



## A SPECTRUM OF HYPOTHYROIDISM CASES IN A TERTIARY CARE CENTRE

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## ABSTRACT

**Introduction-** Thyroid disorders are the second common endocrine disorders worldwide after diabetes.

These are usually associated with multiple co morbidities: Hypothyroidism is a common clinical problem encountered in all age groups and it requires lots of work to be done to prevent its occurrence and complications. Hence, we tried to work on these cases. We studied 334 cases of hypothyroidism in, one and a half year duration. **Material and Methods-** All cases that were advised for thyroid function test were tested for thyroid function test and those with hypothyroid profile were studied for its type and age and sex distribution. We studied 334 cases and subdivided into four categories to determine the prevalence in various age group including 01 to 19 years, 20 to 39 years, 40 to 60 years and more than 60 years. **Discussion-** Subclinical hypothyroidism is the commonest type in our study. Our study showing commonest affected age group is between 20 to 39 years. We also found female predominance in thyroid hormone disorder. Subclinical hypothyroidism is most common type of hypothyroidism, which indicates more no of individual, should be subjected for thyroid function test and must be evaluated for thyroid hormone disorder. It also shows need of increase in awareness about health and with readily available diagnostic facilities and fast reporting system.

## KEYWORDS :

## INTRODUCTION:

Thyroid disorders are the second common endocrine disorders worldwide after diabetes. 42 million people in India suffer from thyroid hormone disorder. Thyroid hormone disorders are usually associated with multiple co morbidities: like dyslipidemia, infertility, pregnancy outcomes associated with neonatal hypothyroidism, hypertension and neuropsychiatry disorders<sup>2</sup>.

Thyroid hormone disorders are broadly classified as Hyperthyroidism and hypothyroidism along with subclinical and overt hormonal disorder<sup>3</sup>. Hypothyroidism is a common clinical problem encountered in all age groups and it requires lots of work to be done to prevent its occurrence and complications. Hence, we tried to work on these cases.

We studied 334 cases of hypothyroidism in, one and a half year duration and classified them as

- 1- Primary Hypothyroidism- TSH > 4.5  $\mu$ IU/ml and T4 < 5.1 ng/ml or T3 < 0.69 ng/ml.
- 2- Subclinical Hypothyroidism- TSH > 4.5  $\mu$ IU/ml and normal T4 and T3.
- 3- Secondary Hypothyroidism- T4 < 5.1 ng/ml or T3 < 0.69 ng/ml and a TSH level that is not appropriately elevated. The aims of this study was to observe the types of hypothyroidism cases encountered in clinical practice and to determine age and sex distribution of various hypothyroidism cases.

## MATERIAL AND METHODS:

This study was conducted in GR medical college Gwalior in November 2019 to June 2021 period.

## Inclusion Criteria-

- Adequate sample (minimum 300  $\mu$ l of serum).
- Patient registered in J. A. Group of Hospital Gwalior with appropriate data and clinical history.
- Sample must be clean and clear

## Exclusion Criteria-

- Inadequate Sample

- Lipemic samples.
- Hemolysed sample.
- Patient not willing for thyroid function test.

The serum sample was subjected to thyroid profile (serum Total T4, Total T3 and TSH) using SNIBE MAGLUMI series fully automated Chemiluminescence Immunoassay analyzer (CLIA) for the quantitative determination of thyroid hormone profile.

## Normal values of different parameters of thyroid profile

S. No.	Parameter	Normal Values
1	Total T3	0.69-2.15 ng/ml
2	Total T4	52-127 ng/ml
3	TSH	0.3-4.5 $\mu$ IU/ml

## OBSERVATION AND RESULTS:

In our study we found 334 cases having hypothyroidism Table- showing various types of hypothyroid cases with reference to its sex distribution

Category	All subjects With /hypothyroidism (334)	Gender	
		Males(43)	Females(291)
Primary hypothyroidism	53	09	44
Secondary hypothyroidism	26	07	19
Subclinical hypothyroidism	255	27	228

Total 334 patients were detected with hypothyroidism with female predominance of 291 cases.

