



## TO STUDY THE PREVALENCE OF THYROID DYSFUNCTION IN PREGNANCY IN INDIA AND ITS IMPACT ON OBSTETRICAL OUTCOME

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### ABSTRACT

**Aims And Objectives:** Thyroid disorders are common in pregnancy and associated with adverse maternal and foetal outcome. This study aims to find the prevalence of thyroid dysfunction in pregnancy and its impact on obstetrical outcome.

**Materials And Methods:** The study comprised of 500 pregnant women. free t<sub>4</sub>, serum TSH and TPOab were estimated in addition to routine investigations. 250 patients were lost to follow up so remaining 250 patients were taken for the study. Patient in any gestational week and singleton pregnancy were enrolled for study. Patients with deranged thyroid function were treated and followed every 6 weeks till termination of pregnancy.

**Results:** Patients with low ft<sub>4</sub> and tsh > trimester specific range [2.5 for first and 3.0 for second and third trimesters] were considered overt hypothyroid; those with normal ft<sub>4</sub> and increased tsh were considered subclinical hypothyroidism. Among 250 patients screened 32 patients were found to have thyroid disorders, prevalence being 12.8%. Subclinical hypothyroidism was seen in 6.8% (n=17), overt hypothyroidism in 3.6% (n=9), subclinical hyperthyroidism in 2.0% (n=5) and overt hyperthyroidism in 0.4% of cases (n=1); n=number of cases.

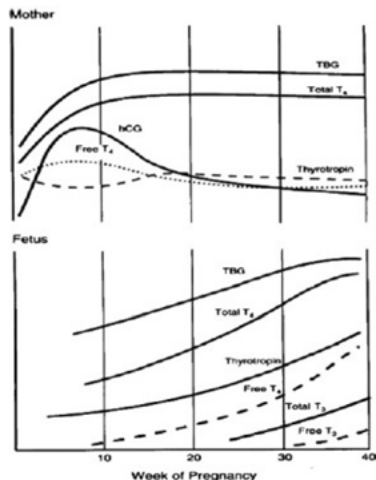
**Conclusion:** There is a high prevalence of thyroid dysfunction and associated obstetrical complications. Universal screening should be done to avoid to avoid obstetrical catastrophe.

**KEYWORDS :** Subclinical hypothyroidism, overt hypothyroidism, Preeclampsia, Abortion, Abruptio placentae

### INTRODUCTION

Thyroid disorders are common during pregnancy and the postpartum period. Thyroid disease is the second most common endocrine condition encountered in women of childbearing age after diabetes. thyroid disorder is associated with adverse pregnancy outcome if not detected and treated early in pregnancy.

There are hormonal changes during pregnancy, HCG mimics thyroxine in structure due to which tsh receptor is stimulated which leads to increase in thyroxine (T<sub>4</sub>) and triiodothyronine (T<sub>3</sub>) production, which results in inhibition of thyroid-stimulating hormone (TSH) in the first trimester of pregnancy. A large plasma volume and thus an altered distribution of thyroid hormone, increased thyroid hormone metabolism, increased renal clearance of iodide, and higher levels of hepatic production of thyroxine-binding globulin (TBG) in the hyperestrogenic state of pregnancy are responsible for higher thyroxine requirements in pregnancy. In pregnancy free thyroid hormone is estimated as total hormone will mislead showing more than normal value when the patient is euthyroid.



