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AYURVEDIC APPROACH TO MANAGEMENT OF HYPOTHYROIDISM - A CASE STUDY

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ABSTRACT

Thyroid disease is one of the most prevalent endocrine disorders worldwide. Hypothyroidism can result from any of a variety of abnormalities that lead to insufficient synthesis of thyroid hormones. Thyroid dysfunction prevalence is rising at an alarming rate in Indian population, more prevalent among the females. In modern science, the treatment of hypothyroidism is done by thyroxine hormone therapy for long time but this medication can lead to several side effects like chest pain or discomfort, difficult or labored breathing, extreme fatigue, irritability etc. However in recent times, hypothyroidism can be well managed with Ayurvedic medication.In present study, a hypothyroid case has been treated successfully with combination of Kanchanar guggulu, Trikatu churna and Vidanga churna. After 3 months of treatment the patient shows significant response on reduction of serum TSH level reduced from 9.51 to 2.84.The present case study has focused effectiveness of Ayurvedic medicines in primary hypothyroidism.

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INTRODUCTION

Hypothyroidism may occur as a result of primary gland failure or insufficient thyroid gland stimulation by the hypothalamus or pituitary gland. Primary gland failure can result from congenital abnormalities, autoimmune destruction (Hashimoto disease), iodine deficiency, and infiltrative diseases. Autoimmune thyroid disease is the most common etiology of hypothyroidism in the United States (Singer, 1991). There are three types of hypothyroidism: primary, secondary, and tertiary. Primary hypothyroidism, which is quite common, results from abnormalities of the thyroid gland. Approximately 95% of hypothyroidism cases are diagnosed as primary hypothyroidism (AACE, 2002). Secondary and tertiary hypothyroidism result from malfunctions of the pituitary and the hypothalamus, respectively. Tertiary hypothyroidism is sometimes not distinguished from secondary hypothyroidism. Secondary and tertiary hypothyroidism are sometimes referred to as central hypothyroidism**.** The thyroid is an important part of the human endocrine system, where thyroid hormones play a major role in the body's overall metabolic activity, growth and development. (Tortora and Derrickson, 2012). The decreased levels of thyroid hormones lead to hypothyroidism. Early signs and symptoms include cold intolerance, weakness, fatigue, and constipation. Dryskin, decreased sweating, myxedema, puffiness of face with edematous eyelids, non pittingpre tibial edema, pallor, retarded nail growth, dry brittle hair, constipation, weight gain, decreased libido and menstrual disturbances menorrhagia in common, oligomenorrhoea or amenorrhoea etc. are found in long standing cases.(Harrison, 2005)Complaints of muscle cramps, myalgia, fatigue, depressionand loss of energy are common. Untreated hypothyroidism can contribute to hypertension, dyslipidemia, infertility, cognitive impairment, and neuromuscular dysfunction.It is a common disorder and prevalence of overt hypothyroidism has been reported as 3.5%-4.2% (Marwaha *et al.,* 2012). According to a projection from various studies on thyroid disease, in India 42 millionpeople are suffering from thyroid disorders, out of which sub clinical hypothyroidism is most common with prevalence of 5.4% (Alam Khan *et al.,* 2002). The prevalence increases with age and is higher in females than in males (Boucai *et al.,* 2011). It is estimated that nearly 13 million Americans have undiagnosed hypothyroidism (Helfand, 2004). The NHANESIII (National Health and Nutrition Examination Survey) study found the prevalence of overt hypothyroidism among adults in the United States (12 years of age and older) to be 0.3% and subclinical hypothyroidism 4.3%. Female gender and increasing age were associated with higher thyroid-stimulating hormone (TSH) and the prevalence of antithyroid antibodies (Hollowell *et al.,* 2002). Recent statistical study reveals that the iodine deficiency is the most common cause of hypothyroidism. According to World Health Organisation, 2 billion people are iodine deficient worldwide (Biban and Lichiardopol, 2017).

