

Prevalence of Subclinical Thyroid Disorders in Jazan Region, Saudi Arabia

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Abstract: ***Background and Aims:** Subclinical thyroid disease or subclinical thyroid dysfunction which defined as abnormal thyrotropin level (thyroid stimulating hormone: TSH) and normal serum-free thyroxine level (FT4) is a common health problem all over the world. The epidemiological data of subclinical thyroid disorders are still missing among populations in some different region of Saudi Arabia. The aim of this study was to evaluate the prevalence of subclinical thyroid disease among Saudi population in Jazan region, the southwestern, Saudi Arabia. **Methods:** We review the data of 100 patient that visited private laboratory in Jazan region over the last two years and selected all those who had thyroid function test recorded in their laboratory data (TSH, FT4, and FT3). **Result:** Of the 100 study subject with no history of thyroid disease, the patterns of thyroid dysfunction were as follows: 10% had subclinical hypothyroidism and 8% subclinical hyperthyroidism. The prevalence of subclinical hypothyroidism is high in female (12%) than male (8%) and also in subclinical hyperthyroidism is high among female than male (10% in female while it is 6% in male). **Conclusion and Recommendation:** Subclinical thyroid dysfunction is more prevalent among population in Jazan region and being more in female than male so it is very important to physician or clinician to be aware of subclinical thyroid disease especially among healthy female.*

Keywords: Subclinical, TSH, FT4, FT3 Prevalence, Screening

1. Introduction

Subclinical thyroid dysfunction (abnormal thyrotropin level and normal thyroxine level is considered as a common health problem all over the world. ⁽¹⁾

Subclinical thyroid disorders are diagnosed by an abnormal serum thyrotropin (TSH) level with serum free thyroxine concentration (FT4) being within the reference range. ⁽²⁾

There is a much debate about the significance of subclinical thyroid diseases in terms of potential associations with long-term morbidity and mortality and the risk of cardiovascular disease that increased among these patients hence the screening, identification, monitoring and treatment is very important. ⁽³⁾

Despite the high prevalence of subclinical thyroid disease (3-12%) for subclinical hypothyroidism and 1-6% for subclinical hyperthyroidism, the subclinical thyroid disease is still under diagnosed, and neglected chronic health problem. The form of this disease depends on age, gender, presence of thyroid autoantibodies, weather, ethnicity and iodine status in different areas. ⁽⁴⁾

However, the optimal TSH cutoff values and the clinical significance of these subclinical abnormalities are still controversial elevated or depressed TSH is associated with nonspecific and no serious symptoms in most cases. Some studies have shown that the risk of cardiovascular disease increases in patients with abnormal TSH therefore the clinical impact of this condition should be verified because of its high prevalence in the general population. ⁽⁵⁾

The treatment of these subclinical conditions is even more controversial. Usually, treatment of subclinical hypothyroidism is considered in patients with pregnancy, infertility, associated symptoms, or high risk of progression to overt hypothyroidism. ⁽⁶⁾

In subclinical hyperthyroidism, treatment tends to be considered when the patient is old or when she or he has a risk of cardiovascular diseases or osteoporosis or a high risk of progression to overt hyperthyroidism so prediction of progression to overt thyroid diseases is very important for screening or treatment of these conditions. ⁽⁷⁾

To date, the frequency and types of subclinical thyroid disease were studied in a few researches in Saudi Arabia, but no more researches was conducted in our region to

highlight the prevailing data on subclinical thyroid disease thus the objective of our study was to determine the prevalence and categories of subclinical thyroid disease in Jazan region, the southwestern region of Saudi Arabia and to compare this prevalence between male and female.

2. Materials and Methods

Study Area / Setting:

Jazan region, the southwestern of Saudi Arabia.

Study Subjects:

We selected 100 files reviewed from the population in this study.

Inclusion criteria:

Availability of results of thyroid function tests like TSH, FT4 and FT3 in patient's record.

Exclusion criteria:

Participants who had thyroid disorders, pregnant women, on androgen or estrogen therapy, hypothyroidism, hyperthyroidism, renal failure, and hepatic failure from the study.

Study Design:

We did a retrospective study from 2019 to 2022.

Sample Size:

100 reviewed files from patient medical record.

Sampling Technique:

100 population files were selected in this study based on inclusion and exclusion criteria.

Data collection methods and parameters:

The following data were collected from the patient's file: age, gender, and thyroid function test results (TSH, FT4, and FT3).

Data analysis:

The data were analyzed using the Statistical Package for Social Sciences (SPSS). Version 20.

3. Result

Of the 100 selected data 50% were males and 50% were females Mean age of the studied population was 33+-12.9 years in range (18-60). The prevalence of sub-clinical hypothyroidism was 10% and sub-clinical hyperthyroidism was 8% with high percentage among female than male (table 1 and table 2).

Table 1: Prevalence of sub-clinical hypothyroidism among the study population

Thyroid dysfunction	Male N=50	Female N=50	Total N=100
Sub-clinical hypothyroidism	4 (8%)	6 (12%)	10 (10%)

Table 2: Prevalence of sub-clinical hyperthyroid among the study population

Thyroid dysfunction	Male N=50	Female N=50	Total N=100
Sub-clinical hyperthyroidism	3 (6%)	5 (10%)	8 (8%)

Table 3: Interpretation of thyroid dysfunction

Sub-clinical thyroid dysfunction	TSH Level	FT3 level	FT4 level
Sub-clinical hypothyroidism	High	Normal	Normal
Sub-clinical hyperthyroidism	Low	Normal	normal

Table 4: Normal value of thyroid function test

Parameter	N. V
TSH	0.35-4.5 miu/L
FT3	1.9-4.8 pg/ml
FT4	9.2-23.8 pg/ml

4. Discussion

Subclinical thyroid dysfunction is a common health problem all over the world and the cases is increasing in all parts of the world. Age, gender, weather, ethnicity, iodine status, methods and cutoff value of TSH and the presence of thyroid autoantibodies may affect its prevalence and pattern in different areas. Due to lack of data from different regions of Saudi Arabia about the subclinical thyroid disease so this study was designed to evaluate the prevalence of subclinical thyroid disease and its risk factors among Saudi population in Jazan region, the southern region of Saudi Arabia.

Asregard, the prevalence and categories of sub clinical thyroid disease in Jazan region we found that the prevalence of subclinical thyroid disease was 18% of them. 10% had subclinical hypothyroidism (6 females and 4 males) and 8% had subclinical hyperthyroidism (5 females and 3 males), these percentages are comparable with those reported by some researchers in Riyadh region, Saudi Arabia Eidan AL Eidan and his colleagues found that the prevalence of subclinical hypothyroidism 10.3% and 2.1% had subclinical hyperthyroidism.

Our study was found also that the prevalence of subclinical thyroid disease was gender effected because the subclinical thyroid disease was more common in

female than male (12% vs 8% in subclinical hypothyroidism), (10% vs 6% in subclinical hyperthyroidism) and this high prevalence in female may be linked to estrogen female hormone or predominance of autoimmune thyroid disease in female.

5. Conclusion

Subclinical thyroid disease is more prevalent among the studied populations in Jazan region, with a higher prevalence in women. A physician should be aware of screening for subclinical thyroid disease, especially among elderly females with non-specific symptoms and once identified, whether to treat or monitor.

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