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AWARENESS ABOUT LIFESTYLE DISEASE W.S.R. CHILDHOOD HYPOTHYROIDISM AND ITS PALLIATIVE MANAGEMENT WITH AYURVEDA AAHARA VISHESHAYTANA

[1]*Dr. Bharati V. Patil, [2]Dr. Sunil P. Changle and [3]Dr. Swapnil C. R.

[1]PG Scholar, Kaumarbhritya Department, Parul Institute of Ayurved, Vadodara.
[2]Associate Professor and Head Department, Parul Institute of Ayurved, Vadodara.
[3]Assistant Professor, Department, Parul Institute of Ayurved, Vadodara.

***Corresponding Author: Dr. Bharati V. Patil**
PG Scholar, Kaumarbhritya Department, Parul Institute of Ayurved, Vadodara.

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ABSTRACT
Lifestyle means pattern of individual practices and personal behavior choices that are related to elevated or reduced health risk. Adopting lifestyle from the west has been implicated for rapid rise in the prevalence of life style diseases. It is of growing concern as it is affecting the pediatric population as well. Therefore adapting the healthy life style awareness and guidelines during childhood is more beneficial to arrest the burden of life style diseases. Different western food cultures and practices increase the prevalence of childhood metabolic diseases like hypothyroidism. As disease is closely associated with the basic metabolism, administration of healthy food practice is a core part of the management of those diseases. Ayurveda has been explained all these do's and don'ts under the protocol based guidelines as *Ashtavidha Ahara Vidhi Visheshayatana*. Following of those protocol right from childhood is very useful to maintain the basic metabolism and ultimately able to withstand against the diseases of life style origin like hypothyroidism. This article is an attempt to increase awareness about the healthy life style and occurrence of diseases like childhood hypothyroidism and prevention of those diseases with *Ayurveda* healthy food practices.

KEYWORDS: *Ayurveda, Ashtavidha Aahara Vidhi Visheshayatana, Hypothyroidism.*

INTRODUCTION
Thyroid disease in children is rare and has a prevalence of about 37 per 1000 school aged children with goiter being the most common. Congenital hypothyroidism can present with goiter at birth or with the gradual development of symptoms over the first several months of life. The age of symptom onset is unpredictable in a child who has thyroid dysgenesis with a hypoplastic or ectopic thyroid gland because initial increases in TSH may be able to initially overcome the relative insufficiency of the thyroid gland. CLT typically presents during adolescence; however, it may present any time in life. Thyroid dysgenesis occurs more frequently in females than in males, with a female-to-male ratio of 2:1. CLT also has a 4:1 female-to-male preponderance in childhood. Hypothyroidism is among the most common endocrine diseases. Congenital hypothyroidism most commonly results from agenesis, dysplasia, or ectopy of the thyroid; however, it is also caused by autosomal recessive defects in the organification of iodine (thyroid hormone synthesis) and defects in other enzymatic steps in T4 synthesis and release. In older children, acquired hypothyroidism is most commonly caused by autoimmune destruction (Hashimoto thyroiditis). Hypothyroidism is a condition in which Thyroid gland fails to function adequately, resulting in reduced level of thyroid hormone in the body. There are many causes of hypothyroidism. Iodine deficiency is the major cause in our country. The thyroid gland produces hormones that have important functions related to energy and metabolism, control of body temperature, growth, bone development and maturation of the central nervous system, among other metabolic processes throughout the body. The thyroid glands develop from endodermal pharynx. The gland becomes visible at the beginning of the third week of gestation and starts trapping iodine and secreting thyroid hormones after the tenth week of gestation. Before this, trans-placental passage of maternal thyroid hormones is vital for fetal development. Trans-placental passage of total thyroxine T4 is also evident at the end of gestation, when approximately one third of maternal T4 passes to the fetus. In children this can cause Cretinism. As the thyroid gland plays an important role in regulating the body mechanism, the low level of thyroid hormone can cause growth retardation.

In *Ayurveda* most valuable literature related Hypothyroidism with excess of mucus (Kapha) and fats (Meda), when above factors get excessand become out of balance, they produce hormonal imbalance (***Ojas***) and then the enlargement of the gland known as Galaganda. Hypothyroidism according to Ayurveda can be considered as *Tridoshaja Shopha*. Classically it starts with *Agnimandya* or *Ajirna* clinically as low level of T3 and T4. *Ajirna* causes *Rasadushti*, manifest as dryness in skin, fatigue and cause *Rakta Dushti* which ultimately gives rise to anemia, and related features. Persistent *Ama Dosha* in *Rasa Dhatu* causes vitiation of *meda Dhatu* and different symptoms like increased in weight, retention of water and such vitiated meda causes lack of *Asthi Poshana* which causes pain in metacarpal joints and different signs of malnutrition. All these features of hypothyroidism manifests with local edema at neck region then progress to whole body anasarca and finally give rise to all different symptoms of *Tridoshaja Shopha*.

