



FETAL AND MATERNAL OUTCOMES IN PREGNANT WOMEN WITH HYPOTHYROIDISM: AN OBSERVATIONAL STUDY IN A TERTIARY CARE HOSPITAL

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Abstract:

Hypothyroidism is common during pregnancy and fetomaternal complications are also higher in maternal hypothyroidism. Hence maintenance of optimal thyroid function is very important during pregnancy. This observational study aimed to study the fetomaternal outcome among pregnant hypothyroid women. It was carried out in the department of Obstetrics and Gynaecology in Ad-din Women's Medical College Hospital, Maghbazar, Dhaka from 1st July 2024 to 30th June 2025. The study included 108 hypothyroid pregnant women to observe fetal and maternal effects of hypothyroidism. Patients were collected as per inclusion and exclusion criteria after informed written consent. Maternal complications like pre-eclampsia, postpartum haemorrhage, gestational hyper-tension, anaemia and postpartum depression were common in hypothyroid pregnant women. On the other hand, adverse fetal outcome, like preterm birth, abortion, IUGR, respiratory distress and still birth were common in hypothyroid cases. To prevent these adverse fetomaternal outcome routine maternal thyroid function testing should be done as early as possible.

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Introduction

Hypothyroidism is common in pregnancy. It is often overlooked because of non specific symptoms. It affects both mother and fetus¹. The prevalence of hypothyroidism varies from 0.3-11.0 %². Thyroid function is affected by the physiological changes of pregnancy. Therefore thyroid function tests differ between pregnant and non pregnant women³. Pregnant ladies with first trimester serum TSH value >2.5 micro IU/ml and second and third trimester TSH value >3 micro IU/ml are considered to have hypothyroidism (According to American Thyroid Association Guidelines)⁴.

Common maternal complications in hypothyroidism include early pregnancy failure, preeclampsia,

placental abruption, gestational hypertension, PPH, postpartum depression and anaemia¹. Adverse fetal outcome, such as preterm birth, abortion, IUGR, respiratory distress are significantly higher in hypothyroid cases⁵.

Methods

This observational study was performed in the Department of Obstetrics and Gynaecology, Ad-din Women's Medical College Hospital, Dhaka. The study was conducted during the period of 1st July 2024 to 30th June 2025.

Inclusion criteria

Women aged 18–45 years with hypothyroidism (both newly diagnosed and pre existing hypothyroidism

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cases) with singleton pregnancy willing to deliver in Ad din Medical College Hospital , Maghbazar were considered in the study. Among them who were willing to participate and provide informed con-sent were included.

Exclusion criteria

Women with chronic hypertension, pre-gestational diabetes, autoimmune diseases, high-risk pregnancies, any fetal anomalies detected on screening ultrasound, bad obstetric history and with multiple pregnancy were excluded to mini-mize confounding factors. Those who were planning to deliver in other hospitals were also excluded.

A total of 1000 pregnant women attending the antenatal OPD were recruited for the study. 116 patients were found to have hypothyroidism . Among them 108 patients fulfilled the inclusion criteria were selected as study population . Ethical approval was taken from the committee before commencing of this study. Pregnant ladies with first trimester serum TSH values >2.5 micro IU/ml and second and third trimester TSH values >3 micro IU /ml are considered to have hypothyroidism . Previously diagnosed hypothyroidism cases were also included. Serum FT4 was also done to diagnose subclinical hypothyroidism. A detailed history was taken regarding the symptoms of hypothyroidism . A thorough physical examination including obstetric examination were done and patients were sent for TSH testing .

Results

Among 1000 total pregnant ladies 116(11.6%) were diagnosed as hypothyroid. Among them 108 patients fulfilled the inclusion criteria were selected as cases.

Table-I
Age distribution

Age(in years)	Number	%
<20	13	12.03
20-25	46	42.59
26-30	28	25.93
31-35	14	12.96
>35	7	6.48
Mean±SD	24.12±13.45	
Range(min-max)	(18-45)	

Among all 108 cases of maternal hypothyroidism most common age range was 20 -25 years (42.59%), followed by 26-30 years age group (25.93%) . The mean age of the cases was 24.12±13.45 years.

Table-II
Parity of the study population

Parity	Number(N=108)	%
Primipara	41	37.96
Multipara	67	62.04

Most of maternal hypothyroidism cases were multipara(62.04%).

Table-III
Educational Status of the study population

Education	Number (N=108)	%
Illiterate	8	7.40
Primary	33	30.55
Secondary	36	33.33
Higher Secondary & above	31	28.70

Most of the study population were SSC passed(36%).

Table-IV
Socioeconomic status of the study population

Socioeconomic status	Number (N=108)	%
Lower	17	15.74
middle	73	67.59
Upper	18	16.67

Among all 108 cases of maternal hypothyroidism most of the cases belong to middle class(67.59%).

