

**Original article****CLINICAL AND LABORATORY PROFILE OF PATIENTS WITH SUBCLINICAL HYPOTHYROIDISM**

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**Abstract :****INTRODUCTION:**

*Subclinical hypothyroidism is a biochemical diagnosis where TSH is elevated with a normal FT4 and normal FT3. It is associated with signs and symptoms of hypothyroidism like fatigue, weight loss, constipation, menstrual irregularity, depression etc. It is also associated with comorbidities like DM, HTN. It is also associated with dyslipidemia, pregnancy, infertility, etc.*

**AIMS AND OBJECTIVES:** 1. To study clinical and laboratory profile of patients with subclinical

*hypothyroidism. 2. To assess the comorbid diseases associated with subclinical*

*hypothyroidism. 3. To find the age group and gender in which it is common. 4. To find the*

*comorbidities associated with it. 5. The conditions in which sub clinical hypothyroidism should*

*be treated. Results : In our study, the total population studied was 50 cases of subclinical*

*hypothyroidism. In our study, female population (40 cases) (80%) was dominant than male*

*population (10 cases) (20%). The most common age group affected was 35-56yr – 30 (60%)*

*cases, followed by 25-34 yr- 16 (32%) cases, and the least affected group was <=24 yr – 4 (8%)*

*cases.[1] Tapper et al had evaluated thyroid function in the clinical laboratory which had*

*similar results. Conclusion : Subclinical hypothyroidism (SCH) is a biochemical diagnosis with*

*subtle symptoms, likely to be missed and it can progress to overt hypothyroidism, if not treated in*

*time. It is also associated with conditions like dyslipidemia, pregnancy, infertility, goiter and*

*some symptoms where it should be treated, as treating it will be beneficial.[8] Therefore,*

*subclinical hypothyroidism is an entity which should be looked for carefully and treated as and*

*when needed. However, the above results and interpretations are restricted to the small sample*

*size of 50 patients that were included in this study. These results and interpretation may vary to*

*certain extent when compared to a study which includes a bigger sample size.*

**INTRODUCTION:**

Subclinical hypothyroidism is a biochemical diagnosis where TSH is elevated with a normal FT4 and normal FT3. It is associated with signs and symptoms of hypothyroidism like fatigue,

weight loss, constipation, menstrual irregularity, depression etc. It is also associated with comorbidities like DM, HTN. It is also associated with dyslipidemia, pregnancy, infertility, etc.

It can progress to overt hypothyroidism if not treated. It should also be treated if TSH > 10, or there is presence of either dyslipidemia, pregnancy, goiter, infertility or signs and symptoms of hypothyroidism. There are controversies regarding the conditions in which it should be treated as no single guidelines are available. In this context, we aimed to evaluate the clinical and laboratory profile of patients with subclinical hypothyroidism.

