



Study of Thyroid Disorders In Pregnancy & its effect on maternal & perinatal outcomes at a Tertiary Care Centre

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ABSTRACT

Background: Thyroid disorders are reported at high prevalence during pregnancy, affecting ~5% of all pregnancies. Maternal thyroid disorders are implicated to influence foeto-maternal outcomes.

Objective: To estimate prevalence of thyroid disorders in pregnant women and study the maternal and perinatal outcome with thyroid disorders.

Methodology: 864 pregnant women were screened for thyroid disorders & were evaluated for maternal & foetal complications by predefined outcome measures.

Observations: Of 864 patients screened, 105 were diagnosed with thyroid abnormality and followed up till delivery, with newborn thyroid profile on day 7. Of 105 participants having thyroid abnormalities; 88 had subclinical hypothyroid (83.8%), 14 (13.3%) had overt hypothyroidism. Significant associations were noted between various maternal & foetal complications and thyroid disorders.

Conclusion: Thyroid disorders were more commonly associated with maternal and foetal complications.

KEYWORDS

Pregnancy, Thyroid Disorder.

INTRODUCTION

Thyroid disease is being increasingly diagnosed with greater awareness and, incidentally, affects females more. The global goiter prevalence is >2 billion with around 40 million in India, making it one of the worst affected (1). Thyroid dysfunction also has a relatively high prevalence during pregnancy, affecting up to 5% of all pregnant women (2); with maternal hypothyroidism being most frequent.

Maternal thyroid disorders influence multitudes of mother and fetal outcomes (3). There's need to treat thyroid disorders in reproductive age women before conception. In pregnancy, overt hypothyroidism is seen in 0.2 % and subclinical hypothyroidism in 2.3 % cases (4). Foetal loss, foetal growth restriction, pre-eclampsia and preterm delivery are the usual complications of overt hyperthyroidism.

The present study intends to estimate the prevalence of thyroid disorders in pregnant women and to study the maternal and perinatal outcome with thyroid disorders.

METHODOLOGY

Type of Study- Observational Study

Study Setting- Tertiary Hospital

Study Period- January 2014-June 2015

Inclusion criteria-

- All pregnant women between 18-40 years of age.
- Pregnant women with known thyroid abnormalities.
- Women accessible in all three trimesters

Exclusion criteria-

- Known diabetics and hypertensives.
- Non-Consentious.

Outcome measures:

1. Prevalence of thyroid disorders in pregnant women between 18-40 yrs of age.

2. Maternal outcome in pregnant women with thyroid disorders.
3. Perinatal outcome due to thyroid abnormalities.

All the outcomes were measured with standard parameters keeping in mind the generalizability of the study findings.

OBSERVATIONS

A total of 864 pregnant women were screened for thyroid after various inclusion and exclusion criteria. Of the 864 patients, 105 were diagnosed as having thyroid abnormalities and were followed up till delivery, with thyroid profile of newborn done on day 7.

Of the 105 participants having thyroid abnormalities; 88 patients had subclinical hypothyroid (83.8%), followed by overt hypothyroid in 14 patients (13.3%).

TABLE 1: INCIDENCE OF THYROID DISORDERS IN PREGNANCY

Thyroid Disorder	Number (n)	Percentage (%)
Sub clinical hypothyroidism	88	83.8
Overt hypothyroidism	14	13.3
Sub clinical hyperthyroidism	1	1.0
Overt hyperthyroidism	2	1.9
Goiter	0	0
Malignancy	0	0
Total	105	100

Of the 105 cases detected, 71 (67.6%) were newly diagnosed and 34 (32.4%) were already diagnosed with thyroid abnormality. Most were in the age group of 26-30 years (55, 52.4%) followed by 21-25 years (25, 23.8%) & 30-35 years (20, 19.04%). Of 105, 62 (59.04%) participants were primigravida & 43 (40.1%) were multigravida. While studying trimester wise incidence of thyroid disorder, it was observed to be highest to be 2nd trimester (53, 53.5%).

Of the 105 cases, 29 cases had infertility of which 24 (82.75%)

were primary infertility patients.