There is no direct reference of hypothyroidism in Ayurveda, where as the description of Galaganda and Gandamala have been frequently mentioned in the different Samhitas. Galaganda, characterized by neck swelling, is well known. The symptoms of Galaganda and Hypothyroidism are vaguely similar. We get scattered references in the Ayurveda texts which help us in understanding the underlying pathology.The description of swelling in the neck was mentioned in Atharva Veda by the name of Apachi**.** Charaka described multiple Granthi around the neck is called Gandamala and single swelling on the side of the neck is Galaganda (Agnivesha *et al.,* 2014). He mentioned about the disease under the Nanatmaja Kaphaja Roga (Ch. Su.20/17) and alsopresented that Galaganda is a solitary swelling in 11th chapter of Chikitsa Sthana of Charak Samhita. Sushruta in Sareera Sthana mentioned in the sixth layers of the skin i.e. Rohini is the seat of Galaganda (Su.Sa.4/4). In Nidana Sthana he described the disease Galaganda as two encapsulated small or big swellings in the anterior angle of the neck, which hang like scrotum (Su.Ni.11/22).Charaka mentioned, Galaganda is mainly originated due to provocated Kaphadosha. According to Sushruta, aggravated Vata and Kaphadoshas in the neck having accumulated in Manya and along with Medas produce glandular enlargement with their characteristic symptoms. According to Acharya Vagabhata Kapha associated Pitta dushti with vitiation of Vata due to Margavarna and predominantly Rasa-vaha, Medo-vaha and Mamsa-vaha Srotodushti can be considered as cause of this disease (Pandit Hari *et al.,* 2011). The signs and symptoms of hypothyroidism nearly relate to a condition called as Galaganda and some of the kaphaja nanatmaja vyadhis (Vaidya Yadavji Trikamji Acharya, 2009). From the above descriptions Galaganda can be correlated with goiter or hypothyroidism.

Case Report

A female patient of 22 years old, housewife came to OPD of Central Ayurveda Research Institute for Drug Development, Kolkata on 26.07.2018 with chief complaints of weakness, lethargy, puffiness of face, hoarseness of voice, loss of hair, weight gain, poor memory, irregular menstruation and infertility etc. since one year. After taking proper history, the patient was done for investigations of bloodHb%, fasting blood sugar, total lipid profile, T_3, T_4, TSH etc. After seeing the report, the patient was diagnosed as hypothyroidism. The patient was first diagnosed here. Since her TSH was 9.51mIU/mland T3 and T4 was within its normal limits on 03.08.2018. After diagnosis the patient,herself was interested for Ayurvedic treatment. She had no family history for similar conditions and no significant past history. She also had no any history of hypertension, diabetes, cardiac problem or any other complicated diseases**.**

MATERIALS AND METHODS

The treatment was planned seeing the state of rogabala (strength of the disease) and aturbala (strength of the patient).The treatment like amapachak (digestion of undigested food), agnideepan (increasing appetite), anuloman (proper bowel movement), medohara (anti obesity) and vatakaphanasak properties following medicines were administered to the patient. The treatment was continued for 3 months. The patient was advised as per Ayurvedic fundamental principles to avoid apathyaahara (food) and bihara (daily activities) like fast and junk food, cabbage, cauliflower, soybean, excessive sleep and other sedentary life style etc. she was advised to indulge pathyas like light diet, other green vegetables, sea food, old rice, barley and aerobic exercises etc.

OBSERVATION AND RESULTS

The patient was advised to undergo investigations of Hb%, lipid profile and T3,T4.TSH after each month of treatment. The patient felt better and improving symptoms after one month and the intervals of symptoms gradually reduced after 1st, 2nd and 3rd months. No any adverse effects were found throughout the treatment period.TSH report in every month is reduced from 9.51 to 5.18 and 2.84 respectively. Gradually recurring of symptoms was decreased and after 3 months the symptoms were not observed. The patient was appeared normal clinically. The patient was fully satisfied with Ayurvedic treatment.

Table 1:selected medicines for study

Sl. No.	Drugs	Dose and duration	Anupana
1.	Kanchanarguggulu	500 mg tab 3 times daily after meals	Luke warm water
2.	Trikatuchurna	2gm2 times daily after meals	Luke warm water
3.	Vidangachurna	3gm2 times after breakfast and evening tiffin	Normal water

