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Review on Significance of Kushmanda Lavana Nasya for Hypothyrodism in Adolescence

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***Abstract*: Prevalence of Hypothyroidism in Indian population is about 0.135% with a ratio of 1:2.8 in male and female, more than 65% with etiology of autoimmune basis1. Acquired hypothyroidism is thrice more common than the congenital2. Approximately 9% of Indian Adolescence are facing this condition with an improper growth and development3. Management of Hypothyroidism in contemporary science is only on Hormonal replacement therapy but in Ayurveda it can be done by Kushmanda lavana Nasya as mentioned in Bhaishajya Ratnavali4. Kushmanda plays an important role in balancing the production of tyrosine as well as immunity in Adolescence then Lavana improves the metabolism in the body. Thus, we made an attempt to explain the role of Kushmanda Lavana Nasya for Hypothyroidism in Adolescence.**

***Keywords*: Adolescence, Hypothyroidism, Kushmanda Lavana Nasya, Nasya.**

1. Introduction

Hypothyroidism is a kind of thyroid disease. If you have hypothyroidism that means you have an underactive thyroid ("hypo" means "under" or "below normal"). In people with hypothyroidism, the thyroid does not make enough thyroid hormone to keep the body running normally. Hypothyroidism's deficiency of thyroid hormones can disrupt such things as heart rate, body temperature and all aspects of metabolism with major symptoms include fatigue, cold sensitivity, constipation, dry skin and unexplained weight gain5. Hypothyroidism of Congenital and Acquired, here Congenital most common in infants with Athyrotic cretinism and Iodine deficiency but in Acquired Hypothyroidism mainly on growth and development of the child, i.e., Autoimmune Thyroiditis may be associated with Autoimmune Endocrinopathies (Adrenal insufficiency, Diabetes mellitus, Hypoparathyroidism) or with combined Hypothalamic-Pituitary defects (injury, tumors). Where Acquired Hypothyroidism is most common in Adolescence7.

2. Materials and Methods

The classical Ayurvedic textbooks like Ashtanga Sangraha, Ashtanga Hridaya, Charaka Samhita, Sushruta Samhita and Kashyapa Samhita etc. and modern textbooks along with journals, articles and internet sources were referred for details on Hypothyroidism, Nasya, Kushmanda, and lavana.

1) Pathophysiology of Hypothyroidism

The most common cause of hypothyroidism is the inability of the thyroid gland to produce a sufficient amount of thyroid hormone; however, less commonly pituitary and hypothalamus may also result in thyroid dysfunction. The hypothalamus secretes thyrotropin-releasing hormone (TRH) that stimulates the pituitary gland to produce thyroid-stimulating hormone (TSH). Thyroid-stimulating hormone stimulates the thyroid gland to produce and secrete mainly T4 (approximately 100-125 nmol daily) and smaller quantities of T3. The half-life of T4 is 7-10 days, and eventually, T4 is converted to T3 peripherally by 5'-deiodination. Levels of T3 majorly and T4, to some extent, in turn, exert negative feedback on the production of TRH and TSH. Alteration in the structure and function of any of these organs or pathways can result in hypothyroidism. The decline in the production of T4 results in an increase in the secretion of TSH by the pituitary gland, causing hypertrophy and hyperplasia of the thyroid parenchyma, thereby leading to increased T3 production [6].

2) Clinical features of Hypothyroidism in Adolescence

lethargy, oversleeping, persistent constipation and Abdominal distension with cold dry and thick skin, large open mouth with thick lips, puffy eyes, widely apart eyes, depressed nasal ridge, scalp hairs are scanty, rough, dry and brittle. Hoarseness in voice, sluggish in behavior, mental retardation is invariably coexisting. Associated with growth retardation, stocky appearance with large head, cold intolerance with myxedematous skin, delayed dentition, delayed puberty, goiter, poor school performance, delayed skeletal maturation [7].

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Kushmanda lavana nasya4: Kushmanda rasa with Vida and Saindhava lavana as Nasya.

Kushmanda8: Botanical Name - Benincasa hispida

Family – Cucurbitaceae

Chemical Constituents like volatile oils, flavonoids, glycosides, sacchrides, proteins, carotenes, vitamins, minerals, ß-sitosterin and uronic acid [9] and good source of Magnesium, Potassium, Phosphorus, Zinc, Manganese, Iron, Calcium, Sodium and Copper. Kushmanda is a madhura rasa pradhana laghu snigdha guna, sheeta virya, madhura vipaka dravya, does bruhmana, deepana, vrushya, vata pitta hara [10], dhatu pushtikara, meha shamana, balyakara.

Many researches proven that Kushmanda having Antioxidant activity [11], reduces Hypercholesterolemia [12] and risk of Tumors [13], Microbial infections [14] and Hyperglycemia and Diabetes [15], pacifies oxidative stress associated complications [16]. Therapeutic activities like Hepatoprotective [17], wound healing and hair-growth stimulating [18]. La Chance and Ramsey19 profiled those pumpkin seeds had an antidepressant food score (AFS) of 47%. Pumpkin seeds are good source of tyrosine about 0.83 to 4.30g/100gm and protein (about 524 mg in 1 pumpkin) [20].