Study of various maternal complications showed 49 patients to be diagnosed with anaemia (46.66%), of which 46 (43.80%) had subclinical hypothyroidism (p<0.05). Pregnancy induced hypertension was observed in 42 (40%) cases of which 40 (38.09%) cases had subclinical hypothyroidism (p<0.05); both the associations being statistically significant. Wound infection was noted in 10 (9.52%) patients of which all belonged to subclinical hypothyroidism (p<0.05). Post-partum haemorrhage occurred in 8 (7.61%) cases, all of which were subclinical hypothyroid, which was statistically significant.

TABLE 2: INCIDENCE OF MATERNAL COMPLICATIONS & ITS ASSOCIATION WITH THYROID DISORDERS DURING PREGNANCY

Thyroid status	TOTAL	Overt Hypert hyroidism	Overt Hypot hyroidism	Subclini cal Hypert hyroidism	Subclini cal Hypot hyroidism	P value
Maternal complication	N (%)	N (%)	N (%)	N (%)	N (%)	
Anaemia	49 (46.66)	0	3 (2.85)	0	46 (43.80)	<0.05
Pregnancy induced hypertension	42 (40)	0	2 (1.90)	0	40 (38.09)	<0.05
Gestational Diabetes Mellitus	08 (7.61)	0	2 (1.90)	0	6 (5.71)	>0.05
Oligohydramnios	09 (8.57)	0	1 (0.95)	0	8 (7.61)	>0.05
Preterm Labour	06 (5.71)	1 (0.95)	2 (1.90)	0	3 (2.85)	>0.05
Preterm Prom	02 (1.90)	0	0	0	2 (1.90)	
Term Prom	04 (3.80)	0	0	0	4 (3.80)	
Abruptio placentae	02 (1.90)	0	0	0	2 (1.90)	
Post Partum Haemorrhage	08 (7.61)	0	0	0	8 (7.61)	<0.05
Wound Infection	10 (9.52)	0	0	0	10 (9.52)	<0.05
Failed lactation	00	0	0	0	0	0
Puerperal pyrexia	00	0	0	0	0	0

Study of association of Foetal complications revealed a total of 90 out of 105 (85.71%) babies were born alive. Intrauterine growth restriction (IUGR) (37, 35.23%) & prematurity (19, 18.1%) were the most common occurrences; the association of IUGR & subclinical hypothyroidism being statically significant.

TABLE 3: INCIDENCE OF FOETAL COMPLICATIONS & ITS ASSOCIATION WITH THYROID DISORDERS DURING PREGNANCY

Thyroid status	TOTAL	Overt Hypert hyroidism	Overt Hypot hyroidism	Subclini cal Hypert hyroidism	Subclini cal Hypot hyroidism	P value
Foetal Complicati on	N (%)					
Abortion	09 (8.57)	1 (0.95)	2 (1.90)	0	6 (5.71)	>0.05
Intrauterine foetal demise	02 (1.90)	0	0	0	2 (1.90)	>0.05

Anomalous baby	04 (3.80)	0	2 (1.90)	0	2 (1.90)	>0.05
Intrauterine growth restriction	37 (35.23)	0	2 (1.90)	0	35 (33.33)	<0.05
Premature	19 (18.09)	1 (0.95)	4 (3.80)	0	14 (13.33)	>0.05

Out of 105 cases, 9 patients had abortions, 29 (30.20%) patients had full term normal vaginal delivery, 15 (15.62%) patients had preterm delivery of which 4 (4.16%) were anomalous babies terminated in early gestation and 52 (54.16%) were LSCS. 27 out of 29 cases of vaginal deliveries were subclinical hypothyroid and 44 out of total 52 cases of LSCS were subclinical hypothyroid.

In neonatal complications, hyperbilirubinaemia was observed in 49 (51.04%) babies, out of which 44 (45.83%) babies were of mother with subclinical hypothyroid, which was statistically significant (p<0.05); followed by low birth weight babies which were 55 (57.29%), out of which 48 (50%) babies were of mother with subclinical hypothyroid, which was statistically significant (p<0.05).

Study of Baby TSH on day 7th in the 90 babies born alive showed TSH to be normal in 89 (98.89%) babies with 1 (1.11%) baby having congenital hypothyroidism.

