A Comparative Study of DIPSI and O'Sullivan's Method for Screening of Gestational Diabetes Mellitus and Its Efficacy in Predicting Foetomaternal Outcome

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ABSTRACT

BACKGROUND

Incidence of Gestational Diabetes Mellitus (GDM) in India is 10 - 14.3%. GDM is known to have adverse foetomaternal outcome. These complications are preventable with early diagnosis and appropriate management. There is a need for a simple, cost-effective screening test for timely diagnosis of GDM. This study aims at comparing the efficacy of O'Sullivan's method and Diabetes in Pregnancy Study Group India (DIPSI) test in predicting the foetomaternal outcome.

METHODS

This is a prospective observational study conducted over a period of 18 months at a tertiary care centre in central India. 900 antenatal patients between 24 - 28 weeks of gestation were divided into two groups of 450 each. One group was subjected to O'Sullivan's method and other to DIPSI test. The socio-demographics, risk factors, and foetomaternal outcome in the two groups were compared.

RESULTS

The incidence of GDM in DIPSI group was 15.1% and that in O'Sullivan's group was 9.5%. The incidence was higher in patients who were more than 30 years of age, and in second gravida. 81.08% patients belonged to class 5 of the socio-economic strata. 90.9% patients with GDM had a BMI of more than 25. 46.84% patients of GDM had positive family history of Diabetes Mellitus. 70.2% diabetic patients had term deliveries. Rates of LSCS in DIPSI group was 52.9% and that in O'Sullivan's group was 72.09%. Incidence of foetal macrosomia in diabetic mothers was 11.66%. 15.3% neonates of diabetic mothers required NICU admissions. Majority of the babies were admitted with neonatal hyperbilirubinemia, neonatal hypoglycaemia, and birth asphyxia. Including both the groups, 66.73% patients required insulin for control of blood sugar levels, and 33.27% patients were managed with proper diet and / or oral hypoglycaemics.

CONCLUSIONS

DIPSI has been found to have comparable efficacy to the two-step gold standard O'Sullivan's method in predicting the foetomaternal outcome. DIPSI being a one-step procedure, easy to perform, cost effective, procedure with better patient compliance can be advocated as the procedure of choice for screening and diagnosis of GDM in low resource setting like that in India.

KEYWORDS

Gestational Diabetes Mellitus, DIPSI, O'Sullivan's Test.

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BACKGROUND

GDM is one of the most common medical complications and metabolic disorders seen in pregnancy.[1] It is defined as carbohydrate intolerance with first onset or recognition during pregnancy irrespective of whether the diabetes persists after the pregnancy or not.[2] Approximately 4% of all pregnancies are complicated by GDM worldwide while the prevalence may range from 1–14% of all pregnancies depending on the population and the method of screening.[3] High prevalence of diabetes mellitus and genetic predisposition to metabolic syndrome among Asians, particularly Indian women, predispose them to develop GDM and its complications more often.[4] GDM is known to have adverse pregnancy outcomes including polyhydramnios, pre-eclampsia, pre-term labour, increased need for caesarean delivery, higher incidence of foetal macrosomia, neonatal hypoglycaemia and an increased risk of intra uterine death during last 4-8 weeks of gestation.[3]

Women with GDM are at an increased risk of developing type 2 Diabetes mellitus after pregnancy and long-term risk includes childhood obesity and type 2 DM in child as well.[5] All such complications of GDM are potentially treatable with timely diagnosis and prompt management. Thus, the main purpose of diagnosing GDM is to detect women at risk of adverse maternal and perinatal outcomes and timely initiation of dietary control measures and pharmacological interventions to prevent these adverse outcomes. However, there is lack of international consensus for the timing of screening of GDM as well as the method for screening of GDM. Different global associations have recommended different cut off values of blood glucose levels for diagnosis of GDM. However, there is a need to find a simple, reproducible and cost-effective test for universal screening of GDM in India. This study has been undertaken to ascertain the validity of DIPSI for screening and diagnosis of GDM as compared to the conventional two step O'Sullivan's method and to establish its effectiveness as a tool to predict the foetomaternal outcomes in pregnancy complicated with GDM in a tertiary care centre in central India.

METHODS

This study was a prospective observational study conducted over a period of 18 months in the department of obstetrics and gynaecology at a tertiary care centre in Central India. A total of 900 pregnant women who attended antenatal clinic of our hospital were alternately allotted into two groups of 450 each.

