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ORIGINAL ARTICLE

Thyroid Disorders in Pregnancy: Role of Routine Antenatal Thyroid Screening

Fatema Binta Islam,[1] Lipika Ghosh,[2] Nurun Nahar Khanam,[3] A M Ashraful Anam[4]

ABSTRACT

Background & objective: Thyroid disorders are among the common endocrine problems during pregnancy with well-known adverse effects on both mother and fetus. Many of these adverse effects could be prevented or ameliorated by early detection and appropriate treatment of conditions, provided routine antenatal thyroid screening is done. Considering this view, the present study was aimed to find the prevalence of thyroid disorders and their spectrum in pregnancy in order to justify the necessity of routine antenatal thyroid screening.

Methods: This cross-sectional study was conducted in the Department of Obstetrics & Gynaecology, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka over a period 1 year from July 2012 to June 2013 on pregnant women to screen for the thyroid disorders in pregnancy. Based on predefined eligibility criteria, a total of 246 pregnant women up to 36 weeks of gestation were consecutively included in the study. A short history with brief physical examination was done followed by collection of blood samples. Thyroid function was assessed by measuring serum levels of thyroid stimulating hormone (TSH). Serum free thyroxin (FT4) level was estimated in 71 cases, where TSH value was deranged. Trimester specific reference range of serum TSH was used to define hypothyroid, euthyroid and hyperthyroid cases. The suspected risk factors were then compared between abnormal and euthyroid groups to find their association with thyroid disorders.

Result: The results of the study showed that the overall prevalence of abnormal thyroid function status was 30.9% (hypothyroidism 29.7% and hyperthyroidism 1.2%) based on normal range of serum TSH in different trimesters of pregnancy. Pregnant women with thyroid disorders were generally older than their euthyroid counterparts ($p = 0.039$). Hypothyroid state was fairly common with advancing gestation (21.3%, 30.3% and 34% in the 1st, 2nd, and 3rd, trimesters respectively). Pregnant women with personal or family history of thyroid disease in the past exhibited a higher prevalence of abnormal thyroid function than those who did not have such history ($p = 0.041$ and $p = 0.044$ respectively). Past menstrual irregularity, past history of subfertility or abortion were significantly associated with thyroid disorders ($p = 0.042$, $p = 0.004$ and $p < 0.001$ respectively). Presence of goitre (21.1%) in current pregnancy also showed significant association with thyroid dysfunction ($p = 0.001$). The risk of developing abnormal thyroid function was observed to be 3.6(95% CI = 1.9 – 6.4) times higher in those who had at least one risk factor than those who did not have any risk factors ($p < 0.001$). However, a sizable portion (27.6%) of pregnant women without any risk factors developed abnormal thyroid function.

Conclusion: The study concluded that one in every three women may have thyroid disorder during pregnancy, primarily hypothyroidism. Adopting risk factor-based screening for thyroid disorders in pregnancy, there is every chance that a substantial number of cases with thyroid dysfunction may be missed. Therefore, routine antenatal thyroid screening is recommended.

Key words: Thyroid disorders, pregnancy, antenatal thyroid screening etc.

Authors' information:

[1] ***Dr. Fatema Binta Islam,*** *Assistant Professor, Ad-Din Women's Medical College, Boro Moghbazar, Dhaka.*

[2] ***Dr. Lipika Ghosh,*** *Assistant Professor, Colonel Malek Medical College, Manikgong*

[3] ***Prof. Dr. Nurun Nahar Khanam,*** *Professor, Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka.*

[4] ***Dr. A M Ashraful Anam,*** *Associate Professor, Dhaka Community Medical College, Moghbazar, Dhaka*

Correspondence: ***Dr. Fatema Binta Islam,*** *Phone: +8801711240008 Email:fatema156@yahoo.com*

INTRODUCTION:

The link between pregnancy and thyroid is known since ages. It is now well established that not only overt but also subclinical thyroid dysfunction can have adverse effects on fetal and maternal outcome.[1,3] But debate over the significance of thyroid dysfunction in pregnancy, the efficacy and usefulness of screening for the condition and the impact of treatment on maternal and neonatal outcomes is being continued.

