Original Research Paper

Volume - 12 | Issue - 03 | March - 2022 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Community Medicine

A STUDY OF PREVALENCE AND INCIDENCE OF THYROID DISORDER DURING PREGNANCY AT MUZAFFARPUR, BIHAR

Dr. Kumari Sushma Saroj — Department of Zoology, Dr. L.K.V.D. College, Tajpur, Samastipur, Bihar, India.

Dr. Vijay Kumar Yadawa* — Tutor, Department of Community Medicine, Sri Krishna Medical College, Muzaffarpur, Bihar. *Corresponding Author

ABSTRACT To study prevalence and incidence of thyroid disorders in pregnancy at Sri Krishna Medical College Hospital, Muzaffarpur, Bihar. This was a prospective cross sectional study done on 535 pregnant women at department of obstetrics and gynaecology at Sri Krishna Medical College Hospital, Muzaffarpur, Bihar for duration of six months. The prevalence of thyroid disorders during pregnancy was 35.2 % and incidence was 23.98 % in our study. Significant number of overt hypothyroid cases were detected among rural people (P – 0.003). There was significant difference of incidence of euthyroid (P – 0.173) and SCHTh (P - 0.195) cases at different age groups. There were also significant number of cases with goitre (P - □0.001) and TPOAb (P – □0.001) in different patient groups.

KEYWORDS : Pregnancy, thyroid, incidence

INTRODUCTION

Pregnancy is a physiological state of complex metabolic stress that involves significant changes in hormonal milieu. It has a profound influence on thyroid gland structure as well as function. Hypothyroidism during pregnancy constitutes a significant health challenge, as it is associated with adverse maternal outcome along with an impact on neonatal cognitive development. The foetal thyroid gland starts to function only after 12-14 weeks of gestation. As a consequence, the growing foetus remains dependent upon maternal thyroid hormones during this phase of early gestation [1, 2]. Thyroid hormones (thyroxine and triiodothyronine) are vital for normal foetal neurological development [3, 4]

Thyroid disorders (TD) are the second most common endocrine disorders affecting women in the reproductive period [5]. A normal pregnancy undergoes a number physiological changes which are followed by alteration of thyroid and other hormonal status [6]. Hyperthyroidism occurs in 0.2%–0.4% of pregnant women and is most commonly associated with GD. Prevalence of hypothyroidism during pregnancy varies from 2.5% to 11% according to geographic distribution. In pregnancy, 0.2% and 2.3% cases are diagnosed as overt hypothyroidism and sub-clinical hypothyroidism, respectively [7]. The aim of this study is to estimate the prevalence and incidence of thyroid disorder of pregnant women, reported in the department of obstetrics and gynaecology at Sri Krishna Medical College Hospital, Muzaffarpur, Bihar.

MATERIAL AND METHODS

This cross-sectional study was conducted from 1st July, 2021 to 31st December,2021 at Department of Obstetrics and Gynaecology at Sri Krishna Medical College Hospital, Muzaffarpur, Bihar. Amongst all pregnant women who reported to antenatal clinic, 535 women were randomly selected after obtaining written informed consent irrespective of their gestational age and gravida status. Later 89 women were excluded as they were already diagnosed cases of thyroid disorder. They were subjected to clinical evaluation with emphasis on the family history of thyroid disorder and presence of thyroid gland enlargement. Subjects' area of residence was documented and divided into 3 zones – urban, residence sub-urban and rural.

Inclusion Criteria:

- All pregnant women reported to antenatal clinic.

Exclusion Criteria:

- Pregnant women with established thyroid disorders. Subjects with history of taking drugs which affect thyroid function. e.g. Lithium, prednisolone, amiodarone.
- Subjects with any disease which may alter thyroid status. e.g. Mumps virus infection, Adeno virus infection.

RESULTS

Table 1: Baseline clinical characteristics and comparison amongst different groups

Variables	Age (Mean SD)	±	Urban	Residence Sub-urban	Rural	P value
Euthyroidism	27.68	4.38	224	59	62	0.173
SCH	27.09	4.27	44	8	12	0.453
Overt hypothyroidism	26.33	2.93	2	1	4	0.003
GD/ TMG	31		1	0	0	0.737
SCHTh	26.79	4.239	13	3	7	0.189
THP	23.59	3.731	3	622	1	0.319

Table 2: Comparison between euthyroidism and thyroid disorder

Variable	Euthyroidism	Thyroid disorder	Total	P value
Family history of TD	38	18	56	0.81
TPOAb	26	27	53	<0.001
Goiter	8	19	27	<0.001

The mean age of all groups was □25 years. The incidence of TD was higher among urban dwellers but incidence of overt hypothyroidism was significantly higher among rural people (P-0.003). The incidence of TD during pregnancy was (23.98 %, n= 446). Among TD, the incidence of SCH (14.17%) was the highest. There were significant difference of incidence of euthyroid and SCHTh cases at different stages of gestation. Presence of family history of thyroid disorder (P - 0.81) in euthyroidism and Thyroid disorder group wasn't significantly different. There was significant difference of goitre (P - □0.001) and TPOAb (P – □0.001) positive cases in both groups.

