



## TSH ESTIMATION AS A SCREENING TEST FOR THYROID DISEASE IN THE FIRST TRIMESTER OF PREGNANCY

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### ABSTRACT

While there is agreement that overt maternal hypothyroidism (serum thyroid stimulating hormone (TSH) > 10 mIU/L) should be treated immediately; the evidence is mixed regarding the harm associated with subclinical hypothyroidism and the benefits of thyroxine replacement. The diagnosis of hypothyroidism rests on the recognition of an increased serum concentration of TSH which may be affected by many factors including gestational age, analytical method, the antibody status of the mother, ethnicity, iodine nutrition and even the time of day when the blood is collected. The 97.5<sup>th</sup> percentile of TSH at the end of the first trimester is commonly used as the upper boundary of normal in early pregnancy with a default value of 2.5 mIU/L specified in a number of recent clinical guidelines.

**KEYWORDS :** TSH, hyperthyroidism, hypothyroidism

### INTRODUCTION:

Evaluation of thyroid disease in pregnancy is important for gestational maternal health, obstetric outcome, and subsequent development of the child. The most frequent thyroid disorder in pregnancy is maternal hypothyroidism. It is associated with reduced intellectual function in the offspring. Before the onset of fetal thyroid function, that occurs about 12 weeks of gestation, the fetus is dependent on the placental transfer of maternal thyroid hormone for normal development. Therefore, maternal hypothyroidism early in the pregnancy causes decreased availability of thyroid hormone during the initial phase of normal brain development and consequently is associated with increased rates of abortion and stillbirth, impaired neuropsychological development of fetus and congenital malformation and increase in perinatal mortality. Hyperthyroidism is much less common than hypothyroidism. TSH levels should be between 0.1-2.5 during the first trimester. Thus, prompt identification of thyroid disorder and timely initiation of therapy in pregnancy is essential.

**Duration of study:** 3 months

### Objective:

To assess the prevalence of thyroid disease in the first trimester of pregnancy in a tertiary care hospital.

### METHODOLOGY:

The present cross-sectional study was conducted at the Antenatal Clinic in the Obstetrics and Gynecology Department of Smt. Kashibhai Navale Medical College and General Hospital, Pune over a period of 3 months. The total sample population comprised of 300 pregnant women in the first trimester of gestation without any history of thyroid disease or intake of any thyroid medication. TSH levels were checked in every patient during the first visit, T3 and T4 testing was advised if any abnormality was seen.

### Observations:

In the preliminary observation 42 women presented with TSH levels higher than upper limit of 2.5 and 12 women presented with TSH levels lower than the lower limit of 0.1.

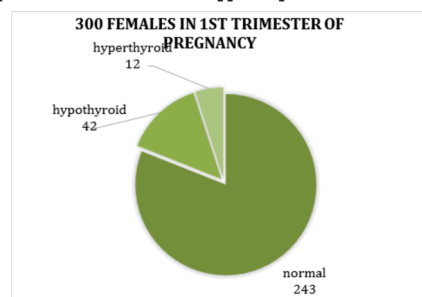
### DISCUSSION:

Subclinical and overt hypothyroidism is fairly common in pregnancy occurring in 2% and 1 in 500 respectively.

Hyperthyroidism is seen on a much lower scale. TSH estimation is used as a screening for both the classes of disorders.

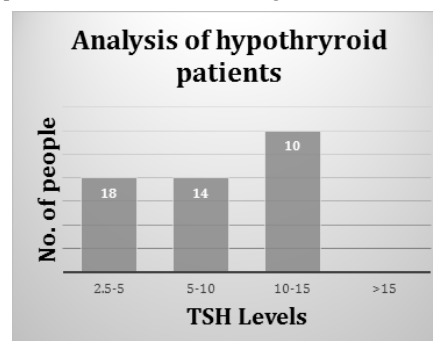
### RESULTS:

Out of the 300 women in their first trimester 42 show hypothyroidism and 12 show hyperthyroidism



18 out of 42 presented with TSH levels in the range of 2.5 to 5.

14 out of 42 presented with TSH levels in the range of 5 to 10 and 10 presented with TSH levels higher than 10.



### CONCLUSIONS:

TSH estimation is an economical and effective way to control preventable causes of maternal and infant mortality. It is easily available and should be implemented in routine investigations for all pregnancies.

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