Thyroid diseases affect approximately 4-5% of all pregnancies. The adverse outcomes have been associated with both overt hypothyroidism (about 0.3-0.5% of pregnancies), as well as subclinical hypothyroidism (about 2–3% of pregnancies).[4] Although prevalence of hyperthyroidism in pregnancy is low, Graves' hyperthyroidism causes significant adverse effects on the mother (miscarriage, placenta abruption, preterm delivery, and pre-eclampsia) as well as on the fetus.[5] Up to 5% of neonates of mothers with Graves' disease may have hyperthyroidism due to the transplacental passage of maternal stimulating thyrotropin receptor antibodies (TRAbs).[6] Maternal hypothyroidism may also be associated with adverse fetal and obstetric outcomes as observed in hyperthyroidism, while premature birth, low birth-weight, increased neonatal respiratory distress, & more admissions to the neonatal intensive care unit have been described in babies born to mothers with hypothyroidism.[3,7] The detrimental effect of hypothyroidism during pregnancy is on fetal brain development. Proper maternal thyroid function is important to the developing fetal neurons,[8] particularly in the 1st trimester of pregnancy when the fetus is completely dependent on the mother for thyroid hormone. Pregnancy is viewed as a state in which a combination of events concurs to modify the normal thyroid status. The hyper-metabolic state of normal pregnancy makes clinical assessment of thyroid function difficult and therefore thyroid function often needs biochemical evaluation.[9]

Bangladesh is known to be one hyperendemic zone for iodine deficiency.[10] Goitre and other iodine deficiency disorder is very common in our country. A study by Begum[11] showed prevalence of overt and subclinical hypothyroidism in Bangladeshi pregnant women to be 3% and 5% respectively and that of overt and subclinical hyperthyroidism 3.5% and 4% respectively. The data overall showing greater prevalence of thyroid disorders in our pregnant population than that in western countries. Furthermore, prevalence of thyroid diseases is found to be more in Asian-Indian population justifying routine thyroid screening in early antenatal period.[12,13] In the national survey for Iodine Deficiency Disease in 1993 Yousuf et al[14] showed that the incidence of cretinism in Bangladseh is 0.5-0.9%, which is a cause of concern for the physicians. As congenital hypothyroidism is the commonest preventable cause of mental retardation, routine antenatal thyroid screening and timely intervention for thyroid disorders gives an opportunity of lowering the incidence of cretinism and other IDDs in children.

In view of the 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.[15,16] However, the Endocrine Society of America's Clinical Practice Guideline.[17] recommends a case finding approach where only women at high-risk for thyroid disorders are tested. Apparently, case finding would seem a reasonable approach in relation to economic and logistic factors, but there has been growing evidence that a substantial number of women with thyroid dysfunction would not be diagnosed with this approach.[16] Although prospective randomized trials to substantiate the benefit of routine antenatal thyroid screening are very few, it's necessity to prevent adverse maternal and fetal outcomes cannot be ignored. The clinical and epidemiological evidences do not justify universal screening at the present time. So, this study is an attempt to find the prevalence of

thyroid dysfunction in pregnancy and necessity of routine screening for thyroid dysfunction in early pregnancy in the context of our country.

METHODS:

This cross-sectional study was conducted on pregnant women attending in the Out-patient Department of Obstetrics and Gynaecology (for routine antenatal checkup), Bangabandhu Sheikh Mujib Medical University (BSMMU) Hospital, Dhaka over a period of 12 months from July 2012 to June 2013. Pregnant women up to 36 weeks of gestation with singleton pregnancy were included. Patients with diagnosed case of thyroid disease undergoing treatment, multifoetal gestation, known chronic diseases like hypertension, diabetes mellitus, chronic liver and renal disease, or receiving medication that might interfere with normal thyroid function e.g., steroid, iodine, radio-contrast materials, amiodarone, carbamazepine, salicylates, lithium, para-amino salicylic acid (PAS) etc. were excluded from the study. A total 246 pregnant women were consecutively included. After briefing the purpose and procedure of the study to the participating subjects, informed written consent was obtained from them and data were collected using a structured questionnaire (research instrument) containing all the variables of interest.