### MATERIALS AND METHODS

The study was done in Nalanda medical college and hospital, patna for a duration of two years from Jan 2018 to Jan 2020. Ethical clearance was taken from the ethical committee. The study comprised of 500 pregnant women. Informed consent was taken from all patients. A detailed history was taken, thorough general examination was done. free t<sub>4</sub>, serum TSH and TPOab were estimated in addition to routine investigations. Patient in any gestational week and singleton pregnancy were enrolled for study. Patients with deranged thyroid function were treated and followed every 6 weeks till termination of pregnancy. Inclusion criteria was singleton pregnancy, without any medical illness, spontaneous conception, primigravida or multigravida. Patients with multiple pregnancy, known medical disorders or assisted reproduction, had previous bad obstetric history with known cause were excluded from the study. Overt hypothyroidism was defined as elevated TSH > 2.5 mIU/L in conjunction with a decreased FT<sub>4</sub> concentration. Women with TSH levels of 10 or more, irrespective of their FT<sub>4</sub> levels were also considered to have overt hypothyroidism. Subclinical hypothyroidism was defined as TSH between 2.5-10 mIU/L with normal FT<sub>4</sub>. For overt hypothyroidism thyroxine 2-2.4 mcg/kg/day was started. Subclinical hypothyroidism was not treated but followed up till delivery. For Overt hyperthyroidism propylthiouracil was started in first trimester and switched to methimazole 5-15 mg in second and third trimesters. Every 4-6 weeks TSH level was estimated and dose of drug adjusted. TSH, FT<sub>4</sub> and FT<sub>3</sub> was estimated by enzyme chemiluminescence assay.

### RESULTS

Among 250 patients screened 32 patients were found to have thyroid disorders, prevalence being 12.8%. Subclinical hypothyroidism was seen in 6.8% (n=17), overt hypothyroidism in 3.6% (n=9), subclinical hyperthyroidism in 2.0% (n=5) and overt hyperthyroidism in 0.4% of cases (n=1); n=number of cases. Mean TSH levels in subclinical hypothyroidism was 4.11 mIU/L, overt hypothyroidism was 8.82 mIU/L, subclinical hyperthyroidism was 0.022 mIU/L and in overt hyperthyroidism was 0.013 mIU/L. Among 17 cases of subclinical hypothyroidism preeclampsia and preterm delivery was

found in 11.8% cases(n=2);abruptio placentae and spontaneous abortion was found in 5.9% of cases(n=1). IUGR, LBW and stillbirth was found in 5.9% of cases(n=1). Among subclinical hyperthyroids preeclampsia and preterm delivery was seen in 20% cases(n=1). Spontaneous abortion was not seen in any case. IUGR was seen in 20% of cases(n=1);stillbirth was not seen in any case.

**Table 1**

No. of persons screened	No. with thyroid disorders	% prevalence
250	32	12.8%

**Table 2 Prevalence Of Thyroid Disorders**

Types of thyroid disorder	No. of cases	Percentage
Subclinical Hypothyroidism	17	6.8%
Overt Hypothyroidism	9	3.6%
Subclinical Hyperthyroidism	5	2%
Overt Hyperthyroidism	1	0.4%

**Table 3 TSH Levels In Different Thyroid Disorders**

Type	No. of cases	Mean	SD
Subclinical Hypothyroidism	17	4.11	1.30
Overt Hypothyroidism	9	8.82	3.22
Subclinical Hyperthyroidism	5	0.022	0.017
Overt Hyperthyroidism	1	0.013	0.008

**Table 4 Complications In 17 Cases Of Subclinical Hypothyroidism**

Complications	No. of cases	Percentage(%)
Preeclampsia	2	11.8
Abuptio placentae	1	5.9
Preterm labour	2	11.8
Spontaneous Abortion	1	5.9
IUGR	1	5.9
LBW	1	5.9
Stillbirth	1	5.9

**Table 5 Complications Among 5 Cases Of Subclinical Hyperthyroidism**

Complications	No. of cases	Percentage
Preeclampsia	1	20
Preterm delivery	1	20
Spontaneous abortion	0	0
IUGR	1	20
Stillbirth	0	0

## CONCLUSION

The study shows high prevalence of thyroid disorders, especially subclinical and overt hypothyroidism among Indian pregnant women with associated adverse pregnancy outcome. Based on the results of this study universal screening of thyroid dysfunction should be done so that it is detected as early as possible and treatment started so as to avoid obstetrical catastrophe.

## REFERENCES:

- Glinoe D. The regulation of thyroid function in pregnancy
- Krassas GE, Poppe K, Glinoe D. Thyroid function and human reproductive health
- John H Lazarus. Thyroid function in pregnancy
- Negro. Thyroid insufficiency during pregnancy