**AIMS AND OBJECTIVES:** 1. To study clinical and laboratory profile of patients with subclinical hypothyroidism.

2. To assess the comorbid diseases associated with subclinical hypothyroidism.

3. To find the age group and gender in which it is common.

4. To find the comorbidities associated with it.

5. The conditions in which subclinical hypothyroidism should be treated.

#### **METHODOLOGY:**

##### **Inclusion criteria :**

1. Patients with an elevated TSH level >4.2 with normal T4 level.

2. Age > 14 years.

##### **Exclusion criteria:**

1. Recovery from critical nonthyroidal illness

2. Previous radioiodine therapy

3. Thyroid surgery

4. External radiation therapy

5. Patients with thyroid disease taking medications for it

6. Patients not giving consent.

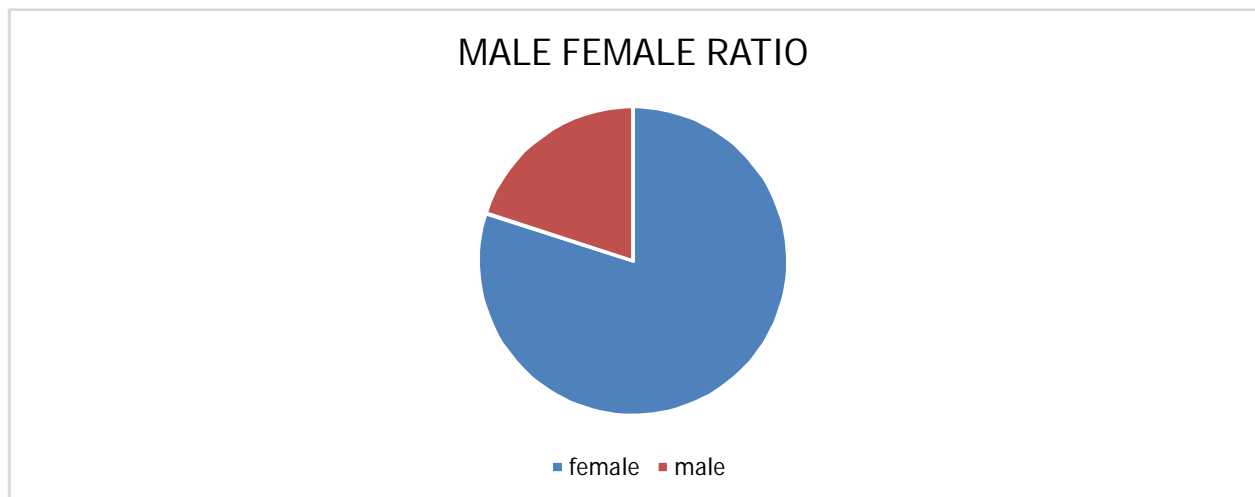
#### **Materials and Methods :**

The current work represents single institutional observational prospective study carried out in Sheth L G General Hospital from 1st March 2018 to 30th June 2018. 50 patients diagnosed as Subclinical hypothyroidism on the basis of an elevated TSH with normal FT4 were included. The comorbidities associated with it and the conditions in which it should be treated were studied. Detailed history, examination and necessary investigations, calculation of body mass index (height and weight in appropriate standard units) were done and results were analysed.

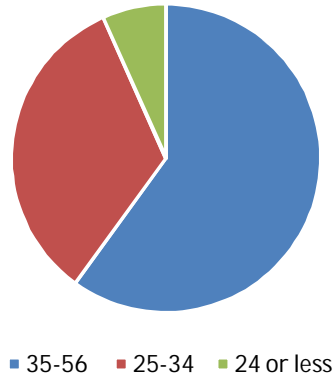
**Results :** In our study, the total population studied was 50 cases of subclinical hypothyroidism. In our study, female population (40 cases) (80%) was dominant than male population (10 cases) (20%). The most common age group affected was 35-56yr – 30 (60%) cases, followed by 25-34

yr- 16 (32%) cases, and the least affected group was  $\leq 24$  yr – 4 (8%) cases.[1] Tapper et al had evaluated thyroid function in the clinical laboratory which had similar results.

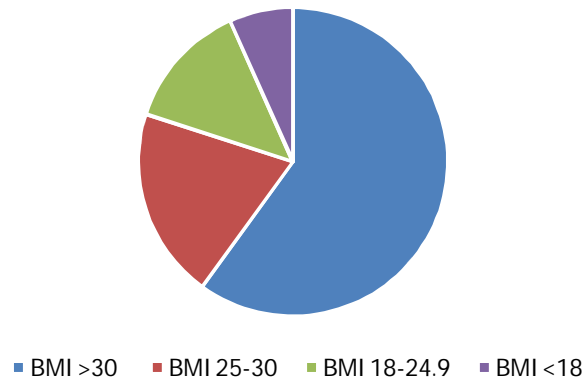
- Urban population was predominant in our study constituting 43 (86%) of cases.
- Maximum cases were under the category of overweight (BMI > 30.0) -30 (60%) followed by preobese (BMI 25 - 29.9) – 10 (20%) cases, followed by normal BMI (18.5- 24.9) -6 (12%) cases, followed by underweight (BMI <18.5) -4(8%). [2]
- In our study, 30(60%) cases had TSH  $\leq 10$  and remaining 20(40%) cases had TSH > 10 .
- In our study, goiter was present in 3 (6%) cases and the remaining 47 (94%) cases had no goiter.[3]
- In our study, hypertension was present in 6 (12%) patients of total (50) cases and Diabetes Mellitus-2 was present in 12(24%) out of a total 50 cases.  
In our study, 4 (8%) females were pregnant out of a total of females.[4]
- In our study, 2 (4%) females were infertile out of a total of 40 females.
- In our study, 12 (24%) cases had dyslipidemia out of a total of 50 cases.[5]
- In our study, fatigue was the most common symptom seen in 17 (34%) cases, followed by decreased appetite – 8 (16%) cases , followed by increased weight (weight gain) - 6 (12%) cases, followed by depression – 6 (12%) cases, followed by decreased bowel habit (constipation)- 4 (8%) cases,. followed by menstrual irregularity – 4 (8%) cases, followed by cold intolerance – 3 (6%) cases. 2 (4%) cases were asymptomatic.[6]
- In our study, 37 (74%) cases were treated and 13(26%) cases were not treated.

