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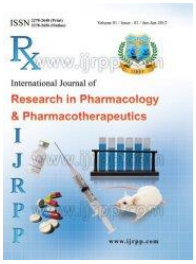

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A study on evaluation of hypothyroidism associated with pregnancy women

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ABSTRACT

Maternal hypothyroidism may place the mother at an increased risk of adverse obstetrical outcomes. Untreated hypothyroidism is associated with increased risk for pre-eclampsia, low birth weight, placental abruption, miscarriage, and perinatal mortality**.**

Aim & Objective

Aim of the study to evaluate hypothyroidism associated with pregnancy person. Methodology: The study was a prospective observational study and was conducted over a period of six months in various hospitals.

Results and Discussion

Out of 109 patients, In age wise distribution, the highest number of patients (44.95%) fell in 22-25 of age range followed by 24.77% in 26-29 years range. 54.12% patients suffer from hypothyroid and 39.44% suffer from anemia most seen in second trimester and also followed by12.84% with hypertension. Prescription pattern among the obstetrics and gynecology patients observed was like Anti-anemic drug 67.88%, Calcium 56.88%, Vitamin supplement 17.43%, Anti-emetics 15.59%, Anti-fungal 2.7%, Anti-ulcer 1.83%.

Conclusion

Hypothyroid, anemia, hypertension are associated disease in pregnant patients. Second trimester more suffer from hypothyroidism and anemia. Iron, calcium and vitamin supplement were the most frequently prescribed drugs.

Keywords: Hypothyroidism, Pregnancy Trimester, Anemia, Prescribing pattern

INTRODUCTION

Hypothyroidism is the most common pregnancy-related thyroid disorder; affecting 3–5% of all pregnant women.[1]Maternal hypothyroidism may place the mother at an increased risk of adverse obstetrical outcomes. Untreated hypothyroidism is associated with increased risk for pre-eclampsia, low birth weight, placental abruption, miscarriage, and perinatal mortality. [2] Maternal and fetal thyroid

profiles differ throughout gestation. Due to many physiological changes during pregnancy, interpretation of thyroid function tests needs trimester specific reference intervals. Under the influence of placental human chorionic gonadotropin (hCG), the levels of thyrotropin (thyroid stimulating hormone [TSH]) is decreased throughout pregnancy. [3]

According to The American Congress of Obstetricians and Gynecologists (ACOG), the prevalence of hypothyroidism in pregnancy is 2 to 5%. There are a few studies from India which show the prevalence of hypothyroidism during pregnancy ranging from 4.8% to 11% [4].

Hypothyroidism and anemia are widely prevalent in pregnant women. [5]Anemia affects one-quarter of the world's population and is concentrated in preschool-aged children and women, making it a global public health problem. Over 90% of affected individuals live in developing countries. Only 50% of anemia is caused by iron deficiency, the remainder is caused by vitamin A, B12, folate deficiencies, malaria, HIV, other infectious diseases, sickle cell disease and other inherited anemia. Normal thyroid status is dependent on the presence of many trace elements e.g., iron, iodine, selenium, and zinc for both the synthesis and metabolism of thyroid hormones. Deficiencies of these elements can impair thyroid functions [6]. Maternal drug use during pregnancy may pose a teratogenicity risk to the foetus. However, avoiding all drugs during early pregnancy is unrealistic and may be dangerous to the health of the mother and indirectly to that of the foetus too. [7] This study was done toevaluation of hypothyroidism associated with pregnancy women.

MATERIALS AND METHOD

The study was a prospective observational study and was conducted over a period of six months (December 2016 to May 2017). Measurements: Demographic details, medical history, laboratory values, vital signs, and physical examination and co-morbid conditions were recorded for each participant. A predesigned data collection form is using to obtain this data.

Study criteria

Inclusion Criteria

Pregnant patients diagnosed with hypothyroidism were included in this study.

Exclusion Criteria

Patients who unwilling to participate in this study.

RESULT

Table: 1 Age Wise Distribution

AGE(YEARS)	FREQUENCY (N=109)	PERCENTAGE
18-21	21	19.26%
22-25	49	44.95%
26-29	27	24.77%
30-33	11	10.09%

A total of 109 patients were enrolled in the study. In age wise distribution, the highest number of patients (44.95%) fell in 22-25 of age range followed by 24.77% in 26-29 years range.