Hypothyroidism may be caused by problems within the thyroid gland that causes insufficient circulation of the thyroid hormone. Symptoms show a decrease in metabolism, with the slowing of mental and physical activity. Patients may experience a variety of differing symptoms such as sensitivity to cold, dryness of the skin, constipation, anorexia, angina, anemia and disordered menstrual function. The prime cause of Hypothyroidism is the deficiency of Iodine. In many cases, this disease is caused by pituitary or hypothalamic disease or certain medications. The thyroid gland is an endocrine gland located in the neck below the thyroid cartilage (which forms Adam's apple). The isthmus (the bridge between the two lobes of the thyroid) is located inferior to the cricoid cartilage.

The thyroid gland controls how efficiently the body produces and utilizes energy, and affects almost every tissue and organ in the body. The only exceptions are the brain, ovaries, testes, spleen, and the thyroid gland itself. It acts by producing thyroid hormones, the principal ones being triiodothyronine (T_3) and thyroxine (T_4). T_3 and T_4 are synthesized from both iodine and tyrosine. The thyroid also produces calcitonin, which plays a role in calcium homeostasis.

In fact, stress is known to be a significant contributor to thyroid dysfunction. Whenever you experience stress, your adrenal glands produce cortisol. This is an evolutionary protective mechanism that originally developed as a response to physical threats. It creates the "fight or flight" response and once the physical threat is gone, cortisol levels go back to their normal levels. Elevated cortisol is intended for short term stressful events. However unfortunately, your body does not know the difference between a sudden attack by a dinosaur and raising twin two-year olds. It is the duration and accumulation of stress and not the type of stress that causes high levels of cortisol. Every cell in the body has receptors for both thyroid hormone and cortisol. Cortisol acts synergistically with thyroid hormone at the epigenetic level. Normal levels of cortisol (neither too much nor too little) need to be present bound to its receptors for optimal function of not only the thyroid gland itself but for every tissue in the body. Too much cortisol causes the tissues to no longer respond to the thyroid hormone signal. This is known as thyroid resistance, meaning that thyroid hormone levels can be normal, but tissues fail to respond as efficiently to the thyroid signal. It can cause TSH levels to be elevated while T4 and T3 are within the normal range.

Excess cortisol has an adverse direct effect on thyroid function. It inhibits deiodinase (the enzyme responsible for the conversion of T4 into T3 in the body tissues) and also leads to an increased risk of Hashimotos thyroiditis (thyroid autoimmune disease). The latter effect is the result of cortisol causing an abnormal the ratio of T1 and T2 lymphocytes. A shift toward T1 may be associated with Hashimotos.

AIMS AND OBJECTIVES

- To highlight the role of *Ayurveda life style* and *Ahara Vidhi* to control the metabolic disorders like childhood hypothyroidism.
- To reveal the role of *Yoga* therapy in the management of childhood hypothyroidism.

MATERIALS AND METHODS

This review was done by compiling the classical *Ayurveda* literature, *Ayurveda* Pediatric books, modern pediatric books, magazines, research journals, thesis and dissertations Pub med, different databases, CCRAS database, CCIM norms for diseases etc.

DISCUSSION

Adequatenutrition is the basic need for the healthy life. *Ayurveda* places special emphasis on ahara and believes that healthy nutrition nourishes the body, mind and soul. Nowadays, many life style diseases are increasing day by day due to incorrect eating practices and cookery procedures. In *Ayurveda* classics emphasis has been laid regarding the right way for eating food. Food consumed in the right manner serves as nectar to rejuvenate the body and maintaining the health. *Ayurveda* offers some basic dietary guidelines that include choosing appropriate food, combination of food, nature of consumers, cooking methods, quality and quantity of food, geographical and environmental conditions etc. *Ayurveda* classics describe all these aspects in a very systematic and scientific manner which is called as *aharavidhi-visheshayatana.* These are 8 major aspects of food convention that includes compatibility of food articles which are determinant factors for the maintenance of health. It gives a fair idea about what? When? Why? How? and which? Food material should be consumed for promotion of positive health. A thorough understanding of these fundamentals will help in reducing the digestive distress due to lifestyle disorders and achieving the noble goal of maintaining health.

