ISSN:0975 -3583,0976-2833 VOL12, ISSUE 07, 2021

PREVALENCE OF THYROID DYSFUNCTION AMONG FIRST YEAR MEDICAL STUDENTS

Dr. Bhagyamma Sollapurappa Narayanaswamy

1. **Assistant Professor,, Department of Biochemistry Government Medical College Ananthapuramu Andhra Pradesh**

Corresponding author
Dr. Bhagyamma Sollapurappa Narayanaswamy
Assistant Professor,
Department of Biochemistry
Government Medical College
Ananthapuramu
Andhra Pradesh

Background
Introduction :
Thyroid hormones (TH) are crucial for optimal growth and metabolism. Thyroid diseases can significantly effect people' Quality of life and the healthcare system. Thus, evidence-based, current guidelines for investigating and treating these illnesses in the vicinity are critical.
Aims and Objectives: To find the prevalence of thyroid dysfunction among first year medical students
Materials and method :
This study was carried out in 100 First year medical students of Government Medical college ,Ananthapur during the period Jan 2021 to Jun 2021 . Institutional ethical committee approval was obtained. Subjects provided written consent and gave a 5 ml venous blood sample after overnight fasting. The Acess was used to estimate free T4 and thyroid stimulating hormone (TSH) levels using CLIA. Students were classified as Euthyroid, Hypothyroid, Subclinical Hypothyroid, Hyperthyroid, or Subclinical Hyperthyroid based on TSH and T4 readings.
RESULTS:
Out of a total of 100 students only 28 were male and 72 were female. The euthyroid status of 80 percent of the subjects was determined to be normal. The prevalence of subclinical hypothyroidism was found to be 12 percent, whereas the prevalence of subclinical hyperthyroidism was found to be 3 percent.3% had Hypothyroidism and 2% Hyperthyroidism. It was discovered that women were the only ones who had either subclinical hypothyroidism or subclinical hyperthyroidism.
CONCLUSION:
Thyroid dysfunction was prevalent among young women in our study. 12% of our research population had Subclinical Hypothyroidism, and 3% had Subclinically Hyperthyroid, highlighting the need for early detection and treatment.

KEY WORDS : Subclinical Hypothyroidism, Subclinically Hyperthyroidism, First year medical students

Introduction :

ISSN:0975 -3583,0976-2833 VOL12, ISSUE 07, 2021

Diseases of the thyroid gland are the most prevalent form of endocrine disorder found in women of reproductive age.[1]

The prevalence of thyroid problems varies across the world depending on a number of factors, such as gender, iodine status, propensity to autoimmunity, predisposition to smoking, predisposition to alcohol intake, and hereditary factors. In general, women are more likely to suffer from thyroid issues than men. Iodine deficiency is associated with an increased risk of developing nodular thyroid disorders, whereas iodine abundance is associated with an increased risk of developing autoimmune thyroid disorders.[2]

Individuals who are diagnosed with subclinical hypothyroidism or subclinical hyperthyroidism do not exhibit any signs or symptoms of the condition. TSH and FT4 levels in the normal population can be screened for in order to detect this condition. Hypothyroidism is diagnosed in people who have symptoms of the condition, such as easy fatigability, excessive weight gain, hair loss, cold intolerance, constipation, irregular menstrual cycles, depression, anxiety, hoarse voice, and laboratory tests that show TSH levels that are above the normal range and FT4 levels that are below the normal range.[3]

People who have symptoms of hyperthyroidism, such as weight loss despite an increase in the amount of food they consume, heat intolerance, nervousness, irritability, diarrhoea, perspiration, impotence in males and oligomenorrhoea or amenorrhea in females, and laboratory tests, such as TSH levels that are below the normal range and FT4 levels that are above the normal range, are thought to have hyperthyroidism.[4]

It has been found that thyroid dysfunction is linked to consequences such as high blood pressure, ischemic heart disease, and psychological disorders. Recent studies have shown that persons with higher TSH levels are at an increased risk of coronary heart disease (CHD) events as well as CHD death, and this increased risk is connected with subclinical hypothyroidism.[5]

Subclinical hypothyroidism and hyperthyroidism both have the potential to prevent an individual from getting the overt disease and the difficulties that are connected with it if they are detected and treated early.