Inclusion Criteria

1. Women with singleton pregnancy
2. Women between the age group of 18-40 years.
3. Women with the gestational age of 24-28 weeks.
4. Women undiagnosed with diabetes in present pregnancy.
5. Women not on treatment of any other major medical illness.

Exclusion Criteria

1. Women with multifoetal gestation
2. Known cases of type 2 Diabetes Mellitus
3. Autoimmune systemic disorders like SLE/thyroid disorders/polycystic ovarian disease complicating pregnancy.

A total of 900 patients were alternately allocated in each group after matching the confounding factors. Detailed history, examination and all the necessary investigations as stated in case proforma (appendix 1) were noted down. Then the patients were subjected to either O'Sullivan's test or DIPSI depending on the group they were allotted.

DIPSI Test

Patients were asked to drink 75 g of oral glucose dissolved in 100 mL of water within 5 minutes irrespective of the duration since last meal and venous blood sample was drawn at the end of 2 hours and the value more than or equal to 140 mg/dL is considered as positive.

O'Sullivan's Test

Patients were asked to drink 50 g of anhydrous glucose dissolved in 200 mL of water, without regard to time or duration of last meal. Patients were asked to wait for 1 hour and were instructed not to eat during that duration. A venous blood sample was then drawn at the end of 1 hour and sent for testing. Those with blood glucose level >/= 140 mg/dL after 1 hour were considered to be positive. Such patients were called after a period of 3 days. Patients were instructed to come after overnight fasting of 8-14 hours. Patients were instructed to take a carbohydrate unrestricted diet during those 3 days before this test is performed. All such subjects proceeded further to 100 gm Oral Glucose Tolerance Test (OGTT) which is performed as follows:

First, a fasting venous blood sample was obtained. Then, 100 grams of anhydrous glucose was dissolved in 200-400 mL of water and patients were asked to drink it within 5 minutes. Venous blood sample was then drawn at the end of 1st, 2nd and 3rd hour after that and values calculated using the standard GOD-POD method. Basis for diagnosing gestational diabetes mellitus after this test by Carpenter and Coustan criteria was as follows:

Time	Plasma Glucose Values (mg/dL)
Fasting	>/=95
1 Hour	>/=180
2 Hour	>/=155
3 Hour	>/=140

When two or more of the above values were met with, GDM was diagnosed. The patients who were diagnosed as

GDM by either of the two methods were started on meal plan or insulin or oral hypoglycaemics as required and as per standard hospital protocols. Patients were followed up till their delivery and neonates were followed 48 hours post-delivery. The final foetomaternal outcome of the subjects was studied and compared in both the groups.

Maternal Factors

1. Amniotic fluid index at term
2. Gestational age at time of delivery
3. Mode of delivery

Foetal Factors

1. Birth weight
2. NICU (Neonatal Intensive Care Unit) admissions
3. Neonatal hypoglycaemia
4. APGAR score

After ensuring that the two groups were comparable by using the chi-square test, the foetomaternal outcomes in the two groups were compared and the level of significance determined accordingly to reach to a final conclusion regarding their ability to predict foetomaternal outcome.

RESULTS

Total number of cases screened	900
Total number of cases screened by O'Sullivan's method	450
Total number of cases screened by DIPSI	450
Number of cases diagnosed as GDM by DIPSI	68
Number of cases diagnosed as GDM by O'Sullivan's method	43
Incidence of GDM using DIPSI	15.11%
Incidence of GDM using O'Sullivan's	9.5%

