Original Research Article

A prospective clinical study of pregnancy with hypothyroidism and it's outcome in a tertiary care hospital

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Abstract

Introduction: Pregnancy is a period that places great physiological stress on both the mother and the fetus. If pregnancy at any stage is complicated by some endocrine disorder such as hypothyroidism, the new born may have profound effect on future intellectual development. The growing fetus remains dependent on maternal thyroid hormone in early phase of gestation because the fetal thyroid gland starts functioning at 12 to 14 weeks of gestation. There is significant increase in the size of thyroid gland during pregnancy which is approximately 10% in iodine sufficient countries and to a greater extent in countries where there is deficiency of iodine.**Materials and Methods:** Present study has been conducted in the Department of Obstetrics and Gynecology, Govt Medical College, Ananthapur, Andhra Pradesh, India. This is a prospective observational study. All pregnant women attending antenatal outpatient department for their first antenatal check-up were approached and in addition to routine lab investigation thyroid function test was advised. Out of them patients were selected based on following inclusion and exclusion criteria.**Results:** In present study during study period 500 patients attending obstetrics outpatient department were evaluated for hypothyroidism out of them 60 patients with hypothyroidism were enrolled for this study. Clinical and demographic profile of patients 11.6 patients were below 20 year of age, 23.33% patients were between 21 to 30 years of age, 41.17% patients were between 31 to 40 years of age and 23.33% of patients were above 41 year of age. In this study 78.33% patients were below 10 weeks of gestation and 21.66% were above 10 weeks of gestation. Regarding gravidity of patients 63.33 % patients were primi and 36.66% patients were multi. Serum TSH was between 3 to 5 mIU/ml in 13.33 % patients, 5 to 10 mIU/ml in 60% and more than 10 mIU/ml in 26.66% patients. At the time of admission 58.33% patient were taking treatment and 41.66 % patient were not treated.**Conclusion:** From our study we can conclude that the prevalence of hypothyroidism in our region was 12%. Hypothyroidism during pregnancy is more common in primi. Most common age group was third decade and was commonly detected before 10 weeks of gestation. Pregnancy induced hypertension, oligohydramnios and preterm delivery was more common than abortion in second trimester and missed abortion. Normal vaginal delivery was common then elective or emergency CS.

Keywords: Pregnancy, CS, Hypothyroidism, Pregnancy induced hypertension,

Introduction

Pregnancy is a period that places great physiological stress on both the mother and the fetus. If pregnancy at any stage is complicated by some endocrine disorder such as hypothyroidism, the new born may have profound effect on future intellectual development[1]. The growing fetus remains dependent on maternal thyroid hormone in early phase of gestation because the fetal thyroid gland starts functioning at 12 to 14 weeks of gestation[2].There is significant increase in the size of thyroid gland during pregnancy which is approximately 10% in iodine sufficient countries and to a greater extent in countries where there is deficiency of iodine[3].Pregnancy has an intense influence on thyroid gland and it causes metabolic effect that alters the function of thyroid gland. Because of the physiological changes during pregnancy production of thyroid hormone and iodine requirement both increases approximately 50%[4].There are some previous studies available showing untreated maternal hypothyroidism and subclinical hypothyroidism with increased adverse maternal and foetal outcomes[5]. In addition to that pregnancy is stressful condition for the thyroid gland resulting in hypothyroidism.In western countries the prevalence of hypothyroidism is approximately 2.5%. There are few reports also available from India showing prevalence of hypothyroidism during pregnancy ranges from 4.8 to 11%[6].Present study has been undertaken to know the prevalence of hypothyroidism in our region and its presentation and also to follow the patients till delivery after adequate treatment.

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Materials and methods

This is a prospective observational study has been conducted in the Department of Obstetrics and Gynecology, Govt Medical College, Ananthapur, Andhra Pradesh, India. It has been conducted from January 2020 to December 2020.

Selection of patients

All pregnant women attending antenatal outpatient department for their first antenatal check-up were approached and in addition to routine lab investigation thyroid function test was advised. Out of them patients were selected based on following inclusion and exclusion criteria.

Inclusion criteria

1) All singleton pregnancy in first and second trimester
2) Overt and subclinical patients with or without treatment

Exclusion criteria

1) Multiple pregnancies
2) Gestational diabetes mellitus

Sample size

Based on above criteria 60 patients were enrolled for this study.

Method

In present study 60 patients with overt and subclinical hypothyroidism were included in this study. Detailed histories of patients were taken and clinical examination was done and data was

collected in a predesigned proforma. We used standard diagnostic criteria for diagnosis of overt and subclinical hypothyroidism. For estimation of thyroid hormone we used Radioimmunoassay and Solid Phase Two-Site Immuno Radiometric Assay technique. All women enrolled for this study were followed till delivery to see that they develop any complication and know the outcome of pregnancy. All patients were treated as per standard treatment protocol.

Statistical analysis

Data were recorded in excel sheet and statistical Analysis was done with software SPSS-14 version. Data were calculated as percentage and proportions.