Aims and Objectives: To find the prevalence of thyroid dysfunction among first year medical students

Materials and method :

This study was carried out in 100 First year medical students of Government Medical college ,Ananthapur during the period Jan 2021 to Jun 2021. Institutional ethical committee approval was obtained. Subjects provided written consent and gave a 5 ml venous blood sample after overnight fasting. The Acess was used to estimate free T4 and thyroid stimulating hormone (TSH) levels using CLIA. Students were classified as Euthyroid, Hypothyroid, Subclinical Hypothyroid, Hyperthyroid, or Subclinical Hyperthyroid based on TSH and T4 readings.

Inclusion Criteria

- Students willing to participate in the study within the age group 18-20 years.

Exclusion Criteria

- Students with previous history of thyroid disease or previous Thyroxine therapy were excluded.

The data was entered into MS Excel 2007 version and the values of the FT4, TSH was expressed as Mean ± SD and prevalence of Euthyroid, Subclinical Hypothyroid and Subclinical Hyperthyroid was expressed in percentage.

RESULTS

A total of 100 students were screened for TSH and FT4 of which 72 were females and 28 were males

ISSN:0975 -3583,0976-2833 VOL12, ISSUE 07, 2021

Table 1 : Demographic Distribution of the Participants

Gender	Number	Age (Mean ± SD
Femlae	72	19.16 ± 0.23
Male	28	19.30± 0.51
Total	100	19.36 ± 0.25

Table 2 : Thyroid Dysfunction among medical students

Thyroid Dysfunction	Number (Percentage)
Euthyroid	80(80%)
Hypothyroidism	3(3%)
Sub clinical Hypothyroidism	12(12%)
Hyperthyroidism	3(3%)
Sub clinical Hyperthyroidism	2(2%)

Out of a total of 100 students only 28 were male and 72 were female. The euthyroid status of 80 percent of the subjects was determined to be normal. The prevalence of subclinical hypothyroidism was found to be 12 percent, whereas the prevalence of subclinical hyperthyroidism was found to be 3 percent.3% had Hypothyroidism and 2% Hyperthyroidism. It was discovered that women were the only ones who had either subclinical hypothyroidism or subclinical hyperthyroidism.

Discussion :

This study showed that the prevalence of subclinical hypothyroidism was found to be 12 percent, whereas the prevalence of subclinical hyperthyroidism was found to be 3 percent.3% had Hypothyroidism and 2% Hyperthyroidism. It was discovered that women were the only ones who had either subclinical hypothyroidism or subclinical hyperthyroidism.This is correlated with the other studies .[6,7,8]

In a study done in Cochin on 971 adult subjects, the prevalence of Hypothyroidism and Subclinical Hypothyroidism was found to be 3.9% and 9.4% respectively.1 It was also found that the prevalence in women was higher, being 11.4% in comparison with men with a prevalence of 6.2%. The study also reports that the prevalence of Subclinical Hypothyroidism increased with age.[9]

The most common cause of subclinical hypothyroidism, accounting for 60% to 80% of cases, is Hashimoto (autoimmune) thyroiditis,in which thyroid peroxidase antibodies are usually present.[10]

Other causes include suboptimal treatment of hypothyroidism due to other reasons such as thyroidectomy, radioactive iodine treatment, external radiation, infiltrative diseases (eg, amyloidosis, sarcoidosis, hemochromatosis), and drugs (eg, iodinated contrast, amiodarone, lithium, tyrosine kinase inhibitors).[11]

Also important to rule out are false-positive elevations due to substances that interfere with TSH assays (eg, heterophile antibodies, rheumatoid factor, biotin, macro-TSH); reversible

