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REVIEWING THE POTENTIAL OF COMPLEMENTARY THERAPIES IN TREATING HYPOTHYROIDISM

Megha S Binu and Sheetal Ajit Patil* Department of Homoeopathic Materia Medica, Bharati Vidyapeeth (Deemed to be University) Homoeopathic Medical College and Hospital, Pune-Satara Road, India-411043.

ABSTRACT
Hypothyroidism a condition caused by thyroid hormone deficiency, is widespread among the Indian population, prevalence of hypothyroidism in India is 11%, compared to 2% in the UK and 4.6% in the USA. Levothyroxine and combination therapy were found to have a major dissatisfaction among the patients as the symptoms persisted even when the biochemical values were controlled. Traditional medicines have been used to treat various diseases for decades in India. And the potential of these treatments is underrated, these were not commonly taken into consideration for research. Understanding various scopes in treatments of this disease is essential. Literature search using keywords was searched on search engines and databases like Google Scholar, Pub-Med, and Research Gate was done up to June 2023 with restriction to English language articles regarding Hypothyroidism and complementary therapies. This review provides an update on several complementary therapies for hypothyroidism and emphasizes key ideas that could be helpful to both physicians and researchers. It has been found that various systems like Ayurveda, Yoga, Homoeopathy, Siddha, Unani, and Acupuncture could provide better symptomatic relief along with a reduction in TSH with minimal side effects.

KEYWORDS: Alternative therapies, Complementary Medicines, Hypothyroidism, Levothyroxine.
***Corresponding Author Email**: sheetal.patil@bharatividyapeeth.edu

INTRODUCTION:
Hypothyroidism refers to a range of disorders, from mild underactive to permanent conditions occurring due to a lack of production of thyroid hormones[1]. Prevalence is higher in females than males, and the incidence rises with age[2]. There are thought to be 42 million thyroid ailment sufferers in India, based on projections from several research on the condition[2]. Hypothyroidism can have major negative health effects and eventually death if left untreated. Considering the wide range of clinical presentations with minimal focus on symptom presentation, the primary concern of hypothyroidism revolves around biochemical values [3] Hypothyroidism can be clinical/overt when there is an increase in TSH and low FT4 levels, and subclinical, where FT4 levels are normal but serum TSH is increased. The hypothalamic-pituitary-thyroid axis must be sound, there must be no concurrent disease, and this tendency must be repeatable for at least four weeks in order for this interpretation to be legitimate[4]

Clinical features vary with age, sex, and the interval between onset and diagnosis. Lower metabolic rates may contribute to cold intolerance. Peripheral neuropathy in the nervous system results in diminished olfactory and gustatory sensitivity, which affects taste and hearing. Constipation might be the main gastrointestinal ailment as a result of decreased oesophageal motility. Breath shortness results from bradycardia, which affects the cardiovascular system. Impaired memory, paraesthesia, mood instability caused by impaired cognitive processes, depression, dementia, ataxia, and myxoedema are some examples of neurological and psychological manifestations[3]. Neglecting or

mistreating newborns with hypothyroidism has poor intellectual, cognitive, and neurological development. Children with attention deficit and hyperactivity disorders are frequently born to hypothyroid mothers [5] Repercussions of improper or untreated cases can lead to infertility, cardiovascular illness, neurological, and musculoskeletal issues

Diagnosis of hypothyroidism advised by the World Health Organisation is TSH tests as the initial method for determining thyroid function, in addition to free T3, free T4, and anti-TPO antibodies for the differential diagnosis of thyroid disorders[6,7]. Congenital hypothyroidism's etiology may be determined with the aid of imaging techniques like ultrasound and scintigraphy, which can also determine if the condition is transient or permanent [8]. In the diagnosis of hypothyroidism, the abundance of available tests, their diversity, and their interpretation in varied clinical settings might be perplexing. Once thyroid dysfunction has been identified, its management and therapy must be customized depending on a variety of characteristics, such as the etiology [7,9]

MATERIALS AND METHODS:

Literature search using keywords related to Hypothyroidism and complementary therapies was done on search engines and databases like Google Scholar, Pub-Med, and Research Gate was done up to June 2023 with restriction to English language articles.