Short menstrual, obstetric, past medical, family and personal histories were noted. Brief physical examination was carried out with due consent from the participating subjects and maintaining adequate privacy. Then with aseptic precaution, 5ml venous blood was collected from the ante-cubital vein into a clean, dry test tube to avoid hemolysis and was allowed to clot. Collected samples were centrifuged at 3000 rpm for 15 minutes and the separated serum was collected in another test tube. All serum samples were preserved in the laboratory refrigerator and were tested for TSH first and for FT4 when TSH level was found deranged. Serum TSH estimation was carried out by the Abbott AxSym System Auto-analyzer. It is the 3rd generation TSH assay system based on Microparticle Enzyme Immunoassay (MEIA) Technology. Thyroid hormone reference ranges for non-pregnant women is not appropriate in pregnancy.[18] According to American Thyroid Association (ATA) guidelines, 2011, trimester-specific reference ranges for TSH, as defined in populations with optimal iodine intake, should be applied and if trimester-specific reference ranges for TSH are not available in the laboratory, the following reference ranges are recommended: first trimester, 0.1–2.5 mIU/L; second trimester, 0.2–3.0 mIU/L; third trimester, 0.3–3.0 mIU/L.[19]

Data were processed and analyzed using SPSS (statistical package for the social science Inc., Chicago, Illinois USA,) version 16.0. The test statistics used to analyze the data were Chi-square (χ^2) Test and Student's t-Test. Data presented on categorical scale were expressed as frequency and corresponding percentage and were compared between groups using Chi-square (χ^2) Test, while the data presented on continuous scale were expressed as mean ± SD and were compared between groups using Student's t-Test. For all analytical tests, the level of significance was set at 0.05 and $p < 0.05$ was considered significant.

RESULTS:

Majority (80.1%) of the pregnant women were 20-30 years old. 8.5% were below 20 years and 11.4% were above 30 years old with mean age being 25.7 ± 4.1 years. House-wives formed the predominant occupation (73.6%). In terms of education, secondary and higher secondary level educated women were predominant (57%) followed by primary (19.9%), graduate and higher level educated. Illiterates comprised only 6.1%. Over half (50.8%) belonged to middle class followed by lower middle (19.9%), upper middle class (16.3%) and poor (13%). Obstetric characteristics of the women show that 42.3% were nulipara, 30.1% primipara and 27.6% multipara. About two-thirds (65.4%) were multigravida and the rest primigravida. In terms

of gestational age about one-quarter (24.8%) were in the 1st trimester, 30.9% in 2nd trimester and 44.3% in their 3rd trimester. Past obstetric history of the studied women revealed that 13.1% were subfertile, 16.3% had history of abortion and 4.1% had history of preterm delivery (Table I). Some of them had only one (28%) and some had multiple obstetric risk factors (3%) while there were some others who had none of the risk factors (69%).

Table I. Distribution of study subjects by demographic characteristics (n=246)

Demographic characteristics	Frequency	Percentage
Age* (yrs)		
< 20	21	8.5
20 – 30	197	80.1
> 30	28	11.4
Occupation		
Service	38	15.7
Business	2	0.8
Housewife	181	73.6
Others	25	10.2
Education		
Illiterate	15	6.1
Primary	49	19.9
Secondary & higher secondary	140	57.0
Graduate plus	42	17.0
Socioeconomic status		
Poor	32	13.0
Lower middle	49	19.9
Middle	125	50.8
Upper middle	40	16.3
Parity		
Nulipara	104	42.3
Primipara	74	30.1
Multipara	68	27.6
Gestational age		
1st trimester (up to 12 weeks)	61	24.8
2nd trimester (13 – 28 weeks)	76	30.9
3rd trimester (29 – 36 weeks)	109	44.3
Past obstetric history		
History of subfertility	32	13.1
History of abortion	40	16.3
History preterm delivery	10	4.1

***Mean age** = 25.7 ± 4.1(**range:** 17 – 37) years. **Mean gestational age** = (20.3 ± 8.7) weeks.

Table II demonstrates that mean serum TSH level was 2.29 ± 1.22 mIU/L (range=0.06-5.56 mIU/L) and the mean serum FT4 level was 9.41 ± 3.49 pmol/L (range=0.12-18.15 pmol/L). Based on serum level of TSH, the overall prevalence of hypothyroidism was 29.7% and that of hyperthyroidism was 1.2%. Thus, a total of 30.9% pregnant women had abnormal thyroid function status and the rest (69.1%) were euthyroid based on normal range of serum TSH in the 1st, 2nd and 3rd trimesters of pregnancy (Table II). Of the hypothyroid cases (29.7%), 28.1% had subclinical hypothyroidism and 1.6% had overt hypothyroidism. All cases of hyperthyroidism were sub-clinically hyperthyroid. Fig. 1 shows distribution of thyroid status of the study subjects in different trimesters.