ISSN:0975 -3583,0976-2833 VOL12, ISSUE 07, 2021

causes such as the recovery phase of euthyroid sick syndrome; subacute, painless, or postpartum thyroiditis; central hypo- or hyperthyroidism; and thyroid hormone resistance.[12]
Subclinical" means that the disease is in its early stage, with alterations in TSH already obvious but drops in thyroid hormone levels yet to arrive. In other words, the disease is still in its presymptomatic stage. And certainly, subclinical hypothyroidism can develop into overt hypothyroidism, despite the fact that it has been observed that it clears up on its own in fifty percent of cases after two years19, often in individuals with TSH values ranging from four to six milliIU per litre.[13]
The prevalence of subclinical hypothyroidism, which affects only females, is significantly larger than the prevalence of subclinical hyperthyroidism. Early screening of the female population might be helpful in preventing the development of overt hypothyroidism or hyperthyroidism, as well as the consequences associated with these conditions, such as myxoedema, coronary heart disorders, and cardiac arrhythmias. Multiple studies have found a correlation between women who have thyroid dysfunction and menstrual abnormalities, polycystic ovaries.. This correlation exists in females who have thyroid dysfunction.

Conclusion: Menstraul Irregularities which is often caused by thyroid dysfunction, is the most common problem that young girls of reproductive age confront. Thyroid disorder is also one of the leading causes of Menstraul Irregularities .
Therefore, early care of young girls who are determined to have thyroid dysfunction would significantly lower the rate of Anemia and the additional issues that are linked with thyroid dysfunction.

REFERENCES:

1. Davis LB, Lathi RB, Dahan MH. The effect of infertility medication on thyroid function in hypothyroid women who conceive. *Thyroid*. 2007 Aug;17(8):773–7. doi: 10.1089/thy.2007.0065. [PubMed] [CrossRef] [Google Scholar]
2. Taylor PN, Albrecht D, Scholz A, Gutierrez-buey G, Lazarus JH, Dayan CM, et al. Global epidemiology of hyperthyroidism and hypothyroidism. 2018; May;14(5):301- 316. doi: 10.1038/nrendo.2018.18. Epub 2018 Mar 23
3. Chakera AJ, Pearce SH, Vaidya B. Treatment for primary hypothyroidism: current approaches and future possibilities. Drug Des Devel Ther 2012;6:1-11
4. Simone DL, Sun YL, Lewis EB. Hyperthyroidism. Lancet 2016;388(10047):906-918.
5. Rodondi N, Den Elzen WP, Bauer DC, et al. Subclinical hypothyroidism and the risk of coronary heart disease and mortality. JAMA 2010;304(12):1365-1374.
6. Vinay AV, Vastrad S, Sindhu R, et al. Prevalence of thyroid dysfunction among first year medical students in a tertiary care teaching hospital. J. Evid. Based Med. Healthc. 2018; 5(52), 3597-3600. DOI: 10.18410/jebmh/2018/733
7. Unnikrishnan AG, Kalra S, Sahay RK, et al. Prevalence of hypothyroidism in adults: an epidemiological study in eight cities of India. Indian J Endocrinol Metab 2013;17(4):647-652
8. Velayutham K, Selvan SS, Unnikrishnan AG. Prevalence of thyroid dysfunction among young females in a South Indian population. Indian J Endocrinol Metab 2015;19(6):781-784.
9. Usha Menon V, Sundaram KR, Unnikrishnan AG, et al. High prevalence of undetected thyroid disorders in an iodine sufficient adult south Indian population. J Indian Med Assoc 2009;107(2):72-77
10. Cooper DS, Biondi B,Subclinical thyroid disease. Lancet 2012; 379(9821):1142–1154. doi:10.1016/S0140-6736(11)60276-6
11. . Fatourechi V Subclinical hypothyroidism: an update for primary care physicians. Mayo Clin Proc 2009; 84(1):65–71. doi:10.4065/84.1.65
12. Raza SA, Mahmood N Subclinical hypothyroidism: controversies to consensus. Indian J Endocrinol Metab 2013; 17(suppl 3):S636–S642. doi:10.4103/2230-8210.123555CrossRefGoogle Schola
13. Spontaneous normalization of thyrotropin concentrations in patients with subclinical hypothyroidism. J Clin Endocrinol Metab 2005; 90(7):4124–4127. doi:10.1210/jc.2005-0375