DISCUSSION:

Allopathy is the globally accepted system for treating Hypothyroidism. As a condition with a higher prevalence and impacts on children and pregnant women, it is vital to balance the risks and safety of medications while treating. It is also important to focus on alternative medicines that have fewer side effects and increased quality of life. Traditional treatments for hypothyroidism include Ayurveda, Siddha, Yoga, Unani, and homeopathy which are found to be effective in treating this condition[7].

Allopathic Treatment

Levothyroxine is the preferred therapy for hypothyroidism[10]. Due to its seven-day half-life, allowing dosage every day. Levothyroxine can be started at a full dose depending on body weight (1.6 g/kg/day) in individuals without substantial co-morbidities. It shouldn't be administered within four hours of calcium and iron supplementation due to potential decreased thyroid hormone absorption and is usually advised in the morning, 30 minutes before breakfast[11] Levothyroxine medication has been associated with a number of adverse effects, including tremors[12], irritability, muscular pains, and fatigue[13]. Combination therapy (levothyroxine and liothyronine) gained popularity as a result of certain patients' dissatisfaction with "monotherapy". Levothyroxine individually may not be able to adequately distribute T3 to every tissue addressed by the hormonal action, however, liothyronine/levothyroxine has been found to do so in clinical trials of hypothyroidism[14]

Complimentary Therapies

Complimentary therapies the world's oldest approach to healthcare, are used to cure and prevent both physical and mental disorders. A range of health- and life-threatening disorders were traditionally fought by different communities using a variety of practical treatment techniques. Complimentary therapies have several other names, often known as traditional medicines, ethnic medicine, and alternative medicine is still very important in many nations today. Ayurveda, Siddha, Unani, and Yoga, as well as Naturopathy and Homoeopathy, are traditional Indian medical practices that are used to treat a variety of illnesses. These customs date back 5000 years, and these were witnessed and recorded in ancient pieces of literature. Since their translational potential is sometimes underrated, traditional treatments are typically not taken into consideration in the research and development of modern pharmaceuticals. Despite the ambiguity of these drugs, there are several non-Western medical applications for them[15,16]

Ayurveda

Ayurveda the traditional Indian medicinal system is designed not merely to treat ailments but to prevent them from occurring in the first place. Ayurveda is well-recognized due to its comprehensive

therapeutic approach, deep and extended intellectual foundation, and the longevity of its remedies from prehistoric times [17]. Due to its individualized philosophy, Ayurveda promotes patient-centred treatment for hypothyroidism. The choice of medication is primarily based on the pathology involved and the expected site of action. Examples include thyroid stimulatory medications if the pathology is at the thyroid gland level, Medhya medications (nootropics) to act at the hypothalamic-pituitary level, Deepana-Pachanga medications to correct metabolic imbalances and immunomodulatory medications for autoimmune hypothyroidism [18–20].

The effectiveness of ashwagandha root extract in treating individuals with subclinical hypothyroidism was assessed by the authors in this prospective, randomised, placebo-controlled pilot research[21] Modern medications can reduce TSH levels effectively, but they also come with certain adverse effects. Ayurvedic medications have been found to be an excellent way to treat thyroid issues[22,23]. Utilizing locally accessible, affordable resources should thus be the primary objective [24]. Various animal experiments using Ayurvedic preparations listed in the Table 1.