Table 1. Incidence of GDM in This Study

Socio-Demographic Correlation in Diabetic Mothers				
Age Group (Years)	**O'Sullivan's +ve (N=43)**	**O'Sullivan's -ve (N=407)**	**DIPSI +ve (N=68)**	**DIPSI -ve (N=382)**
18-20	0 (0%)	82(20.14%)	0(0%)	60(15.70%)
21-25	27(62.7%)	228(56.01%)	42(61.76%)	192(50.26%)
26-30	11(25.5%)	80(19.65%)	20(29.41%)	102(26.70%)
31-35	5(11.62%)	8(1.97%)	6(8.8%)	20(5.23%)
36-40	0(0%)	9(2.2%)	0(0%)	8(2.09%)
Gravida Status				
Primigravida	4(9.3%)	196(48.15%)	17(25%)	170(44.50%)
G2	27(62.79%)	151(37.1%)	39(57.35%)	156(40.83%)
G3	11(25.5%)	42(10.31%)	10(14.70%)	45(11.78%)
>/=G4	1(2.32%)	18(4.4%)	2(2.9%)	11(2.8%)
Socio Economic Class				
Class 3	1(2.32%)	90(22.11%)	2(2.9%)	68(17.80%)
Class 4	4(9.3%)	120(29.48%)	14(20.58%)	114(29.84%)
Class 5	38(88.37%)	197(48.40%)	52(76.47%)	200(52.35%)
Patient Characteristics				
BMI				
<18.5	0(0%)	30(7.37%)	0(0%)	50(13.08%)
18.5-25	2(4.65%)	249(61.17%)	8(11.76%)	240(62.8%)
25.1-30	32(74.41%)	108(26.53%)	50(73.5%)	80(20.94%)
>30	9(20.93%)	20(4.91%)	10(14.7%)	12(3.14%)
Weight (Kg)				
<40	0(0%)	13(3.19%)	0(0%)	13(3.40%)
40-50	1(2.32%)	62(15.23%)	4(5.88%)	70(18.32%)
50-60	18(41.86%)	214(52.57%)	42(61.76%)	202(52.87%)
60-70	15(34.88%)	58(14.25%)	16(23.52%)	52(13.61%)
70-80	7(16.27%)	31(7.61%)	4(5.88%)	30(7.85%)
>80	2(4.65%)	29(7.12%)	2(2.94%)	15(3.92%)
Family History				
No family history	22(51.16%)	362(88.94%)	37(54.4%)	292(76.43%)
Father diabetic	10(23.25%)	25(6.14%)	20(29.41%)	50(13.08%)
Mother diabetic	11(25.58%)	15(3.68%)	10(14.70%)	36(9.42%)
Both diabetic	0(0%)	5(1.22%)	1(1.47%)	4(1.04%)

Table 2. Socio-Demographic Correlates and Patient Characteristics of GDM

Past History	**Spontaneous Abortion**		**Sudden IUD**		**Preterm Delivery**	
	DIPSI +ve	**O'Sullivan's +ve**	**DIPSI +ve**	**O'Sullivan's +ve**	**DIPSI +ve**	**O'Sullivan's +ve**
Present	7(10.2%)	4(9.3%)	0 (0%)	0(0%)	5(7.35%)	2(4.65%)
Absent	61(89.7%)	39(90.7%)	68(100%)	43(100%)	63(92.64%)	41(95.35%)
Total	68	43	68	43	68	43

Table 3a. Association of GDM with Risk Factors in the Previous Pregnancy

Past History	**PIH**		**GDM**		**Anomalous Baby**	
	DIPSI +ve	**O'Sullivan's +ve**	**DIPSI +ve**	**O'Sullivan's +ve**	**DIPSI +ve**	**O'Sullivan's +ve**
Present	18(26.47%)	18(41.86%)	3(4.4%)	1(2.23%)	0(0%)	0(0%)
Absent	50(73.5%)	25(58.14%)	65(95.5%)	42(97.67%)	68(100%)	43(100%)
Total	68	43	68	43	68	43

Table 3b

Pregnancy Induced HTN	**O'Sullivan's +ve (N=43)**	**O'Sullivan's -ve (N=407)**	**DIPSI +ve (N=68)**	**DIPSI –ve (N=382)**
Present	1(2.32%)	10(2.45%)	8(11.76%)	20(5.23%)
Absent	42(97.67%)	397(97.54%)	60(88.23%)	362(94.76%)
Polyhydramnios				
Present	2(4.65%)	5(1.22%)	10(14.70%)	7(1.83%)
Absent	41(95.34%)	402(98.77%)	58(85.29%)	375(98.16%)
Anomalous Baby				
Present	0(0%)	1(0.24%)	1(1.48%)	5(1.31%)
Absent	43(100%)	406(99.75%)	67(98.52%)	377(98.69%)

