Section: Obstetrics and Gynaecology

Original Research Article

A STUDY ON PREVALENCE OF THYROID DIOSDERS IN PREGNANCY AND ITS IMPACT ON MATERNAL AND FETAL OUTCOMES IN TERTIARY CARE CENTRE AT THIRUVARUR

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Received : 05/01/2023
Received in revised form : 12/02/2023
Accepted : 25/02/2023

Keywords:
Thyroid, Pregnancy, Outcomes.

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DOI: 10.47009/jamp.2023.5.3.445

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2023; 5 (3); 2265-2271

Abstract

Background: Thyroid disease is one of the most prevalent endocrine abnormalities discovered during pregnancy. It has been linked to poor maternal and fetal outcomes. The most common obstetric consequences related with thyroid abnormalities are abortion, preeclampsia, abruptio placenta, premature labor, and fetal issues such as prematurity, low birth weight, still birth, and perinatal mortality. **Aim:** To identify the prevalence of thyroid disorders in pregnancy and its impact in maternal and fetal outcomes. **Materials and Methods:** Prospective study was conducted for a period of one year from January 2020 to December 2020. A total of 600 participants were enrolled in the study. **Results:** The mean age of participants in the case and control group were identified as 24.73 ± 3.72 years and 24.06 ± 3.31 years, respectively. TSH was between 4.21 - 10 mIU/ml in the majority of the participants in the case group with 35.14%, followed by 2.5 - 4.20 mIU/ml with 32.43%. Hyperthyroidism and hypothyroidism were identified with 1% and 5.17%, respectively. Preeclampsia, spontaneous miscarriage was the pregnancy outcomes identified in most of the participants in the case group with 13.51% and 8.11%. **Conclusion:** The study reveals a significant prevalence of thyroid disorders, particularly hypothyroidism, underscoring the importance of including thyroid function testing in regular antenatal clinic screening. Thyroid dysfunction must be diagnosed and treated as soon as possible in order to minimize negative perinatal outcomes.

INTRODUCTION

One of the most common endocrine disorders identified in pregnancy is thyroid disorder. It is associated with adverse maternal and fetal outcomes. Abortion, preeclampsia, abruptio placenta, preterm labor, and fetal complications are prematurity, low birth weight; still birth and perinatal death are the common obstetric complications associated with thyroid disorders.[1,2] Attention deficit and hyperactivity syndrome are the prenatal and postnatal adverse effects reported in children born to hypothyroid mothers.[3] Maternal hypothyroidism during the first trimester can be harmful for fetal brain development and can also lead to mental retardation and cretinism. It includes impairment of mental, physical growth and development.

Western studies showed the prevalence of hypothyroidism in pregnancy as 2.5%, whereas for hyperthyroidism between 0.1 to 0.4%.4 Hyperthyroidism seen in 0.2%–0.4% of pregnant women and is commonly related with Grave's disease. The incidence of hypothyroidism in pregnancy is between 0.5%–3.5%.[5] The prevalence of hypothyroidism was more in Asian countries as compared to western countries. The occurrence of hyperthyroidism is less as compared to hypothyroidism. It is reported in 0.5–2/1000

ISSN (O): 2687-5365; ISSN (P): 2753-6556

pregnancies. Sub-clinical hyperthyroidism is identified in 1.7% of pregnancies.[6]

Inappropriate weight gain, cold intolerance, dry skin, delayed relaxation of deep tendon reflexes, constipation, fatigue, and somnolence are the signs and symptoms associated with hypothyroidism during pregnancy.[7]

An increase in thyroglobulin due to increased estrogen and human chorionic gonadotrophin, increased renal losses of iodine due to elevation in glomerular filtration rate, modifications in peripheral metabolism of maternal thyroid hormone, and modifications in iodine transfer to the placenta are the various factors that lead to changes in the maternal thyroid function.[8] During pregnancy, the production of thyroid hormone and iodine requirement is increased by 50%. Also, the thyroid gland increases in size by 10% in iodine-sufficient countries and to a greater extent in iodine-deficient countries. Pregnancy is considered as a stress test for the thyroid gland and resulting in hypothyroidism in women with limited thyroidal reserve or iodine deficiency.