Table 1. The Ayurvedic experiments on animals employed to treat hypothyroidism

Drug	Scientific name	Experimented in	Results
Amra, Ervaru , and Kalindi Peel Extracts[25]	Mangifera indica L., Cucumis melo L., and Citrullus vulgaris (Schrad.) E.H.L. Krause, respectively	Studied in Wistar albino male rats	Recovered serum T3 and T4 concentrations when compared to those of hypothyroid animals, demonstrating their ability to stimulate the thyroid. The tissue LPO of the animals was observed to be reduced by the peel extracts, but only when administered individually
Varuna Extract[26]	Crataeva nurvala Buch. Ham	Studied in female adult mice	By boosting free T4 and lowering thyrotropin (TSH), the herb's ethanolic extract reduces complaints.
Ashwagandha and Kovidara[27]	Withania somnifera L. and Bauhinia purpurea L.	Diabetic mice models	serum T3 and T4 levels in diabetic rats were restored by the extracts of W. somnifera and B. purpurea. Other researchers engaged in randomized preclinical trials drew conclusions consistent with the findings of the above-mentioned study.
Shigru Leaf Extract [28]	Moringa oliefera Lam.	Male albino rats	The group that received the highest test dose (500 mg/kg bw, 14 days) revealed the greatest percentage spike in hormone concentrations of T3, T4, and TSH levels when compared to the other dose levels, demonstrating the efficacy of M. oleifera leaf extracts in the treatment of hypothyroidism.

Phalgu Leaf Extract[24]	Ficus carica Linn	rats	ethanolic extract administration resulted in a relative rise in blood T3 and T4 concentrations, indicating its potential application in the control of hypothyroidism.

Yoga

Yoga is primarily a spiritual practice that focuses on achieving harmony between the body and mind. It is based on a very subtle science, the art and science of healthy living[29]. Yoga may enhance a person's physical and mental health. Certain asanas and pranayamas can have better effects on the thyroid gland by regulating the hypothalamus-pituitary-thyroid axis feedback mechanism. The asanas that are helpful in managing hypothyroidism include Sarvangasana (standing straight on the shoulders), Hlasana (plough pose), Matsyasana (fish pose), Naukasana (boat pose), Surya-namskar (saluation to the sun), and some useful pranayams like Suryabhedana (breathing from one nostril), Anulom-bilom (breathing from alternate nostrils) [30] In case summaries of 13 patients, Yoga Prana Vidya (YPV) advice was effective in helping the patients' thyroid conditions return to normal. The research demonstrates that YPV Healing is a non-invasive, non-touch, drug-free approach that is successful in treating this condition for a receptive patient[31] The case's outcomes line up with related research that has been cited[32]

Yoga Prana Vidya System (YPV) is helpful in assisting hypothyroid patients in managing their disease-related symptoms, and it may be used in conjunction with medication therapy to treat hypothyroidism. Ayurveda, Homeopathy, Allopathy, and other traditional medical systems are not meant to be replaced by Yoga Prana Vidya. It is found that including Yoga practice in our lifestyle accelerates our bodies' innate capacity for healing, which has a surprising impact [33]

Homoeopathy

Homoeopathy, (aka. homoeopathy) is derived from the Greek homoios, meaning "same or similar," and, pathos meaning "suffering" It is based on the idea 'Similia similibus curentur' (Latin phrase) meaning 'let like be cured by like'. Founded by the German physician Samuel Christian Friedrich Hahnemann in 1796. Homoeopathic medicine provides a potent therapy strategy for hormonal disorders. It is crucial to remember that, while treating an underactive thyroid, the focus should be on promoting the glands to create enough thyroid hormone rather than merely supplementing what is lacking [42]. Therefore, Homoeopathy can function equally well as hormone replacement treatment. In Homoeopathy, the internal imbalance is corrected. If a positive outcome is attained, supplementation throughout the rest of one's life is not necessary. Compared to people receiving thyroxine treatment, Homoeopathic patients experience more symptom relief [34]. Studies on Hypothyroidism using Homoeopathic medicines are listed in the Table 2.

Table 2: Few Homoeopathic remedies used in treating hypothyroidism with their results.

Homoeopathic remedies	Source	Study design	Results
Thyroidinum [35,36]	Dried thyroid gland of the sheep (sarcode)	Case studies	Levothyroxine and the homoeopathic medicine Thyroidinum 3X work well together in treatment. Thyroidinum 3X produced remarkable symptomatic reduction and loss of weight.