Table 4. Associates of GDM in Present Pregnancy

Timing of Delivery	O'Sullivan's +ve (N=43)	O'Sullivan's –ve (N=407)	DIPSI +ve (N=68)	DIPSI –ve (N=382)
Preterm	8(18.60%)	20(4.91%)	25(36.76%)	12(3.14%)
Term	35(81.39%)	367(92.38%)	43(63.23%)	349(91.36%)
Post datism	0(0%)	10(2.45%)	1(1.47%)	20(5.23%)
Mode of Delivery				
Vaginal delivery	12(27.90%)	286(70.27%)	28(41.17%)	246(64.39%)
Forceps delivery	0(0%)	5(1.22%)	3(4.41%)	7(1.83%)
Breech	0(0%)	4(0.98%)	1(1.47%)	1(0.26%)
Caesarean section	31(72.09%)	112(27.51%)	36(52.94%)	128(33.50%)
Birth Weight				
<2.5 kg	5(11.62%)	27(6.63%)	18(26.47%)	20(5.23%)
2.5-4 kg	33(76.74%)	374(91.89%)	42(61.76%)	359(93.97%)
>4 kg	5(11.62%)	6(1.47%)	8(11.76%)	3(7.89%)
NICU Admissions				
Required	4(9.30%)	35(8.51%)	16(23.52%)	64(16.75%)
Not required	39(90.69%)	372(91.4%)	52(76.47%)	318(83.24%)

Table 5. Foetomaternal Outcomes in Diabetic Mothers

Neonatal Emergency	O'Sullivan's Group (N=4)	DIPSI Group (N=16)	Total
Hyperbilirubinemia	1(25%)	7(43.75%)	8
Birth asphyxia	1(25%)	3(18.75%)	4
Neonatal sepsis	0	1(6.25%)	1
Neonatal hypoglycaemia	2(50%)	4(25%)	6
Convulsions (hypocalcaemia)	0	1(6.25%)	1

Table 6. Reasons for NICU Admissions

Type of Management	O'Sullivan's +ve (N=43)	DIPSI +ve (N=68)	Total
Diet only	2(4.65%)	16(23.52%)	18
Oral hypoglycaemics	7(16.27%)	15(22.05%)	22
Insulin	34(79.06%)	37(54.41%)	71

Table 7. Management Modalities in Patients with GDM

DISCUSSION

This study includes 900 antenatal cases who were allotted into two groups of 450 each and subjected to either of the two tests for screening and diagnosis of GDM. Considering the high ethnic predisposition of Indians for GDM, almost 11 times higher than the white Caucasians, a universal screening program was employed. The total incidence of GDM in our study was 12.3%. Amongst this, the incidence of GDM as diagnosed by DIPSI was 15.11% and that diagnosed by O'Sullivan's method was 9.5%. In a similar study in Tamil Nadu by Seshiah et al (2002), the prevalence of GDM was found to be 17.8% in the urban population, 13.8% in semi urban population and 9% in rural population.[6] In a prospective study by S. Elancheran et al in Pondicherry, the incidence of GDM was found to be 10.8%.[7] Thus, our study findings were comparable.

This study included women in the age group of 18-40 years; majority being in the age group of 21-25 years. Out of the total women screened above the age of 30 years, 19.64% were diagnosed as GDM which is higher than the total incidence of GDM in our population. This signifies the association of GDM with advancing maternal age. In another prospective study by Vibeke Anna et al on sociodemographic correlates of GDM, it was observed that compared with women aged 20-24 years, women in the age group of 35-39 years had four times higher risk of GDM and in women above 40 years, the risk was six fold.[8] Also, in a field study by Seshiah et al (2002), the incidence of GDM in age groups of 21-25 years and above 30 years was found to be 10.6% and 35.8% respectively.[6] Most of the patients in our study were multigravida (mostly 2nd gravida). Multigravidas have a higher incidence of GDM (17.41%) as compared to primigravidas (5.42%). Though a direct association was not found between increasing parity and deteriorating insulin levels or to GDM appearance, but it was linked to progressive ageing and weight gain which were risk factors for GDM.[9] Socio economic status has been found to have an inverse relationship with incidence of GDM.[8] Majority of patients with GDM (81%) belonged to class 5 (lower class) of modified Kuppuswamy scale. A low education level and poor employment status was associated with higher incidence of GDM in study by S. Bo and G. Menato et al.[10] Overweight and obesity have a persistent strong association with increased risk of GDM, as demonstrated in our study. 73.8% diabetic patients in this study had BMI between 25-30 (overweight) and 17.11% had BMI above 30 (obese). Similar findings were observed in study conducted by S. Elancheran et al [(7)]. In a study conducted in north India by Saxena et al, 52% of diabetic patients were obese/overweight pre-conceptionally.[11] GDM is suspected to have a strong genetic predisposition and multiple meta-analysis studies have revealed that family history of diabetes was a risk factor for GDM. In this study, the incidence of family history of Diabetes Mellitus (DM) type 2 was higher in patients with GDM (47%) as compared to the non-diabetic population (17%). History of DM type 2 in fathers and mothers was 27.02% and 18.91% respectively.

