



RISK FACTOR ASSOCIATED WITH GESTATIONAL DIABETES MELLITUS AMONG PREGNANT WOMEN ATTENDING ANTENATAL CLINIC AT THREE URBAN HEALTH CENTRES OF BELAGAVI – A CROSS SECTIONAL STUDY

Community Medicine

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ABSTRACT

Background and Objective: Proper antenatal care is one of the important ways in reducing maternal and child morbidity and mortality. Pregnancy comes with some cost, however, for a pregnant woman needs also to be a responsible woman so as to best support the health of her future child. This present study was conducted to assess the risk factor associated with gestational diabetes mellitus among pregnant women attending antenatal clinic.

Methodology: This one year cross sectional study was done in three UHCs Ram Nagar, Ashok Nagar and Rukmini Nagar which are urban field practice area of Jawaharlal Nehru Medical College, Belagavi. Data was collected from 360 pregnant women attending the antenatal clinic of three UHCs. Information on socio demographic details was obtained. Information on socio demographic details and risk factors associated with GDM was obtained. Woman was given a standardized 75gm of oral glucose load, irrespective of whether she was in fasting or non fasting state and without regard to time of last meal, and plasma glucose was estimated at 2 hours by using Diabetes in Pregnancy Study group India (DIPSI criteria) and all women with a plasma glucose of ≥ 140 mg/dl were diagnosed to have GDM.

Results: The trends association was observed statistically significant in age associated with GDM ($p=0.012$) as the age was increased the prevalence of GDM was increased. The prevalence of GDM increased with multigravida and this shows that the severity of gestational diabetes mellitus increases with gravidity which is found to be statistically significant ($p=0.002$)

Conclusion: In this study there is a greater prevalence of GDM in women with increasing age, higher parity. There is a need for universal screening to pick up gestational diabetes mellitus to prevent both maternal and fetal morbidity. Based on these results it concluded that, the diagnosis of GDM based on DIPSI method is a convenient, quick and cost effective.

KEYWORDS

Risk factors, Gestational diabetes mellitus, DIPSI criteria, Urban area

INTRODUCTION

Antenatal care (ANC) is the care a woman receives throughout her pregnancy in order to ensure that both the mother and child remain healthy.^{1,2} A healthy diet and life style during pregnancy is important for the development of a healthy baby and may have long term beneficial effects on the health of the child.³ Proper antenatal care is one of the important ways in reducing maternal and child morbidity and mortality. Understanding maternal knowledge and practices of the antenatal care during pregnancy and delivery are required for program implementation. Data on this very important issue are scarce in our state. Therefore present study was carried out to assess the socio demographic profile of pregnant women attending antenatal clinic.^{4,5}

METHODOLOGY

This one year cross sectional study was done during 1st January to 31st December 2014 in three UHCs Ashok Nagar, Ram Nagar and Rukmini Nagar, which are urban field practice area of Jawaharlal Nehru Medical College, Belagavi. Data was collected from 360 pregnant women attending the antenatal clinic of three UHCs irrespective of period of gestation. The sampling method adopted was systematic random sampling technique. After obtaining written informed consent, a pretested questionnaire was used to collect information regarding socio-demographic details.⁶ Numerical variables were analysed as means and standard deviation. SPSS version 16 was used for analysis of data. Ethical clearance was obtained from the Institutional Review Board of Jawaharlal Nehru Medical College, Belagavi.

RESULTS

Table 1 Distribution of study subjects according to age group

Age group in years	No.	%
≤ 19	37	10.3
20-24	170	47.2
25-29	101	28.1
≥ 30	52	14.4
Total	360	100

Table 2:- Prevalence of GDM according to age.

Age group (years)	Pregnant women	GDM cases	%
≤ 19	37	1	2.7
20-24	170	20	11.8

25-29	101	11	10.9
≥ 30	52	12	23.1
Total	360	44	12.2
$\chi^2 = 9.036$		Df = 3	p = 0.029

Table 3: Prevalence of GDM according to gravidity

Gravida	Pregnant women	GDM cases	%
Primigravida	168	11	6.5
Mutigravida	192	33	17.2
Total	360	44	12.2
$\chi^2 = 9.455$		Df = 1	p = 0.002

Table 4: Prevalence of GDM according to previous history of GDM.

Previous h/o GDM	Pregnant women	GDM cases	%
Yes	4	2	50
No	188	31	16.5
Not applicable (Primigravida)	168	11	6.5
Fisher exact test		P<0.001	

In the present study total 360 participants were taken.