Natrum mur [37,38]	Sodium chloride (mineral kingdom)	Case study	Individualized homoeopathic medicines can treat hypothyroidism and its effects persists even after the medication is discontinued.
Sepia [37,39]	Cuttle fish (animal kingdom)	Case studies	Individualized homoeopathic treatment with sepia in the treatment of hypothyroidism-related vitiligo was favorable.
Calcarea carbonicum [40,41]	Calcium carbonate (mineral Kingdom)	A case report	Relief in symptoms and decrease in TSH
Calcarea carbnica, Calcarea sulph, Phosphorus, Pulsatilla and Sulphur [41]	Mineral & Plant Kingdom	Randomized control study	A significant decrease in antiTPOab titers and serum TSH readings shows that the homoeopathic intervention is effective in treating hypothyroidism.

Siddha

Siddha is one of India's ancient medicinal systems. The mother medicine of the prehistoric Tamils and Dravidians of peninsular South India. Siddha literally translates as established truth. The diagnosis, etiology, therapy, and prognosis are all determined using the Eight Methods of Examination (Envakai Thervukal)[43]. A well-known internal Siddha remedy called mezhugu (Kanaga linga karpoorathi mezhugu) medication is used to treat thyroid conditions, particularly hypothyroidism found effective in clinical studies[44]. A retrospective study (150 patients) exploring drug use among patients receiving integrative medicine at the Siddha Clinical Research Unit (SCRU), Tirupati, India, concluded that patients have optimism about the outcome of treatment for non-communicable disorders such diabetes mellitus, hypertension, dyslipidemia, hypothyroidism, and cancer [45].

Unani

Unani System of Medicine was invented in Greece. Arabs built this on the framework of the teachings of Buqrat (Hippocrates) and Jalinoos (Galen). Unani medicine has since been referred to as Greco-Arab medicine [46]. Subclinical hypothyroidism may be controlled using Unani medication and can also be stopped from progressing to overt hypothyroidism. Levothyroxine dose might be reduced when unani herbs are being administered [47,48]. Several modifications have been made to the concept of etiology of hypothyroidism. Little has altered in regard to the course of treatment. There is optimism that new approaches for the therapy may be studied because the Unani system of medicine has successfully treated a number of its symptoms for ages [49].

Acupuncture

Acupuncture can be used to treat hypothyroidism by regulating energy levels, re-establishing hormonal balance, soothing emotions, and assisting with menstruation and insomnia. A case report of a patient with autoimmune hypothyroidism who had acupuncture and Chinese medicine in addition to finding that these complementary therapies were helpful, the patient's biochemical results were normal, and the patient seemed satisfied with the therapy [50].

CONCLUSION

Hypothyroidism has a greater prevalence in our country. In addition to Modern Medicine, a variety of different traditional systems are also accepted in India. As Allopathic therapy is well established in treating Hypothyroidism, it is crucial to remember that symptoms can occasionally linger even when biochemical values are in check. Though treatment choices must be tailored by considering the genotypes and co-morbidities, understanding the advantages and disadvantages of various therapies is crucial. This article discussion includes multiple pieces on Alternative Therapies for Hypothyroidism. In an era when complementary therapies are valued in parallel with modern medicine, future studies on complementary therapies are essential with a greater focus on their molecular processes. Various in vitro and in vivo experiments are highly appreciable for a better explanation of the efficacies of these systems. Complementary therapies like Ayurveda, Homoeopathy, and Yoga are popular and effective in treating Hypothyroidism with better symptomatic relief in patients.

