

**ORIGINAL RESEARCH**

# Hypothyroidism in pregnancy and its fetomaternal outcome

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**INTRODUCTION**

Thyroid function is very intricately related to the reproductive performance in women. It becomes even more important functionally during pregnancy. There is reversible thyroid hyperplasia during pregnancy (goitrogenic effect) irrespective of the iodine levels prevalent in the area, which is associated with major changes in physiology of pituitary-thyroid axis and metabolism of iodine. There is approximately 50% increase in the overall thyroid hormone production and iodine requirement. Thus, if these adaptations are not adequate, it can result in thyroid dysfunction during pregnancy.

Thyroid hormone is supplied to the fetus by the mother before 12 weeks of gestation and post 1<sup>st</sup>trimester, iodine is transported to the fetus for the production of thyroid hormone.

Thyroid dysfunction can affect both maternal and fetal outcome. Thyroid disorders can either be overt or subclinical and are classified as hypothyroidism or hyperthyroidism depending upon the clinical manifestation and the serum TSH levels.

It has been suggested that the babies of women with hypothyroidism in pregnancy are at increased risk of impaired neurological development, premature birth, low birth weight and neonatal respiratory distress syndrome.

Women with overt hypothyroidism are also at an increased risk for pregnancy complications such as early pregnancy failure, preeclampsia, placental abruption, low birth weight and still birth. The risk of these complications is greater in women with overt, rather than subclinical hypothyroidism<sup>1</sup>.

**Types of hypothyroidism**

1. CLINICAL /OVERT: Abnormal high serum TSH levels and abnormally low T4 levels.

2. SUBCLINICAL: Elevated serum TSH levels but normal serum T4 concentration.

In India, as per existing literature, the prevalence of overt and subclinical hypothyroidism in pregnancy is reported between 3 to 4.58% and 6.47–9%, respectively.<sup>(2)</sup>

The upper limit of TSH varies trimester wise. In first trimester, the upper limit of TSH is 2.5 milliIU/L whereas in the second and the third trimester, the upper limit is 3 milliIU/L. Since hypothyroidism is easily treated, timely detection and treatment of the disorder could reduce the burden of adverse fetal and maternal outcomes, which are very commonly encountered.

This study was conducted in the department of obstetrics & gynaecology, SMGSH, GMC Jammu over a period of 6 months from July 2023 to December 2023 with the aim to study the effect of hypothyroidism on fetomaternal outcome.

**AIMS & OBJECTIVES**

To determine the outcome of pregnancy complicated by hypothyroidism, mode of delivery, maternal as well as fetal outcome.

**MATERIALS & METHODS**

The study was a retrospective study conducted over a period of 6 months from July 2023 to December 2023 at OBGYN Department, SMGSH, GMC Jammu. Sample size of the study was 500 pregnant females. Inclusion criteria: Hypothyroid pregnant females with pregnancy in third trimester, singleton pregnancy, primigravidae or multigravidae were included in the study.

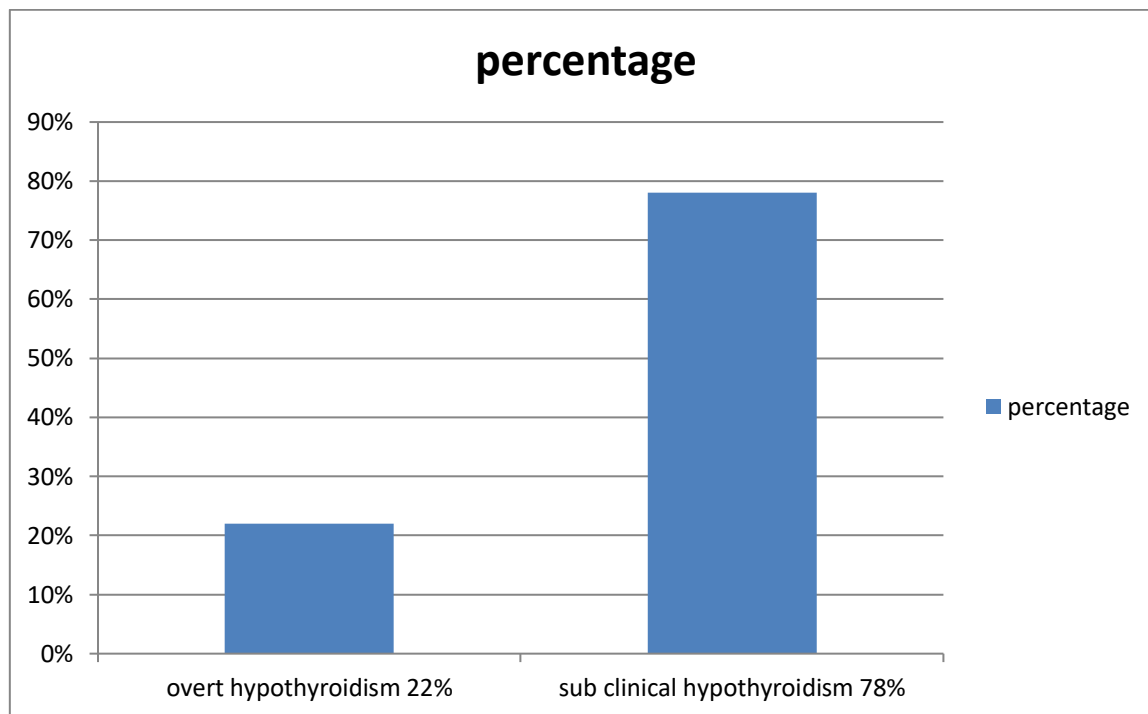
Exclusion criteria: patients with multifetal gestation, known chronic diseases like diabetes mellitus, hypertension, kidney diseases, liver disorders and

previous bad obstetric history were excluded from the study.