Evaluation of thyroid disease in pregnancy is essential for the gestational maternal health, obstetric outcome, and subsequent development of the child. There is a paucity of data in Indian pregnant women on the prevalence of thyroid disorders. This study was conducted to identify the prevalence of thyroid disorders in pregnancy and its impact in material and fetal outcomes.

Aims and Objectives

To estimate the prevalence of thyroid disorders in pregnancy

Objective

- To estimate the prevalence of thyroid disorders in pregnancy
- To estimate the impacts of thyroid disorder in maternal & fetal outcomes.

MATERIALS AND METHODS

Study site: This study was conducted in the Department of Obstetrics and Gynecology at Government Thiruvarur Medical College and Hospital, Thiruvarur.

Study population: All the eligible patients undergoing Screening of pregnant women with thyroid disorders during 1st trimester in the Department of Obstetrics and Gynecology

Study design: The current study was a prospective study

Sample size: Sample size was calculated assuming the major proportion of Hypothyroidism as 5.17% as per the study.47 The other parameters considered for sample size calculation were 5% absolute precision and 95% confidence level. The following formula was used for sample size calculation. Based on the previous hospital records, the approximate number of potential Eligible subjects to be attending the study setting during the data collection period were considered as 65. Hence a finite population correction was applied for 65. The following formula was used for sample size as per the study by Daniel WW et al.

$$n' = \frac{NZ^2P(1-P)}{d^2(N-1) + Z^2P(1-P)}$$

Where n = Sample size

N= Population Size = 65

Z= Z statistic for a level of confidence level=1.960

P= Expected prevalence/proportion of outcome= 0.0517

d= Precision=0.05

The required sample size as per the above-mentioned calculation was 35. To account for a non-participation rate/ loss to follow up rate of a about 5%, another 2, subjects will be added to the sample size. Hence the required sample size would be 37 for cases. For comparison all available controls into the study were 563 and then the total sample size in the study would be 600.

Sampling method: All the eligible subjects were recruited into the study consecutively by convenient sampling till the sample size is reached.

Study duration: The data collection for the study was done between January 2020 to December 2020 for a period of 1 year.

Inclusion Criteria

- Pregnant women with thyroid disorders in 1st trimester
- Singleton pregnancy
- Primigravida or multigravida

Exclusion Criteria

- Multifetal gestation
- Known chromic disorders like diabetes, hypertension, liver disorders, renal disorders
- Previous bad obstetric history with known thyroid dysfunction.

Ethical considerations: The study was approved by the institutional human ethics committee. Informed written consent was obtained from all the study participants, and only those participants willing to sign the informed consent were included in the study. The risks and benefits involved in the study and the voluntary nature of participation were explained to the participants before obtaining consent. The confidentiality of the study participants was maintained.

Data collection tools: All the relevant parameters were documented in a structured study proforma.

Methodology: 600 pregnant women attending antenatal clinic in the first trimester who fulfilling inclusion criteria were enrolled in the study after institutional ethics approval and consent from study subjects. A detailed history was taken regarding the symptoms of thyroid disorders, menstrual history, obstetric history, past medical history, family history, personal and social history. General examination was done with reference to the general condition of the patient, body temperature: pulse rate, blood pressure, respiratory rate, and the finding

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were recorded. Systemic examination of the cardiovascular system (CVS), central nervous system (CNS), respiratory system, and thyroid gland was done, and findings were recorded.

Basic Investigations: Complete blood picture, clotting time, Bleeding time, Blood Grouping and Rh typing, RBS, Blood urea, Serum creatinine, HIV, HBsAg, and complete urine examination were done. Pregnancy <12 weeks was confirmed by clinical assessment, pregnancy test, and ultrasonography.

Specific Investigations: patients were sent for the testing of serum TSH level in fasting state. Blood was collected from the patients by venipuncture (2ml), allowed to clot, and serum was separated by centrifugation at room temperature. If serum TSH values were deranged, fT3 and fT4 levels were checked.

