

Retrospective Analysis of Hypothyroidism among Patients Visited to Department of Medicine in One Year Duration: An Institutional Based Study

Penchila Prasad Kandikattu¹, Anand Kumar Boyapati¹, A. Samhitha Reddy¹, Kotla Sravan Reddy^{2*}

¹Assistant Professor, Department of General Medicine, Ananta Institute of Medical Sciences and Research Centre, Udaipur, Rajasthan, India

²Associate Professor, Department of General Medicine, Ananta Institute of Medical Sciences and Research Centre, Udaipur, Rajasthan, India

Received: 21-04-2021 / Revised: 05-07-2021 / Accepted: 02-08-2021

Abstract

Background: Thyroid diseases are common problem in the population. Hence; the present study was conducted for analysing hypothyroidism among patient visiting in one year duration. **Materials & Methods:** A total of 2540 patients were analysed during study period. Blood samples were obtained from all the patients and thyroid profile was assessed. Complete demographic details of all the patients were assessed. Clinical profile of all the patients was recorded separately. All the results were recorded and analysed by SPSS software. **Results:** In the present study, a total of 2540 patients were analysed. Among these patients, hypothyroidism was seen in 285 patients (11.22 percent). patients of the patients with hypothyroidism was 51.9 years. Mean age of the patients with clinical hypothyroidism and subclinical hypothyroidism was 53.1 years and 48.2 years respectively. Weight gain was seen in 128 patients while fatigue and tremors were seen in 180 patients and 114 patients respectively. **Conclusion:** Hypothyroidism is more prevalent among adults with most common clinical presentation being weight gain and fatigue.

Key words: Hypothyroidism, Thyroid

This is an Open Access article that uses a fund-ing model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

Thyroid diseases are common problem in the population. This small gland located in the neck plays an important role in regulating metabolism, as well as in functioning of a whole range of organs and organ systems. As there are various causes for these diseases, there are various causes for increased incidence, such as better diagnostics, radiation exposure (i.e. the Chernobyl accident as a cause of a greater number of malignant thyroid diseases in the exposed area). Incidence of thyroid diseases after radiation exposure in adults increases by 16-31%. The prevalence of thyroid disorders depends on a large number of factors, of which, the most important include: age, sex, geographic factors, ethnicity[1-3].

Hypothyroidism is a decreased functioning of thyroid gland. It can present itself as an overt state of myxoedema, end-organ effects, and multisystem failure or subclinical condition with normal levels of thyroxine and triiodothyronine and mildly elevated levels of serum thyrotropin. The prevalence of hypothyroidism was documented in approximately 4%–5% of population in the developed world, while in Indian population it was reported in around one in ten adults[4-6]. Hence; the present study was conducted for analysing hypothyroidism among patient visiting in one year duration.

Materials & methods

The present study was conducted for analysing hypothyroidism among patient Visited to Department of General Medicine, Ananta Institute of Medical Sciences and Research Centre, Udaipur, Rajasthan (India) in One Year Duration. A total of 2540 patients were analysed during study period. Blood samples were obtained from all the patients and thyroid profile was assessed.

Complete demographic details of all the patients were assessed. Clinical profile of all the patients was recorded separately. All the results were recorded and analysed by SPSS software. Chi-square test and Univariate analysis was used for evaluation of level of significance.

Results

In the present study, a total of 2540 patients were analysed. Among these patients, hypothyroidism was seen in 285 patients (11.22 percent). Among these 285 patients, clinical hypothyroidism was seen in 174 patients while subclinical hypothyroidism was seen in 110 patients. Mean patients of the patients with hypothyroidism was 51.9 years. Mean age of the patients with clinical hypothyroidism and subclinical hypothyroidism was 53.1 years and 48.2 years respectively. Weight gain was seen in 128 patients while fatigue and tremors were seen in 180 patients and 114 patients respectively.

*Correspondence

Dr. Kotla Sravan Reddy

Associate Professor, Department of General Medicine, Ananta Institute of Medical Sciences and Research Centre, Udaipur, Rajasthan, India.

E-mail: kotlasravanreddy@gmail.com

Table 1: Demographic data

Variable		Clinical hypothyroidism	Subclinical hypothyroidism	Total
Age group	Males	35	31	66
	Females	139	79	218
	Total	174	110	284
Mean age (years)		53.1	48.2	51.9

Table 2: Clinical profile

Clinical profile	Clinical hypothyroidism	Subclinical hypothyroidism	Overall
Weight gain	89	39	128
Fatigue	128	52	180
Tremors	79	35	114
Weight loss	0	33	33
Palpitations	29	25	54
Thyroid swelling	42	0	42

Discussion

Hyperthyroidism is majorly divided into two categories, primary and secondary (central) hypothyroidism. Hypothyroidism is termed primary when the thyroid gland itself is not able to produce adequate amounts of thyroid hormone. The less common, secondary or central hypothyroidism is labelled when the thyroid gland itself is normal, and the pathology is related to the pituitary gland or hypothalamus. The most prevalent etiology of primary hypothyroidism is an iodine deficiency in iodine-deficient geographic areas worldwide [6-10]. Hence; the present study was conducted for analysing hypothyroidism among patient visiting in one year duration.

