

Hypothyroidism among Menopausal Women: A Review

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Abstract

Introduction: Thyroid diseases are public health problem worldwide with hypothyroidism more being common. Its risk increases during menopause due to hormonal transition among women. There is no Indian guideline related to screening among this population.

Methods: Review was undertaken in multiple ways including internet and library. Studies published in English were included.

Results: A total of 8 studies were included in the review. The prevalence of hypothyroidism ranged from about 7% to 24% in India and globally across the world.

Conclusion: The prevalence is high among menopausal women. There is need for further research into associated factors leading to high risk among these women. Screening guidelines need to be formulated in India for hypothyroidism among menopausal women.

Keywords: Thyroid, Menopause, Hypothyroidism, Prevalence

Introduction

Thyroid gland is an endocrine gland which is butterfly shaped, situated in lower front of neck. It secretes thyroid hormones namely T3 and T4 which help in optimal body functioning and regulation of energy use by each tissue of our body. Another hormone, thyroid stimulating hormone i.e. TSH, is synthesized and secreted by anterior pituitary. TSH stimulates thyroid gland to produce and secrete T3 and T4. T3 and T4 act as negative regulators for TSH.

Thyroid diseases are a public health problem across the world.¹ Thyroid disorders are the most prevalent endocrine disorders in India.² There are about 42 million people in India who have thyroid disorders according to an estimate made based on recent studies.³ These disorders are more prevalent in women.⁴ Thyroid diseases are not among major causes of mortality, but its sequelae can lead to disability.⁵ Among thyroid diseases, hypothyroidism is much more common than hyperthyroidism.

Hypothyroidism simply means an underactive thyroid gland.⁶ It manifests as various clinical symptoms like loss of appetite, weight gain, cold intolerance, poor memory, fatigue, constipation etc.⁷ Common causes of hypothyroidism include autoimmune disorders, radiotherapy to neck area, thyroid surgery, thyroiditis, congenital, iodine deficiency or excess, ingestion of goitrogens, use of certain medications etc.⁸ Hypothyroidism is easy to diagnose by help of laboratory analysis

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but still majority of population remain undiagnosed. It is treated by replacing the missing thyroid hormone in body. Untreated hypothyroidism may lead to complications like cardiovascular diseases, goitre, myxoedema and in severe cases to coma.

There is a strong preponderance of prevalence of hypothyroidism with older age and female gender.⁸ American thyroid association recommends routine population screening of both sexes at age 35 years and then every 5 years thereafter for early detection and treatment of subclinical hypothyroidism.⁹ There are no Indian guidelines for screening of high risk population for subclinical hypothyroidism.⁹

Menopause refers to cessation of menstruation permanently. It is a naturally occurring phenomenon. But sometimes, it could result from certain medical or surgical conditions like thyroid disorders, hysterectomy etc. Menopause speeds up the process of non-communicable disorders.¹⁰ Average age of menopause in females is 47 years, ranging from 45 to 50 years.¹¹ The hormonal changes occurring during menopause are sometimes associated with menopausal symptoms. As there is an overlap between menopausal symptoms and symptoms of hypothyroidism, most of the time this condition goes unrecognised. According to American thyroid association risk of hypothyroidism increases during menopause.⁷ In India, there is no conclusive data available on this.

Most of the studies that have been conducted in India are in pregnant females or in school going children. There is paucity of literature on thyroid disorders in adult female population and very few studies are available in postmenopausal women. Most studies conducted in women are done in clinical settings. So, the review was an attempt to study the different studies so that the status of prevalence of hypothyroidism among postmenopausal women could be known.

Methodology

The review of literature was undertaken in multiple ways. Majority of research in this regard was done using internet. The major sites accessed for relevant literature were Google Scholar and Pub Med. The keywords used for search were: hypothyroidism, thyroid, thyroid disorders, menopause, postmenopausal, women, etc. Studies conducted in India as well as globally and published in English language were included. As there were very few studies available specifically among postmenopausal women, the studies conducted in peri- and post menopausal age i.e. women above 40 years of age group and those studying prevalence of subclinical hypothyroidism were also included.

A total of 8 studies were included out of which 4 were

conducted in India and rest were done in other parts of world.

