Hypothyroidism an Ayurvedic Perspective - A Critical Review

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Abstract

Thyroid hormone regulates the metabolic action of the body. Failure of thyroid hormone to meet the metabolic need of the body results in hypothyroidism. Hypothyroidism is posing a major challenge both in developing as well as developed countries. Management of hypothyroidism in contemporary science is through hormonal supplement where in patients are bound to take it for the rest of life. Though popping in a pill is easy, it treats only the effect of the disease, and not the actual cause. So there is an urgent need of safe and effective Ayurvedic management.

The proper understanding of pathogenesis of hypothyroidism as per the principles of Ayurveda is needed. This is the need to of the hour to find out exact cause of the disease, which once found, is easier to treat than treating it as an idiopathic. A disease may be the outcome of many etiological factors and a single causal factor can result in many diseases. The mode in which each and every etiological factor act in the manifestation of the disease is different. By considering all these factors the present study is aimed at understanding the etiology, pathology, signs and symptoms of hypothyroidism through Ayurveda.

Key words: Thyroid hormone, Hypothyroidism, Etiology, Pathology.

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INTRODUCTION

Today man has achieved high peaks in the field of medicine with the development of various techniques. However Ayurveda the ancient Indian system of medicine, which has its roots in Vedas, is still enjoying high profile in serving mankind. Man is the most precious creature on earth. Health is supreme foundation and diseases are destroyers of health. The interaction and exchange between Loka and Purusa continues in a natural way as the man breaths air, drink water and consume food articles available in nature. As long as this interaction is wholesome the man is in optimum health, when there is any set back in this harmonious relationship the disease state ensues. The changing life style of human being by means of nutritional and behavior pattern plays a major role in the manifestation of several disorders including hypothyroidism [i]. Hypothyroidism can result in from any of the abnormalities that lead to insufficient synthesis of thyroid hormones. Increasing trend of hypothyroidism is becoming more common in the present society and is more prevalent among the females. It is not only confined to metropolitan population but also extends to urban and rural areas. Ratio of disease occurrence among females & males is 6:1 and is usually found 10 - 50 in number per thousand population (Davidson’s) [ii]. In Ayurveda there is no clear cut evidence of hypothyroidism, but on the basis of its clinical presentation, it may be correlated with different of certain entities viz. Rasaja Vikāras, Kaphaja Nanatmaja Roga, Galaganda etc. diseases as well as the symptoms. Hence it is difficult to put a single Ayurvedic term for it. There are many systems which involve in the pathogenesis of hypothyroidism, the mixed signs and symptoms of all these systems lead to a complex clinical picture of hypothyroidism. In Ayurveda the disorders of thyroid gland are explained under the heading of Galaganda. By analyzing the symptomatology of hypothyroidism in the light of Ayurvedic literature, it is observed that hypothyroidism may be correlated with Kaphaja Galaganda as it occurs predominantly due to vitiation of Kapha Dośa and Rasa Dhatu (Sushruta). [iii]

Thyroid hormone, Tri – iodo – thyroxin and Calcitonin. The major function of thyroid hormones is to stimulate the synthesis of protein once they have entered the cell nucleus. Another important function is to stimulate the activity of cell mitochondria, the site of controlled exchange of energy. Some energy is conserved for the normal functioning of body while the remainder is dissipated as heat. The proportion of energy devoted to each of these processes is controlled by thyroid hormones.[iv]

Physiological actions [v]

- Principle function of Thyroid gland is to act as catalyst for maintenance of Oxidative Metabolism (Increase of BMR)
- Thyroid hormones help in proper development during the foetal period and the first few months after birth.
- Necessary for normal growth, maturation and tissue differentiation.
- Accelerates energy production (Calorogenic) Regulates metabolism of carbohydrates, proteins, fats, calcium and phosphorus.

Hypothyroidism is a common condition with various causes like Autoimmune, Iatrogenic, Transient Thyroiditis, Iodine Deficiency, Stressful life style, Drugs, Congenital, Infiltrative, Secondary Hypothyroidism.[vi]

The clinical presentation depends on the duration and severity of the Hypothyroidism. A state of Hypothyroidism may be due to primary disease of the thyroid gland itself or lack of Pituitary TSH [Thyroid Stimulating Hormone] or Hypothalamic TRH [Thyrotropine Releasing Hormone].[vii]

The signs and symptoms of Hypothyroidism at the initial stage are vague and ambiguous which is often missed in its early stages and instead treated for infertility, hyperlipidaemia, depression etc. In primary stage the signs and symptoms are in general but later on affect the different systems of the body and worsen the condition of patient. Hence, Hypothyroidism is an important public health issue [viii].