Table II. Thyroid hormones profile among the study subjects

Thyroid hormones profile	Frequency	Percentage	Mean ± SD (Range)
Level of thyroid hormones			
Serum TSH level (n = 246)	---	---	2.29 ± 1.22 (0.06-5.56)
Serum FT4 level (n = 71)	---	---	9.41 ± 3.49 (0.12-18.15)
Thyroid function status			
Hypothyroidism	73	29.7	---
Euthyroidism	170	69.1	---
Hyperthyroidism	3	1.2	---

Table III shows that the studied pregnant women with abnormal thyroid status were a bit older than their euthyroid counterparts (p=0.039). Socioeconomic status and occupation of the pregnant women were not found to be associated with thyroid function status (p=0.146 & p=0.053 respectively). Pregnant women who had a past history thyroid disease exhibited a higher prevalence of abnormal thyroid function than those who did not have such history (p=0.041). Positive family history of thyroid disease was found to be associated with of thyroid disorder (p=0.017).

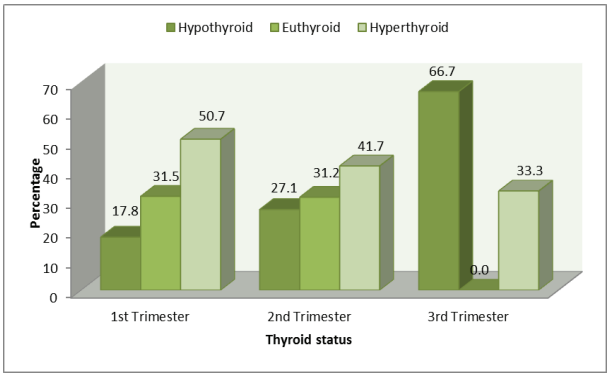

Fig. 1: Distribution of thyroid status of the study subjects in different trimesters

Table III. Association of thyroid function status with demographic features & family history

Demographic characteristics	Thyroid function		p-value
	Dysfunction (n = 76)	Euthyroid (n = 170)	
Age* (yrs)	26.5 ± 4.1	25.3 ± 4.1	0.039
Socioeconomic status#			
Poor and middle class	54 (71.1)	152 (89.4)	0.146
Upper class	22 (28.9)	18 (10.6)	
Occupation#			
Service & business	9 (11.8)	31 (18.3)	0.053
Housewife & others	67 (88.2)	139 (81.7)	
Past history thyroid disease#			
Yes	7 (9.2)	5 (2.9)	0.041
No	69 (90.8)	165 (97.1)	
Family history of thyroid disease#			
Yes	8 (10.5)	3 (1.8)	0.017
No	68 (89.5)	167 (98.2)	

*Data were analysed using **Unpaired t-Test** and were presented as **mean ± SD.**
Data were analysed using **χ^2 Test**; figures in the parentheses denote corresponding percentage.

Pregnant women with a previous history of irregular menstruation were more often prone to be associated with abnormal thyroid function during pregnancy (26.3%) compared to those having regular menstruation (15.9%) (p=0.042). Visible goiter demonstrated their significant presence (34.2%) in pregnant women with thyroid dysfunction as compared to euthyroid pregnant women (15.3%) (p = 0.001) (Table IV).

Table IV. Association of menstrual history and visible goitre with thyroid status

Variables	Thyroid function		p-value
	Dysfunction (n = 76)	Euthyroid (n = 170)	
Menstrual history			
Irregular	20 (26.3)	27 (15.9)	0.042
Regular	56 (73.7)	143 (84.1)	
Visible goitre			
Present	26 (34.2)	26 (15.3)	0.001
Absent	50 (65.8)	144 (84.7)	

*Data were analysed using **Chi-squared (χ^2) Test.**
Figures in the parentheses denote corresponding percentage.