Results and Discussion

Indian scenario

In a cross-sectional observational study conducted by Deshmukh V et al in 2013 to assess the prevalence of subclinical hypothyroidism in normal population in Mumbai, a total of 237 subjects were evaluated for symptoms and laboratory tests for thyroid function. Those with history of thyroid disorders, family history of thyroid disorders, pregnant, with known illnesses and on chronic medications were excluded. Subclinical hypothyroidism was defined as TSH levels more than 5 μ U/mL. The prevalence of subclinical hypothyroidism was 20% in postmenopausal age group and it increased with age.⁹

Garg N et al conducted a hospital-based cross-sectional study among 100 postmenopausal women attending OPD in a hospital in Ambala in 2009-10 and excluded the women below 45 years of age. Among them, the prevalence of subclinical hypothyroidism was 21% with 8% in age group of 45-55 years and 13% in age 56 years or above.¹²

Joshi SA et al conducted a hospital-based cross-sectional study among 200 peri- and postmenopausal women relatives of indoor patients in 2010 in Nagpur in age range of 40 to 55 years with exclusion of participants with history of thyroid disorders irrespective of treatment status. They found out the prevalence of hypothyroidism as 12.5%.¹³

Marwaha RK et al conducted a cross-sectional study in Delhi during 2007-2010 to determine status of thyroid function in Indian adults. Subjects were evaluated for history, anthropometry, goitre grading, USG thyroid, thyroid auto-antibodies & thyroid function tests. Subclinical and overt hypothyroidism was 19.1% and 1.9% in 40-49 years age group, 24.6% and 3.6% in 50-59 years age group, 34.2% and 2.5% in 60-69 years age group, 21.2% and 2.3% in 70 years and above age group, respectively. 1.7% subjects were newly diagnosed with this disease.¹⁴

Global Scenario

A study was conducted in Spain in 2014 by Escribano SJ et al by analysing data of 321368 people who had bought levothyroxine under public health service system. Majority (83%) were females. The prevalence of hypothyroidism was 10.32% in females of age above 45 years and 11.37% in females of age above 60 years. So, it showed a rising trend in females with age.¹⁵

Rodriguez LAG et al conducted retrospective data review of 399 subjects of population-based study of Latin American Vertebral Osteoporosis Study (LAVOS) in 2013. Patients'

medical history, anthropometric data, current medications, laboratories & DXA results were extracted. Age range was 50-90 years postmenopausal women. Hypothyroidism was defined as TSH > 5.5 mIU/mL. Prevalence of hypothyroidism in postmenopausal females was 24.2%. It increased with age. Increased prevalence was present among 70 years or older.¹⁶

Niafar M et al conducted a cross-sectional community-based study in Iran in 2007-08 among 1000 postmenopausal

women with age range of 60 to 89 years, the prevalence of overt and subclinical hypothyroidism was 1.5% and 5.8% respectively.¹⁷

A population-based cross-sectional Rotterdam study, conducted in 1149 postmenopausal women, in 1990-93 by Hak AE et al in Netherlands found the prevalence of subclinical hypothyroidism to be 10.8%. They defined subclinical hypothyroidism as TSH levels >4.0 mU/L with normal free T4.¹⁸

S.No.	Authors	Year of Study	Study Setting	Type of Study	Study Population	Sample Size	Key Findings
1.	Deshmukh V et al	2013	Mumbai	Cross-sectional	Normal adult population	237	20% postmenopausal women had subclinical hypothyroidism
2.	Garg N et al	2009-10	Ambala	Hospital-based cross-sectional	Postmenopausal women above 45 years of age	100	21% women had subclinical hypothyroidism
3.	Joshi SA et al	2010	Nagpur	Hospital-based cross-sectional	40-55 years aged peri and postmenopausal women	200	12.5% women had hypothyroidism
4.	Marwaha RK et al	2007-2010	Delhi	Cross-sectional	Adult population	4409	Prevalence was >20% in >40 years age group
5.	Escribano SJ et al	2014	Spain	Secondary data analysis	People buying levothyroxine	321368	Prevalence was >10% in >45 years of age
6.	Rodriguez LAG et al	2013	Puerto Rico	Retrospective data analysis	Postmenopausal women of age 50-90 years	399	24.2% women were hypothyroid
7.	Niafar M et al	2007-08	Iran	Community-based cross-sectional	Postmenopausal women of 60-89 years age	1000	7.3% women had hypothyroidism
8.	Hak AE et al	1990-93	Netherlands	Population-based cross-sectional	Postmenopausal women	1149	10.8% women had subclinical hypothyroidism

Conclusion

The review highlights the fact that prevalence of hypothyroidism is high among postmenopausal women both in India and across the world. Most of the studies were done with wide exclusion criterions. So, the real prevalence could be much higher.

Increase in prevalence of hypothyroidism with age is a known fact. But there is need to further explore the possible relationship between menopausal status and thyroid hormone levels. These are important for establishment of guidelines related to hypothyroidism screening.

