

## PREVALENCE OF SUB CLINICAL HYPOTHYROIDISM IN FIRST TRIMESTER OF PREGNANCY

Nataraj H. G<sup>1</sup>, Sreelatha S<sup>2</sup>, Ramya S<sup>3</sup>

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**ABSTRACT:** Thyroid disorder is second most common endocrine disorder in pregnancy. Hypothyroidism is more common in women in their reproductive age. Subclinical hypothyroidism is one of the type of thyroid disorders with incidence of 2-5%. The present study is to know the prevalence of subclinical hypothyroidism in pregnancy. **METHODS:** A prospective study conducted in Department of Obstetrics and Gynecology, ESIMC PGI MSR Bangalore, Karnataka. Data collected from One Hundred Fifty pregnant women attending antenatal checkup in our hospital in first trimester. According to Endocrinology society thyroid function test is done, if TSH is high then FT3, FT4 values are estimated. Normal value for TSH is 0.1-2.5IU/ml in 1<sup>st</sup> trimester. **RESULT:** In our study out of 150 women, Primi are 85 in number and Multie are 65 in number, Women with subclinical hypothyroidism is 20. Prevalence of hypothyroidism in our study is 13%. **CONCLUSION:** Universal screening of thyroid disorder is necessary during pregnancy to prevent fetal and maternal morbidity associated with subclinical hypothyroidism.

**KEYWORDS:** Pregnancy, Hyperthyroidism, Subclinical hypothyroidism, Screening, Morbidity.

**INTRODUCTION:** Thyroid gland is an important endocrinal gland in the human body. Its functions is to maintain hemostasis & basic metabolic rate. Thyroid disorders commonly affect women of reproductive age group, so it is more common disorder during pregnancy.

Subclinical hypothyroidism is one of spectrum of thyroid disorders characterized by elevated serum thyrotropin levels (TSH) and normal free serum thyroxine (T4) concentration.<sup>[1,2]</sup> The estimated prevalence of subclinical hypothyroidism in pregnancy is 2-5%.<sup>[3,4]</sup> The prevalence of clinical and subclinical hypothyroidism during pregnancy is estimated to be 1% and 6% respectively.<sup>[5]</sup> Chronic autoimmune thyroiditis & iodine deficiency are the main causes of hypothyroidism.

Many studies have shown that not only overt but subclinical hypothyroidism may also have adverse effect in fetal and maternal outcome. If the iodine deficiency is not severe in utero, infants of such hypothyroid mothers appear healthy. Maternal hypothyroidism during pregnancy raises the risk of insufficient placental transfer of maternal thyroid hormone to the developing fetus so may have long lasting neuropsychological effects.<sup>[6]</sup>

Fetal thyroxine is almost obtained from maternal sources in first trimester of pregnancy as fetal thyroid gland becomes functional in the second trimester of gestation.

**METHODS:** This is a hospital based observational study. Detailed history and physical examination was done. Thyroid Function test of serum free triiodothyronine (FT3), free thyroxine

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(FT4) and thyroid stimulating hormones (TSH) were performed by Enzyme-linked immunosorbent assay (ELISA) radioimmunoassay (Ranbaxy Kit, India).

The study was conducted in the Institute of Obstetrics and Gynecology ESIC PGIMSR Bangalore.

From the outpatient clinics, 150 pregnant women upto gestational age of 12 weeks were selected during the study period. Exclusion criteria included, women with already known thyroid disease, patients already on levothyroxine therapy, patients with TSH>10 mU/L, and patients with subclinical hyperthyroidism.

## RESULT:

| PRIMI    | MULTI    | AGE |       |     | TSH |     |    |
|----------|----------|-----|-------|-----|-----|-----|----|
| 86 (57%) | 64 (43%) | <20 | 20-30 | >30 | <2  | 2-5 | >5 |
|          |          | 5   | 130   | 15  | 70  | 60  | 20 |

Table 1

In our study 86 women are primi, 64 women are multi.

**DISCUSSION:** Screening of thyroid disorders should be done with TSH, ft3 and ft4 especially in high risk women like those with previous history of hypo/hyperthyroidism or thyroid surgery, postpartum thyroiditis, family history of thyroiditis, goiter, thyroid autoantibodies, signs and symptoms and biochemical markers suggestive of thyroid disease, type-1 diabetes, other autoimmune disorders, infertility, previous head and neck irradiation, history of miscarriage or preterm delivery.<sup>[7]</sup>

As the gestational age increases, the percentage of women with subclinical hypothyroidism is doubled. Hence there is a need for screening subclinical hypothyroidism and thyroid autoimmunity in pregnancy, especially in the 1<sup>st</sup> trimester when the fetal thyroid tissue is not functional. The role of routine screening becomes all the more relevant in these patients as they are asymptomatic and symptoms if any are ascribed to pregnancy itself.

Early studies reported that upto 20% incidence of perinatal mortality and congenital malformations associated with maternal hypothyroxinemia<sup>[8,9]</sup> with upto 60% of surviving children having evidence of impaired mental and physical development.<sup>[10]</sup> 40% incidence of anemia, preeclampsia, placental abruption and post partum hemorrhage, 30% of neonates were small for gestation and 10% incidence of perinatal mortality and congenital abnormalities were noted in Untreated or inadequately treated overtly hypothyroid women. Women with untreated subclinical hypothyroidism (elevated TSH only) had approximately one third the incidence of this problem and in both groups the maternal and fetal outcomes improved with thyroxine therapy<sup>[11]</sup> A recent population survey identified 2.5% of pregnant women as having compensated hypothyroidism based on elevated TSH levels.<sup>[12]</sup>

The importance of identifying subclinical hypothyroidism and thyroid autoimmunity in early pregnancy is thus obvious as it is likely to have a profound influence on the outcome of pregnancy.

In our study women with subclinical hypothyroidism is 20 with prevalence of 13 % which correlates with study of Upadhyaya TL et al Prevalence and complications of hypothyroidism

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during pregnancy and study of Sapana C. Shah et al Prevalence of hypothyroidism during pregnancy with result of 13% and 9% respectively.

| Study               | Prevalence |
|---------------------|------------|
| Upadhyaya TL et al  | 13%        |
| Sapana C Shah et al | 9%         |
| Our Study           | 13%        |

Table 2

**CONCLUSION:** We recommend all patients with pregnancy to perform thyroid function test at the start of pregnancy. Hypothyroidism is a common disorder in women in their reproductive age. Untreated hypothyroidism can affect the pregnancy and the neonate in an adverse fashion; though hypothyroidism when adequately treated and monitored had good maternal and fetal outcome.

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**AUTHORS:**

1. Nataraj H. G.
2. Sreelatha S.
3. Ramya S.

**PARTICULARS OF CONTRIBUTORS:**

1. Senior Resident, Department of Obstetrics & Gynaecology, E.S.I.C Medical College & PGIMSR, Rajajinagar, Bangalore.
2. Associate Professor, Department of Obstetrics & Gynaecology, E.S.I.C Medical College & PGIMSR, Rajajinagar, Bangalore.

3. Junior Resident, Department of Obstetrics & Gynaecology, E.S.I.C Medical College & PGIMSR, Rajajinagar, Bangalore.

**NAME ADDRESS EMAIL ID OF THE CORRESPONDING AUTHOR:**

Dr. Sreelatha S,  
Associate Professor,  
Department of Obstetrics & Gynaecology,  
E.S.I.C Medical College & PGIMSR,  
Rajajinagar, Bangalore-560010.  
E-mail: drsreelatha2011@gmail.com

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