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Original Research Paper

Gynaecology

GDM IN PREGNANCY- UNIVERSAL SCREENING SHOULD BE MANDATORY

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ABSTRACT

Introduction: Present study seeks to evaluate risk of developing GDM in normal cases and high risk antenatal cases attending the outdoor of j k loan hospital. We also compared the sensitivity WHO criteria and DIPSI criteria in detecting GDM cases. **Methods:** During the study period, 300 antenatal cases were subjected to OGTT at 24-28weeks of gestation. 150 cases underwent OGTT as per WHO criteria and 150 cases as per DIPSI criteria .All the cases were followed up to term and same tests were repeated on them again at 32-36weeks.Risk of developing GDM calculated in both normal and high risk group. Comparisons were also drawn between WHO and DIPSI criteria in respect of detecting GDM cases and patient compliance. **Results:** The overall prevalence of GDM was found to be 14.66% at 24-28 weeks. Prevalence is higher in high risk group (18.08%) but not negligible in normal group (8.92%).The case detection rate by WHO criteria was 16% where as DIPSI detected 13.33% cases independently. Interestingly when non GDM cases were again subjected to tests at 32-36 weeks 8.46% of them were found to have GDM. **Conclusion:** This study confirms that universal screening of all antenatal cases at 24-28 weeks of gestation with 75 g 2hour blood glucose level irrespective of fasting state (DIPSI criteria) will detect more cases. However it is also essential to subject all normal glucose tolerance antenatal cases to 75 g 2hour blood glucose test at 32-36 weeks.

KEYWORDS : GDM- Gestational diabetes mellitus, WHO- World Health Organisation,DIPSI- Diabetes in pregnancy study group India. NGT- Normal glucose tolerance

Introduction

Diabetes is increasing globally and India has the highest number of type2 diabetes patient in the world1. Gestational diabetes mellitus defined as the "glucose intolerance of variable severity with onset or first recognition during pregnancy". The definition applies irrespective of whether insulin or dietary only treatment is utilized and whether the condition persists after pregnancy. It does not exclude the possibility that unrecognized glucose intolerance may have antedated or begun concomitantly with the pregnancy[2].The importance of diagnosing GDM is that it is a common complication of pregnancy affecting both mother and fetus.GDM has been associated with an increased of miscarriages, fetal congenital anomalies, perinatal mortality and neonatal morbidity[3].The long term affect on mother is high risk of developing type II DM after the delivery. Approximately 40% of all GDM patient go onto develop DM type II in their later life[4]. One recent data shows approx 16.55% prevalence of GDM in our country[5]. Pregnancy reveal the hidden impaired glucose tolerance as GDM and thus provide a window of opportunity for diagnosis and early treatment which should not missed. In this study we looked for prevalence of GDM at 24-28 weeks and 32-36weeeks and compared the sensitivity of WHO and DIPSI protocol.

Method & Materials

This study was carried out in the department of Obstetrics and Gynaecology, j k loan Hospital between 01.05.2019 to 30.04.2020.Patients from different parts of Rajasthan attend this tertiary centre. They actually represent wide range of socioeconomic, ethnic and geographical, cultural varieties which is an ideal population sample for study. During the period of our study we selected total 300 antenatal cases at 24-28 weeks gestation randomly from antenatal outdoor as well as from indoor cases. It was longitudinal follow up study. Detailed bio-data and history of all patients were taken. Any risk factor for GDM at 24-28 weeks has been identified. Gestational age was determined on the basis of the woman's last normal menstrual period if it coincided within 1 week of the date determined by ultrasound done in first trimester. Half of the patient (150) were screened by WHO(2013) criteria (Fasting blood sugar, 2 hour Blood sugar) and rests half(150) by DIPSI criteria. Patients were under follow up and the same tests repeated again on them at 36-40 weeks gestation. Consent was taken from the entire patient after explaining them the purpose of the tests in detail.

Results

During the study period of 12 month 300 antenatal cases were taken. Total 188 cases (62.66%) of the study group (η = 300) had at least one risk factor though some of this cases also have multiple risk factors. Age >25 yrs is taken as risk factor for developing GDM and 32% of patients of the study population fall under that. 12.66% of cases had history of at least one sp. abortion thus making it second most common risk factor for GDM in our study.

Table No 1

Risk Factor	No. Of cases	Percentage
Age >25 yrs.	96	32%
Obesity	8	2.66%
Sp. Abortions	38	12.66%
C. anomaly	4	1.3%
Term IUD/Intrapartum death	12	4%
Pre-term delivery	18	6%
Polyhydramnios	2	0.66%
Macrosomia	5	1.66%
H/O pre- eclampsia	28	9.33%

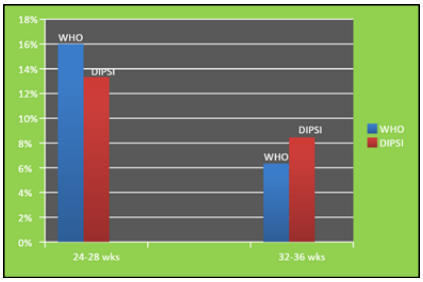
Total patients screened by WHO (2013) criteria were 150. Among them 24 cases were detected to have GDM at 24-28 wks of gestation. All patients who had NGT at 24-28 weeks (126) of gestation underwent repeat testing at 32-36 weeks. 8 new cases have been detected in this group who showed normal blood glucose level at 24-28 weeks.