USG neck also included to screen the pregnant women:

The reference ranges of the values used in this study were as per the guidelines of the American Thyroid Association for the Diagnosis and Management of Thyroid Disease during pregnancy and postpartum. As per regulation 14.2 of ATA guidelines, if trimester-specific ranges for TSH are not available in the laboratory, the following normal reference ranges are recommended: 1st trimester-0.1 to 2.5m IU/L, 2nd trimester-0.2 to 3.0m IU/L and 3rd trimester-0.3 to 3.0m IU/L. The normal free T4 level is 0.7 to 1.8ng/ml, and the free T3 level is 1.7 to 4.2pg/ml. Depending on the hormonal values, patients were classified into

Subclinical Hypothyroidism: high serum TSH level with normal fT4, fT3 level,

Overt Hypothyroidism: high serum TSH level with fT4 and fT3 less than the normal range.

Subclinical Hyperthyroidism: Low serum TSH level with normal fT3, fT4 level,

Overt Hyperthyroidism: Low serum TSH Level with fT3and fT4 more than the normal range. Subclinical/ Overt Hypothyroid cases were treated with Thyroxine.

Subclinical/ Overt Hyperthyroid cases were treated with propylthiouracil. Every 4 weeks, the TSH level was estimated, and the dose of the drug was adjusted. The outcome of the pregnancy was followed up and documented.

The following outcome variables of the pregnancy in relation to the thyroid disorders were studied: Preeclampsia, Abruption placenta, Preterm delivery, IUGR, low birth weight, stillbirth, Abortion.

Statistical Methods

Thyroid disorders in pregnancy were considered as the primary outcome variable. Impacts of thyroid disorder in maternal and fetal outcome variables were considered as secondary outcome variables. The study group (Cases Vs. Controls) was considered as the primary explanatory variable. Descriptive analysis was carried out by frequency and proportion for categorical variables. Non-normally distributed quantitative variables were summarized by the median and interquartile range (IQR). Data was also represented using appropriate diagrams like bar diagrams, pie diagrams.

The mean values were compared between study groups using an independent sample t-test (2 groups). Categorical outcomes were compared between study groups using the Chi-square test /Fisher's Exact test. P-value < 0.05 was considered statistically significant. IBM SPSS version 22 was used for statistical analysis.

RESULTS

A total of 600 subjects were included in the final analysis.

Descriptive analysis of study group in study population (N=600)

Among the study population, 37 (6.17%) were cases, and 563 (93.83%) were controls.

The mean age was 24.73 ± 3.72 years in cases, and it was 24.06 ± 3.31 years in controls; the mean difference between the two groups was statistically not significant (P-value 0.236). In cases, 17 (45.95%) were primi gravida, 11 (29.73%) were Multi gravida with previous normal delivery, and 9 (24.32%) were multi with previous LSCS. In controls, 296 (52.58%) were primi gravida, 176 (31.26%) were Multi gravida with previous normal delivery, and 91 (16.16%) were multi with previous LSCS. The difference in the proportion of obstetrics code between study groups was statistically not significant (P-value 0.426). (Table 1)

In cases, 5 (13.51%) were preconceptionally, 18 (48.65%) were POG at <10 weeks and 14 (37.84%) were POG at >10 weeks. In controls, 401 (71.23%) were POG at <10 weeks and 162 (28.77%) were POG at >10 weeks. In cases, the majority of 13 (35.14%) were TSH 4.21 to 10, and 12 (32.43%) were TSH 2.5 to 4.20. In controls, all of them 100% were TSH <2.5. (Table 2 & Figure 1)

Overall, 6 (1%) participants had hyperthyroidism, 31 (5.17%) participants hypothyroidism, and 563 (93.83%) were normal. (Table 3)

Among the thyroid people, repeat TSH at 16th week, 19 (51.35%) participants were <3.0, 11 (29.73%) participants were 3.0 to 4.2, 4 (10.81%) participants were 4.2 to 10 ad 3 (8.11%) participants were <1.0 mIU/ml. TSH at 20th week, 21 (61.76%) participants were <3.0, 13 (38.24%) participants were 3.0 to 4.2, TSH at 32-week, 33 (97.06%) participants were <3.0, only 1 (2.94%) participant were 3.0 to 4.2. (Table 4)

