



AWARENESS REGARDING ANEMIA, GESTATIONAL DIABETES AND PREGNANCY INDUCED HYPERTENSION AMONG ANTENATAL WOMEN ATTENDING OUTPATIENT DEPARTMENT IN A RURAL HOSPITAL

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ABSTRACT

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Introduction: Antenatal mothers should be aware about common morbidities like anemia, gestational diabetes mellitus (GDM), pregnancy induced hypertension (PIH), etc., which can have adverse pregnancy outcomes. This study was conducted to assess the awareness regarding anemia, GDM and PIH among antenatal women attending outpatient clinic in a rural hospital.

Methods: This was a cross sectional study done during the period of October-November 2014. After obtaining informed consent pre-validated, structured questionnaire was used to assess the awareness about anemia, GDM and PIH among 150 antenatal women attending the outpatient clinic at the rural hospital.

Results: A total of 150 antenatal women participated in the study. Majority of respondents (104 -69.3%) were aged 20-25 years, educated 70 (46.7%) and most of them were homemakers 129 (86%). Majority of them 97(64.7%) were primigravida and were from joint family 75 (50%). Among the study participants, most of them 124 (82.67%) had good knowledge regarding anemia, fair knowledge 73 (48.67%) regarding gestational diabetes and good knowledge 94 (62.7%) regarding pregnancy induce hypertension.

Conclusion: The study population had good knowledge about anemia, PIH and fair knowledge regarding GDM.

Key words: Antenatal, anemia, gestational diabetes mellitus, pregnancy induced hypertension, rural, hospital.

INTRODUCTION

Antenatal care, the care a woman receives throughout her pregnancy is important in helping women and newborns survive pregnancy and childbirth. Antenatal care is a combination of monitoring for problems in mother and fetus, treatment and preventive care, health education, support and advice for pregnant women. Due to the physiological changes many diseases are likely to occur in pregnant women including anemia, gestational diabetes and pregnancy induced hypertension. So awareness about these common problems is essential as a part of antenatal care.¹ Gener-

ally, awareness refers to "The state of feelings or the ability to perceive, or to be conscious of events, sensory patterns or object" or can be defined more broadly and simply as "the state of being aware of something".² In general, women play an important role in the family as the main health providers and are eager to learn and adopt information to help improve their and families health condition.³ Health education and preventive measure during pregnancy are crucial factor for both mother and their offspring's health because each pregnant woman is at risk during pregnancy even low risk pregnancy.⁴ Therefore, it is important to raise the

level of awareness for all women specially women in the reproductive age through effective and well organized health education and campaigns, with focus on major health problems.⁵

Anemia is one of the most common diseases complicating antenatal women worldwide, particularly in the developing countries.⁶ Anemia in pregnancy is identified by the WHO as hemoglobin level less than 11g/dl.⁷ It has been reported that the prevalence of anemia among pregnant women in developing countries accounts for about 56% while in the developed world is about 16 %.⁸

Diabetes complicates 1% to 20% of all pregnancies worldwide, which includes pre gestational diabetes mellitus (PGDM) and Gestational Diabetes Mellitus (GDM).⁹ GDM is one of the subtypes of diabetes, the prevalence of which is constantly increasing. GDM is defined as glucose intolerance that is first detected during pregnancy.¹⁰ After delivery, though the glucose levels return to normalcy, the mother is at a higher risk for Type 2 DM, and the child of a woman with GDM is at a higher risk for metabolic syndrome.¹¹

During pregnancy, many women are affected by hypertensive problems, especially in the first pregnancy.¹² Such problems fall into four categories: chronic (pre-existing) hypertension, gestational (transient) hypertension, pre-eclampsia / eclampsia, and pre-eclampsia superimposed on chronic hypertension.¹³ While the exact prevalence of each condition is difficult to determine, almost 10% of all pregnancies are thought to be complicated by high blood pressure.⁽¹²⁾ Nearly 30% of first pregnancies are thought to be affected by gestational hypertension, pre-eclampsia, or eclampsia.¹³

OBJECTIVES

The objective of this study was to assess the awareness regarding anemia, GDM and pregnancy induced hypertension (PIH) among antenatal women attending outpatient clinic in a rural hospital.