Out of the total 111 patients diagnosed as GDM in this study, 58 (52.25%) patients had history of either spontaneous abortion, sudden IUD, delivery of a macrosomic baby, preterm delivery, GDM or Pregnancy Induced Hypertension (PIH) in the previous pregnancy. Amongst this, 10% diabetic mothers had history of spontaneous abortions and 32.4% had history of PIH in previous pregnancy which was found to be significant. In a study by Joohyun Lee et al (2007-2012) in Korea, it was seen that pre-eclampsia alone in 1st pregnancy had an increased risk of GDM in 2nd pregnancy. The co-existence of GDM and PIH further increased the risk of GDM in future pregnancies.[12] This co-existence may be attributable to some common factors predisposing for both of them, one of them being increased insulin resistance. In this study, out of the patients diagnosed as GDM, 8 patients (11.76%) in DIPSI group and 1 patient (2.32%) in O'Sullivan's group had co-existent PIH in this pregnancy. Thus, a total of 8.1% patients with GDM also had PIH. Polyhydramnios is also a common finding in GDM and is probably result of foetal

polyuria due to foetal hyperglycaemia. In this study, the incidence of polyhydramnios in diabetic patients was 10.81% as against 2.5% in non-diabetic population. The incidence of polyhydramnios in diabetic mothers in DIPSI group was 14.70% and that in O'Sullivan's group was 4.65%. Bhat et al in his study also found an incidence of polyhydramnios of 14.7% in diabetic mothers as against 2.7% in controls which is in agreement with this study.[13] Uncontrolled GDM has been frequently associated with congenital malformations. The pathological basis of foetal malformations includes maternal hyperglycaemia as primary teratogenic factor besides hyperketonaemia, hypoglycaemia, maternal vasculopathy and yolk sac failure. According to studies by Shefali et al[14] and Saxena et al,[11] the incidence of malformed babies in GDM was 1.4% and 10% respectively. In this study also, the incidence of congenital anomalies was 1.2 times more than general population.

Majority of the patients in this study delivered at term. The incidence of preterm and term deliveries in diabetic patients in our study was 29.72% and 70.27% respectively. Patients diagnosed by DIPSI had higher incidence of preterm deliveries (36.67%) than O'Sullivan's group (18.60%). In a study by Kock K et al, it was concluded that Diabetes had an inverse relationship with the length of gestation and a linear relationship with the incidence of spontaneous preterm births.[15] In this study, amongst the diabetic mothers, incidence of LSCS was much higher (60%) than the non GDM mothers which was found to be statistically significant. The rates of caesarean section in DIPSI group was 52.90% and that in O'Sullivan's group was 72.09%. Aruna Shubha shree et al[16] and Saxena et al[11] in their studies also found the rate of LSCS to be 68.3% and 71.4% respectively.

Foetal macrosomia i.e. birthweight more than 4 kg is an important neonatal outcome associated with GDM. It is a result of excessive fat deposition in foetus due to hyperglycaemia. In this study, the total incidence of macrosomia in GDM patients was 11.71% which was significantly higher as compared to non-diabetic population (1.1%). Mahalaxmi et al found the incidence of foetal macrosomia in diabetic patients as 17.4%.[17] Another important predictor of neonatal outcome is rate of NICU admissions. In this study, 15.3% of total neonates of diabetic mothers required NICU admission which was higher than the general population (12.54%). Main causes for neonatal admissions in our study were hyperbilirubinemia (43.75%) followed by neonatal hypoglycaemia (25%) and birth asphyxia (18.75%). Neonatal convulsions attributable to hypocalcaemia constituted 6.25%. In our study, the incidence of neonatal hypoglycaemia was almost 7 times higher in diabetic patients (5.4%) as compared to the non-diabetic population (0.76%). In a similar study by Aditi Phulphagar et al, 33.66% of patients with GDM required NICU admission as compared to 2.5% in general population.[18] Lastly, the treatment protocol was decided according to standard hospital guidelines and accordingly, majority of patients (63.96%) with GDM required insulin in this study. 18 patients were started on meal plan, 22 needed oral hypoglycaemics and 71 patients were started on insulin for optimum glycaemic control. The final foetomaternal outcome of oral hypoglycaemic and insulin therapy were comparable.