Out of 6 participants at 16th week, 3 (50%) were increased repeat t4. Out of 5 participants at the 20th week, only 1 (20%) had increased T4. Antibodies at 16th week, only 1 (16.67%) had positive. Out of 37 thyroid people, 20 (54.05%) were in adequate treatment, and 17 (45.95%) participants were inadequate treatment. (Table 5)

In cases, 12 (32.43%) women had a normal vaginal delivery, 16 (43.24%) women had LSCS, 5 (13.51%) women had vacuum delivery, and only

ISSN (O): 2687-5365; ISSN (P): 2753-6556

one (2.7%) had a forceps delivery. In control, 296 (52.58%) women had a normal vaginal delivery, 187 (33.21%) women had LSCS, 40 (7.1%) women had vacuum delivery, and only one (2.7%) had a forceps delivery. The difference in the mode of delivery between the study group was statistically not significant (P-Value 0.172). The difference in pregnancy outcome between the study group is found to be significant, with a P-value of 0.0.029. (Table 6).

Table 1: Comparison of mean of age and obstetric code between study group (N=600)

Parameter	**Study group (Mean± SD)**		**P-value**
	Cases (N=37)	**Control (N=563)**	
Age	24.73 ± 3.72	24.06 ± 3.31	0.236

Obstetrics Code	**Study Group**		**Chi-square**	**P-value**
	Cases (N=37)	**Control (N=563)**		
Primigravida	17 (45.95%)	296 (52.58%)	1.706	0.426
Multi gravida with previous normal delivery	11 (29.73%)	176 (31.26%)		
Multi With Previous LSCS	9 (24.32%)	91 (16.16%)		

Table 2: Comparison of gestational age and thyroid stimulation hormone (TSH) at diagnosis between study group (N=600)

Period gestational age at diagnosis	**Study Group**	
	Cases (N=37)	**Control (N=563)**
Pre-conceptionally	5 (13.51%)	0 (0%)
<10 Weeks	18 (48.65%)	401 (71.23%)
>10 Weeks	14 (37.84%)	162 (28.77%)

Thyroid Stimulation Hormone (TSH)	**Study Group**	
	Cases (N=37)	**Control (N=563)**
<2.5 mIU/ml	1 (2.7%)	563 (100%)
2.5 To 4.20 mIU/ml	12 (32.43%)	0 (0%)
4.21 To 10 mIU/ml	13 (35.14%)	0 (0%)
>10 mIU/ml	6 (16.22%)	0 (0%)
< 1.0 mIU/ml	5 (13.51%)	0 (0%)

Table 3: Descriptive analysis of subgroup in the study population (N=600)

Sub Group	Frequency	Percentages
Hyperthyroidism	6	1.00%
Hypothyroidism	31	5.17%
Normal	563	93.83%

Table 4: Descriptive analysis of repeat TSH at different time periods in the study population (N=37)

Repeat TSH	**Frequency**	**Percentages**
16 Weeks		
<3.0 mIU/ml	**19**	**51.35%**
3.0-4.2 mIU/ml	**11**	**29.73%**
4.2-10 mIU/ml	**4**	**10.81%**
<1.0 mIU/ml	**3**	**8.11%**
20 Weeks (N=34)		
<3.0 mIU/ml	**21**	**61.76%**
3.0-4.2 mIU/ml	**13**	**38.24%**
32 Weeks (N=34)		
<3.0 mIU/ml	**33**	**97.06%**
3.0-4.2 mIU/ml	**1**	**2.94%**

Table 5: Descriptive analysis of repeat t4, antibodies 16 weeks and treatment in the study population

