

Original Research Article

Prevalence of Thyroid Dysfunction in Antenatal Screening at Tertiary Health Care Hospital

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Abstract

Over the past several years maternal thyroid disorders influenced the outcome of pregnancy. Maternal and fetal morbidities are well documented complication of pregnancy in thyroid dysfunction. The vast majority of affected women are asymptomatic. Therefore to avoid the potential complications universal screening of antenatal patients was done. Thyroid dysfunction may be overlooked in pregnancy because of their overlying symptoms. *Context:* "The purpose of this study is to explore the prevalence of thyroid dysfunction in pregnancy and emphasize on the screening of thyroid dysfunction in pregnancy" *Settings and design:* It is a retrospective study. *Material and methods:* All Antenatal patients with hypertension and diabetes mellitus irrespective of their trimester were recorded for their thyroid function test. *Statistical analysis used:* All the results were analyzed and p value, chi square test applied wherever necessary. *Results:* We have studied 700 antenatal cases and found that thyroid dysfunction was present in 80 cases (11.4%). Of which asymptomatic were 32 cases (40%) and symptomatic were 52 (65%). *Conclusion:* we have concluded that universal screening of antenatal patients should be done irrespective of their antenatal visit.

Keywords: Thyroid dysfunction; Antenatal; Universal; Screen.

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Introduction

Pregnancy can be viewed as a state in which a combination of events occurs to modify the thyroidal economy [1]. Thyroid dysfunction may be overlooked in pregnancy because of the nonspecific symptoms and hyper metabolic state

of normal pregnancy [1]. Disorder of thyroid gland is more frequent in women than in men, especially throughout child bearing ages. Maternal and perinatal morbidities are well-documented complications of pregnancy in mothers with thyroid dysfunction [2]. Untreated thyroid dysfunction affects fertility, fetal growth and fetal development

[2]. Thyroid dysfunction early in pregnancy seems to affect fetal and placental growth and necrophilia deficit in offspring.

The vast majority of affected women are asymptomatic therefore in view of the potential pregnancy and progeny complications, it has been suggested that every women be screened for thyroid dysfunction before or very early after conception [3]. Some expert panels have suggested universal thyroid function screening in all pregnant women [4,5]. Thyroid auto antibodies have been hypothesized to be independently related to increased rates of spontaneous abortion and preterm delivery [6].

Thyroid gland may enlarge by 10 times in pregnancy especially in endemic areas [3] and in women with deficient thyroid reserve which causes increase in thyroid hormone and iodine level by 50 [3]. These females are at potential risk of hypothyroidism.

Materials and Methods

In this retrospective study, we reviewed 700 cases over a period of one year (April 2015-April 2016) from the records of MGM medical college Aurangabad.

Inclusion criteria

- Records of all antenatal patients subjected to thyroid testing irrespective of their gestational age.
- Patients with DM and Hypertension in pregnancy.

Exclusion criteria

- Any abnormal pregnancy like ectopic pregnancy

Cases were studied as follows:

Detailed history:

Present history, last menstrual period, period of amenorrhea, expected due date and symptoms of thyroid dysfunctions, previous menstrual cycles were noted. Past history of thyroid dysfunctions and treatment received were also noted.

Investigations- ultra TSH, FT₃, FT₄ was noted.

Results of test were assessed according to standard normal range for that trimester of pregnancy.

Results

Table 1: Showing distribution of total no. of cases (n=700)

Total cases	Euthyroid	Hypothyroid	Hyperthyroid
700	620 (88.5%)	73 (10.4%)	7 (1%)

A total 700 cases were studied for thyroid dysfunction. 73 (10.4%) cases of hypothyroidism, 7 (0.15%) cases of hyperthyroidism, 620 (88.5%) cases of euthyroidism were detected.

So, incidence of thyroid dysfunction in present study was 11.4% out of which incidence of hypothyroidism is 10.4% and hyperthyroidism is one %. Out of 73 cases of hypothyroidism 15 were known by past history and 58 were newly diagnosed during screening and all seven cases of hyperthyroidism were newly diagnosed (Table 1).

Table 2: Distribution of cases as per age

Age	Hypothyroid	Hyperthyroid	Euthyroid
<21	14 (13.8%)	-	148 (23.8%)
21-25	39 (53.42%)	6 (85.71%)	292 (47.0%)
26-30	18 (24.65%)	1 (14.28%)	173 (27.90%)
>30	2 (2.73%)	--	7 (1.12%)

The thyroid dysfunction was more common in age group 21-25 (53.42%) years but the results were not significant (Table 2).

Table 3: Distribution of cases according to presence or absence of general symptoms

Symptoms	Hypothyroidism	Hyperthyroidism	Euthyroidism
Symptomatic (n=89)	46 (50.85%)	6 (6.76%)	37 (42.37%)
Asymptomatic (n=611)	30 (4.99%)	2 (0.23%)	579 (94.78%)

Thyroid dysfunctions are more common in symptomatic cases as in asymptomatic cases and the difference if statistically significant when chisquare test is applied (Table 3).