MATERIALS AND METHODS

This was a cross sectional study done during the period of October-November 2014. Institutional Ethics Committee approval, group/hospital and individual consent was obtained for the study. The sample size calculated was 106¹⁴ (awareness about anemia 48.7%).¹⁵ The study population included antenatal women attending outpatient clinic at a rural hospital located at about 50 kilometers from Bangalore. Initially a pilot study was conducted to assess the reliability of questionnaire and Cron-

bach's alpha is found to be 0.851. During the study duration we were able to interview 150 antenatal women attending the outpatient clinic. The interview schedule was divided into two parts. The first part consisted of sociodemographic detail of the subjects, the second part was used to assess the awareness about anemia, gestational diabetes and pregnancy induced hypertension. There were 11 questions regarding anemia, 11 for GDM and 8 for PIH in the second part. Correct answer was given a score point of "one" and wrong answer was given score "zero". Scoring was categorized as follow: Poor knowledge: <50th percentile, Average knowledge: 50-75th percentile, Good knowledge: >75th percentile.¹⁶

The data was entered in Microsoft Excel and analyzed using SPSS 20. Frequencies and Kruskal-Wallis test was used to check for associations.

RESULTS

The questionnaire was administered to 150 pregnant women attending the outpatient clinic and the response rate of 100%. The majority of respondents 104 (69.3%) were aged 20-25 years. The youngest was 18 years and the oldest 32 years. The other demographic findings were as follows: Majority had attended school 70 (46.7%), most 129 (86%) were homemakers, majority were primigravidas 97 (64.7%) and were from joint family 75 (50%).

Table 1: Sociodemographic details

Variables	Antenatal Women (%)
Age	
Less than 19	21 (14)
20-25yrs	104 (69.3)
More than 25yrs	25 (16.7)
Education	
School education	70 (46.7)
PUC	51 (34)
Bachelor Degree	29 (19.3)
Occupation	
Homemakers/Housewife	129 (86)
Working	21 (14)
Number of children	
Absent	97 (64.7)
Single or more	53 (35.3)
Type of family	
Nuclear	45 (30)
Joint	75 (50)
Extended	22 (14.7)
Three generation	8 (5.3)
Religion	
Hindu	142 (94.7)
Muslim	7 (4.7)
Christian	1 (0.6)

Table 2 :Awareness about anaemia,Gestational Diabetes Melitus, pregnancy induced hypertension among study subjects (n=150)

Questions	Agree	Disagree	Don't know
Awareness about anemia			
Anemia is commonly iron deficiency in blood	116 (77.3)	4 (0.27)	30 (20)
It is diagnosed by hemoglobin level in blood.	146 (97.3)	1 (0.7)	3 (2)
Iron pill supplementation is not necessary during pregnancy.	18 (12.1)	128 (85.3)	4 (2.7)
Meat, fish, green leafy vegetables and jaggery are rich in iron.	139 (92.7)	3 (2)	8 (5.3)
Iron pill should be taken along with tea, coffee or milk products.	27 (18)	114 (76)	9 (6)
Adherence to proper diet along with iron is necessary for pregnancy.	138 (92)	7 (4.7)	5 (3.3)
Awareness about gestational diabetes mellitus			
Diabetes mellitus can occur in pregnancy	103 (68.7)	10 (6.7)	37 (24.7)
Family history of Diabetes Mellitus is a risk factor for GDM	74 (49.3)	24 (16)	52 (34.7)
Rapid weight gain is good sign of healthy pregnancy.	28 (18.7)	96 (64)	26 (17.3)
Test employed for GDM			
a. Urine test	13 (8.6)		
b. Blood test	72 (48)		
c. Blood test after glucose load	29 (19.3)		
d. Don't know	36 (24)		
Treatment options.			
a. Diet & Exercise	26 (17.3)		
b. Insulin	16 (10.6)		
c. Tablets	36 (24)		
d. Don't know	62 (41.3)		
e. Diet, exercise and insulin	10 (6.7)		
Women diagnosed to have GDM have increased risk of future type 2 DM.	101 (67.3)	2 (1.3)	47 (31.3)
Awareness about pregnancy induced hypertension			
Can hypertension occur in pregnancy?	136 (90.7)	5 (3.3)	9 (6)
PIH cannot be treated	12 (8)	111 (74)	27 (18)
Pedal edema or facial edema not relieved by rest or head ache is symptoms of PIH.	136 (90.7)	4 (2.7)	10 (6.7)
Regular checkup of blood pressure is not required in a patient with PIH.	15 (10.0)	130 (86.7)	5 (3.3)
PIH if untreated can lead to maternal and fetal complications.	140 (93.30)	4 (2.7)	6 (4)
Regular antenatal visits are necessary in pregnancy.	146 (97.3)	0	4 (2.7)
Health education can reduce the prevalence of complications of medical problems in pregnancy and its early detection.	141 (94)	2 (1.3)	7 (4.7)

Figure in parenthesis indicate percentage

Table 2, represents the frequencies and percentage of responses under the titles anaemia, GDM and PIH. In the case of anaemia majority of the respondents 116 (77.3%) knew anemia was most commonly due to iron deficiency in blood, 146 (97.3%) knew it could be diagnosed by hemoglobin level in blood and 114 (76%) knew iron tablets should not be taken along with tea, coffee and other milk products. With respect to GDM, majority 103 (68.7%) knew diabetes can occur in pregnancy, rapid weight gain is not a good sign in pregnancy 96 (64%). With regards to PIH, majority 136 (90.7%) knew hypertension could occur in pregnancy and can be treated 111 (74%). Majority 136 (90.7%) knew about the symptoms of hypertension and 130 (86.7%) knew checking of blood pressure was an important component of antenatal check-up.

