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Original Research Article

The prevalence of thyroid disorder in pregnancy

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ABSTRACT

Background: The development of maternal thyroid disorders during early pregnancy can influence the pregnancy outcome and fetal development. The present study was conducted to know the prevalence of thyroid disorders in the Indian pregnant population and the obstetric outcomes of those women suffering from thyroid disorders.
Methods: The present study was conducted on 100 women who came for an antenatal check-up in the first trimester, with Singleton Pregnancy. A detailed history was taken followed by a thorough general physical examination. Patients were sent for TSH (Thyroid Stimulating Hormone) testing. Patients were sent for TSH (Thyroid Stimulating Hormone) testing. If TSH (Thyroid Stimulating Hormone) was deranged, then FT3 and FT4 levels were checked. Depending upon the FT3 and FT4 values they are grouped as subclinical/overt hypothyroidism or hyperthyroidism.
Results: Most of the patients in the present study were from the age group 21 to 30 years. The prevalence of thyroid disorders in the present study was 38%, including hypo and hyperthyroidism. 28% of patients were found to be hypothyroid; 10% of patients were hyperthyroid.
Conclusions: The prevalence of thyroid disorders, especially hypothyroidism (28%) was high. Further studies are needed to assess adverse effects on maternal and fetal outcomes. Routine antenatal thyroid screening should be done.

Keywords: Hyperthyroidism, Hypothyroidism, Thyroid disorders, Thyroid profile

INTRODUCTION

The thyroid gland is the gland that comes under the endocrine gland. The thyroid gland Enlargement is called goiter. Toxic goiter secretes excess thyroid hormones. Nontoxic goiter secretes normal or even subnormal levels of hormones.[1,2] Mutations in developmental transcription factors or their downstream target genes are rare causes of thyroid agenesis or dyshormonogenesis and cause congenital hypothyroidism.[1] Maternal thyroid disorders during early pregnancy can impact the pregnancy outcome and fetal development. Thyroid dysfunction can lead to premature birth, pregnancy-induced hypertension, low birth weight in infants, IUGR (Intrauterine growth retardation), abruptio placenta, and increased fetal mortality.[3] Maternal hypothyroidism in the first trimester may be harmful to fetal brain development and can lead to mental retardation. In view of potential adverse outcomes associated with maternal thyroid disorders and the obvious benefits of treatment, some expert panels have suggested routine thyroid function screening in all pregnant women. The third week of gestation allows the thyroid gland to develop from the floor of the primitive pharynx. The gland migrates from the foramen cecum, at the base of the tongue, along the thyroglossal duct to reach its final location in the neck.[4] This type of feature accounts for the rare ectopic location of thyroid tissue at the base of the tongue (lingual thyroid), and for the presence of thyroglossal duct cysts along the developmental tract [1]. The present study is being undertaken to know the

prevalence of thyroid disorders in the Indian pregnant population and the obstetric outcomes of those women suffering from thyroid disorders.

Aim of study was to study the prevalence of thyroid disorders in pregnant women.

METHODS

The present study was conducted at Dr. D.Y. Patil Hospital and Research Institute, Kolhapur. 100 women, who came for an antenatal check-up in the first trimester, with Singleton Pregnancy were included in the study. Patients with multifetal gestation, known chronic disorders (Diabetes or HTN), or with previous bad obstetric history with known causes were excluded from the study.

A proper history was taken regarding the signs and symptoms of thyroid disorders. Menstrual history, obstetric history, past history medical history, family history, and personal history were also taken. A thorough general physical examination with reference to pulse, blood pressure, body temperature, and respiratory rate was noted followed by CVS (Cardiovascular System), CNS (Central Nervous System), RS (Respiratory System), and Local thyroid examination. Patients are sent for TSH (Thyroid Stimulating Hormone) testing. If TSH (Thyroid Stimulating Hormone) comes deranged, then the free thyroid profile (FT3 and FT4 levels) is checked. Depending upon the FT3 and FT4 values they are grouped as hypothyroidism or hyperthyroidism.

RESULTS

The present study included 100 antenatal women from the first trimester with a singleton pregnancy. Their TSH levels were assessed followed by testing of FT3 and FT4 levels.

The above graph shows, that most of the patients in the present study were from the age group 21 to 30 years followed by 17% from 31 to 40 years. The mean of the patients was 26.82±5.84 years ranging from 19 to 45 years. (Figure 1).

