

# Prevalence of Thyroid Disorder in Pregnancy and Pregnancy Outcome

Dr. Sowmya Sri. K<sup>1</sup>, Dr. Pramod Kumar Korani Ratnam<sup>2</sup>

<sup>1</sup>Resident, Department of Obstetrics and Gynaecology, Osmania Medical College, Hyderabad, Telangana

<sup>2</sup>Assistant Professor, Department of General Medicine, Deccan College of Medical Sciences, Hyderabad, Telangana

**Abstract:** *Thyroid disorders constitute one of the most common endocrine disorders seen in pregnancy. Maternal thyroid function changes during pregnancy and inadequate adaptation to these changes results in thyroid dysfunction. Pregnancy has a huge impact on the thyroid function in both healthy women and those that have thyroid dysfunction. The prevalence of thyroid dysfunction in pregnant women is relatively high.<sup>(1)</sup>*

**Keywords:** Pregnancy, Thyroid Dysfunction, hypothyroidism, hyperthyroidism

## 1. Introduction

Thyroid hormones have profound variation and are associated with severe health impacts<sup>(2,3)</sup>. Pregnancy, has a reversible effect on the thyroid gland and its functions. Pregnancy is actually a state of excessive thyroid stimulation leading to an increase in thyroid size by 10% in iodide sufficient areas and 20-40% in iodide deficient regions<sup>(4)</sup>. Furthermore following the physiological and hormonal changes caused by pregnancy and human chorionic gonadotropin (HCG) the production of thyroxin (T4) and triiodothyronine (T3) increase up to 50% leading to 50% increase in a woman's daily iodide need, while Thyroid-stimulating hormone (TSH) levels are decreased, especially in first trimester<sup>(5)</sup>. In an iodide sufficient area, these thyroid adaptations during pregnancy are well tolerated, as stored inner thyroid iodide is enough; however in iodide deficient areas, these physiological adaptations lead to significant changes during pregnancy<sup>(6)</sup>.

## 2. Materials & Methods

Prospective cross sectional study of pregnant cases admitted in the Department of Obstetrics and Gynecology, osmania medical college over a period of 24months which includes 500 routine antenatal cases. Singelton pregnancy irrespective of gravida during 1<sup>st</sup> trimester were included in the study.

## 3. Results

### Prevalence of Thyroid Disorders

No. of persons Screened	No. with TD	% prevalence
500	69	13.80%

### Prevalence of Thyroidal disorders among 500 women screened

Type of TD	No. of Cases	Percentage
Subclinical Hypo	36	7.2
Overt Hypo	16	3.2
Subclinical Hyper	12	2.4
Overt Hyper	5	1

### Fetal complications among Overt Hypo

Complications	No. of cases
LOW BIRTH WEIGHT	6
IUGR	5
STILL BIRTH	2

### Maternal complications among 18 cases of Subclinical Hyper

Complications	No. of cases	Percentage
PRE ECLAMPSIA	2	11.1
PRETERM DELIVERY	2	11.1
ABORTION	1	5.6

### Fetal complications among Subclinical Hyper

Complications	No. of cases
IUGR	6
STILL BIRTH	4

## 4. Discussion

Early detection of thyroid dysfunctions and treatment of mother during gestation improves the outcome<sup>(7)</sup>. The prevalence of thyroid disorders in our study was 13.8%. Our findings are consistent with the reports from the study of Sahu MT et al<sup>(8)</sup>, who studied 633 women in second trimester. Subclinical hypothyroidism is defined as increased TSH with normal concentrations of FT4 and FT3. The prevalence of subclinical hypothyroidism during pregnancy is estimated to be 2% to 5%.<sup>(9)</sup> It is almost always asymptomatic. Women with subclinical hypothyroidism are more likely than euthyroid women to have TPO antibody positivity (31% compared to 5%).<sup>(10)</sup> Isolated maternal hypothyroxinemia is defined as a low FT4 and normal TSH, which can be found in approximately 1% to 2% of pregnancies. In the FASTER study, among the women with hypothyroxinemia and normal TSH, there was an increased odds ratio for preterm labor (1.62, 95% CI 1.00–2.62), macrosomia (1.97, 95% CI 1.37–2.83), and gestational diabetes (1.70, 95% CI 1.02–2.84), but these results were not consistent<sup>(11)</sup> A study by Casey *et al.*,<sup>(12)</sup> concluded that isolated maternal hypothyroxinemia in the first half of pregnancy has no adverse affects on pregnancy outcome.

## 5. Conclusion

Prevalence of thyroid disorders, especially subclinical hypothyroidism (7.2%) and overt hypothyroidism (3.2%) was high. Significant adverse effects on maternal and fetal outcome were seen emphasizing the importance of routine antenatal thyroid screening.

## References

- [1] Sima Nazarpour, Fahimeh Ramezani Tehrani, Masoumeh Simbar, Fereidoun Azizi; thyroid dysfunction and pregnancy outcomes; Iran J Reprod Med. 2015 Jul; 13(7): 387–396
- [2] Ramezani Tehrani F, Aghaee M, Asefzadeh S. The comparison of thyroid function tests in cord blood following cesarean section or vaginal delivery. Int J Endocrinol Metab. 2003;1:22–26.
- [3] Zadeh-Vakili A, Ramezani Tehrani F, Hashemi S, Amouzegar A, Azizi F. Relationship between Sex Hormone Binding Globulin, Thyroid Stimulating Hormone, Prolactin and Serum Androgens with Metabolic Syndrome Parameters in Iranian Women of Reproductive Age. Diabetes Metabolism . 2012
- [4] The American Thyroid Association Taskforce on Thyroid Disease During Pregnancy and Postpartum. Guidelines of the American Thyroid Association for the Diagnosis and Management of Thyroid Disease during Pregnancy and Postpartum. Thyroid. 2011;21:1081–1125.
- [5] Yamamoto T, Amino N, Tanizawa O, Doi K, Ichihara K, Azukizawa M, et al. Longitudinal study of serum thyroid hormones, chorionic gonadotrophin and thyrotrophin during and after normal pregnancy. Clin Endocrinol (Oxf) 1979;10:459–468.
- [6] Glinoer D, de Nayer P, Bourdoux P, Lemone M, Robyn C, van Steirteghem A, et al. Regulation of maternal thyroid function during pregnancy. J Clin Endocrinol Metab. 1990;71:276–287.
- [7] Lazarus JH. Thyroid functions in pregnancy. Br Med Bull 2011;97(1):137–48
- [8] Sahu MT et al. Overt and subclinical thyroid dysfunction among Indian pregnant women and its effect on maternal and fetal outcome. Archives of gynecology and obstetrics. 2010;281(2):215-220.
- [9] Woeber KA. Subclinical thyroid dysfunction. Arch Intern Med. 1997;157:1065–8.
- [10] Jayme JJ, Ladenson PW. Subclinical thyroid dysfunction in elderly. Trends Endocrinol Metab. 1994;5:79–86.
- [11] Henrichs J, Bongers-Schokking JJ, Schenk JJ, Ghassabian A, Schmidt HG, Visser TJ, et al. Maternal thyroid function during early pregnancy and cognitive functioning in early childhood: The generation R study. J Clin Endocrinol Metab. 2010;95:4227.
- [12] Casey BM, Dashe JS, Wells CE, McIntire DD, Byrd W, Leveno KJ, et al. Subclinical hypothyroidism and pregnancy outcomes. Obstet Gynecol. 2005;105:239–45.