

Prevalence of Gestational Diabetes Mellitus

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Abstract

Gestational diabetes mellitus affects up to 14% of all pregnancy with results of many maternal and fetal problems. *Material and Methods:* Study was carried out in the GSL general hospital in Andhra Pradesh, south India. Pregnant women with gestational period with 24-28 weeks were included in the study. SPSS statistical package version 20.0 was used for the statistical analysis. Results were expressed in numbers and percentage. Chi square test were used to know association between various parameters. *Results:* The association between GDM, gravid, age and BMI was statistically insignificant ($p > 0.05$). *Conclusion:* GDM testing and management mandatory during pregnancy.

Keywords: Gestational diabetes; Age; Body mass index; Gravida.

Introduction

Gestational diabetes mellitus (GDM), is defined as diabetes diagnosed in the 2nd and 3rd trimesters of pregnancy [1], has evolved as a global public health apprehension [2]. GDM is associated with adverse outcomes for both health of mothers and health of their newborns [3]. Women with GDM have decreased quality of life and increased risks of gestational hypertension, preeclampsia, caesarean section, and

type 2 diabetes [4-7]. In babies, GDM may be associated with macrosomia or larger than normal gestational-aged infants, neonatal hypoglycemia, and T2DM later in life [6, 8, 9]. As such, it is necessary to understand the burden of GDM in different parts of the world to provide specific information to help inform on policies and planning. The global prevalence of GDM ranges, from 1% to 28%, depending on population characteristics, screening methods, and diagnostic criteria [10]. In addition, as with the common form of T2DM [11], GDM can also be influenced by genetic factors, which may differently affect disease prevalence among populations [12]. While maternal overweight/obesity is an established risk factor for GDM. In the present study was conducted to know the prevalence of GDM in Andhra Pradesh.

Materials and methods

This study was hospital based prospective study conducted in department of Gynecology and Obstetrics, GSL Medical College and General Hospital, Rajamahendravaram, Andhra Pradesh. Pregnant women with gestational age between 24 to 28 weeks attended outpatient department were included and pregnant women with overt diabetes mellitus and patients with history of pancreatitis were

excluded. Seventy five grams of glucose dissolved in glass of 200 ml water and given to subjects orally and after two hours venous blood was collected. Blood glucose was analyzed by glucose oxidase and peroxidase method [13]. The pregnant women with having more than 140 mg/dl of glucose were identified as GDM according to DIPSI guidelines [14]. $p > 0.000$ as considered as highly statistically significant and $p < 0.05$ as statistically significant.

Results

There were total 503 pregnant women in which 477 were non GDM and 26 were GDM patients occupying 5.2%. The association between GDM and gravid was statistically insignificant ($p > 0.05$). The association between age and GDM was statistically significant ($p < 0.05$). It was found that higher percentages of GDM subject were in 26-30 years age group and followed by 21-25 years age group. The association between BMI and GDM was statistically highly significant ($p < 0.0001$). It was found that higher percentages of GDM subject were in $>25.0-30 \text{ kg/m}^2$ group and followed by $>20.0-25 \text{ kg/m}^2$ group.

Table 1: Total number and percentage of Non-GDM and GDM subjects.

Non GDM	477	94.8%
Gestational DM	26	5.2%

Table 2: Total number and percentage of Non-GDM and GDM subjects in primi and multi gravid.

Gravida	GDM	Non GDM	p value
Primi	17(65.4%)	236(49.6%)	0.117
Multi	9(34.6%)	241(46.9%)	

Table 3: Total number and percentage of Non-GDM and GDM subjects stratified according to age. $p > 0.000$ as considered as highly statistically significant

Age	GDM	Non GDM	p
≤ 20	3(11.5%)	160(33.5%)	0.000
21-25	9(34.6%)	223(46.9%)	
26-30	12(46.2%)	84(17.5%)	
> 30	2(7.7%)	10(2.1%)	

Table 4: Total number and percentage of Non-GDM and GDM subjects stratified according to BMI. $p > 0.05$ as considered as statistically significant

BMI (kg/m ²)	GDM	Non GDM	p value
≤ 20.0	1 (3.9%)	41 (10.1%)	0.002
$>20.0-25$	10 (38.4%)	288 (60.6%)	
$>25.0-30$	12 (46.2%)	136 (28.4%)	
$>30-35$	3 (11.5%)	4 (0.9%)	

Discussion

In the present study we aimed to find out to know the prevalence of GDM and overall prevalence reported as 5.2% which is lesser than the cohort study on pregnant women from Germany [A] and similar to study done in Karnataka [16]. A study assessing GDM prevalence in the North Rhine region based on outpatient billing data found a rate of 6.8% [17]. In India, prevalence rates reported to be between 4.6% and 14% in urban areas, and 1.7% and 13.2% in rural areas [18]. In this study no association was reported between gravida and GDM as similar by the study done by Duman et al. [19].

Sivakumar et al. [20] reported that Advancing age, increasing BMI, Multigravida, primiparity, family history of diabetes and irregular menstrual cycle shows an influence on the development of GDM. These risk factors are comparable with internationally documented risk factors. Assessing the risk factors and identifying those women as high risk group for GDM is important for the early diagnosis of GDM.

GDM showed an association with increasing age, and BMI, history of diabetes in first degree relatives, past history of gestational diabetes in several studies [21,22,23]. In the present study, GDM was found to be associated with increasing age, and BMI, higher weight gain during pregnancy, similarly in the study done in other study [24].

Conclusion

Need to be done to deal with the epidemic of GDM in India. There is a need for studying outcomes as well as cost-effectiveness of different diagnostic criteria while simultaneously creating social awareness, training manpower, and sensitizing policymakers to make GDM testing and management mandatory during pregnancy.

Conflict of interest: None

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