In the present study, a total of 2540 patients were analysed. Among these patients, hypothyroidism was seen in 285 patients (11.22 percent). Among these 285 patients, clinical hypothyroidism was seen in 174 patients while subclinical hypothyroidism was seen in 110 patients. Deshmukh V et al screened normal population to define normative ranges of thyroid hormones and Serum thyroid stimulating hormone (S.TSH) and prevalence of Subclinical Hypothyroidism (ScHt) and thyroid autoimmunity. Two-hundred thirty-seven normal subjects without family history of thyroid disease were evaluated for symptoms and laboratory tests for thyroid dysfunction and autoimmunity. The thyroid function tests were as follows: Euthyroid Group: Mean values were: T3: 1.79 ± 0.42 ng/mL, T4: 10.23 ± 2.25 μ g/dL, FT3: 1.88 ± 0.19 pg/mL, FT4: 1.12 ± 0.21 ng/dL, S.TSH: 2.22 ± 1.06 μ u/mL. 10.2% of euthyroid subjects had antimicrosomal antibodies (AMA) +ve (mean titer 1:918) and 23.6% were anti-thyroid peroxidase autoantibody (anti-TPO) +ve (mean titer 15.06 Au/mL). The euthyroid outlier range for S.TSH was 0.3–4.6 μ u/mL. The values were comparable in both the sexes. Those with S.TSH ≥ 5 μ u/mL were defined to have ScHt. Prevalence of ScHt was 11.3% (M:F ratio 1:3.7). 74% belonged to 35–54 years age group and prevalence increased with age (post-menopausal females: prevalence 20%). S.TSH was 9.8 ± 7.22 μ u/mL, mean S.AMA was 1:5079 (40.7% positivity) and mean S.anti-TPO was 260 Au/mL (47.6% positivity). Majority were agoutrous (74%), and stage I goiter was seen in 26% of this population. Symptom score of 5–8 was seen in 55% ScHt subjects versus 35% normal subjects. Mean S.TSH in our population was 2.22 μ u/mL (euthyroid outliers: 0.3–4.6 μ u/mL); hence, S.TSH above 4.6 μ u/mL should be considered as abnormal.¹⁰

In the present study, mean patients of the patients with hypothyroidism was 51.9 years. Mean age of the patients with clinical hypothyroidism and subclinical hypothyroidism was 53.1 years and 48.2 years respectively. Weight gain was seen in 128 patients while fatigue and tremors were seen in 180 patients and 114 patients respectively. El-Shafie KT et al reviewed the common and unusual symptoms of hypothyroidism. A retrospective study was done of forty thousand patients attending Sultan Qaboos University Health Center (SQU), within a period of three years. Sixty-three patients proved to

have either clinical or subclinical hypothyroidism and were screened for the different symptoms & signs of hypothyroidism. The well-known symptoms and signs of hypothyroidism reported in the medical textbooks were uncommon in this study. Symptoms such as dysarthria and dysphagia not usually mentioned in the medical textbooks were reported. Early diagnosis by screening both middle-aged as well as older patients is advantageous [11]

Conclusion

From the above results, the authors conclude that hypothyroidism is more prevalent among adults with most common clinical presentation being weight gain and fatigue.

References

- Mazzaferri E. Management of a solitary Thyroid Nodule. The New England Journal of Medicine. 1993;329:553–9.
- Zimmerman MB. Iodine deficiency. Endocr Rev. 2009; 30:376–408.
- Vanderpump MPJ. The epidemiology of Thyroid diseases. In: Braverman LE, Utiger RD, editors. Werner and Ingbars The Thyroid: A Fundamental and Clinical Text. 9. Philadelphia: JB Lippincott-raven; 2005; 398–496.
- Chaker L, Bianco AC, Jonklaas J, Peeters RP. Hypothyroidism. Lancet. 2017;390(10101):1550–62.
- Hoogendoorn EH, Hermus AR, de Vegt F, et al. Thyroid function and prevalence of anti-thyroperoxidase antibodies in a population with borderline sufficient iodine intake: influences of age and sex. Clin Chem. 2006;52(1):104–11.
- Unnikrishnan AG, Kalra S, Sahay RK, Bantwal G, John M, Tewari N. Prevalence of hypothyroidism in adults: an epidemiological study in eight cities of India. Indian J Endocrinol Metab. 2013;17(4):647–52.
- Unnikrishnan AG, Menon UV. Thyroid disorders in India: An epidemiological perspective. Indian J Endocr Metab. 2011; 15:78–81.
- Rohil V, Mishra AK, Shrewastawa MK, Mehta KD, Lamsal M, Baral N, Majhi S. Subclinical hypothyroidism in eastern Nepal: A hospital based study. Kathmandu Univ Med J. 2010;8:231–7.
- Sahu MT, Das V, Mittal S, Agarwal A, Sahu M. Overt and subclinical thyroid dysfunction among Indian pregnant women and its effect on maternal and fetal outcome. Arch Gynaecol Obstet. 2010;281:215–20.
- Deshmukh V, Behl A, Iyer V, Joshi H, Dholye JP, Varthakavi PK. Prevalence, clinical and biochemical profile of subclinical hypothyroidism in normal population in Mumbai. Indian J Endocrinol Metab. 2013;17(3):454–9.
- El-Shafie KT. Clinical presentation of hypothyroidism. J Family Community Med. 2003;10(1):55–8.

Conflict of Interest: Nil Source of support: Nil