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TO EXPLORE THE ROLE OF *TRUPTIGHNA MAHAKASHAYA* IN MANAGEMENT OF HYPOTHYROIDISM

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ABSTRACT

Background: Acharya Charaka described 50 *Mahakashayas* in Charak Samhita. All 50 *mahakashayas* may further divide into the 10 sub classes on the basis of specific characteristics. Each *mahakashayas* has 10 drugs. The *Truptighna Mahakashaya* has these 10 drugs namely *Naagar (Sunthi), Chavya, Chitraka, Vidanga, Murva, Guduchi, Vacha, Musta, Pippali, Patol. Trupti* is a *Kapha nanatmaja vyadhi*. Drugs used to diminish such condition known as *Truptighna*. Hypothyroidism is a condition in which the body lacks sufficient thyroid hormone. Hypothyroidism is more common than you would believe, and millions of people are currently hypothyroid & don't know it. In Ayurveda, it is a "*Pitta Kshaya, Vata-Kapha Vriddhi & Medodushti"*. The drugs of *Truptighna Mahakashaya* have *Kapha-vatashamaka* property so normalize Thyroid function. **Aim & objective:** The main objective of this article is to discuss the Pharmacological properties of the drugs of *Truptighna Mahakashaya* & to explore the role of *Truptighna Mahakashaya* in management of Hypothyroidism. **Material & Method:** The authentic subject material has been reviewed from *Ayurveda* & modern medical literature. Different research & review article were searched on internet. **Discussion & conclusion:** Hypothyroidism can be considered as *Agnimandya* resulting in the formation of *Ama*. Hence prove that it is a *Aamdoshjanya " Pitta Kshaya, Vata-Kapha Vriddhi & Medodushti".* Thus, the line of treatment is *Aampachak* which involve *Deepana, Pachana, Srotoshodhana and Kapha-VataShamaka*. Hypothalamo - Pituitary level, Anti stress drugs, *Medhya Rasayan*.

Keywords: *Truptighna mahakashaya*, Hypothyroidism, Properties & Mode of action.

INTRODUCTION: In 21st century with the changing life style, Hypothyroidism is considered as one of the commonest diseases. Hypothyroidism is a condition in which the body lacks sufficient thyroid hormone. The symptoms of Hypothyroidism are notorious for their nonspecific nature and for the way in which they mimic symptoms of other systemic diseases. It leads to a long life of pathological events and makes the affected person to remain dependent on hormonal replacement throughout his life. The total burden of thyroid disorders in India is 42 million. The prevalence of Hypothyroidism in urban India is 10.95%. Major portion of Hypothyroidism (approximately 3.47 %) remains undetected. The prevalence of Hypothyroidism in Udaipur, Rajasthan is 9.33%. It is more prominent in females with ratio of male to female being 1:6. On data of community based studies the prevalence of hyperthyroidism in female is 2% and in male 0.2% , and about 15% of patients of hyperthyroidism seen in above 60 year of age. Prevalence of Hypothyroidism is around 0.3% to 0.4%, which is increasing with age and most commonly more females are affected.[1] The

global incidence of Hypothyroidism is increasing alarmingly as people are exposed to more stress and strain. The synthesis and transport of Thyroid hormones play a vital role in the normal physiology and functioning of Thyroid gland. Thyroid hormone regulates metabolism the way the body uses energy and affects nearly every organ in the body. Without enough Thyroid hormone, many of the body's functions slow down. Auto immunity plays a significant role in the etiology of Hypothyroidism. It affects people all over the world of every age, sex, race, and level of wealth and education. The Thyroid gland is an endocrine gland, located in the neck below the thyroid cartilage. The isthmus is located inferior to the cricoid cartilage. It produces three hormones –Tri-iodo-thyronine (T_3)and Thyroxine(T_4), both are synthesized from Iodine and Tyrosine and produces another hormone Calcitonin, which plays an important role in calcium homeostasis. Functions of Thyroid hormones are growth and metabolism. Metabolism is a process by which body converts food, water and oxygen into tissue energy and waste products. It is an ongoing process and occurs in every cell of the body.