Table-V
Residence of cases

Residence	Number (N=108)	%
Urban	71	67
Rural	37	33

Urban dwellers (67%) were more in number in the study.

Table-VI
Mode of Delivery

Delivery	Number (N=108)	%
LSCS	58	53.70
Vaginal Delivery	50	46.30

Among all 108 cases of maternal hypothyroidism , most of the cases were delivered by LSCS(53.70%).

Table-VII*Adverse maternal outcome of hypothyroidism*

Outcome	Number (N=108)	%
Preeclampsia	18	16.66
Postpartum Haemorrhage	12	11.11
Gestational Hypertension	13	12.04
Placental Abruption	3	2.77
Anaemia	11	10.18
Chorioamnionitis	6	5.55
Postpartum Depression	12	11.11
Postpartum psychosis	2	1.85
Deep vein thrombosis	4	3.70
Pulmonary Embolism	3	2.77

Among all 108 cases hypothyroidism was associated with pregnancy complications like Preeclampsia (16.66%), Gestational Hypertension(12.04%) ,Postpartum Haemorrhage(11.11%) ,Postpartum Depression (11.11%), Anaemia(10.18%), Chorioamnionitis(5.55%), Deep vein thrombosis(3.70%), Placental Abruption(2.77 %), Pulmonary Embolism(2.77%) and Postpartum psychosis(1.85%).

Table-VIII*Adverse fetal outcome of maternal hypothyroidism*

Outcome	Number (N=108)	%
Preterm birth	11	10.18
Abortion	9	8.33
IUGR	13	12.04
Respiratory distress	9	8.33
Hyperbilirubinemia	10	9.26
Hypoglycemia	3	2.77
Congenital anomalies	5	4.63
Still birth	7	6.48

Adverse fetal outcome of maternal hypothyroidism included IUGR (12.04 %),Preterm birth (10.18%), Hyperbilirubinemia (9.26%) ,Abortion (8.33%),Respiratory distress (8.33%),Still birth(6.48%) , Congenital anomalies(4.63%) and Hypoglycemia(2.77%).

Discussion

Our study investigated the impact of maternal hypothyroidism on both fetal and maternal out-comes during pregnancy.

Rama Saraladevi et al² reported an overall prevalence of hypothyroidism in pregnancy is 13 % which is similar to our study(11.6%). In our study most of

maternal hypothyroidism cases were multipara(62.04%). Study by Juan Gui et al⁷ revealed that 48.46% maternal hypothyroidism cases undergone vaginal delivery and 51.53% cases undergone cesarean section. Our study also found that most of the cases were delivered by LSCS(53.70%).

Maternal and fetal complications are higher in women with hypothyroidism¹. In a study by Poonam Goel et al⁶ maternal hypothyroidism was significantly associated with Hypertension, Postpartum Haemorrhage, Preeclampsia, Postpartum Depression , early pregnancy loss, anaemia and PROM . Our study also showed similar findings. Adverse maternal outcomes, such as Preeclampsia (16.66%), Gestational Hypertension (12.04%) , Postpartum Haemorrhage (11.11%) and Anaemia (10.18%) were common in our study. Thus it is understood that management of maternal hypothyroidism is very important to reduce these poten-tial complications.

Adverse fetal outcomes like IUGR (12.04 %),Preterm birth(10.18%), Hyperbilirubinemia (9.26%) , Abortion (8.33%),Respiratory distress (8.33%) and Still birth(6.48%) were higher in hypothyroid mothers in our study . In a study by Juan Gui et al⁷ maternal hypothyroidism was strongly associated with preterm birth and IUGR. In another study by Roshni Vamja et al⁸ preterm birth, respiratory distress and still birth were common in hypothyroid cases. Findings of these studies were similar to our study.

Hypothyroidism hampers the development of placenta and neurodevelopment of fetus. Ultimately maternal hypothyroidism may end in complications like preeclampsia, IUGR, preterm birth and low APGAR scores⁹. Thyroid autoantibodies associated with hypothyroidism may aggravate these complications by influencing placental tissue and fetal thyroid func-tion¹⁰. Hypothyroidism and auto-immunity can adversely influence the immune status of mother and increase inflammation and oxidative stress¹¹. Hypothyroidism can cause endothe-lial dysfunction which can lead to hypertensive complications. Hypothyroidism can alter coagulation factors which increase haemor-rhage and thrombosis¹². Early management of maternal hypothyroidism is the cornerstone to reduce these potential complications.

Finally we found pregnant women with hypothyroidism experienced significantly higher fetomaternal complications .

Limitations

There were some limitations in our study. It was conducted in one center, which may limit generalization of this study. We also could not assess treatment compliance which can influence outcomes.

Conclusion

Fetomaternal complications are common in maternal hypothyroidism. Early detection and management of hypothyroidism are very important for favourable pregnancy outcome. New research should be done to optimize thyroid function in pregnancy.

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