The patients included in the study were then divided into groups of subclinical hypothyroidism and overt hypothyroidism depending on their thyroid profiles and inferences were drawn.

**RESULTS**

In our study, 78% pregnant females suffered from overt hypothyroidism and the rest 22% had subclinical hypothyroidism.



**TABLE 1: percentage of patients having overt & subclinical hypothyroidism**

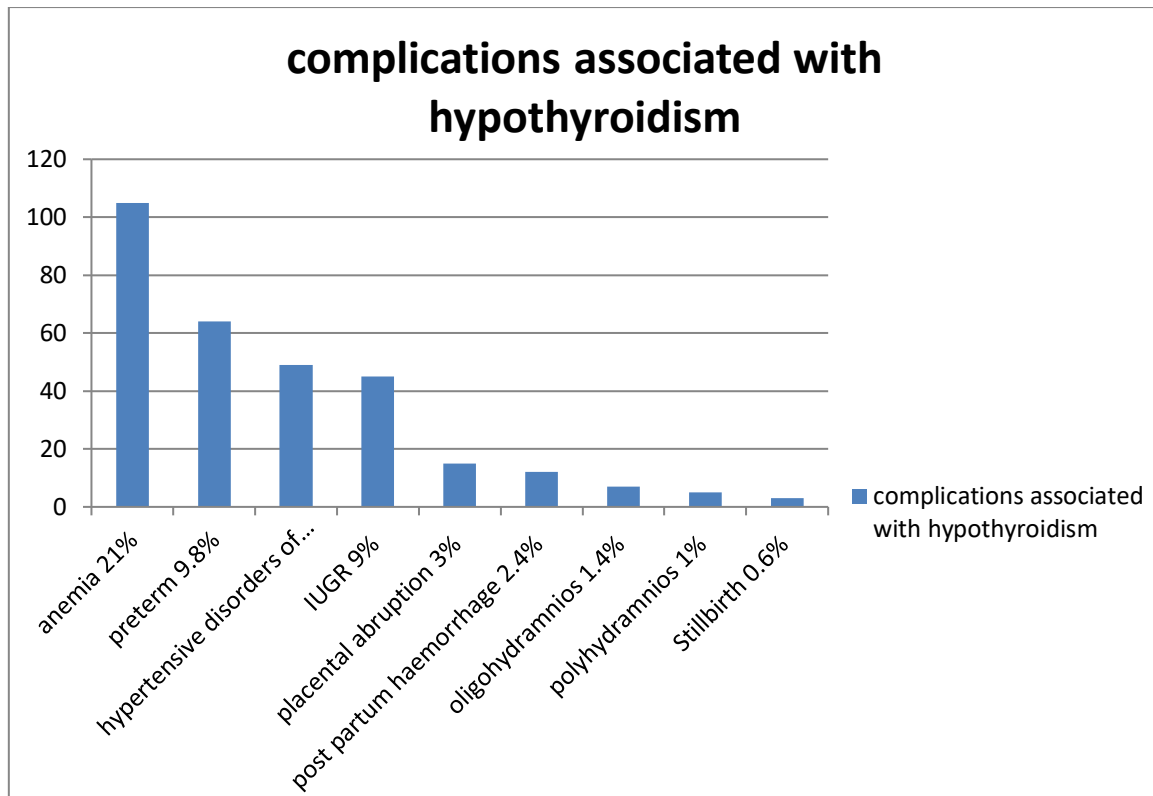
**TABLE 2: age wise distribution of patients into subclinical & overt hypothyroidism**

AGE (IN YEARS )	SUBCLINICAL HYPOTHYROIDISM Total 390(78%)	OVERT HYPOTHYROIDISM TOTAL 110 (22%)	TOTAL = 500
19-25	120	16	136 (27.2%)
26-30	106	24	130 (26%)
31-34	88	30	118 (23.59%)
35-43	76	40	116 (23.2%)

A total of 500 cases were studied in our study. Out of these 500 cases, 390 (78%) patients had subclinical hypothyroidism and the rest 110 (22%) patients had overt hypothyroidism. In the subclinical hypothyroidism group, maximum number of patients that is 120 (24%) were in the age group of 19-25 years. In the overt hypothyroidism group, there was an increasing trend noted with the advancing age as the maximum number of patients that is 40 (8%) were between the age group of 35-43 years, showing increasing prevalence of hypothyroidism as maternal age advances.

