



ROLE OF DIET AND LIFESTYLE MODIFICATIONS IN THYROID DISORDERS – AN AYUVEDIC PERSPECTIVE

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ABSTRACT

At the global level nearly 40million people die every year at the premature age of 30-59 years. This is mainly because of non-communicable diseases. When comes to national level, India ranks first in case of cardio-vascular diseases and ranks just second when comes to obesity. Thyroid diseases are major problem of modern society and are referred as diseases of civilization. Unhealthy lifestyle, stress and exposure to chemicals are believed to increase the risk of developing thyroid disorders. There is a close resemblance between the functions of thyroid hormones and functions of *jatharagni*(digestive fire). Hypothyroidism can be co-related to *mandagni* due to reduced basal metabolic rate (20-40 percent below the normal range) and treatment principles includes *agnideepana*, *ama pachana* and *srotoshodhana chikitsa*. Hyperthyroidism can be co-related to *atyagni* due to increased basal metabolic rate (60-100 percent above the normal range) and treatment includes *vata-pitta hara* and *kaphakarachikitsa*. Approaching thyroid disorder and autoimmunity from a holistic level and seeing the body as an interconnected system is better way to address these disorders. Therefore, a strict diet to soothe the gut inflammation, restore good digestive enzymes and adopting healthy life style from a holistic approach could be the best way to prevent these non-communicable disorders.

Key words: hypothyroidism, *mandagni*, hyperthyroidism, *atyagni*, *jatharagni*

INTRODUCTION

Thyroid gland is considered to be one of the most important endocrine glands as it has its impact on almost all the system of the body like digestive system, nervous system, cardiovascular system and reproductive system either directly or indirectly. From the functions of thyroid hormones it is very much evident that its functions are equivalent to the *Jatharagni*. *Acharya charaka* in *siddhi sthana* mentioned that “*shirasi indriyaniindriyapraanavahaani cha srotaamsi suryamiva gabhasthayahasamshritaani*”⁽¹⁾ like how the sun rays reaches the earth without any interrupting channels in the same way the hormones released by these endocrine glands will reach the targeted site without any interruption and perform their activities. As the deterioration of *agniis* caused by *ahitaahara* and *vihara*, adopting *hitaahara* and *vihara* could be the best approach in the management of these disorders.

PHYSIOLOGY OF THYROID GLAND

Thyroid gland is an endocrine gland which is situated at the base of the neck on either side of the trachea. It mainly secretes 3 hormones, namely T3 (triiodothyronine), T4(tetraiodothyronine) and calcitonin. Secretion of these hormones is regulated by TSH (thyroid stimulating hormone) which is secreted by anterior pituitary gland and this TSH is intern regulated by TRH (thyrotrophic releasing hormone) which is secreted by hypothalamus.

The 80% of thyroid hormones are 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 eventually result in thyroid disorders.⁽²⁾

FUNCTIONS OF THYROID HORMONES

- Growth and development –for development of synapses and proper myelination in growing fetus
- Energy Metabolism- stimulates BMR, oxygen consumption and heat reduction
- Nervous system – it regulates nervous system activity by exerting effect on adrenergic receptors.
- Cardiovascular system – T3 maintains normal myocardial contractility
- Muscle – normal skeletal functions are regulated
- Respiratory system – lung volume and breathing capacity is maintained
- Colon – helps in regulating normal bowel movements
- Carbohydrate metabolism – stimulates absorption of glucose from intestine
- Protein metabolism- increases the synthesis of protein in the cells
- Fat metabolism – decreases fat storage by mobilizing it and converting in to free fatty acids
- Reproductive system – helps in normal sexual development and reproductive function.

FUNCTIONS OF AGNI

Jatharagni is responsible for sustaining life, *bala*(strength), *swasthaavastha*(health), *utsaha*(enthusiasm), *upachaya*(plumpness), *Prabha*(complexion), *ojas*(energy), *tejas*(heat of the body), *agni*(*bhutagni* and *dhatwagni*) and *prana*(elan vitae). Extinction of this *jatharagni* leads to death and proper maintenance helps a person to live a long life and its impairment gives rise to diseases.⁽³⁾

