

Prevalence of thyroid dysfunction in young females

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Abstract

Background: Diseases of thyroid gland are amongst the most common endocrine disorder in the world, second only to diabetes mellitus. Thyroid disorders are more common in females. Thyroid diseases are easily diagnosed by thyroid function tests. **Aim and objective:** To find the prevalence of thyroid dysfunction in young females in south India. **Methodology:** Total 700 patients were studied. Data collected with pre tested questionnaire. Data included sociodemographic data, Iodised salt intake and reports of thyroid function tests. Patients were catergized into various thyroid disease spectrum. Data was analysed with appropriate statistical tests. **Results and discussion:** The prevalence of thyroid dysfunction was 19%. Subclinical hypothyroidism was most commonly observed (12.86%) thyroid dysfunction. Hypothyroidism, Subclinical hyperthyroidism and Overt hyperthyroidism were observed in 4% 1,.44% and 0.7% patients. **Key Word:** thyroid dysfunction.

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Received Date: 03/12/2019 Revised Date: 11/01/2020

Accepted Date: 26/01/2020

DOI: <https://doi.org/10.26611/10161421>

Access this article online

Quick Response Code:



Website:

www.medpulse.in

Accessed Date:

01 May 2020

INTRODUCTION

The thyroid is a small endocrine gland located near throat and synthesizes and secretes mainly two hormones i.e., T4 (Thyroxine) and T3 (Triiodothyronine).¹ TSH s (thyroid stimulating hormone) is secreted by the pituitary gland of the brain and it stimulates the thyroid to synthesize and release the thyroid hormones into the blood. Thyroid disorders are most common endocrine disorder affecting more than 300 million people worldwide and almost half of them are presumed to be unaware of their condition.² In India sub-Himalayan region especially from Kashmir to Assam is the endemic iodine deficiency area, the goiter belt. Despite the coverage of national iodine deficiency control program in India, iodine deficiency is still prevalent in many parts of India³. The prevalence of

thyroid disorders, both hypothyroidism and hyperthyroidism is more common in women than in men.⁴ Hypothyroidism in young women is linked to menstrual irregularities, polycystic ovaries and infertility.^{5,6} Other causes of thyroid disorder are Congenital factors, pregnancy, radiotherapy, viral infections, surgery, infiltrative disorders and autoimmunity.^{7,8} Thyroid disorders manifest as hypothyroidism, hyperthyroidism, goiter, thyroid nodule, thyroiditis and thyroid cancer. Thyroid diseases can be easily diagnosed with serum TSH, T3, T4 levels. Early diagnosis and treatment is important intervention in thyroid diseases. Thyroid disorders should be focused in two important age group i.e. neonates and pregnant women. In our study we focused on young women aged 18-30 years which is reproductive age group. This study was carried out in young females to find out the prevalence of thyroid diseases.

Aim and objective: To find the prevalence of thyroid dysfunction in young females

MATERIAL AND METHODS

Present study is a prospective study carried out in Department of Otorhinolaryngology at a tertiary health care center in south india. Study population was female aged 18-30 years visiting OPD of Department of Otorhinolaryngology. Patients visiting the hospital were a

mix of urban and rural population. Total 700 patients were studied.

Inclusion criteria: 1. Female visiting OPD of otorhinolaryngology department 2.patients willing to participate in the study

Exclusion criteria: 1. Patients below 18 years and above 30 years 2. Patients not willing to participate 3. Patients with major illness like cancers Study was approved by ethical committee of the institute. A valid written consent was taken from patients after explaining study to them. Data was collected with pre tested questionnaire. Data included sociodemographic data, clinical history. Data regarding consumption of iodized salt was taken. A through clinical examination was done.

Thyroid function tests were done to find out prevalence of thyroid dysfunction. The blood sample was collected.. Samples were centrifuged immediately after clotting and the serum was stored at -200 Centigrade until assayed. Assessment of fT3, fT4 and TSH was done by the ADVIA Centaur® CP Immunoassay System of SIEMENS company by Chemiluminescence Immunoassay (CLIA) method. All the three parameters were estimated following the standard protocol as per manufacturer’s guidelines. The reference interval for fT3, fT4 and TSH were 2.3- 4.2 pg/ml, 0.89-1.76 ng/dL and 0.35-5.5 microIU/ ml respectively. After thyroid function test, data were recorded. Women with low TSH plus high fT4 and high

fT3 were diagnosed as Overt hyperthyroidism. Overt Hypothyroidism was defined as increased TSH plus low fT4 (<0.89 ng/ml) and fT3 (< 2.3 pg/ml). Subclinical hyperthyroidism was defined as low TSH and normal fT4 and fT3. Subclinical hypothyroidism was defined as increased TSH plus normal fT4 and fT3. Euthyroidism was defined as normal level of TSH, fT4 and fT3.

Data was analyzed with appropriate statistical tests.

RESULTS

Total 700 patients were studied. Among all patients 567 patients have normal TSH values 0.35-5.5 microIU/ ml and 133 patients have abnormal TSH levels. Thus the prevalence of abnormal TSH level was 19%. Mild elevation of TSH means level of TSH between 5.5- 10 microIU/ ml . Mild elevation of TSH level was observed in 93 patients. TSH level above 10 microIU/ ml was observed in 28 patients. Decreased TSH <5.5 microIU/ ml was observed in 12 patients. In our study we found that 81% patients were euthyroid. Subclinical hypothyroidism was observed in 90 (12.86%) patients. Hypothyroidism was observed in 28 (4%) patients. Subclinical hyperthyroidism was observed in 10 (1.44%) patients. Overt hyperthyroidism was observed in 5(0.7%) patients. Thus subclinical hypothyroidism was most commonly observed thyroid dysfunction .