REFERENCES

1. Gaitonde DY, Rowley KD, Sweeney LB. Hypothyroidism: An update. Am Fam Physician. 2012;86(3):244-251. doi:10.1080/20786204.2012.10874256
2. Unnikrishnan A, Menon U. Thyroid disorders in India: An epidemiological perspective. Indian J Endocrinol Metab. 2011;15(6):78. doi:10.4103/2230-8210.83329
3. Chaker L, Bianco AC, Jonklaas J, Peeters RP. Hypothyroidism. The Lancet. 2017;390(10101):1550-1562. doi:10.1016/S0140-6736(17)30703-1
4. Almandoz JP, Gharib H. Hypothyroidism: Etiology, Diagnosis, and Management. Medical Clinics of North America. 2012;96(2):203-221. doi:10.1016/j.mcna.2012.01.005
5. Ghassabian A, Bongers-Schokking JJ, De Rijke YB, et al. Maternal thyroid autoimmunity during pregnancy and the risk of attention deficit/hyperactivity problems in children: The generation r study. Thyroid. 2012;22(2):178-186. doi:10.1089/thy.2011.0318
6. Mohanty S, Amruthlal W, Reddy GC, Kusumanjali G, Rao P. DIAGNOSTIC STRATEGIES FOR SUBCLINICAL HYPOTHYROIDISM. Vol 23.; 2008.
7. Abid M, Chandra P, Kishore K, Khan NA. COMPLICATION AND MANAGEMENT OF HYPOTHYROIDISM-A REVIEW Assessment of School and College Students Awareness about Aids in Urban Area View Project TARGETED DRUG DELIVERY SYSTEM FOR NEUROPROTECTION View Project.; 2016. www.drugresearch.in
8. Ahmad N, Irfan A, Al Saedi S. Congenital hypothyroidism: Screening, diagnosis, management, and outcome. J Clin Neonatol. 2017;6(2):64. doi:10.4103/jcn.jcn_5_17
9. Singer PA. Thyroiditis: Acute, subacute, and chronic. Medical Clinics of North America. 1991;75(1):61-77. doi:10.1016/S0025-7125(16)30472-2
10. Jonklaas J, Bianco AC, Cappola AR, et al. Evidence-Based Use of Levothyroxine/Liothyronine Combinations in Treating Hypothyroidism: A Consensus Document. Eur Thyroid J. 2021;10(1):10-38. doi:10.1159/000512970
11. Mi I, Mz A, Solayman M, Hoque S. Hypothyroidism-A New View On An Old Disease. Vol 7.; 2016.
12. Bauer M, Priebe S, Berghofer A, Bschor T, Kiesslinger U, Whybrow PC. Subjective Response to and Tolerability of Long-Term Supraphysiological Doses of Levothyroxine in Refractory Mood Disorders. Vol 64.; 2001. www.elsevier.com/locate/jad
13. Appelhof BC, Fliers E, Wekking EM, et al. Combined therapy with levothyroxine and liothyronine in two ratios, compared with levothyroxine monotherapy in primary hypothyroidism: A double-blind, randomized, controlled clinical trial. Journal of Clinical Endocrinology and Metabolism. 2005;90(5):2666-2674. doi:10.1210/jc.2004-2111
14. Madan R, Celi FS. Combination Therapy for Hypothyroidism: Rationale, Therapeutic Goals, and Design. Front Endocrinol (Lausanne). 2020;11. doi:10.3389/fendo.2020.00371