Conflict of Interest: None

References

1. Shahrani ASA, Metwally AE, Surimi KA, Salih SB, Saleh Y, Shehri AA et al. The epidemiology of thyroid diseases in the Arab world: A systematic review. J Public Health Epidemiol 2016 Feb;8(2):17-26.
2. Tayal D, Goswami B, Gupta N, Chawla R, Gupta VK, Singh B, et al. Prevalence of thyroid disorders in patients visiting a tertiary care centre in New Delhi: A three-year study. Asian J Med Sci 2012;3(4):15-23.
3. Kochupillai N. Clinical Endocrinology in India. Curr Sci 2000 Oct;79(8):1061-7.
4. Vandermump MP, Tunbridge WM, French JM, Appleton D, Bates D, Clark F, et al. The incidence of thyroid disorders in community: A 20 year follow up

- of the Wickham Survey. Clin Endocrinol (Oxf) 1995 Jul;43(1):55-68.
5. Kalra S, Unnikrishnan AG, Sahay R. The global burden of thyroid disease. Thyroid Res Pract 2013 Aug;10(3):89-90.
 6. American Thyroid Association. Hypothyroidism (Underactive). Virginia. American Thyroid Association 2017. Available from http://www.thyroid.org/wp-content/uploads/patients/brochures/Hypo_brochure.pdf?pdf=Hypothyroidism?pdf=Hypothyroidism. [Last accessed on April 26, 2017].
 7. American Thyroid Association. Hypothyroidism: A booklet for patients and their families. Virginia. American Thyroid Association 2013. Available from http://www.thyroid.org/wp-content/uploads/patients/brochures/Hypothyroidism_web_booklet.pdf. [Last accessed on April 26, 2017].
 8. Sawin CT, Castelli WP, Hershman JM, McNamara P, Bacharach P. The aging thyroid. Thyroid deficiency in Framingham study. Arch Intern Med 1985 Aug;145(8):1386-8.
 9. Deshmukh V, Behl A, Iyer V, Joshi H, Dholye HP, Varthakavi PK. Prevalence, clinical and biochemical profile of subclinical hypothyroidism in normal population in Mumbai. Indian J Endocr Metab 2013 May-Jun;17(3):454-9.
 10. Meeta, Digumarti L, Agarwal N, Vaze N, Shah R, Malik S. Clinical practice guidelines on menopause: An executive summary and recommendations. J Midlife Health 2013 Apr;4(2):77-106.
 11. Howkins, Bourne. Shaw's Textbook of Gynaecology. 15th ed. New Delhi: Elsevier, 2013. Chapter 5, Perimenopause, Menopause, Premature Menopause and Postmenopausal Bleeding;p62.
 12. Garg N, Singh J, Sodhi KS, Ashima B. Evaluation of subclinical hypothyroidism in women of postmenopausal age group. Journal of Advance Researches in Biological Sciences 2012;4(1):20-2.
 13. Joshi SA, Bhalerao A, Somalwar S, Jain S, Vaidya M, Sherawat N. Screening of peri- and postmenopausal women for hypothyroidism. Journal of South Asian Federation of Obstetrics and Gynaecology 2011 Jan-Apr;3(1):14-6.
 14. Marwaha RK, Tandon N, Ganie MA, Kanwar R, Garg MK, Singh S. Status of thyroid function in Indian adults: Two decades after universal salt iodization. J Assoc Physicians India 2012 Apr;60:32-6.
 15. Escribano SJ, Mancera RJ, Santos SV, Paya GC, Mendez EMI, Garcia BA, et al. Prevalence of hypothyroidism in Andalusia, Spain, determined by thyroid hormone consumption. Rev Esp Salud Publica 2016 Dec;90:1-12.
 16. Rodriguez LAG, Giovanini MEF, Haddock L. Thyroid dysfunction in an adult female population: A population-based study of Latin American Vertebral Osteoporosis Study (LAVOS) –Puerto Rico Site hypothyroidism in LAVOS – Puerto Rico site. P R Health Sci J 2013 Jun;32(2):57-62.
 17. Niafar M, Najafipour F, Bahrami A. Subclinical thyroid disorders in postmenopausal women of Iran. J Clin Diagn Res 2009 Dec;3(6):1853-8.
 18. Hak AE, Pols HA, Visser TJ, Drexhage HA, Hofman A, Witteman JC. Subclinical hypothyroidism is an independent risk factor for atherosclerosis and myocardial infarction in elderly women: The Rotterdam study. Ann Intern Med 2000 Feb;132(4):270-8.

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