ORIGINAL RESEARCH PAPER
Volume-6 | Issue-12 | December-2017 | ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 93.98
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

UNIVERSAL TSH SCREENING – IS IT WORTHWHILE? VALUE OF TSH SCREENING AT A PUBLIC HOSPITAL

Gynaecology

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ABSTRACT

Thyroid disorders are among the common endocrine problems in pregnant women. It is now well established that not only overt, but subclinical thyroid dysfunction also has adverse effects on maternal and fetal outcome. Overt hypothyroidism affects up to 1% of all pregnancies. But subclinical hypothyroidism, which has been estimated to affect between 3% and 15% of pregnancies, "is where the controversy lies" Our study was conducted to evaluate the occurrence of thyroid disorders in pregnancy by screening TSH values, and co relating with pregnancy outcomes. All women attending ante natal OPD were counseled about voluntary TSH screening at their first visit from July 2016 to June 2017. Those with deranged TSH values underwent further evaluation and treatment as appropriate.

KEYWORDS

Thyroid , Pregnancy, Hypothyroid, Screening.

Introduction: Thyroid disorders are among the common endocrine problems in pregnant women. It is now well established that not only overt, but subclinical thyroid dysfunction also has adverse effects on maternal and fetal outcome[1]. Overt hypothyroidism affects up to 1% of all pregnancies. But subclinical hypothyroidism, which has been estimated to affect between 3% and 15% of pregnancies, "is where the controversy lies"

Objective: To evaluate the occurrence of thyroid disorders in pregnancy by screening TSH values, and co relating with pregnancy outcomes.

Material and Method: All women attending ante natal OPD were counseled about voluntary TSH screening at their first visit from July 2016 to June 2017. Those with deranged TSH values underwent further evaluation and treatment as appropriate. Patients were followed up until delivery and maternal and fetal outcomes were assessed

It is worthwhile to note that TSH screening is not routinely available at municipal hospitals and in collaboration with a private laboratory, a TSH screening was offered to women at a low cost.

A cut off of 2.5, 3 and 3 mIU/ml were used in first , second and third trimesters and in conjuction with an endocrine opinion, patients were started on medicines as appropriate.

Those with low testing were advised repeat testing and an endocrine opinion.

Results and Analysis:

1. Out of a total of 16303 women who attended the antenatal OPD over 1 year, 4643 were new visits that underwent counseling for voluntary TSH screening.
2. Out of these, 2752 patients underwent voluntary testing (59.3%).
3. 458 (46.6%) were out of range (16.6%) of which 407(89%) were hypothyroid, and 51 were hyperthyroid (11.1%).
4. It is worth noting that even in a metropolitan city like Mumbai, 739 (26.8%) women registered for antenatal care in the third trimester, 737 (26.7%) women in the first trimester, 1276(46.3%) women in 2nd trimester
5. Trimester wise detection of hypothyroid patients showed 13.2% in first trimester, 14.8% in second trimester and 17.5% in third trimester.
6. Trimester wise distribution of hyperthyroid patients showed 2.1% in first trimester, 1.8% in second trimester and 1.6% in third trimester.
7. Despite doing a paid testing, 16% patients did not follow up for their next visit or collect their reports.
8. Maternal and fetal outcomes of some of the cases that delivered at our hospital were analysed and were compared to the general antenatal population with normal TSH values.

Discussion: In our study, 2752 patients underwent voluntary testing (59.3%). 458 (46.6%) were out of range (16.6%) of which 407(89%) were hypothyroid, and 51 were hyperthyroid (11.1%).

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Our study highlighted that thyroid disorders are prevalent in our antenatal population. The pickup rate of thyroid disorders in our study was similar to the studies conducted world over despite late presentation of a significant number of patients. Treatment may be started before delivery to improve outcomes.

Vaidya[2] et al (2007) stated that only risk based screening is likely to miss one thirds of the total cases.

Thyroid disorders also have been associated with neurological abnormalities in the newborn , which can be picked up early if screened early.

Haddow[3] and colleagues showed that children born to untreated mothers had IQ scores that were 7 points lower than treated peers, and 19% had IQ scores less than 85 compared with 5% of treated.

Pop [4] et al: found impaired psychomotor function in 22 infants (age 10 months) whose mothers had had low FT4 at 12 weeks of gestation, compared with 194 infants whose mothers had normal readings.
There is a great uncertainty regarding reference values of TSH screening, and when to screen, whom to screen and how to screen patients in pregnancy.

