

## ORIGINAL RESEARCH

### SUBCLINICAL HYPOTHYROIDISM IN FEMALES OVER FIFTY YEARS OF AGE IN A TERRITORY CARE HOSPITAL

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## ABSTRACT

**Background.** A study of subclinical hypothyroidism in females over fifty years of age in a territory care hospital – cross sectional study

**Methods:** Data was collected from diabetic patients attending Department of General medicine of Sree Mookambika Institute of Medical Sciences, Kanyakumari, Tamil Nadu from March 2022 to September 2023. Data collected from 100 patients in outpatient those were examined for thyroid function. Women with subclinical hypothyroidism (defined as TSH > 5.5 µIU/ml with normal free T4 and free T3 ) were considered as cases.

**Results:** Surveys that stratified TSH levels indicate a predominance of TSH < 10 µIU/ml, which accounts for about 55-85% of cases. Almost 65% of our patients with subclinical hypothyroidism had TSH levels < 10 µIU/ml.

**Conclusion:** Subclinical hypothyroidism is highly prevalent in elderly women above the age of 50 years. Most of those with subclinical hypothyroidism have TSH level below 10 µIU/ml.

**Keywords:** Thyroid stimulating Hormone

## INTRODUCTION:

The term subclinical hypothyroidism was originally used to describe the patient with a low-normal free T4 but a slightly elevated serum TSH level. With values often ranging between 4 and 15 mU/L, the TSH rise in these patients is mild, while those with values above 10 mU/L are more likely to have decreased free T4 and might exhibit some hypothyroid symptoms.

Subclinical hypothyroidism's natural history is comparatively well-known. After a year, 5.5% of people see a spontaneous recovery of elevated TSH readings into the normal range. 4. Studies have shown that the progression of overt hypothyroidism varies from 7.8% to 17.8%<sup>1,2</sup>. According to another study, after ten years, about thirty percent of patients with subclinical hypothyroidism developed overt hypothyroidism; the higher initial TSH, the higher the risk.<sup>3</sup> Clinical manifestation of subclinical hypothyroidism include abnormal lipid metabolism<sup>4,5,6</sup>, cardiac dysfunction<sup>7,8</sup> and neurologic and mental dysfunction<sup>9</sup> and several cross-sectional studies have suggested that it confers an elevated risk for atherosclerosis and coronary heart disease.

This study has been performed to estimate the prevalence of subclinical hypothyroidism in older age group and its relation to Hypertension, Diabetes and Ischemic heart disease among women above the age of 50 years.

## OBJECTIVE:

- To estimate the prevalence of subclinical hypothyroidism among women above the age of 50 yrs
- To study the relationship of subclinical hypothyroidism to Hypertension, Diabetes and Ischemic Heart Disease in those patients

## MATERIALS AND METHODOLOGY:

Data was collected from diabetic patients attending Department of General medicine of Sree Mookambika Institute of Medical Sciences, Kanyakumari, TamilNadu from march 2022 to September 2023. All the patients were explained in detail about the procedure and informed consent was obtained. The inclusion criteria were All the participants were examined for thyroid function. Women with subclinical hypothyroidism (defined as TSH > 5.5µIU/ml with normal free T4 and free T3) were considered as cases, and women without subclinical hypothyroidism were considered as controls. Laboratory measurements and clinical assessment was carried out in all the participants. The exclusion criteria Those with Known thyroid disease, History of neck irradiation Chronic renal failure, Severe illness (

such as infections , recent myocardial infarctions, severe heart failure or recent intensive care admission) ,Taking drugs such as beta-blockers, amiodarone, interferon – $\alpha$  were excluded . Thyroid function test- Free T4, Free T3 and TSH levels were measured. Thyroid function test is done using the electro chemiluminescence method. The normal range for TSH is 0.30-5.50  $\mu$ IU/ml, for Free T4 the normal range is 0.70-1.80 ng/dl, and for Free T3 it is 1.70-4.20 pg/ml. Statistical analysis was done using the statistical package for social sciences (SPSS).Different statistical methods were used as appropriate. Mean  $\pm$  SD was determined for quantitative data and frequency for categorical variables. The independent t- test was performed on all continuous variables. The normal distribution data was checked before any t-test. The Chi-Square test was used to analyze group difference for categorical variables. In logistic regression models, age was adjusted for estimation of each or all the independent effects of hypertension, ischemic heart disease and diabetes mellitus . A p- value < 0.05 was considered significant.

## RESULTS

100 women above the age of 50 years who visited the medical outpatient clinic during the study period were studied.

There were differences in the mean age distribution among cases and controls are shown in table 1

**Table 1**

Age in years	Patients with SH	Patients without SH
50-59	7	36
60-69	9	24
70 and above	7	17

There were 43 patients in the age group 50-59 of which 7 (19.44%) were having subclinical hypothyroidism .

In the 60-69 age group there were 33 patients of which 9 (27.27%) were having subclinical hypothyroidism.

The mean TSH level in patients with subclinical hypothyroidism was 12.11 $\mu$ IU/mL. For FT4 it was 1.03ng/dl and for FT3 it was 2.76pg/ml . There were differences in FT4, FT3, TSH distribution in cases and control as shown in Table 2

**Table 2**

Mean	Patients with SH	Patients without TSH
FT3 (pg/ml)	2.76	3.01
FT4 (ng/dl)	1.03	1.14
TSH ( $\mu$ IU/ml)	12.11	3.75

control.

They were analyzed independently with Chi-Square test. The p- value showed that patients with subclinical hypothyroidism were significantly associated with ischemic heart disease compared to controls. The p- value is not significant for hypertension and diabetes. This is shown in table 3

**Table 3**

	Patients with SH	Patients without SH	p- value
IHD	5 (21.71%)	5 (6.5%)	0.047
DM	4 (17.4%)	16 (20.1%)	0.490
HT	6 (26.1%)	21 (27.3%)	0.570

**DISCUSSION:**

Sub clinical hypothyroidism is highly prevalent in elderly women. A prevalence of

11 – 26 % had been reported in previous studies, our study shows a prevalence of 23 % in concordance with the other studies. Surveys that stratified TSH levels indicate a predominance of TSH < 10 $\mu$ IU/ml, which accounts for about 55-85% of cases. Almost 65% of our patients with subclinical hypothyroidism had TSH levels < 10 $\mu$ IU/ml. Studies that have reported thyroid antibody test on subjects with elevated TSH demonstrated seropositivity rates from 20-78% .

### Conclusion:

Subclinical hypothyroidism is highly prevalent in elderly women above the age of 50 years. Most of those with subclinical hypothyroidism have TSH level below 10 $\mu$ IU/ml. Hypothyroid symptoms are prevalent in patients with subclinical hypothyroidism. Patients with subclinical hypothyroidism are more prone to develop ischemic heart disease. There is no increased risk for developing hypertension and diabetes mellitus in patients with subclinical hypothyroidism.

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