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Original Research Article

Screening of diabetes in pregnancy (Gestational & Overt Diabetes) by IADPSG & its impact on maternal outcome

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Abstract: For early diagnosis of diabetes in pregnancy by strategy advised by IADPSG. All antenatal patients at 1st visit had FBS and in high risk patients HbA1c, RBS also to detect overt Diabetes or GDM. Those patients who were not detected as diabetics at 1st visit were subjected to 75 gm glucose test between 24-28 weeks and diagnosed as GDM if one or more values were abnormal and the diabetics patients were followed up throughout pregnancy for maternal & neonatal complications. Total numbers of patients screened were 2009, out of which 175 patients were detected as diabetics & analysed. The data analysed, shows that compared to other studies a fewer no. of patients had complications like pre eclampsia, polyhydramnios, macrosomia, IUD, preterm labour etc. The neonatal outcome was quite satisfactory and there were no neonatal deaths. So we found that two phase strategy screening method was quite helpful in picking the patients with mild glucose intolerance and also economically viable in comparison to GCT followed by GTT.
Keywords: GDM, Overt Diabetes, IADPSG

INTRODUCTION

Diabetes is the most common metabolic disorder affecting pregnancy. Recognizing and treating diabetes or any degree of glucose intolerance in pregnancy results in lowering maternal and fetal complications. Hence an easy, patient friendly method for screening the pregnant population is the need of the hour. The present study was carried out to screen all pregnant patients for diabetes & to analyze the maternal & neonatal outcome.

METHODS

We did an observational analysis on 2009 patients attending the antenatal OPD of Holy Family Hospital between June 2014-May 2015.The screening method used was two phase strategy recommended by IADPSG. Out of 2009 patients who were screened, 175 patients were found to be diabetics.68 out of 175 were detected to be diabetic at first antenatal visit and remaining 107 in second trimester between 24-28 weeks of gestation. All these 175 patients were properly assessed, investigated and treated according to the severity of glucose intolerance. These patients were closely observed for antenatal, intranatal and post natal problems.

RESULTS

Table-1 shows maternal antenatal complications in diabetic patients of our study.2.28% had Pre-Eclampsia, 1.1% patients had placental abruption, 12% patients had associated urinary tract infection, 12% patients had vaginal candidiasis, 5.7% patients had polyhydramnios, 4.6% patients had macrosomia, 2.3% had IUGR babies, 2.9% cases had IUD, 9.14% patients had preterm labour, and 2.28% patients had PPROM.

Table-2 shows the labour outcome that 61.14% had vaginal delivery & 38.85% had cesarean.

Table-3 shows the postpartum complications that 8% patients had PPH, 3.4% had shoulder dystocia, and 16% had cervical or vaginal injuries.

Table-4 shows neonatal complications that low APGAR score in 1 minute <7 was seen in 18.28% patients and in 5 Minutes, 1.14% patient's .11.42% babies were found to be large for gestational age. 6.2% babies had hyperbilirubinemia. 3.42% babies had hypocalcemia. 2.2% babies had hypoglycemia.2.2% babies had hypomagnesemia .1.71% babies had polycythemia. 1.14% babies had MAS.0% congenital

anomalies & neonatal death.22.8% babies were admitted in NICU.

Table-5 shows that maximum no. of patients 32% had birth weight between 2.15- 3.0 kg followed by 22.28% had Birth weight between 3.01- 3.50 kg & 20.57% had birth weight between 3.51-4.0 kg.

Table 1: Showing antenatal Complications in the study group (n-175)

ANTENATAL COMPLICATIONS	No. of Patients	%
Pre-eclampsia	4	2.28
Preterm labour	16	9.14
PPROM	4	2.28
Abruptio placentae	2	1.1
IUD	5	2.9
IUGR	4	2.3
Macrosomia	8	4.6
Polyhydramnios	10	5.7
UTI	21	12.0
Vaginal Candidacies	21	12.0
NO	80	45.71
Total	175	100.0

Table-2: Showing Mode of Delivery in the study group (n-175)

Mode of Delivery	No. of Patients	%
VAGINAL DELIVERY	107	61.14%
CAESAREAN	68	38.85%
TOTAL	175	100.00%

Table-3: Showing postpartum complications in the study group (n-175)

	No. of Patients	%
Tear	28	16.0
PPH	14	8.0
Shoulder Dystocia	6	3.4
No Complications	127	72.57
Total	175	100.0