Nullipara and multipara women were more prone to be associated with abnormal thyroid function than their primipara counterparts (p=0.025). Gestational age was not found as the determinant of thyroid function (p=0.377). Of the past obstetric events, past history of subfertility and abortion were significantly associated with abnormal thyroid function in the current pregnancy (p = 0.004 and p < 0.001 respectively) (Table V).

Table V. Association between obstetric characteristics and thyroid function status

Obstetric characteristics	Thyroid function		p-value
	Dysfunction (n = 76)	Euthyroid (n = 170)	
Parity			
Nullipara	36 (47.4)	68 (40.0)	0.025
Primipara	14 (18.4)	60 (35.3)	
Multipara	26 (34.2)	42 (24.7)	
Gestational age			
1st trimester (up to 12 weeks)	15 (19.7)	46 (27.1)	0.377
2nd trimester (13 – 28 weeks)	23 (30.3)	53 (31.2)	
3rd trimester (29 – 36 weeks)	38 (50.0)	71 (41.8)	
Past history of subfertility			
Present	17 (22.4)	15 (8.9)	0.004
Absent	59 (77.6)	155 (91.1)	
Past history of abortion			
Present	22 (28.9)	18 (10.6)	< 0.001
Absent	54 (71.1)	152 (89.4)	
Past history of preterm delivery			
Present	3 (3.9)	7 (4.1)	0.627
Absent	73 (96.1)	163 (95.9)	

*Data were analysed using **Chi-squared (χ^2) Test.**
Figures in the parentheses denote corresponding percentage.

Although, gestational age was not found as the significant determinant of thyroid function (p=0.377), it was found that hypothyroid state was fairly common with advancing gestation (21.3%, 30.3% and 34% in the 1st, 2nd, and 3rd, trimesters respectively). On the contrary, hyperthyroid cases were mainly confined to 1st trimester only (Fig 2).

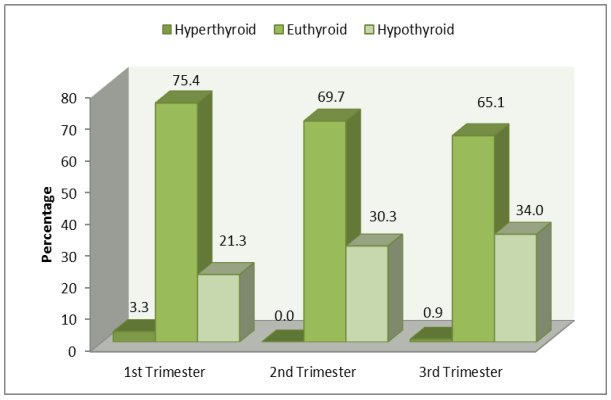

Fig. 2: Gestational age-wise distribution of thyroid disorders among the study subjects

Table VI. Association between presence of risk factors and thyroid status

Risk factors #	Thyroid function		p-value	Odds Ratio (95% CI of OR)
	Abnormal (n = 76)	Euthyroid (n = 170)		
Present	55(72.4)	72(42.4)	< 0.001	3.6(1.9-6.4)
Absent	21(27.6)	98(57.6)		

*Data were analysed using **Chi-squared** (χ^2) **Test.**
Figures in the parentheses denote corresponding percentage.

Of the 7 risk factors studied, nearly half (48.4%) of the patients did not have any risk factor, 27.2% had single risk factor, 18.7% two risk factors and 5.7% more than two risk factors. The risk of developing abnormal thyroid function was observed to be 3.6(95% CI=1.9-6.4) times higher in those who had at least one risk factor than those who did not have any risk factor (p < 0.001) (Table VI).

DISCUSSION:

Maternal thyroid function is known to alter during pregnancy and an increased need of thyroid hormones in gestation may predispose those with underlying thyroid disturbances (e.g. chronic autoimmune thyroiditis) to hypothyroidism.[20] Thyroid dysfunction may be associated with several adverse pregnancy outcomes including perinatal, neonatal outcomes and later possibly affect maternal and child health as well.[17] These associations can only be confirmed or discarded by means of high-quality population-based studies with sufficient follow-up data. So, authentic data are crucial when deciding whether pregnant women should be screened for thyroid dysfunction.