OBJECTIVES

1. To do conceptual study of hypothyroidism through Ayurvedic classics and modern medical text.
2. To analyse the etiopathogenesis of hypothyroidism through Ayurvedic point of view.
MATERIALS AND METHODS

This study is carried out by literature search and critical review of the obtained facts. The Pathogenesis of hypothyroidism is obtained by searching various medical research databases like PubMed, Google scholar, Embase and other national research databases. The study of various Ayurvedic texts were made critically and an effort is made to understand the pathogenesis of hypothyroidism.

OBSERVATION & DISCUSSION

There is no direct mention of Thyroid gland and Hypothyroidism in Ayurveda. However, a disease named Galaganda, characterised by neck swelling is well known. Acharya Charaka has included it under 20 Ślesma Vikāra [x]. Acharya Sushruta has mentioned the seat of Galaganda as Rohini Twachcha, the sixth layer of skin [xi]. Charaka described it as a solitary swelling [xii] while Sushruta has mentioned it as two encapsulated, big or small swelling, hanging like scrotum, in the anterior angle of neck [xiii]. Bhela describes Ślipada and Galaganda are more common in Prachya Desha (eastern parts of country) and that of consumption of fish predominantly be responsible for the genesis of Galaganda. Harita has described the role of Dushtambu (contaminated water) and Krimi Doṣa (infections) in the precipitation of disease. Kashyapa has further added that regions that are cold, damp, with densely grown trees, water stagnation and heavy rains may be prone for Galaganda [xiv]. Although these facts are mentioned centuries ago, it is still an accepted fact that environmental factors, especially iodine, plays an important role in the functioning of thyroid gland. From the above description, Galaganda can be correlated with the Simple Goitre, the non-inflammatory, non – neoplastic condition of thyroid gland. It is observed both in hypothyroidism and hyperthyroidism. Any imbalance in iodine metabolism, either too much or too little iodine can result in development of goitre. Goitre is a localised condition but hypothyroidism is related to many systems of the body.

Aetiology of Hypothyroidism

Hypothyroidism is caused by inadequate function of the thyroid gland itself called primary hypothyroidism or by not getting enough stimulation by thyroid stimulating hormones called secondary hypothyroidism. Primary hypothyroidism is caused by iodine deficiency, autoimmune disease, radiation therapy, drugs or thyroid surgery. [xv] So far Ayurvedic Nidāna (Causes) is concerned the etiological factors related to Kapha Vāta Prakopaka, Agnimandya Janaka and Rasapradosaka Nidāna will may be responsible for the genesis of hypothyroidism [xvi].

Clinical Presentation of Hypothyroidism

Hypothyroidism results from failure of thyroid gland to produce enough thyroid hormones to meet the metabolism of body or from resistance of peripheral tissue to thyroid hormone. Hypothyroidism results in slowing of metabolic process and energy expenditure. Hypothyroidism usually results in a multitude of clinical signs and symptoms. The degree of thyroid dysfunction and the time course of development of hypothyroidism determine the severity of manifestations. The symptoms of hypothyroid are very nonspecific. However common presentations of hypothyroidism along with its Ayurvedic perspective are tabulated below;