Repeat T4	**Frequency**	**Percentages**
at 16 Weeks (N=6)		
Normal	3	50.00%
Increased	3	50.00%
at 20 Weeks (N=5)		
Normal	4	80.00%
Increased	1	20.00%
at 32 Weeks (N=5)		
Normal	5	100%
Antibodies 16 Weeks	**Frequency**	**Percentages**
Positive	1	16.67%
NIL	5	83.33%
Treatment	**Frequency**	**Percentages**
Adequate	20	54.05%
Inadequate	17	45.95%

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Table 6: Comparison of the mode of delivery and pregnancy outcome between study group (N=600)

Mode of delivery	Study Group		Chi-square	P-value
	Cases (N=37)	Control (N=563)		
Normal Vaginal Delivery	12 (32.43%)	296 (52.58%)	6.390	0.172
LSCS	16 (43.24%)	187 (33.21%)		
Vacuum Delivery	5 (13.51%)	40 (7.1%)		
Forceps Delivery	1 (2.7%)	12 (2.13%)		
NA	3 (8.11%)	28 (4.97%)		
Pregnancy Outcome	**Study Group**		**Chi-square**	**P-value**
	Cases (N=37)	**Control (N=563)**		
Spontaneous Miscarriage	3 (8.11%)	29 (5.15%)	15.617	0.029
Gestational Diabetes Mellitus	1 (2.7%)	24 (4.26%)		
Preeclampsia	5 (13.51%)	16 (2.84%)		
Oligohydramnios	1 (2.7%)	24 (4.26%)		
Preterm Labour	2 (5.41%)	35 (6.22%)		
IUGR	2 (5.41%)	29 (5.15%)		
Low Birth Weight	4 (10.81%)	29 (5.15%)		
No Complications	19 (51.35%)	377 (66.96%)		

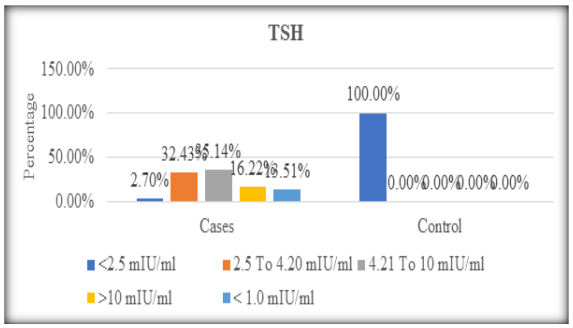

Figure 1: Cluster bar chart of comparison of TSH between study group (N=600)

DISCUSSION

Thyroid disease evaluation during pregnancy is critical for the mother's health during pregnancy, the obstetric outcome, and the child's future development. Maternal hypothyroidism is the most frequent thyroid condition during pregnancy. Fetal loss, placental abruptions, hypertension, preterm delivery, and impaired intellectual function in the offspring are all linked to this condition. There is a scarcity of information about thyroid issues in Indian pregnant women. This study was conducted to identify the prevalence of thyroid disorders in pregnancy and its impact in material and fetal outcomes. A total of 600 subjects were enrolled for the study.

Study Population

In the present study, 6.17% were cases, and 93.83% were controls. Sharin P. Barse et al.43 performed a prospective study on 696 pregnant women in which 17.90% of the women were identified with thyroid disorders and 82.1% without thyroid disorders. In another study by Kalyani Mahajan. et al., , in which 12.45% of the study population had thyroid disorders while the remaining 87.55% had normal thyroid function. Sharin P. Barse, et al. Kalyani Mahajan.et al. Reshmi Ramachandran.et al. Kalpana Mahadik. et al. showed an increased prevalence as compared to the present study.

Age

In the current study, the mean of age in the case and control groups were identified as 24.73 ± 3.72 years and 24.06 ± 3.31 years, respectively. Hatice Dulek et al. conducted a retrospective study on 796 antenatal women in which the mean age of participants with normal thyroid function was 28.3±5.7 years while 28.0±5.2 and 27.7±5.4 years were the mean of age in participants with hyperthyroidism and hypothyroidism, respectively which was an increased mean as compared to our study. Alpana Singh. et al. performed a prospective study on 400 pregnant women in which 23.04 ± 3.34 was the mean age of the euthyroid population while 24.83 ± 4.10 and 20.66 ± 1.52 years were the means of age in subjects with hypothyroidism and hyperthyroidism which resembles to the present study results.