Table no. 1 Of the 360 pregnant women who participated in the study, 37 (10.3%) were in the age group of ≤ 19 years, 170 (47.2%) were in the age group of 20-24 years, 101 (28.1%) were in the age group of 25-29 years and 52 (14.4%) were in ≥ 30 years age group.

Mean age group of the study participants was 24.3 ± 3.92 years. Range was 18-37 years.

Table no. 2 In this study, overall 44 (12.2%) pregnant women were found to have GDM. Age specific prevalence was found to be higher in age ≥ 30 years 12 (23.1%) whereas among the women in the age group of ≤ 19 years only 1 (2.7%) was having GDM. And age group 20-24 years were having 20 (11.8%) and 25-29 years were having 11 (10.9%) of prevalence. The prevalence of GDM among the age groups showed statistically significant difference ($p=0.029$). The trends of prevalence of GDM increased as age increased which was found to be statistically significant (χ^2 for trends = 6.299, $p=0.012$).

Table no. 3 Among the pregnant women, 11 (6.5%) of primigravida and 33 (17.2%) of multigravida had GDM. The prevalence of GDM increased with multigravida and this shows that the severity of gestational diabetes mellitus increases with gravidity which is found to be statistically significant ($p=0.002$)

Table no. 4 In this present study prevalence of GDM was higher in those who were having the previous history of GDM 2 (50%). This difference was statistically significant ($p<0.001$).

DISCUSSION

In present study the mean age group of the study participants was 24.3 ± 3.92 years. Of the 360 pregnant women who participated in the study, 10.3% were in the age group of ≤ 19 years, 47.2% were in the age group of 20-24 years, 28.1% were in the age group of 25-29 years and 14.4% were in ≥ 30 years age group, whereas study conducted in Kashmir⁷ showed that there were no participants < 19 years and half of the participants were in the age group of 26-30 years and only 1.3% study participants belonged to age group > 35 years. Another study done in Guntur, South India⁸ showed 53% study participants belonged to age group 21-25 years and only 4% belonged to > 30 years of age.

In this study overall 12.2% of pregnant women had GDM. Age specific prevalence was to be found higher in age ≥ 30 years with prevalence of 23.1%, whereas age ≤ 19 years were having only 2.7% prevalence. The prevalence of GDM among the age groups showed statistically significant difference ($p=0.029$). The trends of prevalence of GDM increased as age increased which was also found to be statistically significant ($p=0.012$), whereas study conducted in Hyderabad, South India⁸ showed age specific prevalence was higher in age of 20-25 years that is 73.9% and there was no GDM case in age group < 20 years. Another study conducted in Guntur, South India showed similar results with age specific prevalence was more in age group > 30 years.

In our study it was seen that as the gravidity increased prevalence of GDM increased, 17.2% of multigravida and 6.5% of primigravida had GDM. This shows that the severity of gestational diabetes mellitus increases with gravidity which is found to be statistically significant ($p=0.002$). A study done in Guntur, South India⁹ showed similar results where in the prevalence of GDM was higher in multigravida as compared to primigravida. Similarly study conducted in Kashmir, North India⁷ showed that as the gravidity increased the prevalence of GDM increased.

In our study 50% of them reported to have GDM in those who had previous history of GDM. This difference was statistically significant ($p<0.001$), whereas study conducted in Guntur, South India¹⁰ showed only 20% have GDM those who had past history of GDM. In the present study 33.3% prevalence of GDM was found in those pregnant women who had previous history of macrosomia, and 16.7% was in those who did not had any previous history of macrosomia. This difference was statistically significant ($p=0.003$), whereas study conducted in Guntur, South India showed there is no association between previous history of GDM and macrosomia with prevalence of GDM

CONCLUSION

There is a need for universal screening to pick up risk factor such as age ≥ 30 years and various other factors by assessing properly socio demographic profile of pregnant woman to prevent maternal and fetal morbidity. Larger studies are needed to analyze the socio economic status to find out the risk factors associated with pregnancy. Risk factors such as age ≥ 30 years can lead to gestational diabetes mellitus in pregnant woman. To improve community awareness on ANC, information, education and communication activities should be increased on ANC through community campaign and mass media like local television channel, radio and local newspapers. There is a need to motivate women to utilize maternal care services which are freely available in all the government health set ups. Based on these results it concluded that, plan for preventive strategies and to improve maternal outcomes.

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