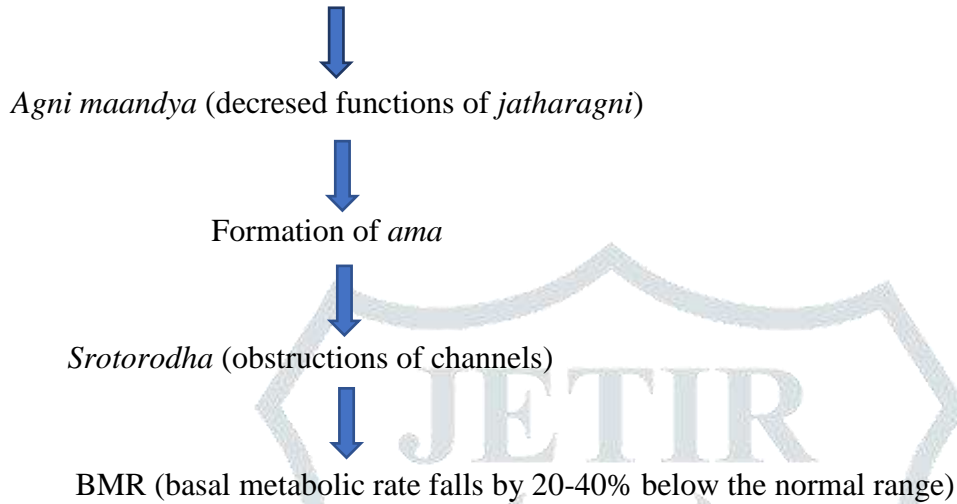
CAUSES OF AGNI DUSHTI

Abhojana (not consuming food at all), *ajirnaatibhojana* (consuming food even though previously taken food has not been digested), *vishamashana*(consuming food in excess quantity/less quantity and in improper

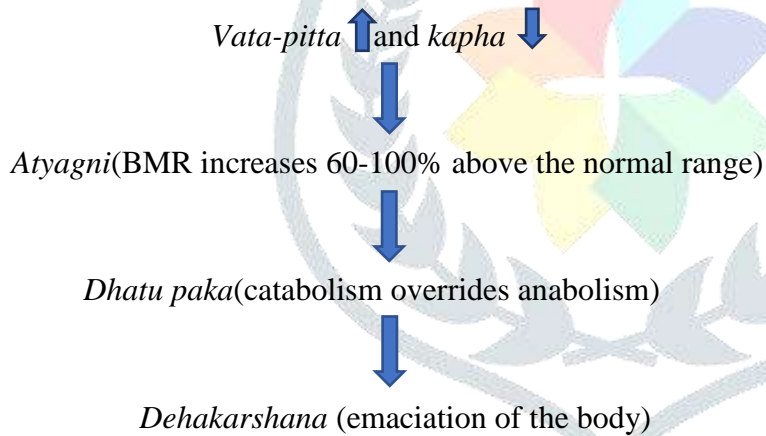
quantity), *asatmyabhojana*(non conducive food to once own body type), *guru-sheetaatirukshabhojana* (excessive heavy, cold and dry food items), *sandushtabhojana*(refrigated food/ stale food), *virekavibhrama*(*atiyoga/ayoga* of *virechana karma*.e purgation therapy), *vamanavibhrama* (improper emesis).⁽⁴⁾

PATHOPHYSIOLOGY OF MANDAGNI(can be corelated to HYPOTHYROIDISM).

Nidana sevana



PATHOPHYSIOLOGY OF ATYAGNI(can be corelated to HYPERTHYROIDISM)



Comparison between symptoms of *Mandagni* and Hypothyroidism. ⁽⁵⁾

S. N	Symptoms of <i>Mandagni</i>	Symptoms of Hypothyroidism
1.	<i>Vishtamba</i>	-
2.	<i>Sadana</i>	Fatigue
3.	<i>Shiroruk</i>	Head ache
4.	<i>Murcha</i>	-
5.	<i>Bhrama</i>	-
6.	<i>Pravahana</i>	-
7.	<i>Angamarda</i>	Malaise
8.	<i>Arochaka</i>	Decreased/loss of appetite

Comparison between symptoms of *atyagni* and Hyperthyroidism. ⁽⁶⁾

S. N	Lakshana of <i>atyagni</i>	Symptoms of hyperthyroidism
1.	<i>Trishna</i>	Thirst
2.	<i>Daha</i>	heat intolerance
3.	<i>Moha</i>	Nervousness, irritability, loss of concentration
4.	<i>Shwasa</i>	Exertion dyspnea
5.	<i>Shopha</i>	Pruritis
6.	<i>Sweda</i>	Excessive sweating
7.	<i>Murcha</i>	Fatigue
8.	<i>Bhrama</i>	-
9.	<i>Dina</i>	Loss of weight