DISCUSSION

In present study the prevalence of thyroid disorder was 105 cases (12.15%), with subclinical hypothyroid being 88 cases (83.8%), overt hypothyroid being 14 cases (13.3%), subclinical hyperthyroid being 1 case (1.0%) and overt hyperthyroid being 2 cases (1.9%).

Subclinical hypothyroid was commonly observed which varied in different studies. In study by Sapna Shah et al (5), the prevalence of subclinical hypothyroid was 59.3%, subclinical hyperthyroid was 66.7%, overt hypothyroid was 40.7% and overt hyperthyroid was 35.3%. Study by Deepa Agrawal et al (6) had prevalence of subclinical hypothyroid of 24.5%, overt hypothyroid 27.1%, subclinical hyperthyroid 26% and overt hyperthyroid as 30%. Study by Dhara Singh et al (7) had hypothyroid prevalence as 95% and hyperthyroid as 5%.

Present study had primigravida 62 (59.04%) and multigravida 43 (40.96%) of which hypothyroid primigravida were 61 (58.09%) and hypothyroid multigravida were 41 (39.04%). It varied in different studies. In study of Dhara et al (7), primigravida were 32% and multigravida were 68%. In study of Sapna et al (5), primigravida hypothyroid were 40.07% and multigravida hypothyroid were 39.3%.

Total cases of infertility were 29 (27.61%) out of which primary infertility were 24 cases (22.85%) and secondary infertility were 5 cases (4.7%). All cases were of hypothyroidism. No cases of infertility were seen in hyperthyroidism.

While in study by Dhara Singh et al (7), 34% cases of infertility were hypothyroid and 2% cases were of hyperthyroid.

In present study, LSCS were 52 (49.52%) and normal vaginal deliveries were 44 (41.90%) which was comparable to other studies also were the percentage of section were higher than that of vaginal deliveries. In study of dhara et al (7), 61% were LSCS and 37% were vaginal. But in study of deepa et al (6) percentage of normal deliveries were more (37%) as compared to LSCS (12%).

In present study, Anaemia was noted in 49(46.66%) out of 105 cases of thyroid disorders and PIH was noted in 42(40%) cases; which is comparable with study of Dhara et al (7), in which 60%

patients had Anaemia and 30% patients had PIH amongst 100 total patients of thyroid disorder studied by them. In study of deepa et al (6), out of 53 cases of thyroid disorder, 10 (18.86%) had PIH and 6(11.32%) had anaemia.

GDM was comparable in all studies, accounting for an average of 7 – 8% in all studies and PPH was observed in between 5 – 10% of cases in all studies.

In present study, 37 (38.54%) foetuses were IUGR, 55 (57.29%) babies were low birth weight and 19 (19.79%) of babies were preterm. While in other studies, low birth weight and preterm babies were significant. In study of dhara et al (7) accounting for 24.52% and 26.41% respectively and 45.45% and 39.39% in study by deepa et al (6).

Present study had total 52 cases of cesarean sections, of which 14 (26.92%) cases of section were for non-progress of labour, 14 (26.92%) for foetal distress, 12 (23.07%) cases due to IUGR and 06 (11.53%) cases due to CPD. While in study of Dhara Singh et al (7), out of 61 cases of section, 11(18.03%) cases were due to non-progress of labour, 5 (8.19%) were due to foetal distress and 13 (21.31%) due to IUGR.

In present study, baby weight < 1.5 kg were 3 (3.12%) all were anomalous babies, between 1.6 – 2 kg were 21 (21.87%), 2.1 – 2.5 kg were 33 (34.37%), 2.6 – 3 kg were 30 (31.25%) and > 3 kg were 9 (9.37%). Whereas study conducted by Sapana et al (5) had 33 cases of which <1.5 kg was 1 (3.03%), 1.6 – 2 kg was 1 (3.03%), 2 – 2.5 kg was 0 (0%), 2.5 – 3 kg were 20 (60.60%) and > 3 kg were 8 (24.24%) babies.

CONCLUSIONS

Thyroid disorders are more commonly associated with maternal and foetal complications. It is recommended that Thyroid Profile be considered as universal screening method in early pregnancy to diagnose and start treatment early.

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