Table-4: neonatal Complications

	No. of Patients	%
Low Apgar<7in 1min	32	18.28
Low Apgar<7 in 5 min	2	1.14
SGA	14	8
LGA	20	11.42
Hyperbilirubinemia	11	6.2
Hypocalcemia	6	3.42
Hypoglycemia	4	2.2
Hypomagnesemia	4	2.2
Polycythemia	3	1.71
Meconium Aspiration Syndrome	2	1.14
Neonatal Sepsis	1	0.57
Congenital Anamoly	0	0
Neonatal death	0	0
NICU stay	40	22.80

Table-5: Birth Weight in Our Study

Birth Weight	No. of Patients	%
<2 kg	8	4.57%
2.1-2.5 kg	28	16%
2.51-3.0 kg	56	32%
3.01-3.50 kg	39	22.28%
3.51-4.00 kg	36	20.57%
>4.01 kg	7	4%

DISCUSSION

In our observational analysis study, out of 2009 patients who were screened, 175 patients were found to be diabetics.68 out of 175 were detected to be diabetic at first antenatal visit and remaining 107 in second trimester between 24-28 weeks of gestation. All these 175 patients were properly assessed, investigated and treated according to the severity of glucose intolerance. These patients were closely observed for antenatal, intranatal and post natal problems. The data analysed, shows that compared to other studies a fewer no. of patients had complications like pre eclampsia, polyhydramnios, macrosomia, IUD, preterm labour etc. The neonatal outcome was quite satisfactory and there were no neonatal deaths. This shows that if proper screening methods are used to pick up GDM cases at an early stage of pregnancy, we can provide them with consistent care and improve the pregnancy outcome. In our study, we found that two phase strategy screening method was quite helpful in picking the patients with mild glucose intolerance and also economically viable in comparison to GCT followed by GTT.

O Sullivan and Mahan et al in 1964 established the criteria for OGTT in pregnancy using the somogyi nelson method in venous whole blood sample. They recommended gestational diabetes to be diagnosed if any 2 or more of the following values are met or excluded: fasting 90mg/dl, 1 hr-165 mg/dl, 2hr-145 mg/dl,3 hr-125 mg/dl [1]. In 1979 national diabetes data group (NDDG) recommended the cut off value 105mg/dl,190mg/dl, 165mg/dl and 145 mg/dl [2].

Carpenter & Coustan in 1982 studied the threshold of screening tests, for further testing by the OGTT. They recommended the cut off value 95 mg/dl, 180 mg/dl, 155 mg/dl and 140 mg/dl [3, 4]. HAPO Study was done to clarify the risk of adverse outcomes associated with different degrees of maternal glucose intolerance less severe than overt diabetes during pregnancy [5]. Comparing the lowest versus the highest glucose category for fasting plasma glucose, the prevalance of birth weight>90^{th} percentile was 5.3 vs 26.3%, for primary caesarean section 13.3 vs 27.9%, for clinical neonatal hypoglycemia 2.1 vs 4.6% & for C-peptide >90^{th} percentile was 3.7 vs 32.4 %. Similar results were seen with the 1- hr & 2-hr glucose measures & no one out of the three time-points tested demonstrated superiority when it came to predicting the primary outcomes. This equated to an 8-11% increase in primary caesarean section for each standard deviation increase in glucose level. Pre-eclampsia increased by 21% & shoulder dystocia or birth injury by 18% for each standard deviation increase in fasting plasma glucose. However, premature delivery, neonatal intensive care admission & hyperbilirubinemia were associated with the 1-hr & 2-hr levels but not the fasting plasma glucose. DIPSI procedure requires one blood sample drawn at 2 hrs after 75 gm oral glucose load for estimating plasma glucose. It serves as both screening & diagnostic test [6]. Viswanathan Mohan et al did a comparative study to screen for GDM by DIPSI and IADPSG criteria and he concluded that DIPSI criteria have a low sensitivity as compared to IADPSG [7].

CONCLUSION

Our study concluded that two phase strategy screening method was quite helpful in picking the patients with mild glucose intolerance and also economically viable in comparison to GCT followed by GTT. Our study also showed that if proper screening methods are used to pick up GDM cases at an early stage of pregnancy, we can provide them with consistent care & improve the pregnancy outcome.

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