The total awareness score was divided according to poor knowledge (< 50th percentile), average knowledge 50th-75th percentile) and good knowl-

edge (>75th percentile). Anemia was scored accordingly as poor (<10), average (10-11) and good (>11). Gestational diabetes mellitus was scored as poor (<6), average (6-8) and good (>8). Pregnancy induced hypertension was scored poor (<6), average (6-7) and good (>7).¹⁶

Kruskal-Wallis test was performed to find out if there is any association between each score and demographic variables. Significant association was found between awareness regarding gestational diabetes and occupation and family type of women

Table 3: Overall awareness score among women

	Poor (<50 th percentile)	Fair (50 th -75 th percentile)	Good (>75 th percentile)
Anemia	6 (4%)	20 (13.33%)	124 (82.67%)
GDM	51 (34%)	73 (48.67%)	26 (17.33%)
PIH	11 (7.3%)	45 (30%)	94 (62.7%)

GDM - Gestational Diabetes Mellitus;
PIH - Pregnancy induced hypertension

Table 4: Association between awareness scores and demographic variable

Demographic Variables	Awareness score for anemia		
	Interquartile range	Median	P value
Age			
Less than 19	8.5-11	10	0.098
20-25yrs	9-11	10	
More than 25yrs	10-11	11	
Education			
School education	9-11	10	0.46
PUC	9-11	10	
Bachelor Degree	9-11	11	
Occupation			
Homemakers	9-11	10	0.267
Working	10-11	11	
Number of children			
Absent	9-11	10	0.925
Single or more	9-11	10	
Type of family			
Nuclear	10-11	11	0.444
Joint	9-11	10	
Extended	8.75-11	10	
Three generation	10-11	10	
Religion			
Hindu	9-11	10	0.378
Muslim	8-11	11	
Christian	8	8	

Table 5: Association between awareness scores and demographic variable

Demographic Variable	Awareness score for GDM		
	Interquartile range	Median	P value
Age			
Less than 19	2-7	6	0.066
20-25yrs	2-8	6	
More than 25yrs	6-9	7	
Education			
School education	2-8	6	0.31
PUC	2-8	6	
Bachelor Degree	5.5-8	7	
Occupation			
Homemakers	2-8	6	0.045
Working	6-9	7	
Number of children			
Absent	2-8	6	0.056
Single or more	4-8	7	
Type of family			
Nuclear	4.5-8	7	0.009
Joint	2-8	5	
Extended	3-6.25	6	
Three generation	7-8.75	7.5	
Religion			
Hindu	2-8	6	0.165
Muslim	6-10	7	
Christian	1	1	

GDM - Gestational Diabetes Mellitus

Table 6: Association between awareness scores and demographic variables

Demographic Variables	Awareness score regarding PIH		
	Interquartile range	Median	P value
Age			
Less than 19	5-7	6	0.362
20-25yrs	5-7	6	
More than 25yrs	5-7-	7	
Education			
School education	5-7	6	0.511
PUC	5-7	6	
Bachelor Degree	5-7	6	
Occupation			
Homemakers	5-7	6	0.513
Working	6-7	6	
Number of children			
Absent	5-7	6	0.366
Single or more	5-7	6	
Type of family			
Nuclear	5-7	7	0.242
Joint	5-7	6	
Extended	4.25-7	5.5	
Three generation	5.25-7.75	6.5	
Religion			
Hindu	2-8	6	0.217
Muslim	6-10	7	
Christian	1	1	

PIH- Pregnancy Induced Hypertension

DISCUSSION

The purpose of this study was to assess the awareness among pregnant women regarding anemia, gestational diabetes, pregnancy induced hypertension in a rural hospital. The findings of this study indicated a number of factors of concern regarding the awareness.

Sociodemographic details: In this study we found that majority of respondents (104 -69.3%) were aged 20-25 years and educated 70 (46.7%) and most of them were homemakers 129 (86%). Most of the respondents 97(64.7%) were primigravida and were from joint family 75 (50%).