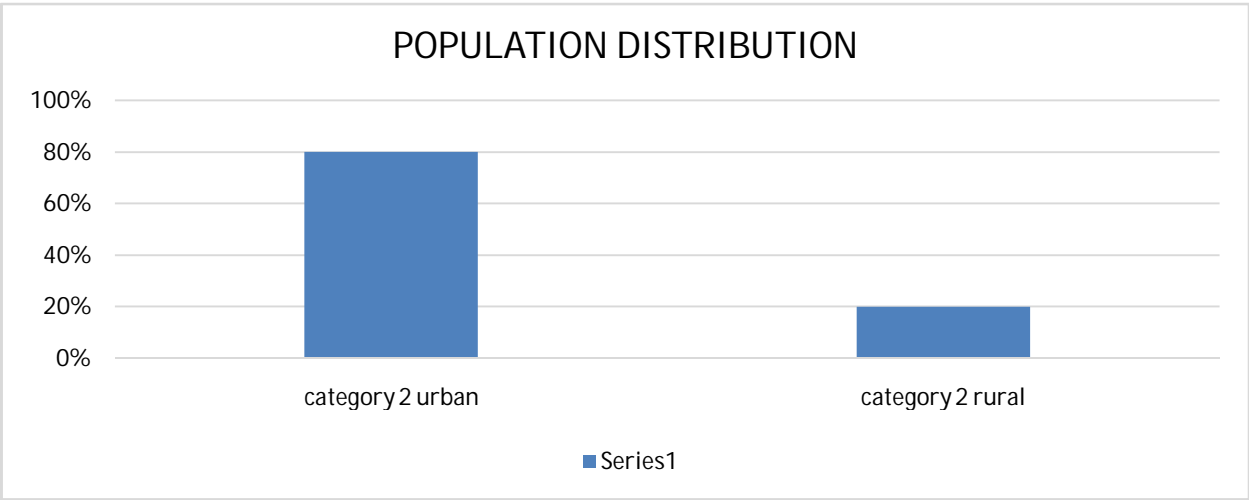


### AGE DISTRIBUTION



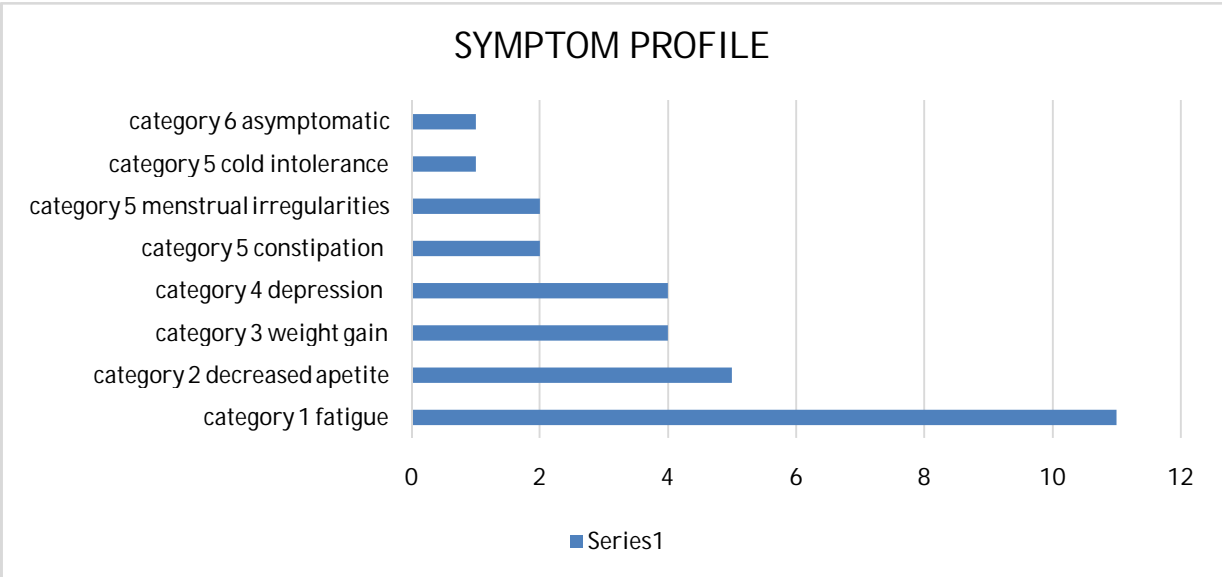
### BODY MASS INDEX





The following indications were treated :A) Pregnancy: B ) Dyslipidemia: C) Goitre: D )TSH > 10 E)Symptomatic F )Infertility.

In our study, there is no statistically significant difference of any symptoms between male and female. In our study we found a statistically significant relationship ( $p < 0.05$ ) i.e. here it is 0.000, between TSH and Body Mass Index (BMI) i.e. TSH increased as BMI increased.[7]



### **Conclusion :**

Subclinical hypothyroidism (SCH) is a biochemical diagnosis with subtle symptoms, likely to be missed and it can progress to overt hypothyroidism, if not treated in time. It is also associated with conditions like dyslipidemia, pregnancy, infertility, goiter and some symptoms where it should be treated, as treating it will be beneficial.[8] Therefore, subclinical hypothyroidism is an entity which should be looked for carefully and treated as and when needed. However, the above results and interpretations are restricted to the small sample size of 50 patients that were included in this study. These results and interpretation may vary to certain extent when compared to a study which includes a bigger sample size.

### **Recommendations :**

1. Subclinical hypothyroidism is a biochemical diagnosis with subtle signs and symptoms that can be missed and hence Subclinical Hypothyroidism should be actively sought for.
2. Subclinical hypothyroidism is associated with infertility, dyslipidemia, goiter, pregnancy and signs and symptoms of hypothyroidism , where it should be treated. Subclinical hypothyroidism with TSH > 10 should be treated.[9] SCH when treated, can prevent its progression to overt hypothyroidism.
3. More larger studies and a single guideline on the conditions which are associated with SCH and when it should be treated should be carried out for the Indian population.

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