Table 1: Distribution of patients according to TSH levels

Sr no	TSH LEVELS	PATIENTS	PERCENTAGE
1	0.35-5.5 microIU/ ml	567	81%
2	5.5- 10 microIU/ ml	93	13.28%
3	>10 microIU/ml	28	4%
4	<5.5 microIU/ ml	12	1.72%
5	Total	700	100%

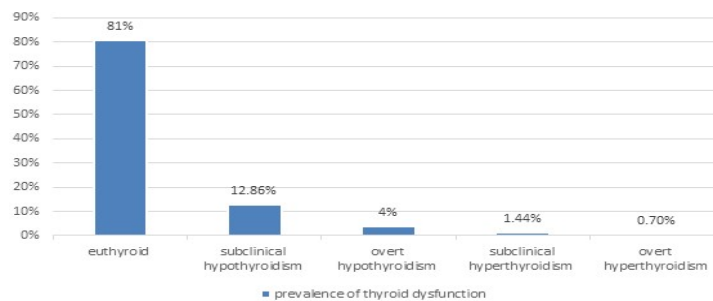


Figure 1: Distribution of patients according to diagnosis thyroid status

DISCUSSION

In our study we studied 700 young female patients attending OPD of otorhinolaryngology department. Prevalence of thyroid disorders depends on age, sex, geographical factors, and iodine intake. In our study

overall intake of iodine is normal. The World Health Organization classified India as having optimal iodine nutrition based on assessment of global iodine status in 2004 ⁹. We found that the prevalence of thyroid dysfunction was 19%. Similar to our study Usha Menon *et*

al. found that overall prevalence of thyroid function abnormalities in 19.6% of the population.¹⁰ In a study by Kochupillai *et al.* estimated the prevalence of thyroid disorders in India to be around 42 million.¹¹ In a study on the prevalence of thyroid disorders in women of Pondicherry, 15.8% had thyroid dysfunction.⁴ In our study we found that 81% patients were euthyroid. Subclinical hypothyroidism was observed in 90 (12.86%) patients. Hypothyroidism was observed in 28 (4%) patients. Subclinical hyperthyroidism was observed in 10 (1.44%) patients. Overt hyperthyroidism was observed in 5(0.7%) patients. Various other studies showed similar findings. In a study by Velayutham K *et al.* where they studied thyroid dysfunction in female college students and found that the overall prevalence of abnormal TSH among female college students was 12.5 %¹². In a study by Unnikrishnan AG *et al.* the prevalence of hypothyroidism was 13.3% and the prevalence of overt undiagnosed hypothyroidism was 3.5% and the prevalence of subclinical hypothyroidism was 8.5%¹³. In consistent with our study Abraham R *et al.* found hypothyroidism in 11.5% females.⁴ In a study from Delhi in 2012 by Marwaha *et al.*, subclinical hypothyroidism was present in 19.3% of subjects and 4.2% had overt hypothyroidism (14).

REFERENCES

1. Marieb E, Hoehn K. Regulation and integration of the body. The endocrine system. Human Anatomy and Physiology. 7th edition. San Francisco, CA: Pearson Education Inc. 2007: 620-625.
2. PAP Smyth. Epidemiology of Thyroid Dysfunction - Hypothyroidism and Hyperthyroidism. Darmstadt, Germany. 2009.
3. Bania D, Das K. A Study on prevalence of thyroid function disorders amongst the population of Barpeta district, Assam. J Dent Med Sci. 2017; 16: 47-50.
4. Abraham R, Srinivasa Murugan V, Pukazhvanthen P, Sen SK. Thyroid disorders in women of Puducherry. Indian J Clin Biochem 2009 Jan; 24(1):52-59.
5. Sinha U, Sinharay K, Saha S, Longkumer TA, Baul SN, Pal SK. Thyroid disorders in polycystic ovarian syndrome subjects: A tertiary hospital based cross-sectional study from Eastern India. Indian J Endocrinol Metab. 2013; 17:304-9.
6. Poppe K, Velkeniers B. Female infertility and the thyroid. Best Pract Res Clin Endocrinol Metab.2004; 18:153-65
7. Brownlie BE, Wells JE. The epidemiology of thyrotoxicosis in New Zealand: incidence and geographical distribution in north Canterbury, 1983–1985. Clin Endocrinol 1990; 33: 249259.
8. Vanderpump MP, Tunbridge WM. Epidemiology and prevention of clinical and subclinical hypothyroidism. Thyroid. 2002; 12: 839-847.
9. WHO. Iodine Status Worldwide, WHO Global Database on Iodine Deficiency. Geneva: Department of Nutrition for Health and Development, WHO; 2004.
10. Usha Menon V, Sundaram KR, Unnikrishnan AG, Jayakumar RV, Nair V, Kumar H. High prevalence of undetected thyroid disorders in an iodine sufficient adult south Indian population. J Indian Med Assoc. 2009;107:72–7. [PubMed: 19585813]
11. Kochupillai N. Clinical endocrinology in India. Curr Sci. 2000;79:1061–6.
12. Velayutham K, Selvan SS, Unnikrishnan AG. Prevalence of thyroid dysfunction among young females in a south Indian population. Indian J Endocrinol Metab. 2015 Nov-Dec; 19(6):781-784
13. Unnikrishnan AG, Menon UV. Thyroid disorders in India: an epidemiological perspective. Indian J Endocrinol Metab 2011 Jul; 15(Suppl 2):S78-S81
14. Marwaha RK, Tandon N, Ganie MA, Kanwar R, Sastry A, Garg MK, *et al.*. Status of thyroid function in Indian adults: Two decades after universal salt iodization. J Assoc Physicians India. 2012; 60:32-6.

Source of Support: None Declared
Conflict of Interest: None Declared

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