Total patients screened by DIPSI criteria were 150. Among them 20 cases were detected to have GDM at 24-28 weeks gestation. All patients who had NGT at 24-28 weeks (130) undergone repeat testing at 32-36 wks. We could diagnose 11 new cases as GDM who had previous normal blood glucose level at 24-28weeks.

Table No 2

Gestational age	Incidence with WHO criteria	Incidence with DIPSI criteria	P-value

24-28 wks	16.%	13.33%	1.00
32-36 wks	6.34%	8.46%	



P-value is 1.00 (>0.05) and hence it is not significant. It is proved from the study that there is no significant difference between WHO (2013) and DIPSI criteria in diagnosing GDM cases.

H/O still birth was present in 11.36% cases and unexplained neonatal death was present in 9.09%.

Table No 3 Past obstetrical history of GDM cases

	No. Of GDM cases	Percentage
Neonatal death	4	9.09%
Still birth	5	11.36%
Congenital anomaly	1	2.27%

Only 2 cases BMI was found more than 30 and 1 developed GDM. The mean body mass index of GDM cases was found to be 25.52.

Table No 4 Association of BMI with GDM cases

BMI	No. Of GDM cases	Percentage
≤25	20	45.45%
25-30	23	52.27%
≥30.1	1	2.27%

Statistical analysis found P-value is 0.0419 (≤0.05) and hence it is significant. This is proved from this study that there is a significant chance of developing GDM in high risk cases comparing to normal antenatal cases without any high risk.

Table No 5

Category	No. GDM cases(WHO+DIPSI)	No. Of NGT	P-value
High risk cases (at least one risk factor)	34 (a)	154(b)	0.0419
Normal cases (without risk factor)	10(c)	102(d)	

44 cases were diagnosed having GDM by WHO and DIPSI criteria at 24-28 wks. At 32-36 week all the patients earlier found NGT (256) undergone GTT (WHO / DIPSI) with the same criteria as it was done at 24-28 wks. Interestingly 19 new cases that had normal blood glucose level in previous testing (24-28 wks) were found to have GDM. The incidence of GDM was found 14.66% in my present study at 24-28 wks. It also observed that repeat testing at 32-36 wks showed 7.42 % of GDM who showed normal glucose tolerance at 24-28 weeks gestation.

Table No 6

Gestational age	No. Of GDM cases	Percentage
24-28 wks	44	14.66%
32-36 wks	19	7.42%

Among 44 cases of diagnosed GDM 9 cases did not respond at all to MNT and required insulin till their delivery. 35 cases were found to have controlled blood sugar on repeat testing (2 weeks later) after starting MNT.

Discussion

GDM prevalence has been reported wide range from 4-16% in various studies across the country. Our hospital based study showed the overall prevalence of GDM at 24-28 weeks 14.66%. Ramya Neelakandan et al (2013) got little higher rate of prevalence as they had done early universal (first trimester) screening[6].

Prevalence of GDM by WHO criteria in 150 patients was found 16% compared to 13.33% in the group used DIPSI criteria at 24-28 weeks. On repeat testing at 32-36 weeks it was 6.34% (by WHO) and 8.46% (by DIPSI) respectively. When WHO(2013) and DIPSI criteria results are compared in diagnosing GDM at 24-28 weeks, no significant difference was found (p value > 0.05). WHO criteria (2013) need both fasting and 2hr blood sugar to be done and hence difficult to be done in same day of antenatal visit. Two venous samples have to be drawn at the difference of 2hr and hence patient compliance is low.

On the other hand DIPSI criteria advocate blood sugar estimation after 2 hour of giving 75g of glucose irrespective of last meal. The test can be done on the same day of antenatal visit irrespective of fasting state and thus gives the advantage in Indian scenario where fasting during pregnancy is considered unhealthy for the mother. V Seshiah et al study of prevalence of GDM in India found prevalence of 16.55% using only 75g 2hr glucose test which is close to present study[5].

In India 70-80% patients belong to poor or middle economic section and it is difficult to attend health facility multiple times. DIPSI criteria provide them unique opportunity of getting antenatal check up and checking blood sugar on the same day. It is sensitive, cost effective, patient friendly and decreases the burden on health system while in routine antenatal care.

Pregnant women showed normal range of blood sugar at 24-28 weeks can develop GDM in later part of pregnancy. Present study reveals that 7.42% such cases on repeat testing at 32-36 weeks.

Conclusion

From our study we found that prevalence of GDM is quite higher in our setup which is around 14.66%. We recommend for universal screening of all antenatal cases at 24-28 weeks of gestation with 75 g 2hour blood glucose level irrespective of fasting state. All GDM diagnosed patients should be initially put on MNT and a repeat follow-up blood sugar test should be done after 2 weeks. However it is also recommended to subject all antenatal cases to 75 g 2hour blood glucose test at 32-36 weeks.

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