PHYSIOLOGICAL ACTIONS OF THYROID HORMONES:

- Principle function of Thyroid Gland is to act as catalyst for maintenance of oxidative metabolism. (BMR)
- Necessary for normal growth and maturation and tissue differentiation.
- Calorigenic action means accelerates energy production.
- Metabolism of carbohydrates, proteins, fats, calcium & phosphorus.

HYPOTHYROIDISM: Hypothyroidism means decrease in the function of Thyroid gland.[2] It is divided in two ways: primary and secondary hypothyroidism. Primary hypothyroidism means the internal activity of thyroid gland, leading to decreased circulation of thyroid hormones or failure to produce enough thyroid hormone and secondary hypothyroidism refers to normal pituitary stimulation by hypothalamic TSH-releasing hormone.[3-6] The main causes of hypothyroidism are following as: - First is dysfunction of thyroid gland, second is lack of TRH, (hypothalamic TSH-releasing hormone) and TSH (thyroid stimulating hormone), or both and inadequate iodine in diet. [6] The prevalence of Hypothyroidism is increasing day by day. In present era due to improper *Aahar, Vihar* and not following the health principles are the common causes to disturb the equilibrium of *doshas*. Equilibrium of *doshas- agni- dhatus* and *malas* are essential for health.

Diagnosis of Hypothyroidism:

- Physical examination.
- Symptoms like (changes felt by patient) , family history , risk factors and medical history.
- TSH test- taking blood sample determine most sensitive test TSH. And other tests such as free T4 , free T4 index and total T4 are helpful for diagnosis.[7]

Though clear cut mention of the Hypothyroidism is not found in Ayurvedic text, Acharya Charaka says: There are many kinds of disease & naming of every disease is not possible. Time to time, some diseases disappear and new diseases take the place. [8] Our principles never bind us in a periphery; they give us a freehand to develop new ideas, treatment and research etc. An attempt has been made here, to describe this pathological condition on the basis of *dosha, dushya, agni, srotas* etc by keeping symptoms in mind. In Hypothyroidism there is basic defect of metabolism at tissue & cellular level, which is largely due to imbalance of

various hormones circulating in the body. Thyroid gland releases its hormones which are mainly responsible for metabolic activity. Thus these hormones resemble *Agni* or *Pitta* in our body. The term *Agni* means a factor which is responsible for digestion, metabolic functions. Whereas *pitta* in our body is solely responsible for *agni* like function and it performs other functions also like hunger, thirst, heat production, luster, cheerfulness and intelligence. *Acharya* Sushruta says: *Pitta* has been described as *agni* as it performs actions similar to fire, such as *pachana* (digestion), *dahan*(burning, combustion, oxidation), *parinaman* (conversion), *paravritti* (transformation, mutation), *prakashana* (illumination, radiation), *ranjana* or *varnakaram* (colouration), *prabhakaram* (lustre) and *tapana* (heat production). *Agni* is a prime and ultimate factor in the maintenance of life. [9]

In *vachaspatyam*, *Agni* is defined as ** *Nayati parinamyati eti*** *A By medina on Amarkosh* ** *Pakah parinatau*** which causes *Parinam* means conversion and *Pakah paravratti (mutation).* The term metabolism, which literally means conversion, is used to refer to all the chemical and energy transformations that occur in the body. It is well known fact that *Agni* & *Pitta* have similar physiological properties. *Pitta* contains essence of *Agni* in microform. Acharya Vagbhata *has* very clearly mentioned that the presence of "*Pachakansha*" in *dhatus* if decreased in quantum leads to *Dhatuvridhi* & if there is any increase of quantum of "*Pachakansha*" it leads to *Dhatukshaya*.[10] This concept is known clearly as *Dhatuvridhi* (*Medovriddhi*-Hypothyroidism) & *Dhatukshaya*(Cachexia-Hyperthyroidism).