Probable Mode of Action of Trial Drugs

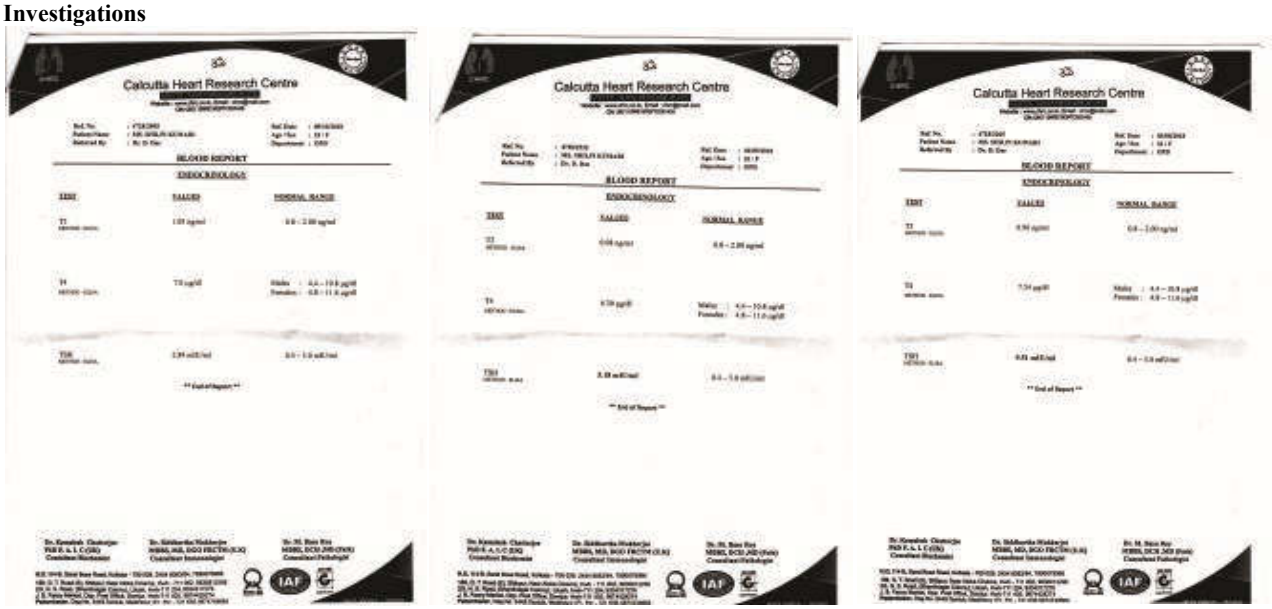
Hypothyroidism mainly occurs due to vitiation of Vata and Kaphadoshas. This vitiateddoshas derrange the Jatharagni (digestive enzymes etc.), ultimately leading to the production of Ama and lastly vitiates Medadhatu. This Ama blocks the channels (Srotorodha) in the body. Lethargy, fatigue, weight gain, weakness and glandular enlargement etc. symptoms are mainly occurred due to accumulation of Kapha and Medadhatu; srotorodh, constipation and muscle pain, loss of libido, amenorrhoea etc. mainly seen due to vitiated Vatadosha by Avarana. The primary ingredients of Kanchanar Guggulu are Guggulu (50%) and Kanchanar (25%). Kanchanar is a valuable plant, used since ancient times for reducing growths on the body and for strengthening the glandular system. It has ruksha (dry), laghu (light) gunas, kasaya rasa (astringent taste), katuvipaka (pungent in post digestive taste) but its prabhava (special effect) is gandamalanashan (effective in cervical lymphadenitis, thyroid and glandular enlargements etc.). Kanchanara has great ability to dry up the vitiated Kapha and Meda because of its potent astringent property. Its grahi (enhancing absorption) property helps to remove excess fluid from swollen tissues. It helps correct the thyroid imbalance by removing Kapha in the body. It is considered as a drug of choice for all kinds of Granthi vikara (glandular diseases) and Galaganda in Ayurveda (Acharya Priya Vritt Sharma, 2006). Guggul is said to be the best vata and medohara (hypolipidaemic) drug in Ayurveda. It has rukṣha, laghu and sukṣhma (minute) guṇas, uṣṇavirya (hot potency), kaṭuvipaka and lekhana (scraping properties having thermogenic activity) property, so it is effective in the management of Kapha-medas predominant disorders in hypothyroidism (Amit *et al.,* 2015). So it helps to reduce excessive body weight. Overall, Kanchnar Guggulu subsides the Kapha and Medadushti and helps to reduce the swelling in thyroid gland and also supports the jatharagni (Sastry, 2005). It helps to reduce or break down the deep seated Kaphadosha and Medadhatu and clears the obstruction of channels (srotorodha). By this way, it restores the functions of this gland, prevent weight gain, and puffiness of the face; corrects hoarseness of voice, menstrual abnormalities and constipation caused due to hypothyroidism. It also helps to reduce joint pains, muscle weakness, stiffness and pain associated with this disease. Vidanga possesses ruksha, laghu, tikshna, ushna, deepan, lekhana, vatanulomana and Vatakaphashamak properties. Hence, it breaks Kapha-meda disorders and corrects Ama, clears srotorodha and subside avarana of vatadosha in hypothyroidism. Vidanga promoted as a weight loss agent that supposedly enhances thyroid function (Himanshu Kanzaria *et al.,* 2017). Trikaṭuis predominantly having uṣṇa, tikṣhṇa, ruksha, laghu guṇa, kaṭu rasa, kaṭu vipaka & uṣṇavirya. Hence it exhibits kapha-vatashamaka, deepana, pachana, srotovishodhana & shothahara properties (Srivastava Shailaja, 2009). Hence it improves the Agni (digestive fire) and helps in the removal of Aama (toxins) from the body, breaks Medadhatu and clears channel in hypothyroidism.