The observed χ^2 value 141.52 is more than table value $\chi^2 = 3.841$ so the difference is statistically highly significant.

Table 4: Distribution of cases according to symptomatology

Symptoms	Hypothyroid	Hyperthyroid	Euthyroid
Fatigue n=58	30 (52.08%)	2 (4.17%)	12 (12.18%)
Tremor n=1		1 (100%)	
Muscle cramps n=25	25 (100%)	--	--
Heat intolerance n=5		4 (75%)	1 (25%)
Weight gain n=18	15 (81.81%)	--	3 (18.18%)
Constipation n=56	25 (45.45%)	--	31(54.54%)

Presence of muscle cramps, excessive weight gain, fatigue and constipation were symptoms of hypothyroidism. Presence of tremors heat intolerance and weight loss are symptoms of hyperthyroidism (Table 4).

Table 5: Distribution of cases according to raised mean corpuscular value (Megaloblastic picture)

MCV	Hypothyroidism	Hyperthyroidism	Euthyroidism
Raised	20 (26.925)	1 (20%)	30 (4.51%)
Not raised	53 (73.08%)	6 (80%)	590 (95.49%)

Raised MCV is more common in patients of thyroid dysfunction than the euthyroid cases. The difference is statistically significant when chi square test is applied (Table 5).

Discussion

Thyroid disorders are common among pregnant women. Diagnosis of thyroid dysfunction is complicated, however by nonspecific symptoms, hyper metabolic state of pregnancy and normal physiology of thyroid which results in alterations of maternal serum TSH and thyroxin concentrations [6].

Incidence of thyroid dysfunction in present study was 11.4% out of which incidence of hypothyroidism is 10.4% and hyperthyroidism is one %.

Our finding correlated well with Rajesh in Raj put *et al.* [2] where (13.13%) was the incidence of hypothyroidism, M. alto mere *et al.* 12.37% incidence whereas in vimal nambiar *et al.* [7] 4.8% incidence of hypothyroidism was noted.

The present study shows high prevalence of undetected thyroid disorders during pregnancy. Fifty-eight (8.2%) cases of hypothyroidism were newly diagnosed during screening.

Incidence (2.1%) of hyperthyroidism were seen in our study whereas in Shane O. he beau *et al.* [8]. 0.1% incidence of it was noted.

In our study no significant difference was found according to age.

Significant difference was found for thyroid dysfunction in our study for symptomatic and asymptomatic cases which well correlated with M. Altomere *et al.* [5].

As the thyroid disorders were affecting the all the stages of fetal development.

We strongly emphasized on all data collection including any complication of antenatal period

relating to diabetes mellitus, hypertension, macrocyticanemia, relating to thyroid disorders. Also, data correlating to fetal neural defects, intrauterine fetal death, caesariansection intrauterine fetal growth retardation, fetal birth weight, APGAR scoring of fetuses should be collected.

Screening should be done on the large scale and weightage should also be given on etiological factors of thyroid disorders.

All the data should be collected by clinic-pathological relation. We have done only pathological data collection and trying to give the importance of universal screening of thyroid function test during regular antenatal visits.

Subclinical hypothyroidism in the presence or absence of thyroid antibodies is regarded as a threat to women's fertility, pregnancy outcomes and the development of the child [8].

Placental weight was associated with thyroid dysfunction [9]. Greater placental weight was observed in clinical hypothyroidism and therefore low birth weight baby [9]. As the gestational diabetes mellitus was also common in thyroid dysfunction relating to low birth weight baby [10].

It again emphasizes in need of thyroid function study in ANC patients.

As the incidence of thyroid dysfunction seen in asymptomatic cases which emphasizes on thyroid function assessment irrespective of any symptoms.

Thyroid dysfunction was more common in age group 21-25 years, but the result was not significant when chi-square test is applied. Symptomatically same symptoms were noticed in euthyroid patients which were also detected in hyperthyroid and in hypothyroid state.

So clinically it is difficult to diagnose thyroid dysfunction which was also noted by M. alto mere *et al.* [5] Raised MCV is more common in patients of thyroid dysfunction than the euthyroid cases.

Conclusion

As the thyroid dysfunction was associated with more fetal and maternal complication whether symptomatic or no symptomatic according to our literature it emphasizes on universal screening of ANC patients for thyroid dysfunction and further study should be done to evaluate the disease.

Key Messages:

In India as the increasing incidence of thyroid dysfunction is seen during all age group especially pubertal age group.

We can avoid the complication of thyroid dysfunction on maternal and fetal health.

In our study asymptomatic patients were showing thyroid dysfunction during screening.

Number of patients with subclinical hypothyroidism were found in our study which are also prone for complications according to literature.

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