Hypothyroidism means *dhatuvriddhi* due to *Mandagni* is in form of "*Ama* or *Mala*". *Ama* is produced in gut due to *Agnimandhya* whereas *Mala* can be produced at tissue & cellular level also due to *Dhatwagni mandyata*. In Hypothyroidism *Medo vriddhi* is largely due to *Medo Dhatwagni mandyata*. A disease resulting due to *Ama dosha* produced to *Dhatwagni mandhya* represents impairment in the functions of the various hormones. Thus it can be concluded that Hypothyroidism is a clinical condition resulting due to depletion of *jatharagni* & production of *Ama dosha* indicating thereby clearly that Hypothyroidism is a "*Amadoshjanya Vyadhi*".[11]

SYMPTOMS OF HYPOTHYROIDISM: The symptoms of hypothyroidism are quite variable, depending on the severity of the hormone deficiency and of course one's constitutional make-up. But in most cases, symptoms tend to develop slowly, often over a number of years. They typically include one or all of the following:

When we consider symptoms of hypothyroidism according to *doshas*[12] :-

S.N.	Sign & Symptoms	*Vaat*	*Pitta*	*Kapha*
1.	Slower thinking	-	-	+
2.	Forgetfulness	+	-	+
3.	Moodiness	+	-	+
4.	Irritability	+	-	-
5.	Depression	+	-	+
6.	Inability to concentrate	+	-	+

7.	Tiredness	+	-	+
8.	Puffy eyes	-	-	+
9.	Throat swelling	-	-	+
10.	Throat – persistent dry or sore	+	-	+
11.	Hoarseness of voice	-	-	+
12.	Difficulty swallowing	-	-	+
13.	Loss of body hair	+	-	-
14.	Hair - Thinning or hair loss	+	-	-
15.	Skin – dry, patchy	+	-	+
16.	Cold intolerance	+	-	+
17.	Slower heart beat	-	-	+
18.	Elevated Lipid lebel	-	-	
19.	Delayed menstruation	-	-	+
20.	Scanty Irregular Menses	+	-	-
21.	Infertility Anovulation	-	-	+
22.	Constipation	+	-	+
23.	Muscle weakness	+	-	-
		V14		K18

When Thyroid hormones diminish symptoms appear like *pitta kshaya* or *mandagni* or *kapha vridhi*. The slow metabolic rate may result in *kapha* aggravated symptoms such as weight gain, tiredness, lethargy, cold intolerance, oedema, depression, poor memory and concentration. The slowed metabolism may also result in *Vata* symptoms of constipation, dry skin, brittle hair, muscle stiffness and hoarseness of voice. When *pitta kshaya* occurs *agni* diminishes due to *kapha vridhi*. Here vitiated *dosha* is *kapha*, which, after vitiation act as *aavarak* on *pitta*. Then *agnimandya* occurs.

TRUPTIGHNA MAHAKASHAYA:

Naagarchavyachitrakavidangmurvaguduc hivachamustapippalipatolaneeti dashamani Truptighnani bhavanti.[13]

Acharya Charaka described *Mahakashaya* in fourth chapter of *Sutra sthana* of Charak Samhita. Each *Mahakashaya* includes ten drugs. *Truptighna Mahakashaya* is the 11th no. of the 50 *mahakashaya.* The *Truptighna Mahakashaya* has these 10 drugs *Naagar (Sunthi), Chavya, Chitraka, Vidanga, Murva, Guduchi, Vacha, Musta, Pippali, Patol.*

- *Truptih shlesmvikarah, yen truptmivatmanam manyate, tadghnam Truptighnam.*[14]

Trupti shlesmavikarbhedah, tannashnam Truptighnam. (Gananatha sen)

Trupti is a *Kapha nanatmaja vyadhi*. Excess of amaj-*Kapha dosha* causes feeling of fullness that is *Trupti.* Drugs used to diminish such condition known as *Truptighna. Truptighna mahakashaya* denotes, group of ten medicines which acts as *Truptighna*.