DISCUSSION

Kanchanara Guggulu supports proper function of the lymphatic system, balances Kapha Dosha**,** promotes elimination of inflammatory

Sl. No.	Date	Hb%	FBS	T3	T4	TSH	Cholesterol	HDL	LDL	VLDL	Triglyc eride
1st Month	03.08.2018	10.6 gm/dl	88 mg/dl	0.96 ng/ml	7.34 ug/dl	9.51 mIU/ml	196 mg/dl	42 mg/dl	120 mg/dl	34 mg/dl	158 mg/dl
2nd Month	04.09.2018			0.98 ng/ml	6.30 ug/dl	5.18 mIU/ml					
3rdMonth	09.10.2018			1.03 ng/ml	7.0 ug/dl	2.84 mIU/ml					

Lab Investigations



On 03/08/2018 **On 04/09/2018** **On 09/10/2018**

toxins.Kanchanara is very useful in extra growth or tumors and helps in reducing bleeding (Brahmashankar Mishra, 2004). Kanchanar has a balancing activity on the thyroxin production, increasing any deficient production and decreasing any excess. It also clears swellings in the neck and goitre. Water-soluble fraction of total alcoholic extract of Bauhinia variegata Linn at a dose of 2 g/kg was fed to Neomercazole (150 mg/kg)-induced hypothyroidic rats (n = 12 in each group) for 20 days. The experiment resulted in enhanced thyroid function as evidenced by increased thyroidal weight ($p < 0.001$), I131 uptake and decreased serum cholesterol ($p < 0.05$ for both), and active thyroidal histology (Veena *et al.,* 1975). Active constituent of Bauhinia varigata (bark) promotes conversion of Tyrosine to Thyroxinby potentiating the enzyme tyrosinase (Mopuru *et al.,* 2003). Guggulu (the gum resin of Commiphoramukul) is reported to raise the triiodothyronine (T3)/thyroxine (T4) ratio in female mice and reverse the effects of propylthi-ouracil in hypothyroid mice by stimulating thyroid function (Panda *et al.,* 1999). Shuddha Guggulu provided 23.73% relief in Triiodothyronine (T3), 26.72% relief in Thyroxin (T4), 45.86% relief in Thyroid Stimulating Hormone (TSH) and 10.47% relief in Blood Cholesterol which were statistically showing highly significant result P <0.001 (Suvarna *et al.,* 2015). Active ingradients of Zingiberofficinale, Piper longum and Piper nigrum acting as anti inflammatory and stimulant to thyroid pituitary axis promotes thyroid tissue regeneration and bioregulation of thyroid activity (Suvarna *et al.,* 2015). Rapid weight gain is a main symptom in Hypothyroidism and Vidanga (Embeliaribesburm f.) promoted as a weight loss agent that supposedly enhances thyroid function. It has showed statistically significant result on decreasing level of S.TSH and on almost all the sign and symptoms of Hypothyroidism (Himanshu Kanzaria *et al.,* 2017). From the above study it is seen that Ayurvedic medicines can help to normalize the TSH value. All these medicine have the evidence to cure hypothyroidism.

CONCLUSION

From the above study it can be clearly concluded that Kanchanar guggulu, Trikatu churna and Vidanga churna combinedly effective in the management of primary hypothyroidism without apparent evidence of side effects or any complications. This medicine showed encouraging results in this case. The results need to be studied in more numbers in the early stage of the disease for the better assessment.

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