3) Lavana:

Formulation contains Saindhava lavana and Vida lavana. Lavana as Ushna, Teekshna, Atiguru and Atisnigdhata it does Deepana, Pitta Vardhaka with Visranasamarthya and Annadravyaruchikara, Lavana known for its action on Agni (Agni Deepana) and Vayu (Vatanulomaka). As Agni and Vayu are supreme operational factors at the stage of digestion [21].

4) Saindhava lavana

According to Charaka Samhita, Saindhava lavana said to be best among lavanas, it is available naturally through Sea water source which is whitish red in color. Saindhava lavana contains sodium chloride (97.6%) and sodium bicarbonate (0.07%) and it is laghu, snigdha, teekshna, does agnideepana, pachana, rochana, vrishya, hridya, netriya and indicated as shothahara, tridosha shamaka, vibhandagna, vranadoshahara [22].

5) Vida lavana

Vida lavana is artificially prepared here Vida means excreta. Salt is prepared by using excreta of different animals. According to Rasa Tarangini, 80 Tola(800gms) of Romaka lavana (earthen salt) is mixed with 10 Tola of Amalaki powder in a pot and subjected to heat. The resultant salt is Vida Lavana. Rasendra chudhamani explains Navasadara as Vida lavana, which is prepared by excreta of cow, camel, sheep etc. and Rasaratna samuchaya explains vida lavana prepared by camel and Human urine. Vida lavana contains sodium chloride (93.7%), sulphides (0.121%)23 and Vida lavana is Teekshna, Vyavayi, deepana, Ushna, does rochana, vatahara and pitta vardhaka, indicated as Jatharagni deepaka, Udarashoola nashaka, Vatanulomana [24].

6) Nasya in Endocrinopathies

In Ashtanga Sangraha [25], Nasya is explained that Nasa being the dwara to Shira(head), the drug administered through nostrils, reaches Shringataka by Nasa srota and spreads in the Murdha (Brain) with route of Netra (eye), Shrotra (ear), Kantha (throat), Siramukhas (opening of the vessels) etc. and scrapes the morbid Doshas in supraclavicular region and extracts them from the Uttamanga. Olfactory nerve is chemoreceptor in nature. It is known that through olfactory pathway this nerve is connected with limbic system and hypothalamus which are having control over Endocrine secretions [26].

3. Discussion

Hypothyroidism can be treated by Kushmanda lavana Nasya on the basis of their properties and action. In this stage improvement of immunity, balancing TSH and metabolism of the body is necessary. Most of the signs and symptoms are seen above the neck region, thus Nasya helps in Endocrinopathies on its special action.

Kushmanda and lavana are more likely madhura rasa pradhan snigdha guna can easily install the medicine to children which doesn't cause any irritation. Hypothyroidism in adolescence mainly on autoimmune basis about 65% though Kushmanda improves the immunity by its antioxidant activity.

Tyrosine which is present in Kushmanda which promotes the production of TSH. Once oxidized, these iodine molecules are ready to attach to the tyrosine found in thyroglobulin (a protein by the thyroid gland). When iodine and tyrosine join together, they create the thyroid hormone precursors, monoiodotyrosine (T1) and diiodotyrosine (T2). T1 and T2 then combine to form thyroid hormones triiodothyronine (T3; thyroglobulin with three iodine molecules) and thyroxine (T4, thyroglobulin with three iodine molecules). T4 and T3 are the primary thyroid hormones, essential for regulation metabolic processes throughout the body [27].

Minerals which are present in Kushmanda help in maintaining the physiological condition of the body and reduce the risk of Diabetes mellitus and tumors which are etiological factors for Hypothyroidism.

Medhya, Vrushya, Bruhmana, Dhatu pushtikara and shukravardhaka properties of Kushmanda and Lavana helps in pacifying mental retardation, improves the growth and development as well as promotes the development of secondary sexual characters and puberty in adolescence. Researches on Kushmanda proved that it promotes the hair growth and act as Antidepressant. Snigdha guna of lavana and Kushmanda elevates the dry skin.

Visranasamrthya and Jathara Agnideepaka property of Lavana relieves the Constipation and Abdomen distention. Teekshna and vyavayi property of lavana helps in circulation of medicine all over the body. Ushna, Teekshna and Pitta Vardhaka Dravyas promotes the intracellular metabolism helps in release of Growth hormones, estrogen, TSH etc [28]. Lavana is meant for metabolization, which promotes the pituitary gland to maintain the physiological condition of the body.

4. Conclusion

Hypothyroidism is treated by hormone replacement therapy and symptomatic management in contemporary medicine. In Ayurveda Nasya as internal medicine plays an important role in management of hypothyroidism. Kushmanda Lavana nasya which is explained in Bhaishajya Ratnavali. kushmanda lavana

nasya maintains the immunity and TSH level normally in adolescence, in these children with loss of concentration, depressed or either worried about puberty for this nasya can be easily practiced daily to maintain healthy growth and development of the body either physically, mentally or socially without disturbing the physiology of the body.

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