S.N.	DRUGS	ENGLISH NAME	LATIN NAME	FAMILY	USEFUL PART
1	*Sunthi*	Dry ginger	*Zingiber officinalis*	*Zingiberaceae*	Tuber
2	*Chavya*	Java long	*Piper retrofractum*	*Piperaceae*	Root & Fruit

		pepper			
3	*Chitraka*	Lead wort	*Plumbago zeylanica*	*Plumbaginaceae*	Root bark
4	*Vidanga*	Babreng	*Embelia ribes*	*Myrsinaceae*	Fruit
5	*Murva*	Big-leaf chonemorpha or white nishoth	*Marsdenia tenacissima*	*Asclepiadaceae*	Root
6	*Guduchi*	Indian Tinospora	*Tinospora cordifolia*	*Menispermaceae*	Stem
7	*Vacha*	Sweet flag	*Acorus calamus*	*Araceae*	Root & Tuber
8	*Musta*	Nut grass	*Cyperus rotundus*	*Cyperaceae*	Tuber
9	*Pippali*	Long Pepper	*Piper longum*	*Piperaceae*	Fruit & Root
10	*Patol*	Pointed gourd	*Trichosanthes dioica*	*Cucurbitaceae*	Leaf

S. N.	**DRUGS**	***GUNA***	***RASA***	***VIPAKA***	***VIRYA***	***DOSHA PRABHAVA***	***KARMA***	**REFFERENCE**
1	*Sunthi*	*Laghu, Sukshma*	*Katu*	*Madhura*	*Ushna*	*VK↓*	*Deepan, Paachan, Rochan Shoph, Vivandhhar*	*B.N.-H.V.49-52 S.S.- 46 C. S.- 27*
2	*Chavya*	*Laghu, Ruksha*	*Katu*	*Katu*	*Ushna*	*VK↓ P↑*	*Deepan, Paachan, Agnivardhan, Aruchihar*	*B.N. – H.V.-67*
3	*Chitraka*	*Laghu, Ruksha, Tikshna*	*Katu*	*Katu*	*Ushna*	*VK↓ P↑*	*Deepan, Paachan, Shoth*	*B.N- H.V.-70-71 C. S. -25*
4	*Vidanga*	*Laghu, Ruksha, Tikshna*	*Katu, Kashay*	*Katu*	*Ushna*	*VK↓*	*Agnikar Vivandhhar*	*B.N. – H.V.-112 R. N. – P.V.-50*
5	*Murva*	*Guru, Ruksha*	*Tikta, Kashay*	*Katu*	*Ushna*	*VK↓*	*Aampachak Vivandhha*	*R.N. – G.V. -21*

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6	*Guduchi*	*Guru, Sukshma*	*Tikta, Kashay*	*Madhura*	*Ushna*	*VPK↓*	*Deepan, Vivandhhar Adjuvent*	*B.N.- G.V.-7-10 C. S. 25*
7	*Vacha*	*Laghu, Tikshna*	*Katu, Tikta*	*Katu*	*Ushna*	*VK↓ P↑*	*Viandhhar*	*D.N. – S.V.–6-7 B.N.- H.V.-103*
8	*Musta*	*Laghu, Ruksha*	*Tikta, Katu, Kashay*	*Katu*	*Sheeta*	*KP↓*	*Deepan, Paachan, Aruchihara*	*B.N.-K .V.-93 C. S. -25*
9	*Pippali*	*Laghu, Sukshma*	*Katu*	*Madhura*	*Anushna - Sheeta*	*VK↓*	*Deepan, Paachan, Agnivardhan, Aruchihar Adjuvant*	*B.N. H.V.-53-57 C. S. 25 S. U. - 39*
10	*Patol*	*Laghu, Ruksha*	*Tikta*	*Katu*	*Ushna*	*VPK↓*	*Deepan, Rochan*	*S. S.- 46*

V = Vata, P = Pitta, K = Kapha, ↓ = Shamak, ↑= Vridhi, B.N.= Bhavaprakash Nighantu, H.V.= Haritakyadi Varga, S.S.= Sushrut Samhita Sutra, C.H.= Charak Samhita Sutra, R.N.= Raj Nighantu, P.V.= Pippalyadi Varga, G.V.= Guduchyadi Varga, D.N.= Dhanvantari Nighantu, S.V.= Shatpushpadi Varga, K.V.=Karpuradi Varga, S.U.= Sushrut Samhita Uttar.

