Prevalence of hypothyroidism in antenatal women attending OPD at Gandhi Hospital

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Abstract:
The present study was carried out to study the prevalence of hypothyroidism in antenatal women attending OBG department of Gandhi Hospital and to detect prevalence in relation to age, parity, body mass index, socio-economic status. In this prospective study, 400 antenatal women attending OPD from period of conception to 26 weeks of pregnancy were included in this study. Patients tested for fasting levels of TSH, patients with deranged TSH FT3, FT4 levels were checked. In the 400 antenatal women 90 were found to have hypothyroidism, remaining were euthyroid, prevalence of hypothyroid 22.5%. We concluded that the prevalence of hypothyroid is 22.5%. Maternal complications like preeclampsia (17.7%), abruption (66%), and abortion (11.1%) were observed. Significant adverse effects on maternal outcome were seen emphasizing the importance of routine antenatal thyroid screening.

Keywords: Hypothyroidism, Pregnancy, Preeclamsia

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Introduction

Maternal hypothyroidism is the most common thyroid disorder in pregnancy has been associated with infertility, miscarriage, fetal loss, preeclampsia, preterm delivery, placental abruption and postpartum haemorrhage. Fetal complications include low birth rate, preterm delivery, rates of IUGR, high rates of still births and neonatal deaths, neonatal hypobilirubinemia, higher incidence of neonatal hypothyroidism and reduced intellectual function of the off spring and increased perinatal mortality(1).

Aim:

1. To study the prevalence of hypothyroidism in antenatal women, attending OPD in Gandhi Hospital from February 2014.

Source: The study was conducted in the department of OBG at Gandhi Hospital.

Inclusion criteria:

All the Antenatal mothers attending OPD at Gandhi Hospital from period of Conception to 26 weeks of pregnancy were included in the study.

Exclusion Criteria:

1. All the antenatal mothers after 26 weeks of pregnancy.
2. Known case of diabetes, hypertension and autoimmune disorders.
3. Twin gestation.
4. Pregnant women already diagnosed and on thyroid medication are excluded from the study.

Methodology

After obtaining informed consent of 400 pregnant women randomly selected for study after fulfilling the inclusion criteria, patients tested for fasting levels of TSH, fasting TSH assayed by chemiluminicent immunoassay kit (CLIA kit) patients with deranged TSH, FT3, FT4 levels were checked. Patients with hypothyroidism were treated with L Thyroxin and followed up till delivery. The reference range used in the study was based on guidelines of the American Thyroid Association for diagnosis and management of thyroid disease during pregnancy (2).

The CLIA kit is designed for the quantitative determination of TSH concentration in human serum. The TSH CLIA test is based on the principle of a solid phase enzyme linked immune sorbent assay. The assay system utilizes specific monoclonal antibody directing against a distant antigenic determinant on the intact TSH molecule.

Thyroid function tests were repeated every four weeks during pregnancy and drug dosage titrated accordingly. Maternal outcome was noted in terms of pre eclampsia, abruptio placentae and abortions.

Results

Results of fasting TSH are grouped as normal, low and high. If high TSH is detected in those pregnant women they are subjected to further free T3, T4 levels and appropriate treatment was instituted. In the 400 antenatal women 90 were found to have hypothyroidism, remaining were euthyroid, prevalence of hypothyroid 22.5%.

Table 1: Prevalence of hypothyroidism:

No of Patients	Normal Patients	Patients with Hypothyroidism	Prevalence of Hypothyroidism
400	310	90	22.5%

Table 2: Distribution of Hypothyroid pregnant women based on TSH levels

No of Patients	TSH (µg/ml)	Percentage
60	3 – 4.5	66.6%
22	4.5 – 6.5	24.4%
8	>6.5	8.8%

Table 3: Prevalence of Hypothyroidism in Relation to age

Age in years	No of Patients	Patients with Hypothyroidism	Percentage of Prevalence
<20	14	2	14.2%
20-25	160	30	18.5%
25-30	190	58	30.5%
30-35	36	0	
Total	400	90	

Table 4: Prevalence of Hypothyroidism in Relation to Gravida

Gravida	No of Patients	Hypothyroid Patients	Percentage of Prevalence
G1	146	34	23.2%
G2	166	30	18.07%
G3	68	20	29.4%
G4	16	6	37.5%
G5	4	0	-
Total	400	90	

Among 90 antenatal women with hypothyroidism, 34(37.7%) of them were primigravida and 56 (62.2%) were multigravida.

Table 5: Prevalence of Hypothyroidism in Relation to BMI

BMI	No of Patients	Patients with Hypothyroidism	Percentage of prevalence
<18	14	4	28.5%
18-25	220	30	13.6%
25-30	140	50	35.7%
30-35	20	6	30%
35-40	4	0	-
>40	2	0	-
Total	400	90	

Among 90 antenatal women with hypothyroidism 50 of them in the BMI group of 25-30.

Table 6: Maternal complications in the Study

Maternal Complications	No of Patients	Percentage of Prevalence
Pre eclampsia	16	17.7%
Abruptio Placentae	6	6.6%
Abortion	10	11.1%
Total	32	35.4%

Among 90 Antenatal women with hypothyroidism 16 women presented with pre eclampsia, 6 women presented with abruption placentae, 10 women presented with abortions.

Table 7: Incidence of Maternal complications- comparison with others

Study	PE(%)	Abruption (%)	Abortion(%)
My Study	17.7	6.6	11.1
Anjuman SN et all 2	16.6	16.5	16.6
Sahu MT et all[3]	20.7	-	-
Leung [4]	22	-	-
Ablovich [5]	-	19%	

Discussion

The prevalence of hypothyroidism in the current study was 22.5%.These findings are consistent with reports from the study of the case BM at et al in their study prevalence of Hypothyroidism was 23% which is comparable to my study. The mean age of prevalence of hypothyroidism in antenatal women was 25.04 years which is comparable with the study done by B. Vidya Vimal Nambiat et al,(6) which was 25.19 years. It was seen that increase in maternal age was associated with high incidence of thyroid dysfunction.

Prevalence of hypothyroidism in primigravida is 23.2% and 2nd gravida is 18.07 % and 3rd Gravida is 29.4% and fourth gravida is 37.5%.

Prevalence of Hypothyroidism is high in BMI group of 25 to 30. High BMI group women had higher TSH concentration and were prone to hypothyroidism than normal weight women.

Regarding maternal outcome, hypothyroidism was associated with complications like preeclampsia (17.7%), abruptio (6.6%), and abortions (11.1%).

Conclusion

Significant adverse effects on maternal outcome were seen emphasizing the importance of routine antenatal thyroid screening. The early administration of treatment and maintenance of Normal levels of thyroid hormone significantly minimised the risk of maternal and fetal complications and make it possible for the pregnancy may be carried to term without severe complications. So it is justified to recommend screening of thyroid in early pregnancy.

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