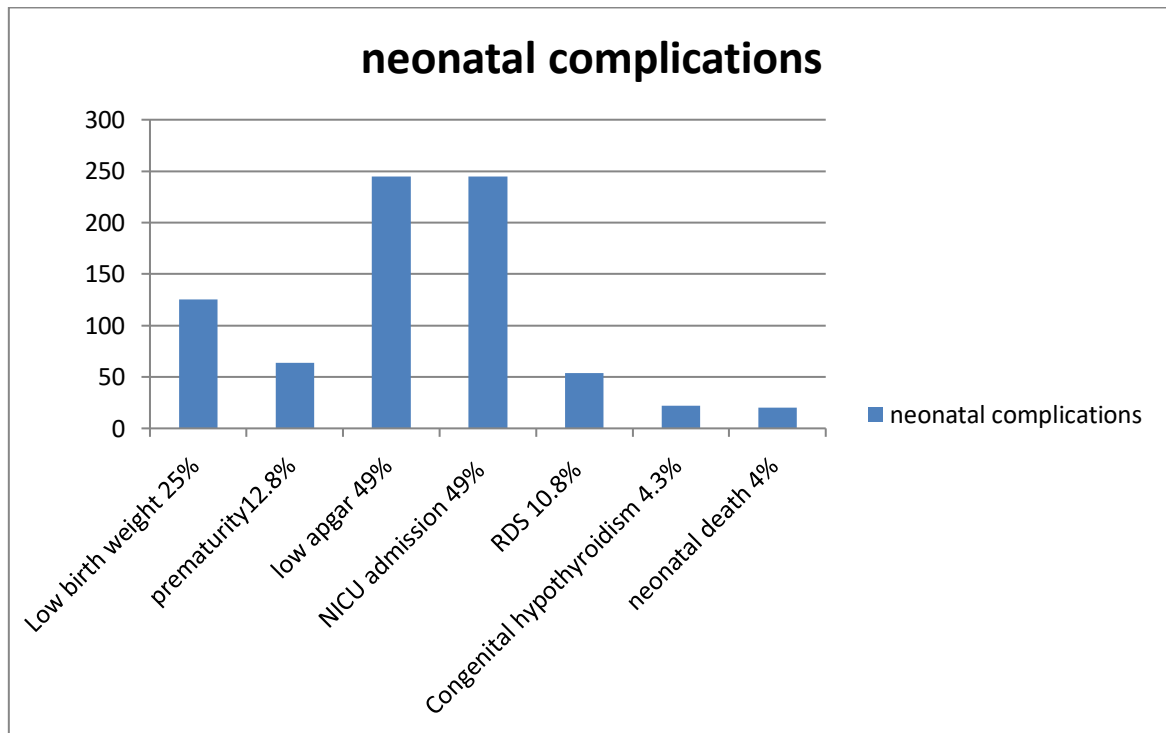
The mean age of subclinical hypothyroid population was 19-25 years in the current study. The mean age of overt hypothyroidism was 35-43 years.

When it came to maternal outcome, hypothyroidism affected 61% (305) of all pregnancies as it was associated with complications such as hypertension, preterm delivery, abruption etc. Out of all the complications, anemia with or without signs of failure was the most common complication 21% (105) followed by preterm delivery with the incidence of 12.8% (64) followed by hypertensive disorders of pregnancy 9.8% (49) followed by IUGR 9% (45). Other complications which were noted were, placental abruption 3% (15) followed by post partum haemorrhage 2.4% (12) followed by oligohydramnios 1.4% (7) followed by polyhydramnios 1% (5). Stillbirth occurred in 0.6% (3) of patients. 39% (195) patients had no complications during the pregnancy.



38% (190) of patients underwent caesarean section and 62% (310) of patients delivered vaginally. In terms of neonatal outcome, the most common neonatal complication associated with hypothyroidism was low birth weight with incidence of 25% (125) followed by prematurity 12.8% (64).

49% (245) of neonates had low apgar score at birth. 49% (245) of neonates were admitted to the nicu. 10.8% (54) of neonates had respiratory distress at birth. 22 neonates, that is 4.3% had congenital hypothyroidism at birth. Early neonatal deaths were 4% (20) of all the neonates born.



## DISCUSSION

Uncorrected thyroid dysfunction in pregnancy has adverse effects on maternal and fetal wellbeing. Thyroid disorders are the second most common disorder found in pregnancy. The present study was conducted in obstetrics and gynaecology department of government medical college Jammu, J&k, India. This was a retrospective study. A total of 500 hypothyroid pregnant were taken into this study. Hypothyroidism in pregnancy has been associated with adverse maternal outcomes in other studies as well including preeclampsia, placental abnormalities, preterm labor, low birth weight and a statistically significant relationship with recurrent pregnancy loss in the first trimester. Our study suggests that early diagnosis of hypothyroidism may improve pregnancy outcomes and also improve neonatal outcome.

## CONCLUSION

This study has shown a high prevalence of hypothyroid in Indian population.

Universal screening for hypothyroidism may benefit both mother and fetus. The present study supports universal thyroid screening to improve maternal and fetal outcome.

## REFERENCES

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