In the present study about two-thirds (65.4%) of the patients were multigravida with majority (44.3%) in their 3rd trimester. Past history of preterm delivery was present in only 4.1% cases, whereas past history of sub-fertility and abortion were not less (13.1% and 16.3% respectively). This might be because BSMMU is a referral hospital, so women having any past bad obstetric event come to this hospital for better management. Based on normal range of serum TSH in the 1st, 2nd and 3rd trimesters of pregnancy,[19] 76(30.9%) had thyroid dysfunction (29.7% hypothyroid & 1.2% hyperthyroid). After applying conventional non-pregnant range of serum TSH, that is, 0.4-4.0 mIU/l in our study, thyroid dysfunction cases fall to almost half (15.4%). Out of 76 women, 71 were subjected to test for FT4; 4(1.6%) of them were found to have low FT4. Thus, a total of 28.1% were subclinically hypothyroid and 1.6% were overt hypothyroid. Of the hypothyroid cases, about half (50.7%) were in 3rd trimester and rest 17.8% and 31.5% were in 1st and 2nd trimesters respectively.

The present study showed a much higher proportion (29.7%) of hypothyroidism, compared to other studies. Sahu and associates[21] showed subclinical hypothyroidism in 6.5% and overt hypothyroidism in 4.6% cases. Goel and associates[12] showed overall prevalence of hypothyroidism to be 6.3% (overt 2.9% and subclinical 3.4%). In a study in Poland, 10.4% of the pregnant women screened for thyroid dysfunction in their 1st trimester exhibited hypothyroidism.[22] Spong[23] in a study of screening for subclinical hypothyroidism in

pregnant women demonstrated a much lower prevalence of hypothyroid status (2.5%). Maternal hypothyroidism affects between 0.19-2.5% pregnancies depending on race and geographic locations.[24] In a similar study conducted in Bangladesh by Begum,[11] clinical and subclinical hypothyroidism together formed 8% of the pregnant women, which is well below the findings of the present study. In contrast, Casey et al[3] showed 2.3% subclinical hypothyroidism, but when a narrower TSH reference range (0.4-2.5 mIU/mL) was applied to the data, the prevalence of abnormal TSH increased to 14.9%. Weiwei[13] showed significantly higher prevalence of hypothyroidism in both high-risk group and non-high-risk group (10.9% vs. 7.0%). Findings of both the studies are closer to our findings. Besides, there are slight but significant differences in serum TSH concentrations with respect to ethnic group which should also be taken into account while screening for thyroid hormones in pregnant women. Black and Asian women have TSH values that are on an average 0.4 mIU/L lower than in white women which may persist during pregnancy.[25,26] Pregnant women of Moroccan, Turkish, or Surinamese descent residing in the Netherlands, possess TSH levels (0.2–0.3 mIU/L) lower than Dutch women throughout pregnancy.[27] Moreover, TSH ranges vary depending on differences between methods of analysis.[28] The study by Sakinah[29] showed more prevalence of goiter and hypothyroidism in Indians than in other races, which supports our findings.

The higher prevalence of subclinical hypothyroidism in our study may be due to proportionately higher number of patients in the 2nd and 3rd trimesters of pregnancy as because level of TSH increases with the advance of pregnancy.[30] Moreover, as Bangladesh is an endemic zone for iodine deficiency,[14] it may have contributed to the higher prevalence of thyroid dysfunction in our population. Adoption of gestation specific narrow reference range of serum TSH according to ATA guidelines, 2011 in our study, may be the main reason behind this high prevalence of hypothyroid cases.

Only 1.2% of patients exhibited subclinical hyperthyroidism which is quite close to the finding of Feki et al (1.3%)[31] and Weiwei et al (2.7%)[13]. Whereas study by Begum (2004) showed much higher prevalence of hyperthyroidism (subclinical 4% and overt 3.5%) which may be due to other autoimmune diseases or excessive iodine intake or due to transient pregnancy induced thyrotoxicosis as the author explained. In our study, hyperthyroid cases were mainly found in 1st trimester (66.7%), which may reflect β-hCG induced transient thyrotoxicosis or flare up of previously present subclinical hyperthyroidism. However, as we have not estimated serum β hCG, these cases cannot be certainly diagnosed as having transient gestational thyrotoxicosis.

