bark of udumbara mixed with human milk and milk pudding prepared from udumbara and human milk helps in pacifying the atyagni.²¹

c. Beneficial Plants for Hyperthyroidism

- i. **Melissa officinalis L.** Family: Lamiaceae- As noted in the older studies, lemon balm is effective in blocking the binding of TSH to the receptor by acting on the hormone and the receptor itself. It also inhibits cyclic AMP production stimulated by TSH receptor antibodies. Traditionally, lemon balm has been used to treat symptoms associated with hyperthyroidism, like tachycardia, insomnia, and hyperactivity.²²
- ii. **Convolvulus pluricaulis** (Family: Convolvulaceae)- Convolvulus pluricaulis acts strongly on some of the liver enzymes and helps in improving symptoms of hyperthyroidism. It has antiulcer properties and is helpfulness in alleviating the symptoms of hyperthyroidism. The studies on C. pluricaulis have also put forward that it is beneficial in remedying hypothyroidism.²³
- iii. **Annona squamosa** (Family: Annonaceae)- The aqueous leaf extract of A. squamosa was also reported to ameliorate hyperthyroidism, which is the major causative factor for diabetes mellitus.²⁴
- iv. **Leonurus cardiaca** (Family: Lamiaceae)- In autoimmune diseases, it is important to reduce inflammation, making motherwort a good choice in treating hyperthyroidism. In addition to reducing inflammation, the enzyme 5-deiodanase is inhibited.²⁵
- v. **Rauvolfia serpentina** (Family: Apocynaceae)- The R. serpentina root extract administered to T4 induced hyperthyroid mice significantly decreased both the serum T3 and T4 concentrations.²⁵
- vi. **Emblica officinalis** (Family: Phyllanthaceae)- The fruit extract decreased both serum T3, T4 concentrations. The decrease in T3 was by inhibiting peripheral conversion of T4 to T3 in extra-thyroid tissues.²⁶

vii. **Trigonella graceum** (Family: Fabaceae)- The seed extract induced reduction in T3 level could be the result of inhibition in peripheral conversion of T4 to T3 in extra thyroidal tissues.²⁷

viii. **Aegle marmelos** (Family: Rutaceae)- The plant has a specific role in the regulation of thyroid functions and in maintaining the Thyroid hormone levels.²⁸

ix. **Ocimum sanctum** (Family: Lamiaceae)- The leaf extract of O. sanctum administered to male mice for significantly inhibited only T4 concentration.²⁹

x. **Moringa oleifera** (Family: Moringaceae)- M. oleifera leaf extract treatment of female rats decreased serum T3 concentration and increased in serum T4 concentration. This observation suggests the inhibitory activity of the plant extract in the peripheral conversion of T4 to T3.³⁰

3. Samshodhana Chikitsa:

Expert physician should follow the line of treatment after proper examination of patient. Milk medicated with Nishoth and Trivrit may be advised for virechana for alleviating the pitta followed by diet of milk pudding.³¹

Acharya Charaka in Grahani Chikitsa Adhyaya explained about *Siraa Vyadhana* (Venesection) in the management of *Atyagni*.³² Strength of the patient, nature and seriousness of the disease should be considered before performing *Siraa Vyadhan*. Agni is a key factor in transformation of consumed Ahara dravya of *Vijatiya* (different) origin to *Sajatiya* (similar) nature with the help of *Vata*, converts the *Ahara* (food) into *Rasadi Dhatus* (plasma like) and *Malas* (excreta). In this disorder mainly *Vata* and *Agni* plays major role. *Siraa Vyadhana* causes “depletion of digestive fire”. Acharyas had clearly explained that *Rakta* (blood), *Pitta* and *Agni* are related to each other and if *Rakta* is withdrawn from the body directly it causes depletion of *Raktha Dhatu* (blood) which in turn causes depletion of *Rasa Dhatu* later on causes *Dhatwagni Mandya* (decrement in tissue metabolism) and finally *Mandata* of *Agni* (decrement of fire). So in *Atyagni* condition *Siraa Vyadhana* is one of the treatment modality.³³

CONCLUSION

Ayurvedic classics have no direct reference of

Hyperthyroidism. Considering various factors, it can be compared with *Atyagni* or *Tikshnagni* or *Bhasmaka Roga* as all of them affect on the body's metabolism. Globally about 1-5% population are affected by hyperthyroidism. The treatments of Hyperthyroidism in contemporary medicine have lots of adverse effects and complications, debilitating the patients condition in the long run. Therefore, Ayurvedic approach to treat hyperthyroidism is invariably necessary to avoid the various side effects. This study reveals very promising efficacy of various medicines including food, herbs, shiravyadhan, virechan karma, yoga and pranayama along with dietary rules and proper lifestyle as described in Ayurvedic texts which are well supported by various research studies with modern parameters.

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