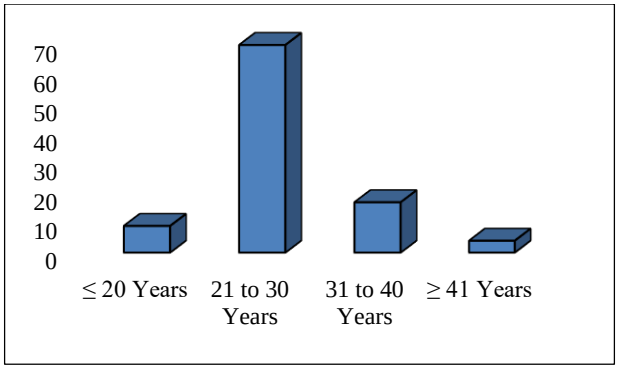

Figure 1: Age distribution of the patients.

The prevalence of thyroid disorders in the present study was 38%, including hypo and hyperthyroidism. The remaining 62% of patients were normo-thyroid and their further thyroid testing was not done (Table 1).

Table 1: Prevalence of thyroid disorders among patients.

No. of persons screened	No. with thyroid disorders	% Prevalence	95% CI
100	38	38%	32.5 to 43.5

Our study shows that 28% of patients were hypothyroid, and 10% were hyperthyroid (Figure 2).

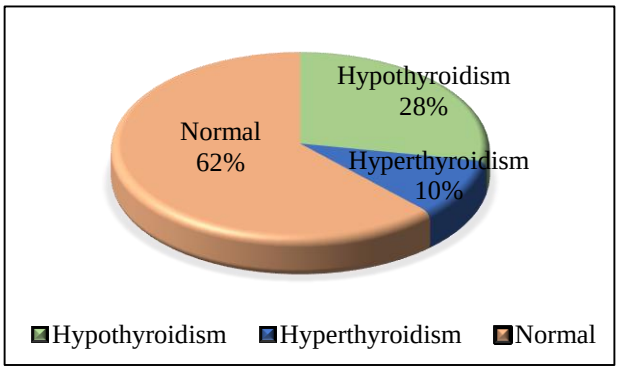

Figure 2: Percentage of cases.

Table 2: Thyroid profile of the patients (mg/dL).

Diagnosis		TSH	T3	T4	FT3	FT4
Hyperthyroid	Mean	2.39	15.47	1.85	-	-
	Std. Dev.	1.93	3.134	0.562	-	-
Hypothyroid	Mean	8.56	8.18	1.32	1.29	2.03
	Std. Dev.	5.76	4.32	0.781	0.141	0.707
Normo-thyroid	Mean	2.27	10.10	1.36	1.11	2.84
	Std. Dev.	1.19	2.57	0.341	0.232	0.392
P value		<0.01	<0.01	0.060	0.324	0.026

Table 2 shows that the mean TSH level of the hyperthyroid patients (2.39±1.93 mg/dL) was significantly less and the TSH levels of the hypothyroid patients (8.56±5.76 mg/dL) were significantly more than that of the normo-thyroid patients. The mean T3 level of the hyperthyroid patients (15.47±3.13 mg/dL) was significantly more and the T3 levels of the hypothyroid patients (8.18±4.32 mg/dL) were significantly less than that of normo-thyroid patients.

Also, the Mean T4 level of the hyperthyroid patients (1.85±0.56 mg/dL) was more and the T4 levels of the hypothyroid patients (1.32±0.781 mg/dL) were less than that of normal-thyroid patients but the difference was not significant.

DISCUSSION

The present study was done at Dr. D. Y. Hospital and Research Institute, Kolhapur. A total of 100 patients were screened for thyroid disorders in this prospective study. To know the prevalence of thyroid disorders in pregnancy is the principal aim of this study. The prevalence of thyroid disorders in our study was 38%. The prevalence in our study was higher as compared to the study by Sahu et al, who studied 633 women in the second trimester.[5] The prevalence of thyroid disorders was 12.7% in their study. The prevalence of hypothyroidism in our study was 28%. In the study of Casey et al the prevalence was 23%, which is comparable to our study. In a study done by, Sahu et al the prevalence was 6.47% which is very low and not consistent with our study.[5,6] The prevalence of hyperthyroidism in our study was 10%. In a study done by Manifesto et al, the prevalence was 3.5% for hyperthyroidism.[7] In a study done by Sahu et al, the prevalence was 0.9% for hyperthyroidism.[5] The prevalence of hyperthyroidism was 0.5% in a study done by Stagnaro Green A study.[8] The prevalence of hyperthyroidism in our study is higher compared to these studies.

CONCLUSION

Prevalence of thyroid disorders, especially hypothyroidism (28%) was high than hyperthyroidism (10%). It's important to follow up on the cases till pregnancy. Further studies are needed to assess adverse effects on maternal and fetal outcomes. Routine antenatal thyroid screening should also be done.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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