A study of effects of hypothyroidism on antenatal patients

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INTRODUCTION
After Diabetes Mellitus, thyroid disorders are the most common endocrine disorders during pregnancy. The most common thyroid gland dysfunction in pregnancy is hypothyroidism with estimated prevalence of 1.5-4.4% of pregnant women. Efforts of hypothyroidism in pregnancy include anemia, pre-eclampsia, prematurity, IUGR, low birth weight, mental retardation in neonate. The objective of this study is to find the association of hypothyroidism and its adverse outcomes on mother and the fetus that is listed above.

METHODS
A prospective clinical study was conducted over a period of 6 months over 50 antenatal patients with hypothyroidism from Jan 2021 to August 2021 in the department of obstetrics and gynecology, Cama and Albless hospital, Mumbai with inclusion, exclusion criteria. History of infertility, family history of thyroid disease, menstrual pattern, recurrent abortion and fetal outcomes were the main study variables. Data was analyzed in Microsoft excel software for statistical correlation.
Statistical analysis

Statistical analysis is done by SPSS software and difference with a p<0.05 was considered statistically significant.

Inclusion criteria

Antenatal patients with 30 weeks or more than 30 weeks gestation and antenatal patients giving consent for the study were included in the study.

Exclusion criteria

Antenatal patients having hypothyroidism prior to pregnancy or any other autoimmune disease and those not willing to participate in the study were excluded from the study.

RESULTS

A total of 50 antenatal patients with hypothyroidism participated in this study and the following observations were made.

Parity and hypothyroidism

| Parity        | No. of cases | Percentage (%) |
|---------------|--------------|----------------|
| Primigravida  | 12           | 24             |
| G2            | 13           | 26             |
| G3            | 6            | 12             |
| G4            | 2            | 4              |
| G2A1/G3A2     | 13           | 26             |
| Bad obstetric history | 4 | 8 |

In this study, a higher percentage of hypothyroidism was found in G2 (26%) followed by primigravida (24%), G3 (12%), >G4 (4%), and 26% patients had previous history of abortion.

Period of gestation

Among the 50 antenatal patients, 28 patients (56%) delivered between 38-40 weeks, 11 patients (22%) delivered >40 weeks, 11 patients (22%) delivered before the 37 weeks.

| Period of gestation (Weeks) | No. of cases | Percentage (%) |
|-----------------------------|--------------|----------------|
| <37                         | 11           | 22             |
| 38-40                       | 28           | 56             |
| >40                         | 11           | 22             |

Mode of delivery

In this study, 58% patients had full term vaginal delivery, 34% patients underwent cesarean section, 8% patients had preterm vaginal delivery.

| Mode of delivery | No. of cases | Percentage (%) |
|------------------|--------------|----------------|
| Full term vaginal delivery | 29 | 58 |
| LSCS             | 34           | 34             |
| Preterm vaginal delivery | 8 | 8 |

Birth weight of baby

In this study, 56% babies had birth weight between 2501-3000 gm, 32% had low birth weight (<2500 gm), 8% babies had birth weight between 3501-4000 gm, 4% babies had birth weight >4000 gm.

| Birth weight (gm) | No. of cases | Percentage (%) |
|-------------------|--------------|----------------|
| Less than or equal to 2500 | 16 | 32 |
| 2501-3000         | 28           | 56             |
| 3001-4000         | 4            | 8              |
| >4001             | 2            | 4              |

NICU admission with hypothyroidism

In this study, 32% babies required NICU admission due to various reasons, 68% babies did not require NICU admission.

| NICU admission required | No. of cases | Percentage (%) |
|-------------------------|--------------|----------------|
| Yes                     | 16           | 32             |
| No                      | 34           | 68             |

Co-morbidities with hypothyroidism

Among 50 antenatal patients with hypothyroidism, anemia was observed in 20% patients, pre-eclampsia was observed
in 24% patients, polyhydramnios in 12% patients, neonatal death in 4% patients.

**DISCUSSION**

In our study, higher percentage of hypothyroidism was found in G2 (26%) followed by primigravida (24%), G3 (12%), >G4 (4%) and 26% patients had previous history of abortion. Similar results were found in a study conducted by Mahadik et al where the prevalence of abortions was found to be high.²

Among 50 antenatal patients, 28 patients (56%) delivered between 38-40 weeks, 11 patients (22%) delivered >40 weeks, 11 patients (22%) delivered before 37 weeks (preterm). In a study conducted by Korevaar et al the preterm delivery risk was found to be 6.1%.³

In this study, 32% babies required NICU admission due to various reasons, 68% babies did not require NICU admission. Similar results were found in a study conducted by Mahadik et al where the rate of NICU admission was 42.1%.²

In this study, 56% babies had birth weight between 2501-3000 gm, 32% had low birth weight (<2500 gm), 8% babies had birth weight between 3501-400 gm, 4% babies had birth weight >4000 gm. Similar results were found in a study conducted by Mahadik et al where low birth weight was found in 31.6% patients.²

In this study, 58% patients had full term vaginal delivery, 34% patients underwent caseran section, 8% patients had preterm vaginal delivery. Similar results were found in a study conducted by Kiran et al where the emergency cesarean section occurred in 23.4% of cases.³

Among 50 antenatal patients with hypothyroidism, anemia was observed in 20% patients, pre-eclampsia was observed in 24% patients, polyhydramnios in 12% patients, neonatal death in 4% patients. Similar results were found in a study conducted by Mahadik et al where anemia was found in 26.3 patients.²

**Limitations**

This study being the neurocognitive function of babies could not be studied in detail due to lost to follow up of patients. All laboratory parameters should be studied to come to a diagnosis.

**CONCLUSION**

Hypothyroidism is a common health problem in antenatal patients. We concluded that hypothyroidism is more commonly seen to be associated with low birth weight, anemia, pre-eclampsia, NICU admission in neonate. Early ANC registration and regular ANC checkups help in early recognition and initiating early treatment, thus improving fetomaternal outcome.

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