The ITS (**Indian Thyroid Society**)[5] states that all antenatal mothers should be screened at the first antenatal visit using TSH and ideally, screening should be carried out at the pre- pregnancy evaluation or as soon as pregnancy is confirmed

JAPI[6] recommendations state that screening should be with minimum TSH only and if necessary fT3 and fT4 may be tested. Universal screening or screening of high risk woman is to be practiced is not yet settled. At least 30% will remain undetected (Vaidya et al). A study from north India by **Kumar et al**[7]. found that 13.13% of pregnant women were found to be hypothyroid (n = 388). Following trimester specific cutoff of 2.5 for 1st 3 for second and third trimester as suggested by ATA, 44.3%, 32.0%, and 34% women were found to have hypothyroidism in first second and third trimester respectively.

Weiwei Wang[8] et al found that a total of 2899 pregnant women were enrolled in this study during their first trimester of gestation. Personal or family history of thyroid disease, a personal history of type I diabetes or other autoimmune disorders, clinical signs suggestive of thyroid disorders, goiter, thyroid antibodies, a history of previous therapeutic head or neck irradiation, a history of miscarriage, preterm delivery, and infertility were identified as at high risk .The prevalence of hypothyroidism was significantly higher in the high-risk group than in the non-high-risk group.

Another Indian study[9] mentions a study in which 633 pregnant women in second trimester were registered. TSH level estimation was done. If TSH level was deranged then free T_4 and thyroperoxidase antibody level estimation were done. Patients were managed accordingly and followed till delivery. Their obstetrical and perinatal outcomes were noted.Prevalence of thyroid disorders, especially overt and subclinical hypothyroidism (6.47%) was high. Significant adverse effects on maternal and fetal outcome were seen emphasizing the importance of routine antenatal thyroid screening

RBSK(Rashtriya Bal Swasthya Karyakram)[10] recommends universal screening would lead to early detection of medical conditions. This facilitates timely intervention, ultimately leading to a reduction in mortality, morbidity & lifelong disability.

Our study highlighted that the uptake of paid voluntary testing in antenatal period was just 59.3%.

In the screened patients, 16.6% had abnormal TSH , the majority of which (89%) were hypothyroid.

Even in metropolital cities like Mumbai, majority of patients registered in second trimester or later.

Trimester wise cut offs need to be applied.

Our suggestions are

1. A simple, single test in the form of TSH can help in guiding the treatment even at primary health care centers.
2. It is better to treat hypothyroidism because even subclinical hypothyroidism has shown adverse maternal and perinatal outcome.
3. Encouraging women to register early and screen early translates into earlier treatment and better outcomes.
4. Hence in our country, we recommend UNIVERSAL TSH SCREENING

Conclusion: Thyroid disorders do not cause many symptoms yet the implications of a deranged thyroid value can have a great impact on the pregnancy outcome. India, having many endemic goitre areas, and various other socio demographic problems, and a great disparity in health care system might benefit from a simplified universal policy of TSH screening at the first antenatal visit.

Figure 1: Total abnormal TSH

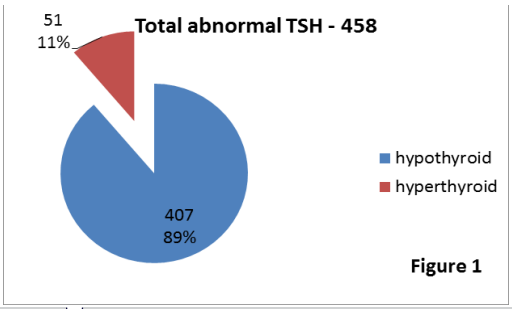


Figure 1

Figure 2 Patient wise distribution

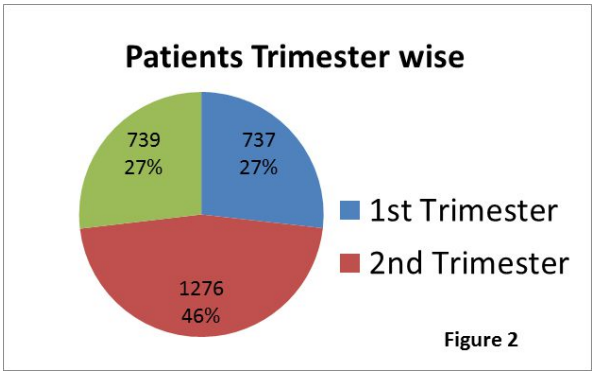
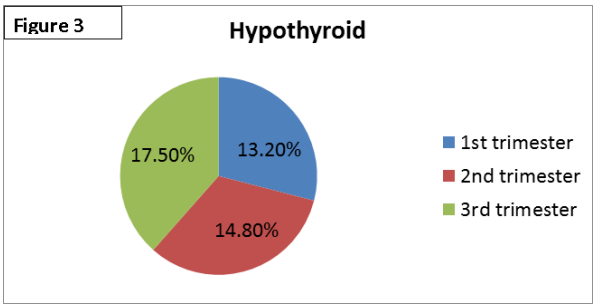


Figure 2

Figure 3 Hypothyroidism



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