Concept of *Pathya* and *Apathya*

Patha means path or channels of the body which play a vital role in the proper formation of dhatus, supplying nutrition to all the dhatus and maintains the life. *Pathya* is that food article which maintains the normal patency of the srotas(channels). ⁽⁷⁾*Pathya* can be *sharirika* or *manasika* and can be classified as *Aharajapathya* and *Viharajapathya*. *Aharajapathya* includes dietary regimen and *viharajapathya* includes physical activity and lifestyle and *manasikapathya* includes codes of conduct. ⁽⁷⁾

Aharajapathya* in *Mandagni

“*Aharasambhavamvastu rogaschaharasambavah*” ⁽⁸⁾ *Acharya Charaka* emphasizes on importance of food and says that food is responsible for causation of *vastu* (body) and *roga*(diseases).

S. N	<i>Pathya</i> in <i>mandagni</i>	Composition of the diet
1.	<i>Shastikashali, raktashali</i> and <i>yava</i>	Rich in selenium
2.	<i>Kulaththa</i> (horsegram), <i>koshataka</i> (ridge gourd), <i>alabu</i> (bottle guard)	Low in calories
3.	<i>Kharjura</i> (dates), <i>mocha</i> (banana) and <i>daadima</i> (promognate)	Contains many vitamins and minerals
4.	<i>Aja ksheera</i> (goat milk), <i>aviksheera</i> (sheep milk), <i>takra</i> (butter milk), <i>go ksheera</i> (cow milk) and <i>go ghrita</i> (cow ghee)	Low fat in nature
5.	<i>Purana guda</i> (old jaggery), <i>saindhalavana</i> (rock salt)	Contains many minerals and trace elements
6.	<i>Trikatu</i> (<i>pippali, maricha, shunthi</i>), <i>trijataka</i> (<i>twak, ela</i> and <i>patra</i>), <i>lashuna</i> (garlic). ⁽⁹⁾	Boosts metabolism and relieves menstrual related problems.

Pathya in Atyagni/Bhasmakaroga

S. N	Pathya in Atyagni	Nutritional composition
1.	<i>Mahishaksheera-ghrita</i> (buffalomilkand ghee), <i>snigdhakrishara</i> (thick gruel)	Rich in fat content and does dhatu poshana
2.	<i>Oudaka</i> and <i>anupamamsa</i> (meat of aquatic and marshy land animals)	Does dhatu poshana
3.	<i>Yavagu</i> prepared with <i>godhumachurna</i> (wheat flour)	Does dhatu poshana
4.	Milk with sugar and ghee	Does dhatu poshana
5.	<i>Jeevaniyaganaoushadhi</i>	Does dhatu poshana
6.	<i>Sheetambu</i> (cold water) mixed with <i>madhuchistha</i> (bee wax)	Pollen in bee wax strengthen immune system
7.	<i>Virechana</i> (purgation). ⁽¹⁰⁾	Helps in gut healing

Pathya vihara in thyroid disorders*Dinacharya*

- Vyayama*– patients with both hypothyroidism and hyperthyroidism may find it difficult to do exercise because of fatigue. Once the condition is properly controlled by medication, they can practice exercise. Low impact aerobic exercise like swimming, cycling, jogging and strengthening moves can benefit the patient.
Doing exercise will boosts up mood, helps to lose weight and maintains energy level.
- Udwartana* is advised in patients with hypothyroidism where obesity is the most common feature (“*udwrtanam kaphaharam medasahpravilayanam*”)⁽¹¹⁾
- Abhyanga* is advised in patients with hyperthyroidism as there is *kshaya* of *dhatu*s and helps to combat roughness and dryness of the skin.⁽¹³⁾
- Kavala* and *gandusha* – patients with thyroid disorders presents with *swarabheda* most of the times, as it one among *kaphajananatmajavyadhi*, doing *kavala*and *gandusha* with *ushnajala* may benefit a patient
- Anajana*– dry eyes, itching and watery eyes are the most common complaints in the initial stages of thyroid disorders. Anjana (medicated collyrium) maintains the circulation of the eyes and enhances functional capacity of the eyes.
- Pralepa*– anointing with powders of *Chandana*, *Aguru*and *Karpura*helps to get rid of bad odour produced by excessive sweating in hyperthyroidism.
- Murdhnitaila* *likeshiro abhyanga*, *seka*, *pichu*, *basti* can be practiced to combat stress, anxiety, depression and hair loss associated with the condition.