There is no direct mention of the thyroid gland in *Ayurveda*. But a disease by the name *galaganda* is mentioned in various *Samhitas*. The earliest description of neck swelling is found in the *Atharvaveda* by the name *apachi* (a non-supportive swelling in the neck, axilla, or groin). *Charaka* first described the disease as one of the 20 varieties of *Sleshma (Kaphaja) vikaras* (disease). *Sushruta* explicitly wrote that out of seven layers of the skin, the sixth layer, *Rohini*, is *galaganda rogadhistana (Su.Sa.IV/4*). In the *nidana-sthana* he describes *galaganda* as two encapsulated small or big swellings in the anterior angle of the neck, which hang like a scrotum *(Su.Ni.XI*), whereas *Charaka* describes *galaganda* as solitary swelling *(Ch.Ch.XI*).

The etiological factors in galaganda include climatic conditions, water supply, dietary conditions and other surroundings. *Sushruta* stated that rivers flowing towards east might give rise to the occurrence of *galaganda. Bhela* states that *galaganda* is more common in *prachyadesa* (eastern part) of the country. *Haritasamhitakara* described the role of *dustambu* (contaminated water) in the precipitation of *galaganda. Kashyapa samhita* says that any part of the country which is cold, damp, with densely grown long trees, water stagnation and heavy rains may promote the development of *galaganda*.

From the above descriptions it is tempting to associate *galaganda* can be correlated with goitre (abnormal swelling of the thyroid gland) or some type of neck tumour, where thyroid functions may or may not be compromised. But hypothyroidism is not just a localized disease. It has many symptoms related to many systems of the body. None of these manifestations are mentioned in the ancient texts. Thus it is probably inaccurate to draw a parallel between hypothyroidism and *galaganda.*

Hypothyroidism is a state of insufficient thyroid hormone production. Thyroid gland is important, while we are dealing with *agni. Agni* refers to potent entity. Action of hormones indirectly give an evidence for existence of *agni*, more specifically *dhatvagnis* involve. Impairment in *agni* both increase and decrease may alter the normalcy and cause hyper and hypo thyroidism respectively. In current lifestyle of society, food habits are more relevant to develop *agnimandhyajanya vikaras*. Here lays the importance of approaching a disease in view of *agnidushti*. A lot of people are diagnosed with hypothyroidism with evident *agnimndhya*.

Based on *Ayurvedic* principles, the following are the main causes for hypothyroidism.

1. Genetically and hereditary disorders come under *AdibalpravrittaVyadhies*so no treatment is suggested;
2. Congenital defects come under *Janmabalapravrita Vyadhies*(the disease present from birth itself, i.e. congenital defects). Thyroid gland Agenesis, Dysgenesis, Ectopic thyroid gland come under this category;
3. Auto immunity is another common cause, so immune modulatory drugs are recommended here;
4. Side-effects of surgery and radiation; *Kasta Sadhya (*difficult to treat);
5. For transient hypothyroidism no specific treatment is required;
6. If there is functional loss of thyroid tissue, or functional defects, thyroid stimulatory drugs are beneficial;

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 any or all of the following:chronic fatigue, weight gain, depression, low blood pressure, sensitivity to heat and cold, paresthesia, bradycardia, elevated LDL- cholesterol, reactive hypoglycaemia, hoarseness, constipation, headache, muscle weakness, joint stiffness, swollen face, menorrhagia (heavy and prolonged menstruation), cramps, memory loss, visual problems, infertility and hair loss.

Ayurveda therapy for thyroid disease is a holistic and supportive therapy that aims to correct the doshic imbalance and hence the flawed function of the thyroid gland. Therapy includes the recommendation of herbal medicines principally for dosha balance and to some extent specifically to promote thyroid function, dietary guidance, and lifestyle recommendations.

Table 1: *Kaphahara* and *Medohara Chikitsa* for the Hypothyroidism.

STEP 1	STEP 2	STEP 3
Agni Deepana, *Ama Pachana,* *Kleda Shoshana –* *ShadaharanaChura* • *ChitrakadiVati* • *Shiva Gutika*	*SamgaNirharana (Removal of obstruction) –* *Punarnavadi-Kashaya, PunarnavadiMandura,* *Varunadi Kashaya,* *Guggulu Tikta Kashaya, Asanadi Kashaya, KhadiradiKwatha,* *KanchanaraGuggulu, NavakaGuggulu, SimhanadaGuggulu,* *Shadabindu Taila.*	*Rasayana – Rejuvenation therapy* *Chitraka Rasayana* *Shiljita Rasayana* *Lasuna Kshirapaka* *Ahara – Diet* *KulatthaYusha* *MudgaYusha* *PanchakolaPeya*

Table 2: *SHODHANA* and *BRIMHANA CHIKITSA*.