<table>
<thead>
<tr>
<th>Symptom/Sign</th>
<th>Doṣa Involved</th>
<th>Srotas Involved [x, xi]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatigue, loss of energy,</td>
<td>Vāta</td>
<td>Rasavaha</td>
</tr>
<tr>
<td>Lethargy, Sleepiness</td>
<td>Kapha</td>
<td>Rasavaha</td>
</tr>
<tr>
<td>Weight gain</td>
<td>Kapha</td>
<td>Rasavaha</td>
</tr>
<tr>
<td>Decreased appetite</td>
<td>Kapha</td>
<td>Rasavaha</td>
</tr>
<tr>
<td>Cold intolerance, Hyperthermia (only in severe hypothyroid states)</td>
<td>Vāta</td>
<td>Rasavaha, Annavaha</td>
</tr>
<tr>
<td>Dry skin</td>
<td>Vāta</td>
<td>Rasavaha</td>
</tr>
<tr>
<td>Hair loss, Coarse, brittle, straw-like hair, Loss of scalp hair, axillary hair, pubic hair, or a combination</td>
<td>Vāta</td>
<td>Asthivaha</td>
</tr>
<tr>
<td>Muscle pain, joint pain, weakness in the Extremities</td>
<td>Vāta</td>
<td>Asthivaha, Mamsavaha</td>
</tr>
<tr>
<td>Dull facial expression, Depression, Emotional liability, mental impairment, Forgetfulness, impaired memory, inability to concentrate</td>
<td>Vāta</td>
<td>Manovaha</td>
</tr>
<tr>
<td>Hypo-reflexia with delayed relaxation, ataxia, or both</td>
<td>Vāta</td>
<td>Rasavaha, Raktavaha, Manovaha</td>
</tr>
<tr>
<td>Constipation</td>
<td>Vāta</td>
<td>Purishavaha</td>
</tr>
<tr>
<td>Menstrual disturbances, impaired fertility</td>
<td>Vāta</td>
<td>Artavavaha, Sukravaha</td>
</tr>
<tr>
<td>Fullness in the throat, hoarseness</td>
<td>Kapha</td>
<td>Pranavaha</td>
</tr>
<tr>
<td>Jaundice, Pallor</td>
<td>Pitta</td>
<td>Rasavaha, RasavahaRaktavaha</td>
</tr>
<tr>
<td>Bradycardia, Decreased systolic blood pressure and increased diastolic blood pressure</td>
<td>Kapha</td>
<td>Rasavaha, Raktavaha</td>
</tr>
<tr>
<td>Pericardial effusion, Abdominal distention, ascites (uncommon), Non-pitting edema (myxedema), Pitting edema of lower extremities</td>
<td>Vāta</td>
<td>Rasavaha, Mamsavaha, Medovaha</td>
</tr>
<tr>
<td>Goiter (simple or nodular)</td>
<td>Kapha</td>
<td></td>
</tr>
</tbody>
</table>
From the above table it is clear that in hypothyroidism there is abnormality of Jatharagni and Dhatvagni along with abnormality of Kapha and Vāta Dosha as well as Rasavaha, Rakta vaha, Medovaha, Sukravaha and Manovaha Srotas. Cardiac function and cardiovascular hemodynamics is readily regulated by the thyroid hormone T3. Hypothyroidism causes decreased cardiac contractility and cardiac output as well as increased peripheral resistance. [xxii] These findings may indicate morbidity of Rasavaha Srotas in hypothyroidism. Hypothyroidism patients show increased carotid artery intima-media thickness due to atherosclerosis, and elevated total cholesterol, elevated high density lipoprotein which improve on hormone replacement therapy. [xxii] In cases of overt hypothyroidism the serum triglycerides remain high and the high density lipoprotein level remain low. [xxii] These facts support the abnormality of Medovaha Srotas in the pathogenesis of hypothyroidism. Some Study show that hypothyroidism shows mild decrease in seminal volume, mild decrease in progressive motility of sperm and mild decrease in cumulative percentage of mobile forms of sperm. [xxv] Hypothyroid phase of hypothyroidism displays hypergonadotropism, low serum testosterone and subnormal testosterone response to human chorionic gonadotropin and these abnormalities revert back on thyroxin substitution. [xxvi] These facts support involvement of Sukravaha Srotas in hypothyroidism. Elderly patient with hypothyroidism have low Mini-Mental State Examination score than euthyroid counterpart. [xxvii] Hypothyroidism is known to induce various neurological and mental dysfunctions [xxviii] which supports Manovaha Srotas abnormality in this disorder.

Principle of treatment

The line of treatment with specific target to Rasavaha, Mamsavaha, Medovaha, Manovaha Srotas as well as Vāta Doṣa should be administered in Hypothyroidism. The few Ayurvedic drugs commonly used in practice are Tinospora cordifolia, Aswagandha, Silajit, Guggulu, etc.

CONCLUSION

Although the disease hypothyroidism is not described in classical Ayurvedic texts. Based on its clinical presentation its Samprapti (pathogenesis) can be understood as follows;

- Doṣa: Kapha, Vāta,
- Dushya-Rasa, Meda, Mamsa, Asthi, Majja, Sukra,
- Samuththana-Amasaya,
- Adhisthana-Sarva Sarerera,
- Srotodusha: Sanga,
- Rogamarga: Abhyantara(Kostha),
- Agni :Mandya:

During the treatment of hypothyroidism these pathogenetic factors has to be targeted with special attention to strength of body, mind, and Doṣa.
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