Results

In present study during study period 500 patients attending obstetrics outpatient department were evaluated for hypothyroidism out of them 60 patients with hypothyroidism were enrolled for this study.In table 1, Clinical and demographic profile of patients 11.6 patients were below 20 year of age, 23.33% patients were between 21 to 30 years of age, 41.17% patients were between 31 to 40 years of age and 23.33% of patients were above 41 year of age. In this study 78.33% patients were below 10 weeks of gestation and 21.66% were above 10 weeks of gestation. Regarding gravidity of patients 63.33 % patients were primi and 36.66% patients were multi. Serum TSH was between 3 to 5 mIU/ml in 13.33 % patients, 5 to 10 mIU/ml in 60% and more than 10 mIU/ml in 26.66% patients. At the time of admission 58.33% patient were taking treatment and 41.66 % patient were not treated.

Table 1: Clinical and demographic profile of the patients with hypothyroidism.

Variables		Frequency	Percentage
Age in years	Less than 20	7	11.6
	21-30	14	23.33
	31-40	25	41.17
	More than 41	14	23.33
Gestational age	Less than 10 weeks	47	78.33
	More than 10 weeks	13	21.66
Gravidity	Primi	38	63.33
	Multi	22	36.66
Serum TSH in mIU/ml	3-5	8	13.33
	5-10	36	60
	More than 10	16	26.66
Treatment status at admission	Treated	35	58.33
	Not treated	25	41.66

Table 2: Complication in patients with hypothyroidism during pregnancy.

Variables		Frequency	Percentage
Frequency of complication	Absent	37	61.66
	Present	23	38.33
Pregnancy induced hypertension		5	8.33
Chronic hypertension		2	3.33
Abortion in second trimester		1	1.6
Incomplete abortion		4	6.6
Missed Abortion		1	1.6
Preterm delivery		9	30
Oligohydramnios		7	11.66

As per table 2, regarding complication in patients with hypothyroidism during pregnancy 61.66% of patients have developed complication. Pregnancy induced hypertension was found in 8.33% patient, Chronic hypertension was present in 3.33% patients, abortion in second trimester 1.6% patients, incomplete abortion in 6.6% patients. Missed abortion was present in 1.6% patients. Preterm delivery and oligohydramnios was present in 30% and 11.66 % patient respectively.

Table 3: Mode of delivery in patients with hypothyroidism.

Variables	Frequency	Percentage
Normal vaginal delivery	27	45
Preterm	10	16.66
Forceps	1	1.66
Elective CS	16	26.66
Emergency CS	11	18.33

Regarding mode of delivery of patients with hypothyroidism, 45% have normal vaginal delivery, preterm 16.66% and 1.66 % has forceps assisted delivery. Elective CS was mode of delivery in 26.66% and emergency CS was mode of delivery in 18.33%.

Discussion

We have evaluated 500 women with pregnancy for hypothyroidism during our study period of one year and observed that 12% women have hypothyroidism. Dhanwal DK, Bajaj S, Rajput R, et al[12] has reported from his multicentric study that prevalence of hypothyroidism during pregnancy in India to be 13.13% and in Andhra Pradesh to 8.94% which is little less than our study but close to whole India prevalence. Korde VR, Barse SP, Barla JS et al has reported that in his study the prevalence was 14% which is similar to our study[15].We have observed that hypothyroidism during pregnancy is more common in primi. Most common age was from 31 to 40 years and was commonly detected before 10 weeks of gestation which is supported by the work of Vimal Nambiar, Varsha S. Jagtap, Vijaya Sarathi et al. In present study most of the patient TSH was between 5 to 10 mIU/ml and at the time of admission 60% patient were taking treatment and 40 % patient were not treated[8].Which is supported by the work of Vimal Nambiar et al and Teng X, Shan Z, Chen Y, Lai Y, Yu J, Shan L, et al. In our study pregnancy induced

hypertension, oligohydramnios and preterm delivery was more common than abortion in second trimester and missed abortion. This finding corroborates with the study of Tudosa R, Vartej P, Horhoianu I, Ghica C, Mateescu S, Dumitrache Iet al and Casey BM, Dashe JS, Wells CE, et al[9].Regarding mode of delivery in our study normal vaginal delivery was most common (48.33%). Tudosa R, Vartej P, Horhoianu I, Ghica C, Mateescu S, Dumitrache I et al has reported that spontaneous delivery was 53.33% which is little higher the our study. Elective CS was mode of delivery in 28.33% and emergency CS was mode of delivery in 16.66% which is less than the study of Tudosa R, Vartej P et al. Casey BM, Dashe JS, Wells CE, et al has concluded that Preterm birth, defined as delivery before 34 weeks of gestation, was almost 2-fold higher in women with subclinical hypothyroidism which support our study[9].

Conclusion

From our study we can conclude that the prevalence of hypothyroidism in our region was 12%. Hypothyroidism during pregnancy is more common in primi. Most common age group was third decade and was commonly detected before 10 weeks of gestation. Pregnancy induced hypertension, oligohydramnios and preterm delivery was more common than abortion in second trimester and missed abortion. Normal vaginal delivery was common then elective or emergency CS.

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Conflict of Interest: Nil

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