STEP 1	STEP 2	STEP 3	STEP 4
Vatapittahara Virechan	*Dhatugata-Ama Pachana*	*Brimhana Karaskara Ghrita*	*Rasayana – Rejuvenation*
TrivrittaLehyam	*ShatavaryadiKwatha*	*Tiktaka Ghrita*	*Guduchi Kshira*
	ShatavariKshirpaka	*Dadimadi Ghrita*	*AshvagandhaKshira*
	Guduchyadikwatha	*Panchagavaya Ghrita*	*AamalakiLeha*
	MhamanjishthadiKwatha		

To summarize the mode of action of *Ayurveda Chikitsa* one can say that, it includes clearing and balancing these channels in order to maintain body energies and restore the circulation of thyroxin. *Ayurvedic* drugs are administered to increase the digestive fire at a cellular level, restoring proper metabolism. Like all *nija rogas* (internally caused diseases), the root cause of hypothyroidism is a disequilibrium of the *doshas*. There is in general vitiation in the *Kapha dosha* and *Pitta dosha* (water and fire body humours). *Ayurveda* teaches that thyroid disease is affected by diet and lifestyle discrepancies which further promote the doshic imbalance. Diseases are classified in *Ayurveda* as either *Sukhasadhya*, *Kruchrasadhya*, *Yapya or Asadhya*. *Ayurveda* considers most forms of hypothyroidism a *yapya* disease.

Ayurveda drug therapy helps in regulating metabolism as well as detoxifying the body, you may need to increase your water intake and include a bland diet along with taking medicines meant for thyroid balancing.

Table 3: Drugs Acting on Thyroid Gland.

Drugs	Action on thyroid
Ashwagandha	It stimulates both thyroid hormone without any hepatotoxic effect
Guggulu	Drugs acting on thyroid glands version of T3 to T4 without increasing TSH
Kanchanara	It has an action of elevating the thyroid stimulating activity
Punarnava	Diuretic in nature so good in swelling and numbness
Pippali	It increases the absorption of selenium which is needed to convert T4 to T3
Shankhapushpi	Effective if issues is at hypothalamo-pituitary level B/O good anti-stress property
Jatamansi	It has anti-stress property so good in secondary hypothyroidism
Brahmi	The plant has a stimulant effect on the thyroid gland.

Diet for Hypothyroidism and Lifestyle Guidance

Assuming there is no food intolerance or lactase deficiency one can consume milk and milk products. Also rice, barley, green grams, Bengalgram (chaana dal), sugarcane juice, cucumber and fruits and vegetables which are *pittakapha ahara* (reduce both *pitta and kapha*). We should restrict the salty and sour tastes in diet. *Ayurveda* acknowledges (breathing techniques) in the management of hypothyroidism. These asanas include: *Yogamudrasana, Yoganidrasana, Halasana, Sarvangasana, Suryanamaskar, Suptvajrasana, Matasyasana, Pranayama* techniques of *Jalandhar bandha* and *Ujjayi pranayama*.

Iodine is found in shellfish, seaweed, deep-water fish and certain vegetables, including: garlic, chard, spinach, and mustard and turnip greens, lima beans, sesame seeds, and soybeans. The iodine content in food *does not* seem to aggravate a Hashimoto's thyroid in the same way as it does when administered in supplements, but it is still prudent not to consume these items in large quantities.

Diet Should Be Avoided

If you have underactive thyroid, do not eat these foods raw: Brussels, sprouts, broccoli, cauliflower, cabbage, kale, kohlrabi, spinach, turnips, rutabaga, soybeans, millet, strawberries and peaches. These foods raw contain compounds that can interfere with thyroid function. Cooking deactivates these compounds.

Diet Should Be Followed

Iodine rich food like iodized salt, seafood etc., food rich in antioxidants and vitamin C rich as tomatoes, cherries, squash, skimmed dairy products, Food rich in vitamin B and iron like whole grains, fresh and sea vegetables, beans and nuts, dairy products, fish, eggs and mushrooms, berries.

CONCLUSION

The *Ayurvedic* treatment of hypothyroidism is aimed at controlling the symptoms and treating the pathology of the disease to enhance the thyroid function. Now days more and more children are developing adrenal problems due to poor eating habits and advanced lifestyle so it is better to follow healthy lifestyle and healthy eating habit as per *Ayurveda Aahara Vidhi*, *Yoga* practices and *Panchakarma* is very help to correct the metabolism and metabolic derangements like childhood hypothyroidism.

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