Parity

In the present study, primigravida, multigravida with previous normal delivery, and multigravida with previous LSCS were identified with 45.95%, 29.73%, and 24.32% in cases while it was identified with 52.58%, 31.26%, and 16.16% in control. Sreelatha S.et al. conducted a prospective study on 100 women in which the majority of the participants were belonged to multigravida with 51% followed by primigravida with 49% in subjects with thyroid dysfunction. In another study by Alpana Singh. et al. primigravida and multigravida in women with thyroid disorders were identified with 8.8% and 7.7% whereas, it was 91.2% and 92.23% in women without thyroid disorders.

Gestational Age

In the present study, the period of gestational age was <10 weeks in the majority of the women in the case group with 48.65%, followed by > 10 weeks with 37.84%. Similarly, in control with 71.23% and 28.77%. Uma Kaimal Saikia. et al. conducted a prospective study on 542 pregnant women in which 16.97% of the participants were in the first trimester whereas 29.88% in the second trimester and 53.13% in the third trimester.

Thyroid-Stimulating Hormone

In the present study, TSH was between 4.21 - 10 mIU/ml in the majority of the participants in the case group with 35.14%, followed by 2.5 - 4.20 mIU/ml with 32.43%. Whereas, in the control

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group, TSH was <2.5 mIU/ml in all the participants. In Peter N. Taylor. et al. studies 62.8% of the pregnant women with thyroid disorders had a TSH level of greater than 2.5 mU/L while 7.4% of the women had a TSH level greater than 10 mU/L.

Prevalence of Thyroid Disorders

In the current study, hyperthyroidism and hypothyroidism were identified with 1% and 5.17%, respectively. In Kalyani Mahajan. et al. studies the prevalence of hyperthyroidism and hypothyroidism were identified with 0.58% and 11.88%, respectively. In another study by Sharin P. Barse et al.[4] 1.4% and 16.5% were identified as the prevalence of hyperthyroidism and hypothyroidism, respectively. The prevalence of hypothyroidism was more than that of hyperthyroidism in Alpana Singh. et al. Kalyani Mahajan. et al. Kalpana Mahadik, et al. Sharin P. Barse, et al. studies which resemble to the present study results.

Comparison of prevalence of thyroid disorders between various studies

Study	Population	Thyroid disorders (%)
Present study	600	Hypothyroidism (1%) Hyperthyroidism (5.17%)
Kalpana Mahadik, et al.	198	Hypothyroidism (9.1%) Hyperthyroidism (1.5%)
Alpana Singh.et al.	400	Hypothyroidism (7.5%) Hyperthyroidism (0.75%)

Repeat TSH

Among the case group, the majority of the participants had repeat TSH <3.0 mIU/ml with 51.35% at 16th week followed by 3.0-4.2 mIU/ml with 29.73%. Similarly, at the 20th week, 61.76% had repeat TSH <3.0 mIU/ml, and at 32nd week 97.06% had repeat TSH <3.0 mIU/ml. In Rodrigo Moreno-Reyes, et al. studies, TSH in the first trimester was > 2.5 mU/L in 8.3% of the women with thyroid disorder while the TSH in the third trimester was > 3.0 mU/L in 6.1% of the women.

Repeat T4

In the case group, out of 6 participants at 16th week, repeat T4 was increased in 50% of participants. Whereas, out of 5 participants at the 20th week, only 20% had increased T4.

Antibodies

In the present study, 16.67% of the participants showed positive antibodies at the 16th week. Alpana Singh. et al. performed a prospective study on 400 pregnant women in which antibody was positive in 36.6% of participants with thyroid dysfunction. In Reshmi Ramachandran. et al. studies 9.90% of the antenatal women had the presence of antibody. Alpana Singh. et al. Reshmi Ramachandran. et al. studies showed an increased rate of antibodies as compared to the present study.

Treatment

Among the case group, 54.05% had adequate treatment, while 45.95% of participants had inadequate treatment.