Statistical Analysis

Upon statistical analysis, the two groups were found comparable and foetomaternal outcome in them was compared using chi square test and it was found that maximum parameters of foetomaternal outcome of patients diagnosed with DIPSI are comparable to the conventional gold standard two-step O'Sullivan's method as the difference between the two of them is not significant statistically.

CONCLUSIONS

Timely diagnosis of GDM opens a window of opportunity for prevention of short term as well as long term adverse foetomaternal effects. An increasing age and parity, lower social-economic status, over-weight and obesity, co-existent pre-eclampsia, past history of spontaneous abortions and GDM were significant risk factors associated with occurrence of GDM in this study. Also, it culminated into a wide penumbra of adverse foetomaternal outcomes. Thus, timely screening for GDM and its complications is of utmost importance to decrease GDM related morbidity and mortality. In this study, the diagnostic and prognostic efficacy of one-step DIPSI was found comparable to two-step O'Sullivan's method upon statistical analysis. DIPSI being a one-step procedure, easy to perform, cost effective, easily reproducible procedure with better patient compliance, can be advocated as the method of choice for screening as well as for diagnosis of GDM in low resource setting like that in India for early diagnosis and optimal management.

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APPENDIX 'A'
(Case Study Proforma)
TITLE: A COMPARATIVE STUDY OF DIPSI AND O'SULLIVAN'S METHOD FOR SCREENING OF GESTATIONAL DIABETES MELLITUS AND THEIR EFFICACY IN PREDICTING FOETOMATERNAL OUTCOME

Name:

Age:

Registration No.:

Date of First Visit:

Address:

Contact no:

Unit:

Obstetric History
Duration since marriage:
Gravida: Para: Live: Abortion: Dead:

Menstrual History
LMP: EDD: Previous menstrual cycles.

Past History
A. Medical History (if any)
B. Surgical History (if any)
C. Gestational diabetes mellitus related history.
D. Any other significant history.

Family History

Personal History:
A. Diet.

Food Item consumed	Quantity	Calories
Roti		
Rice		
Vegetable		
Dal		
Ghee		
Oil		
Fruits		

B. Bladder/bowel habits.
C. Sleep.
D. History of tobacco chewing/smoking.

Immunisation History:

General Examination:
General condition:
Temperature:
Pulse:
Blood pressure:
Respiratory rate:
Breast examination:
Height: Weight:
Body mass index (BMI):

Systemic Examination
RS: CVS: CNS:

Per Abdomen
Fundal height (corresponding/ more/ less than gestational age)-
Lie- Presentation- Fetal heart sound-

Investigations
UPT
Haemoglobin Blood Group: Sickling: HIV: VDRL: HBsAg:
Random blood sugar (RBS):
Urine: Albumin- Sugar- Ketones-
Blood sugar levels (Fasting) Blood sugar levels (Post meal)
Ultrasonography (following parameters will be noted)

Gestational Age	Liquor	Estimated Fetal Weight
At term (37-40 weeks)		

Congenital anomaly (if any)-

Test to be performed in this Patient

DIPSI	
O'SULLIVAN'S	

1. DIPSI Group
Time of administering 75 g glucose: Time of recording the blood sugar level:
Value noted:

2. O'SULLIVAN'S Group
Time of administering 50 g glucose: Time of recording blood glucose levels:
Value noted:
Proceed to 2nd step: YES/NO
100 g OGTT done on (date):

Findings

Time	Values noted
Fasting	
1 hour	

2 hours	
3 hours	

Patient classified as gestational diabetes mellitus- yes/no
Line of management
Diet plan/ oral hypoglycaemics/ insulin

Outcome of Pregnancy

a. Amniotic fluid index (AFI) at term:
b. Mode of delivery (vaginal/ caesarean):
c. Time of delivery (at term/preterm/post term):
d. Baby weight:
e. APGAR score of neonate at 1 and 5 minutes:
f. Neonatal Intensive care unit (NICU) admissions and their reason:
g. Adverse pregnancy outcome if any (still birth/ preterm abortions/anomalous baby):