15. Yuan H, Ma Q, Ye L, Piao G. The traditional medicine and modern medicine from natural products. Molecules. 2016;21(5). doi:10.3390/molecules21050559
16. Abdullahi AA. Trends and challenges of traditional medicine in Africa. African Journal of Traditional, Complementary and Alternative Medicines. 2011;8(5 SUPPL.):115-123. doi:10.4314/ajtcam.v8i5S.5
17. Mukherjee PK, Harwansh RK, Bahadur S, et al. Development of Ayurveda – Tradition to trend. J Ethnopharmacol. 2017;197:10-24. doi:10.1016/j.jep.2016.09.024
18. Gaidhani SN, Bora M, Hazra J, Dixit AK, Sarkar M, Puia L. Efficacy of Ayurvedic Interventions in Hypothyroidism: A Comprehensive Review. Journal of Research in Ayurvedic Sciences. 2019;3(4):157-163. doi:10.5005/jras-10064-0090
19. Kaur A, Kumar Verma S, Kalsi S. Hypothyroidism: Man-agement Based On Ayurvedic and Modern Therapeutic Perspective. INTERNATIONAL JOURNAL OF PHARMACEUTICS & DRUG ANALYSIS. 2016;4:281-288. http://ijpda.com;
20. Vidyadhar Balikai, S.G.Chavan, Prashanth. A. S. A Critical Review of Subclinical Hypothyroidism in Ayurveda. Journal of Ayurveda and Integrated Medical Sciences. 2016;1(04):123-127. doi:10.21760/jaims.v1i4.6929
21. Sharma AK, Basu I, Singh S. Efficacy and Safety of Ashwagandha Root Extract in Subclinical Hypothyroid Patients: A Double-Blind, Randomized Placebo-Controlled Trial. Journal of Alternative and Complementary Medicine. 2018;24(3):243-248. doi:10.1089/acm.2017.0183
22. Bhaladhare V, Chouragade NB, Balpande D, Bhande A, Ambad S, Bankar N. Ayurvedic Management Of Hypothyroidism. Vol 8.; 2021.
23. Ravindranath L. An International Journal of Research in AYUSH and Allied Systems HYPOTHYROIDISM IN AYURVEDA-A CONCEPTUAL STUDY. 2015;2:246.
24. Gaidhani SN, Bora M, Hazra J, Dixit AK, Sarkar M, Puia L. Efficacy of Ayurvedic Interventions in Hypothyroidism: A Comprehensive Review. Journal of Research in Ayurvedic Sciences. 2019;3(4):157-163. doi:10.5005/jras-10064-0090
25. Parmar HS, Kar A. Protective role of Mangifera indica, Cucumis melo and Citrullus vulgaris peel extracts in chemically induced hypothyroidism. Chem Biol Interact. 2009;177(3):254-258. doi:10.1016/j.cbi.2008.11.006
26. Kaur A, Khurana N, Verma SK. Potential thyrotropic and antihypercholesteronemic activity exhibited by ethanolic extract of Crataeva nurvala bark. J Appl Pharm Sci. 2017;7(11):69-73. doi:10.7324/JAPS.2017.71110
27. Sharma AK, Basu I, Singh S. Efficacy and Safety of Ashwagandha Root Extract in Subclinical Hypothyroid Patients: A Double-Blind, Randomized Placebo-Controlled Trial. Journal of Alternative and Complementary Medicine. 2018;24(3):243-248. doi:10.1089/acm.2017.0183
28. Tabassum W, Roshni A, Sinha MP. (Supplement on Medicinal Plants) EFFECTS OF LEAF EXTRACTS OF MORINGA OLEIFERA ON REGULATION OF HYPOTHYROIDISM AND LIPID PROFILE. Vol 8.; 2013. www.thebioscan.in
29. Yoga: Its Origin, History and Development.; 2015.
30. Sardhana Rajvir Singh G. Yoga Education And Its Relevance In Current Scenario. Published online 2016. www.ijiras.com
31. Nanduri VS, Revathi R, Janani N. Successful healing treatment of Hypothyroidism using Integrated Yoga Prana Vidya (YPV) healing approach as complementary medicine: Case reports. Journal of Preventive Medicine and Holistic Health. 2020;6(1):42-48. doi:10.18231/j.jpmhh.2020.008
32. Nilakanthan S, Metri K, Raghuram N, Hongasandra N. Effect of 6 months intense Yoga practice on lipid profile, thyroxine medication and serum TSH level in women suffering from hypothyroidism: A pilot study. J Complement Integr Med. 2016;13(2):189-193. doi:10.1515/jcim-2014-0079