Mode of Delivery

In the present study, the mode of delivery was LSCS in most of the participants in the case group with 43.24%, followed by normal vaginal delivery with 32.43%. Whereas most of the participants underwent normal vaginal delivery in the control group with 52.58%, followed by LSCS with 32.21%. Kalyani Mahajan. et al. conducted an observational study on 514 women in which the majority of the participants with thyroid disorders underwent cesarean section with 32.08% followed by vaginal delivery with 67.92%. Whereas 74.61% of participants with normal thyroid function had a vaginal delivery with 74.61%, followed by the cesarean section with 25.39%. Varuni Sharma. et al.1 performed a prospective study on 120 subjects in which vaginal delivery and cesarean section were observed with 57.89% and 42.11% in participants with thyroid disorder while it was observed as 80.24% and 19.76% in participants without thyroid disorders. Kalyani Mahajan. et al. Varuni Sharma. et al.1 showed similar results with the present study.

Pregnancy Outcomes

In the current study, spontaneous miscarriage, gestational diabetes mellitus, preeclampsia, oligohydramnios, preterm labor, IUGR and low birth weight were identified with 8.11%, 2.7%, 13.51%, 2.7%, 5.41%, 5.41% and 10.81% in cases whereas, it was identified with 5.15%, 4.26%, 2.84%, 4.26%, 6.22%, 5.15% and 5.15% in control group respectively. Reshmi Ramachandran. et al. studies conducted a prospective observational study on 451 antenatal women in which miscarriage, GDM, preeclampsia, preterm birth, IUGR, and LBW were identified with 24.75%, 3.96%, 4.95%, 1.98%, 0%, and 1.98% in pregnant women with thyroid disorders while it was identified with 3.42%, 0.29%, 0.86%, 0%, 1.43% and 5.43% in pregnant women without thyroid dysfunction. In another study by Kalyani Mahajan. et al. study miscarriage, low birth weight, IUGR, and no complications were identified with 34.03%, 8.23%, 6.25%, and 54.86% in participants with thyroid disorders while, it was identified with 6.38%, 3.77%, 5.22% and 83.48% in participants with normal thyroid function. Reshmi Ramachandran. et al. Kalyani Mahajan. et al. Alpana Singh. et al. showed similar results with the present study in terms of pregnancy outcomes.

Comparison of pregnancy outcomes between various studies

Study	Population	Pregnancy outcomes (%)	
Present study	600	Cases Spontaneous Miscarriage (8.11%) GDM (2.7%) Preeclampsia (13.51%) Oligohydramnios (2.7%) Preterm Labor (5.41%)	Controls Spontaneous Miscarriage (5.15%) GDM (4.26%) Preeclampsia (2.84%) Oligohydramnios (4.26%) Preterm Labor (6.22%)

ISSN (O): 2687-5365; ISSN (P): 2753-6556

		IUGR (5.41%) LBW (10.81%)	IUGR (5.15%) LBW (5.15%)
Alpana Singh.et al.	400	Cases Miscarriage (9.09%) Preeclampsia (33.335) Preterm labor (3.33%) IUGR (16.66%) GDM (6.66%)	Control Miscarriage (3.2%) Preeclampsia (7.3%) Preterm labor (4.6%) IUGR (5.7%) GDM (4.9%)

CONCLUSION

To summarize, the current study reveals a significant prevalence of thyroid disorders, particularly hypothyroidism, underscoring the importance of including thyroid function testing in regular antenatal clinic screening. Potential maternal and fetal problems should be made known to women with thyroid disorders. TSH in the blood is a sufficient and cost-effective biochemical diagnostic for thyroid dysfunction screening. Thyroid dysfunction must be diagnosed and treated as soon as possible in order to minimize negative perinatal outcomes.

Limitations

The sample size of the cases is small in the present study. Follow-up of the study population is not performed. Demographic details such as family history not included.

Recommendations

The present study can be conducted in a larger population size. Follow-up and treatment taken can also be included in a future study.

Conflict of Interest Nil

Funding Sources Nil.

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ISSN (O): 2687-5365; ISSN (P): 2753-6556