Table: 2 Gestation Specific Parameters in Different Trimester

	HYPOTHYROID	ANEMIA	HYPERTENSION
First Trimester	37(33.94%)	22(20.18%)	8 (7.3%)
Second Trimester	59(54.12%)	43(39.44%)	14(12.84%)
Third Trimester	13(11.92%)	9(8.25%)	4(3.6%)

Out of 109 patients, 54.12% patients suffer from hypothyroid and 39.44% suffer from anemia most seen in second trimester and also followed by12.84% with hypertension. In first trimester, about 33.94% patients have hypothyroid and 20.18% have anemia, 7.3% followed by hypertension. In third trimester, about 11.92% with hypothyroid and 8.25% with anemia, 3.6% patients followed by hypertension.

Table: 3 Prescribing Pattern of Drugs among Study Population

DRUGS	FREQUENCY (n=109)	PERCENTAGE
Anti-Anemic Drug	74	67.88%
Calcium	62	56.88%
Vitamin Supplement	19	17.43%
Anti-Emetics	17	15.59%
Anti-Fungal	3	2.7%
Anti-Ulcer	2	1.83%

The most frequently prescribed drugs were anti-anemic drug, calcium, vitamin supplement and anti-emetics. Prescription pattern among the obstetrics and gynecology patients observed was like Anti-anemic drug 67.88%, Calcium 56.88%, Vitamin supplement 17.43%, Anti-emetics 15.59%, Anti-fungal 2.7%, Anti-ulcer 1.83%.

DISCUSSION

About 2 to 5% of pregnant woman suffer from any variety of thyroid disorders and timely intervention can be done if detected early. Women with hypothyroidism have decreased fertility; even if they conceive, risk of abortion is increased, and risk of gestational hypertension, anemia, abruption placenta and postpartum hemorrhage is increased. [5]. The present study also reveals that major risk factors are hypothyroid, anemia and hypertension.

The thyroid undergoes physiological changes during pregnancy, such moderate enlargement of the gland and increasing of vascularization. Beta-Human chorionic gonadotropin (β-HCG) causes thyroid stimulation since the first trimester, due to structural analogy with thyroid-stimulating hormone (TSH). The thyrotropic activity of β-hCG causes also a decrease in serum TSH in the first trimester so that pregnant women have lower serum TSH concentrations than non-pregnant women. [8]

During the first three months of pregnancy, the fetus has total dependence on the mother's thyroid hormones, and these hormones pass from the placenta to the fetus until the end of the first trimester that fetal thyroid gland becomes activated and starts producing thyroid hormone. After first trimester until the end of pregnancy the fetus needs iodine to produce thyroid hormone, which is transmitted from the mother to the fetus.[9] Severe degree of anemia is seen in 1st trimester of pregnancy. In normal pregnancy, the expansion of the plasma volume (50%) compared with the increase in red cell mass (30%). Therefore, hemoglobin values start to decline during the early phase of 1st trimester and reach their nadir near the end of the second trimester. [10]

Diganta Das et al. demonstrated that that more 43 % of pregnant women in first trimester were suffering from Hypothyroidism [11]. In contrast to that study 59% of pregnant women in second trimester were suffering from hypothyroidism.

Mild, anemia may not have any effect on pregnancy and labour except that the mother will have low iron stores and may become moderately to-severely anemic in subsequent pregnancies. Moderate anemia may cause increased weakness, lack of energy, fatigue and poor work performance. Severe anemia, however, is associated with poor outcome. The woman may have palpitations, tachycardia, breathlessness, increased cardiac output leading on to cardiac stress which can cause de-compensation and cardiac failure. [12] In our study about 39.44% patients suffer from anemia in second trimester.

Folic acid, calcium, and iron supplements were prescribed to majority of patients which may be because of high prevalence of anemia in pregnancy due to the poor nutritional status of the pregnant women. Vitamins and mineral supplements play a pivotal role in the prevention. [13] In the present study reveals that mainly prescribed drugs are anti anemic drug, calcium, vitamin supplement and anti emetic drugs.

CONCLUSION

In age wise distribution, the highest number of patients (44.95%) 22-25 of age range. Hypothyroid, anemia, hypertension are associated disease in pregnant patients. Second trimester more suffer from hypothyroidism and anemia. Iron, calcium and vitamin supplement were the most frequently prescribed drugs. Data from this study establish reference values for pregnant women and point out the need for laboratory and geography-specific

reference ranges in an effort to evaluate the risk for both obstetric complications and impaired fetal development.

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