33. Singh P, Singh B, Dave R, Udainiya R. The impact of yoga upon female patients suffering from hypothyroidism. Complement Ther Clin Pract. 2011;17(3):132-134. doi:10.1016/j.ctcp.2010.11.004
34. Augustine A, Kumar MA. Effectiveness of Homoeopathic Medications in Comparison with Hormone Replacement Therapy in Hypothyroid Patients and Assessing their Comorbidity and Risk Factors. Journal of Nephrology & Endocrinology Research. Published online June 30, 2022:1-4. doi:10.47363/JONE/2022(2)110
35. S K. Homoeopathic Thyroidinum 3x–An Adjuvant in the Treatment of Hypothyroidism. Int J Complement Altern Med. 2018;11(1). doi:10.15406/ijcam.2018.11.00339
36. Ghare P, Jadhav AB, Patil A V. A Clinical Study to See the Effect of Thyroidinum, a Homoeopathic Preparation on Thyroid Peroxidase Antibody in Subclinical Hypothyroidism of Age Group between 18-70 Years. Vol 10.; 2020. www.ijhsr.org
37. Kamboj DrM, Mathur DrS, Dabhi DrDP, Jain DrA. Individualized Homoeopathy for Hypothyroidism: Evidence based case series. International Journal of Homoeopathic Sciences. 2022;6(4):09-15. doi:10.33545/26164485.2022.v6.i4a.632
38. Kumar S, Priya VS, Kumar S V, Pillai AS. INDIVIDUALIZED HOMOEOPATHIC MEDICINE IN ANTI-THYROGLOBULIN ANTIBODY TITER IN HASHIMOTO THYROIDITIS-A CLINICAL STUDY Homoeopathic Management of Hypothyroidism View Project SCOPE OF HOMOEOPATHY IN ISCHEMIC HEART DISEASE View Project INDIVIDUALIZED HOMOEOPATHIC MEDICINE IN ANTI-THYROGLOBULIN ANTIBODY TITER IN HASHIMOTO THYROIDITIS-A CLINICAL STUDY. https://www.researchgate.net/publication/371081766
39. Pandey S, Pandit RK, Pandit Lecturer RK. INTERNATIONAL JOURNAL OF AYUSH CASE REPORTS (IJA-CARE) Individualized Homoeopathic approach in a case of Vitiligo with Hypothyroidism-A Case Report Corresponding author *CORRESPONDING AUTHOR: Quick Response code. AYUSH Case Reports. 4(3):125. www.ijacare.in
40. Int J, Rs K. INTERNATIONAL JOURNAL OF AYUSH CASE REPORTS (IJA-CARE) Congenital Hypothyroidism Treated with Homoeopathy-A Case Report. AYUSH Case Reports. 5(4):283. www.ijacare.in
41. Chauhan VK, Manchanda RK, Narang A, et al. Efficacy of homeopathic intervention in subclinical hypothyroidism with or without autoimmune thyroiditis in children: An exploratory randomized control study. Homeopathy. 2014;103(4):224-231. doi:10.1016/j.homp.2014.08.004
42. Block J. Nineteenth-Century Homeopathic Materia Medica Texts Predict Source Materials Whose Physiological Actions Influence Thyroid Activity. Homeopathy. 2019;108(3):214-222. doi:10.1055/s-0039-1677704
43. Thas JJ. Siddha Medicine-background and principles and the application for skin diseases. Clin Dermatol. 2008;26(1):62-78. doi:10.1016/j.clindermatol.2007.11.010
44. Jeyavenkatesh J, Elango V. Efficacy of Kanagalinga karpoorati mezhugu in Experimental hypothyroid disorder. World Journal of Science and Research. 2016;1(4):27-30.
45. Rajalakshmi S, Samraj K, Nandhagopal K, Sathiyarajeswaran P, Kanakavalli K. Morbidity and Drug Utilization Pattern of Integrative Medicine (Siddha medicine and Biomedicine)-A Single Center Retrospective Study of 150 Patients. Tropical Journal of Natural Product Research. 2022;6(1):24-28. doi:10.26538/tjnpr/v6i1.5
46. IMCR Limitations. doi:10.38205/imcr.020243
47. Sultana DrA, Viquar DrU. A clinical comparative study & efficacy of polyherbal Unani formulations in subclinical hypothyroidism & overt hypothyroidism (Qillat-E-Ifraz-E-Ghudde Darqiyya). International Journal of Applied Research. 2020;6(11):429-434. doi:10.22271/allresearch.2020.v6.i11g.7974

48. Zahoor Ahmad Shiekh, Iqbal A, Ali Quraishi H, et al. Clinical Interpretation of Hypothyroidism in Unani Medicine. Haya: The Saudi Journal of Life Sciences. 2021;6(1):5-8. doi:10.36348/sjls.2021.v06i01.002
49. Anzar Alam M, Quamri MA, Sofi G, Ansari S. Update of hypothyroidism and its management in Unani medicine. J Basic Clin Physiol Pharmacol. 2021;32(2):1-10. doi:10.1515/jbcpp-2020-0121
50. Arsovska B, Zhu J, Kozovska K. Case Report: Acupuncture Treatment for Hypothyroidism. Imperial Journal of Interdisciplinary Research (IJIR. 2016;2(5).