The present study showed that older pregnant women were more often associated with thyroid dysfunction ($p = 0.039$), which is in agreement with study by Elizabeth et al.[32] Pregnant women with abnormal thyroid function was on an average of 1.2 years older than those with euthyroid status. Bocos-Terraz and colleagues[33] reported significant differences in serum TSH in terms of age of the mother ($p < 0.005$). It was observed that TSH level during the first few gestational weeks was lower than the subsequent weeks and hypothyroid state was fairly common with advancing gestation (21.3%, 30.3% and 34% in the 1st, 2nd, and 3rd, trimesters respectively). But as we did not measure TSH in all three trimesters in same patients, it cannot be emphasized that advancing gestational age is a significant determinant of thyroid dysfunction. Kumar and associates[30] found that mean T4 levels began to rise from 164.5 nmol/L in the first trimester to

165.8 nmol/L in the second trimester and then decreased in the third trimester to 159.9 nmol/L; they reported mean TSH level to rise progressively through the three trimesters of pregnancy from 1.20 microlU/ ml in the 1st trimester to 2.12 microlU/ml in the 2nd trimester and further to 3.30 microlU/ml in the 3rd trimester of pregnancy which is quite consistent with findings of the present study. Pregnant women who had personal (4.9%)

or family history (3.3%) of thyroid disease in the past exhibited a higher prevalence of abnormal thyroid function than those who did not have such history (p=0.041; p=0.044 respectively). Previous menstrual irregularity, past history of subfertility or abortion were significantly associated with thyroid disorders.

Presence of goitre in the current pregnancy also showed significant association with thyroid dysfunction. The higher prevalence of goitre in this cohort may be attributed to compensatory adaptation of thyroid gland to meet the increased demand for thyroid hormones during pregnancy. Khandakar[34] in Dhaka city reported an even higher prevalence of goiter in pregnant women (34.2%). The study concluded that although goiter was present in a considerable number of pregnant women, they were in euthyroid status as observed by increased production of serum total thyroxin (TT4) by thyroid to fulfill the maternal requirement, with nearly unchanged TT3 and TSH secretion. The present study showed that the risk of having thyroid dysfunction is more than 3(95% CI = 1.9 – 6.4) times higher in those who had at least one risk factor (out of 7 risk factors) than those who did not have any risk factors. However, over one-quarter (27.6%) of pregnant women without any risk factors developed abnormal thyroid function suggesting that risk factor-based screening for thyroid disorders may miss a substantial number of cases with thyroid dysfunction. This finding of our study is consistent with that of study by Vaidya et al.[16] in which they screened 1560 consecutive pregnant women. They classified 413(26.5%) women who had personal history of thyroid or other autoimmune disorder or a family history of thyroid disorder as a high-risk group. They examined whether testing only such high-risk group would pick up most pregnant women with thyroid dysfunction. The results were forty women (2.6%) had raised TSH (> 4.2 IU / ml). The prevalence of raised TSH was higher in the high-risk group than that in low risk-group [6.8 vs. 1%, 95% confidence interval (CI) = 3.3 – 12.6 p < 0.0001)]. However, 12 of 40 women with raised TSH (30%) were in the low-risk group. The study concluded that targeted thyroid function testing of only high-risk group would miss about 1/3rd of pregnant women with overt or subclinical hypothyroidism.

Overall, it is evident that prevalence of thyroid disorders is more or less common in pregnant women. The disorder is primarily hypothyroidism and rarely hyperthyroidism. The high prevalence of thyroid disorder in Begum's[11] study and even higher prevalence in the present study suggest that Bangladesh is an endemic zone, and pregnant women are at much higher risk of developing thyroid disorders.

CONCLUSION:

The study concluded that one in every three pregnant women may have thyroid disorders, primarily subclinical hypothyroidism. Older women with personal and family history of thyroid disorders, past menstrual irregularity and obstetric characteristics like multiparity, history of subfertility or abortion had more than 3 times higher risk of developing thyroid dysfunction than the pregnant women without having these features. More than one-quarter of the thyroid dysfunction cases did not have any risk factor. These patients would have been otherwise remained undiagnosed if risk factor-based thyroid screening was done. So, screening for thyroid disorders in pregnancy should be routinely done.

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