DISCUSSION & CONCLUSION: No clear cut description of Hypothyroidism is available in Ayurvedic classics. Ayurveda described the concept of '*Agni*' which is responsible for thermogenesis & metabolism. These 13 types of *Agni* (*Jatharagni, Dhatwagni & Bhutagni*) control all chemical reactions & transformation. The *Agni* is essential for metabolic activity of the body as well as physical & mental growth and maturation. *Ayurveda* advocates that the equilibrium state of '*Agni*' i.e. '*samagni*' consist of healthy person.[15]Wherever the '*Agni*' disturbed by its Hypo or Hyper function it leads to disorder. *Agni* is the chief factor which is directly related with all basic pathogenesis. Hypothyroidism is a disorder of hypofunction of *Agni* specially '*Dhatwagni*' which leads to formation of *Ama.* The symptoms of *Aamavastha* are *Agnimandhya, Shrotorodh, Gaurav, Alasya, Balanash, Apakti, Aruchi, Vataprakop, Klama.*[16] When we closely analyze the sign & symptoms of primary Hypothyroidism it seems that chronic hypo function of *jatharagni* means *Aamavastha*. So hypothyroidism can be considered as stage of *Agnimandya* resulting in the formation of *Ama*. The human body metabolism is regulated by "*Agnivyapara* " virtually the term " *Agni* " comprehends various factors, which participate in & direct the course of digestion &

metabolism in living organism. Hence proved that it is a *Aamdoshjanya " Pitta Kshaya, Vata-Kapha Vriddhi & Medodushti".*

Probable mode of action of *Truptighna mahakashaya's* drugs are depend on their properties. The properties of these drugs are as follows: - *Rasa-Katu & Tikta, Vipaka –Katu, Virya-Ushna, Guna -Laghu, Tikshana & Ruksha and Dosh shamakta-Kapha-vatashamak.* All these properties of *Truptighna Mahakashaya* the drugs are classified (for their internal use) mainly on the basis of their effects on *Doshas, Dhatu and Malas & Agni. 'Agni'* is the chief factor which maintains the BMR in the body. In Ayurveda, treatment of the diseases is done in accordance to the affected *Doshas*. Thus, the line of treatment is *Aampachak* which involve *Deepana, Pachana, Srotoshodhana and Kapha-VataShamaka*.[17] Hypothalamo - Pituitary level, Anti stress drugs, *Medhya Rasayan*. At metabolism level - *Deepan, Pachana, Ushna, Teekshna, Sukshma, Lekhan* properties are useful. In chemical composition of these drugs the Selenoprotein enzyme, Zn & Omega-3 fatty acid are play key role in maintain the Thyroid hormones. Selenoprotein enzymes converts thyroid hormones T_4 into T_3 & degrades rT_3. Selenium deficiency can impure thyroid function. *Pippali* is a rich source of Selenium. Zinc is required for the action of TSH. *Chitrak & Musta* contains micro element Zinc. *Vacha* is a "calming and centering" herb & it acts as a *Medhya Rasayan*.

These properties of *Truptighna Mahakashaya*, make it a *jatharaagni* promoter. *Jatharaaghi* stimulation corrects hypofunctioning of *Medodhatwagni* and checks increase in the quantity and subsequent deposition of *Medo dhaatu* in the body & also maintain B.M.R. Relevant actions of *Truptighna Mahakashaya* because of each one of these properties are as follows - *Laghu guna* is characteristic of drugs constituted of *Vaayu* and *Agni mahabhoota* Drugs, possessing this property produce lightness in the body and promote the *jatharaagni*. Both of these actions help in reducing accumulation of *Medo dhaatu* in the body. *Tikshna guna* is characteristic of drugs, constituted of *Agni mahabhoota. Katu vipaka & Ushna virya* also enhance *Agni*. These drugs perform action of *Shodhana, lekhana and kaphahara karma*. Owing to the above mentioned properties, *Truptighna Mahakashaya* is igneous in nature, stimulates *jatharaagni* and performs *shothahara karma* in the body. So, it is concluded on the above stated views advocates that each of the content of the *Truptighna Mahakashaya* contributes in the Hypothyroidism. Further more studies should be need.

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