DISCUSSION

In this study, the prevalence of thyroid disorder during pregnancy was 35.2 %, which was higher than Akram FH et al. [8]. The prevalence of hypothyroidism (overt and SCH) was 23.98% which was higher comparing to Chandrasekhara P et al [9]. The age of pregnant women isn't related to prevalence of autoimmune thyroid disorders [10]. This study had the similar result as the mean age of patients of different thyroid status groups; it was mostly indifferent, □25 years. Residence has great importance regarding the prevalence and incidence of thyroid disorders [11]. Although most of the people of our country live in rural area, this study reported that most of the reported cases of TD were hailed from urban area. Social awareness, education, and good communication facilities were the main reasons behind this. The effect of urban pollution should be acknowledged as well.In this study, there were significant associations of presence of TPOAb (P-□0.001) and goiter (P-□0.001) with different thyroid status during pregnancy. But it failed to show any significant difference regarding the association of positive family history of TD (P-0.81) with various thyroid status. The measurement of TPOAb does not give any indication of thyroid status but its presence does have important implications for the pregnancy. TPOAb is also associated with an increased risk of preterm delivery.

Even the presence of TPOAb at late weeks gestation can result in a significant IQ decrement in children of euthyroid mothers. TPOAb positive women are associated with the risk decreased thyroid functional reserve during gestation which may result in overt hypothyroidism [12]. Besides that, they are at high risk of developing postpartum thyroiditis [13]. Pregnancy is a physiological condition where goitre may be present due to increased demand. Besides, women are always at higher risk of TD and goitre [14]. Positive family history of TD is also a risk factor for TD which should be considered during pregnancy with great importance despite our failure to show any significant relation with thyroid status in pregnancy [15]. In present study, we didn't follow up the patients throughout the gestational period. It would have been more appropriate had we included the data regarding the change of thyroid status and outcome, since we conducted a prevalence and incidence study.

CONCLUSION

Prevalence of thyroid disorders, especially subclinical hypothyr oidism and overt hypothyroidism was high. This study has demonstrated high prevalence (35.2 %) and incidence (23.98 %) of thyroid disorder. SCH has the highest incidence rate among TD. TPOAb (P-□0.001). Family history of TD (P-□0.001) was significantly associated with thyroid status during pregnancy.

REFERENCES

1. Agrawal U, Shrivastava P, Shrivastava S. Hypothyroidism and anemia in pregnancy Int J Adv Med. 2016;3(4):851- 854.
2. Thung SF, Funai EF, Grobman WA. The cost effectiveness of universal screening in pregnancy for subclinical hypothyroidism. Am J Obstet Gynecol. 2009; 200:267. e1-267.e7.
3. Dhanwal DK, Bajaj S, Rajput R, Subramaniam KAV, Chowdhury S, Bhandari R, et al. Prevalence of hypothyroidism in pregnancy: An epidemiological study from 11 cities in 9 states of India. Indian Journal of Endocrinology and Metabolism 2016;20;387-390.
4. Haddow JE, Palomaki GE, Allan WC, Williams JR, Knight GJ, Gagnon J, et al. Maternal thyroid deficiency during pregnancy and subsequent neuropsychological development of the child. N Engl J Med 1999; 341:549-55
5. Casey BM, Dashe JS, Well CE, et al. Subclinical hypothyroidism and pregnancy outcomes. Obstet. Gynecol., 2005; 10(5): 239-245.
6. Robert Negro, Alan Schwartz, et al. Detection and treatment of thyroid in pregnancy. J Clin Endocrinol Metab.,2010; 95(4): 1699-1707.
7. Sahu MT, et al. Overt and subclinical thyroid dysfunction among Indian pregnant women and its effect on maternal and fetal outcome. Archives of gynecology and obstetrics, 2010; 281(2):215-220.
8. Akram FH, Johansson B, Möllerström G, Landgren BM, Stavreus- Evers A, SkjöldebrandSparre L. Incidence of Subclinical Hypothyroidism and Hypothyroidism in Early Pregnancy. J Women's Heal. 2017;26(11):1231–5.
9. Chandrasekhara P, Aslam M, Kala K, Sultana F. A Study of Thyroid Disorder During Pregnancy. A Study Thyroid Disord Dur Pregnancy. 2016;(July 2015):1–6.
10. .Potlukova E, Potluka O, Jiskra J, Limanova Z, Telicka Z, Bartakova J, et al. Is age a risk factor for hypothyroidism in pregnancy? An analysis of 5223 pregnant women. JClin Endocrinol Metab. 2012; 97(6): 1945–52.
11. Stagnaro-Green A, Abalovich M, Alexander E, Azizi F, Mestman J, Negro R, et al. Guidelines of the American Thyroid Association for the diagnosis and management of thyroid disease during pregnancy and postpartum. Thyroid. 2011; 21:1081-1125.
12. Stagnaro-Green A, Glinoer D. Thyroid autoimmunity and the risk of miscarriage.Best Pract Res Clin Endocrinol Metab. 2004 Jun;18(2):167–81.
13. Amouzegar A, Mehran L, Sarvghadi F, Delshad H, Azizi F, Lazarus JH. Comparison of the American Thyroid Association with the Endocrine Society practice guidelines for the screening and treatment of hypothyroidism during pregnancy. Hormones (Athens). 2014; 13:307-313.
14. J. E. Harding and B. M. Johnston, "Nutrition and fetal growth," *Reproduction, Fertility, and Development*, vol. 7, no. 3, pp. 539–547, 1995.
15. Alexander EK, Pearce EN, Brent GA, Brown RS, Chen H, Dosiou C, et al. 2017 Guidelines of the American Thyroid Association for the Diagnosis and Management of Thyroid Disease during Pregnancy and the Postpartum. Thyroid. 2017;27(3):315–89.