Ritucharya

- Following season wise food and regimen
- *Ritushodhana* (seasonal purificatory procedures) will help in timely elimination of accumulated toxins, improves gut health and enhances immunity.⁽¹²⁾

Manasikapathya

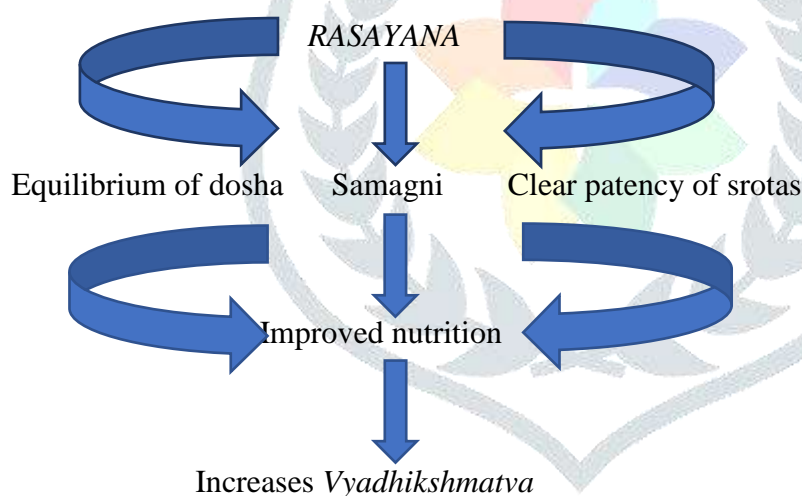
Stress is believed to be the main cause of autoimmune thyroid disorders. Stress may affect the immune system either directly or indirectly through the nervous and endocrine systems. During stress body releases more and more of cortisol and glucocorticoids which triggers the immune system. So, following *Acharya rasyana* and *Sadvrittapalana* keeps the person on right track and eliminates the risk factors.

Yoga and pranayama – *Yogasana* like *matsyasana*(fish pose), camel pose(*ushtrasana*), *bhujangasana*(cobra pose), *halasana*(plow pose), *shirsasana*(head stand pose) can be practiced.

Pranayama like *nadishodhana pranayama*, *bhramari*, *kapalabathi* can help the patient⁽¹³⁾

Rasayana

Rasayana will act at the level of *agni*, *srotas* and *dhatu* and helps in improved nourishment, proper formation of *dhatu*, maintains *jatharagni* and enhances immunity of the individual. In case of autoimmune thyroid disorders the role of *rasyana* is to prevent further triggering of immune system and to aid in tissue healing.

**DISCUSSION**

Acharya Sushruta mentions that “*sankshepatah kriyayogo nidanaparimaarjanam*” avoidance of causative factors like *ahitaahara*, *vihara* and *mansikakaranas* is the simple and effective line of treatment in every kind of disorders. *Pathya* mentioned in *mandagni* and *atyagni* closely resembles diet advised in present era in hypothyroidism and hyperthyroidism respectively. Diet indicated in *mandagni* are low fat in nature, rich in iodine and selenium, devoid of goitrogens which holds good for the condition. Diet described in *atyagni* are high fat in content, low in iodine, rich in selenium and contains goitrogenic foods which opts for the condition. Following these *pathya* will help to re-establish the normalcy of *jatharagni*.

CONCLUSION

Thyroid disorders are fast emerging lifestyle disorder which leads to metabolic disturbances in the body. Unhealthy lifestyle and dietary habits accounts for the disease manifestation. Along with the intake of medication following principles of *pathya – apathya* postulated in ancient *ayurvedic* texts leads to maintenance of healthy status of mind, body and soul and also helps in leading a disease-free life. Hence it is concluded that adopting strict dietary regimen and lifestyle may act as adjuvant in nullifying the adverse effects and also work synergistically with the medications to cure the disease and prevent further prognosis of the disease.

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