## Table- showing age wise distribution of cases of various categories

Category	All subjects	Age group			
		01 to 19 Years	20 to 39 Years	40 to 60 years	>60 years

Primary hypothyroidism	53	18	25	07	03
Secondary hypothyroidism	26	04	13	06	02
Subclinical hypothyroidism	255	33	124	82	13

Maximum number of cases found in 20-39 years of age category.

**Table- Spectrum of hypothyroid cases in 01 to 19 year age group with gender wise distribution**

Category	Total no of cases	01 to 19	
		M	F
Primary hypothyroid	18	04	14
Secondary hypothyroidism	04	01	03
Subclinical hypothyroidism	33	07	26

**Table- Spectrum of thyroid hormone disorder in 20 to 39 year age group with gender wise distribution**

Category	Total	20 to 39	
		M	F
Primary hypothyroid	25	02	23
Secondary hypothyroidism	13	01	12
Subclinical hypothyroidism	124	07	117

**Table- Spectrum of thyroid hormone disorder in 40 to 60 year age group with gender wise distribution**

Category	Total 95	40 to 60	
		M	F
Primary hypothyroid	07	01	06
Secondary hypothyroidism	06	04	02
Subclinical hypothyroidism	82	09	73

**Table- Spectrum of thyroid hormone disorder in >60 year age group with gender wise distribution**

Category	Total 18	>60	
		M	F
Primary hypothyroid	03	02	01
Secondary hypothyroidism	02	01	01
Subclinical hypothyroidism	13	03	10

**Table- Spectrum of hypothyroidism in infants**

Category	Total	0 to 1 year	
		M	F
Primary hypothyroid	00	00	00
Secondary hypothyroidism	01	00	01
Subclinical hypothyroidism	03	01	02

## DISCUSSION:

Present study was conducted at tertiary care center, Gajra Raja Medical College Gwalior. Total 334 patients were detected with hypothyroidism with female predominance of 291 female cases out of 334 hypothyroid cases. This study also showing highest prevalence of subclinical hypothyroidism constitute among total hypothyroidism cases. All cases with hypothyroid profile were subdivided into four categories to determine the prevalence in various age group including 01 to 19 years, 20 to 39 years, 40 to 60 years and more than 60 years. Primary hypothyroidism cases were 53 had low serum T3, T4 and raised TSH values out of which 09 were male and 44 were female. Secondary hypothyroidism cases was 26 shows low T3 and T4 values with normal TSH concentration out of which 7 were male and 19 were female. Subclinical hypothyroidism cases was 255 had T3 and T4 values within range and raised TSH values, out of which 27 were male and 228 were female. This study showing highest prevalence of subclinical hypothyroidism cases.

In most of the prevalence study of thyroid hormone disorder in India and other parts of world showing high prevalence of

subclinical hypothyroidism. Subclinical hypothyroidism was the commonest type in our study, similar to Baruah MP et al.<sup>4</sup> Subclinical hypothyroidism is also most prevalent in the age group of 20 to 39 years age group followed by 40 to 60 years and 01 to 19 years and least prevalent in age group more than 60 years similar to study in Kerala<sup>5</sup>.

It has higher prevalence in female as compare to male. All other studies also show the same pattern.

Subclinical hypothyroidism is most common thyroid hormone disorder in study group which indicate more no of individual should be subjected for thyroid function test and must be evaluated for thyroid hormone disorder.

## CONCLUSION:

Present study was conducted at tertiary care center, Gajra Raja Medical College Gwalior in the Department of Pathology. Out of 334 cases our study showing commonest affected age group is between 20 to 39 years. We also found female predominance in thyroid hormone disorder. Subclinical hypothyroidism is most common type of hypothyroidism, which indicates more no of individual, should be subjected for thyroid function test and must be evaluated for thyroid hormone disorder. It also shows need of increase in awareness about health and with readily available diagnostic facilities and fast reporting system.

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