A study in Orissa revealed that 16.91% were illiterate, 40.83% were having primary education, 24.16% were having secondary education and 7.08% were having higher secondary education¹⁷ and study in Nepal revealed that 16.7% were illiterate, 25.8% were having primary education and 56.1% were having secondary education and above education.¹⁵ A study in Karnataka revealed majority 148 (37.0%) of the women had secondary level education followed by primary level education 121 (30.3%), higher secondary 55 (13.8%), illiterate 43 (10.8%) and 33 (8.3%) had graduate level education.¹⁸ Study conducted in Orissa showed that 77.08% were living in joint family and 22.92% were

living in nuclear family.¹⁷ In a study done in Karnataka 55.23% were living in joint family and 44.76% were living in nuclear family.¹⁹

Awareness regarding anemia: The pregnant women were asked 11 questions regarding the cause, diet practices, treatment and prevention of anemia. The aim was to gain an understanding about their awareness regarding anemia. In this study majority of participants are aware about the cause of anemia as iron deficiency and about the preventive practices about anemia. However, these findings are consistent with findings of a study done in Karnataka.¹⁹ In this study majority of the women knew Iron deficiency is the major cause in anemia 117 (77.3%) and 139 (92.4%) knew meat, fish, green leafy vegetable and jiggery are rich in iron. These findings are consistent with a study done in Nepal¹⁵ where almost all of mothers 193 (98%) know inadequate iron containing diet as the cause of anemia and sources of rich iron containing foods, more than two-third of the mothers 132 (67.5%) said green leafy vegetables, followed by meat, fish, egg 96 (49.2%). In this study majority have good 124 (82.67%) awareness regarding anemia and 20 (13.3%) had fair knowledge which is little different from a study conducted in Punjab with 40 reproductive age group women where more than half of the sample had average knowledge regarding anemia, 33% had good knowledge and about 15% had poor knowledge.²⁰ This difference may be because of the variation in study sample where this study was conducted in pregnant group. So they knew more about the disease and also because of the increased prevalence of anemia in rural population in India.

As anemia is a common problem in India and awareness regarding anemia was consistent with other studies.

Awareness regarding GDM: In this study the overall knowledge regarding GDM was fair in 73 (48.67%), good in 51 (34%) and poor in 26 (17.33%). Awareness about treatment, diet and exercise as a treatment option for GDM and about the probability of untreated GDM posing a risk to the unborn child was low among the study women. However, knowledge about the course of GDM, and that the women diagnosed with GDM are at an increased risk for future Type 2 diabetes was high 101 (67.3%). These findings were better compared to a study done in Tamilnadu, South India, where out of one hundred and twenty antenatal women participated in the study – 21(17.5%) women had good knowledge, 68(56.7%) had fair knowledge, and 31(25.8%) women had poor knowledge about GDM.¹⁶

In a study done in Efoulan District Hospital in Yaounde-Cameroon, over half of the subjects 59

(56.2%) could not give an acceptable definition for diabetes and 49 (46.7%) had never heard of gestational diabetes and 63 (60.1%) thought gestational diabetes affected only wealthy women. According to 44 (41.9%) of respondents, gestational diabetes was not preventable. Most of them 63(60.1%) reported insufficient activity levels and only 13 (12.4%) were active before and during their pregnancy. Most participants 73 (69.5%) had not done a diabetes test during the pregnancy in progress.²¹

There is a significant association (p value <.05) between awareness regarding GDM and occupation and family type. As majority of respondents were homemakers and belong to joint family, the increase in awareness regarding GDM may be due to increase in contact with peer age.

Awareness regarding PIH: In this study the overall knowledge regarding PIH was good 94 (62.7%). Majority 136 (90.7%) knew hypertension can occur in pregnancy and pedal edema not subsiding on rest or facial edema are symptoms of hypertension. Majority 130 (86.7%) believed that with regular check up of blood pressure the complications can be prevented. These findings are consistent with the results of a study conducted in Nigeria, where out of 100 pregnant women; about 82 of the women had formal lecture on pregnancy induced hypertension, hence have knowledge of pregnancy induced hypertension.

Eighty of the women visit the hospital on noticing that they have swollen legs, 84 of the women believes that pregnancy induced hypertension could be prevented through regular antenatal care.²²

CONCLUSION

The study findings indicate low level of awareness regarding GDM and PIH compared to anemia among antenatal women. It can be due to the fact that anemia is more prevalent among antenatal women in a rural set up. There is a gradual increase in number of GDM and PIH cases and increasing awareness about both these disease especially among antenatal mothers will aid in healthy mother and baby by helping reduce maternal and infant mortality. The knowledge regarding PIH²² and GDM¹⁶ was less compared to other studies but knowledge regarding anemia²⁰ was good. This high knowledge is because of regular health education at the hospital and high input of anemia cases in study population.

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