


Original Research Article

# Gestational diabetes and its adverse pregnancy outcomes

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## Abstract

**Background:** Gestational diabetes mellitus is defined as any degree of glucose intolerance with the onset or first recognition during pregnancy with or without remission after the end of pregnancy.

**Objective:** The aim of this study was to identify the gestational diabetes and its adverse pregnancy outcomes in pregnant women.

**Materials and methods:** This was a hospital based prospective observational study conducted on pregnant women attending antenatal op, and they were screened for gestational diabetes according to DIPSI criteria and who were diagnosed to have GDM were followed till delivery and pregnancy outcome was observed .

**Results:** In our study, 85 pregnant women were diagnosed to have gestational diabetes. Out of them two (2.4%) pregnant women were <20 years of age, and 50(58.8%) were in the age group of 20-30 years, and three (3.3%) were more than 40 years age. The mean age group was 26 years. Out of them 53 (62.5%) were multigravida and 32(37.5%) were primi gravida, 47(55.3%) pregnant women were delivered by LSCS, 32(37.6%) were delivered vaginally and 6(7.1%) were delivered by assisted forceps delivery. 70.9% babies were delivered with APGAR 8-10, and still births and IUD accounts for 11.6%.most common associated complication was pre eclampsia which accounts for 24.7%. Most common neonatal complication was hypoglycemia accounting for 9.4% that was 8 cases out of 85 deliveries. 10 babies were delivered with birth weight more than 4 kg which accounts for 11.7%.

**Conclusion:** Gestational diabetes complicating pregnancy has adverse fetal and maternal outcome by means of higher rate of operational deliveries and increased incidence of still birth when compared to normal population. Early diagnosis and prompt treatment can minimise these complications.

## Key words

Gestational diabetes mellitus, Pregnancy outcome, DIPSI criteria.

## Introduction

Gestational diabetes mellitus is defined as any degree of glucose intolerance with the onset or first recognition during pregnancy with or without remission after the end of pregnancy [1]. GDM increases morbidity and mortality in mother and fetus. It is associated with high incidence of maternal diabetes mellitus in later life [2]. Major morbidities in fetus include respiratory distress, growth restriction, polycythemia, hypoglycemia, hypocalcemia and hypomagnesemia [3]. Uncontrolled diabetes with poor glycemic control in mother is associated with high perinatal mortality as high as 42.9% [4].

## Materials and methods

A hospital based prospective observational study was conducted in the Department of Obstetrics and Gynecology in Government General Hospital, Kakinada, AP, India, time period of one year from July 2017 to June 2018. A total of 85 patients were diagnosed as GDM during this period. The patients included were pregnant women diagnosed as gestational diabetes. Data retrieved included age, parity, obstetric history, mode of delivery and fetal outcome. Excluded in this study were pregnancy associated with co morbidities like CCF, tuberculosis, carcinoma, renal failure and liver failure and Overt diabetes. Informed consent was taken, 75gm of oral glucose was given to pregnant women irrespective of last meal and venous blood sample was drawn at 2 hours. Plasma glucose was estimated by glucose oxidase peroxidase method [5]. Criteria used was 2<sup>nd</sup> hour venous plasma glucose measured after 75 gm oral glucose load after non fasting state was  $\geq 140$  mg/dl (DIPSI Criteria) patient was labeled as GDM [6]. The rest were classified as NON GDM. GDM women were advised nutrition therapy for 2 weeks. Those who didn't maintain FBS  $< 90$  mg/dl, and PPBS  $< 120$  mg/dl were advised insulin. All were followed till delivery. Pregnancy outcome was studied.

## Statistical analysis

The quantitative variables are presented by their frequency along with percentage.

## Results

Distribution of cases according to age was as per **Table – 1**. A total of 6720 pregnant women with 24-28 weeks gestation were evaluated for GDM by using DIPSI criteria. Out of them 85 were diagnosed as GDM. Out of 85 GDM patients 32(37.5%) were primi, 53(62.5%) were multi gravida as shown in **Table - 2**. 47 cases were delivered by LSCS which accounts for 55.3%, 32(37.6%) patients delivered by normal vaginal delivery, 6(7.1%) cases by outlet forceps as shown in **Table - 3**. Fetal outcome was studied by means of birth and neonatal complications. 10 babies were delivered with birth weight more than 4 kg which accounts for 11.7%. 9 babies were died in antenatal and intranatal period accounting for 11.6% and 11 were preterm deliveries requiring NICU admission. Most common associated complication was pre eclampsia (24.7%) followed by polyhydramnios (7%) as shown in **Table - 5**. Most common neonatal complication associated with GDM was hypoglycemia (9.4%) followed by hyper bilirubinemia (5.8%) and other complications were respiratory distress syndrome (2.3%), hypocalcemia (1.1%), polycythemia (1.1%) as shown in **Table - 6**.

**Table – 1:** Distribution of cases according to the age.

Maternal age (years)	No. of cases (n=85)	%
<20 years	2	2.4%
20-30 years	50	58.8%
30-40 years	30	35.5%
>40 years	3	3.3%

**Table – 2:** Distribution of cases according to the parity.

Parity	No of cases (n=85)	%
Primi	32	37.5%
Multi	53	62.5%

**Table – 3:** Distribution of cases according to the Mode of delivery.

Mode of delivery	No of cases (n=85)	%
Vaginal route	32	37.6%
LSCS	47	55.3%
Forceps delivery	6	7.1%

**Table – 4:** Distribution of cases according to the Foetal outcome.

Fetal outcome	No of cases (n=85)	%
Macrosomia	10	11.7%
Stillbirth	2	3.4%
Prematurity	11	11.3%
Intra uterine death	7	8.2%

**Table – 5:** Distribution of cases according to the complications.

Maternal Complications	No. of cases (n=85)	%
Pre eclampsia	21	24.7%
Polyhydramnios	6	7%

**Table – 6:** Distribution of cases according to the neonatal complications.

Neonatal complications	No of cases (n=85)	%
Hypo glycemia	8	9.4%
Hyper bilirubinemia	5	5.8%
Hypo calcemia	1	1.1%
Respiratory distress syndrome	2	2.3%
Polycythemia	1	1.1%

## Discussion

The present study is a prospective hospital based study on gestational diabetes and its adverse pregnancy outcomes. Obesity is seen in 3% cases with gestational diabetes mellitus [5]. This is due to increased demand on maternal metabolism during pregnancy from excess weight resulting in imbalance and hormonal carbohydrate mechanisms and insulin sensitivity [10]. In present study incidence of gestational diabetes mellitus is 1.3 (85 out of 6720). In present study 20.9% of mothers have previous fetal or early

neonatal deaths. Hoseini conducted a similar study in Iran and found that 12.3% of GDM women had history of fetal and early neonatal deaths [8]. Insulin being a potent growth factor promotes lipogenesis, protein synthesis, and growth of the fetus. Hence history of prior delivery of big baby or a macrosomic baby is also indicative of existence of GDM in previous pregnancies [9]. In present study, most common association seen in GDM studies were gestational hypertension, polyhydramnios. Gajjar found that GDM mothers were found to be gestational hypertension in 36.4% [7]. Cesarean delivery rate in our study was 55.3%. This is quiet high probably because in our setup there is lack of infrastructure and great patient load for continuous electronic fetal monitoring. In our study, the prevalence of still birth was 3.4% in GDM deliveries. In a study conducted by Odar in Uganda, a still birth rate of 16.7% [11]. In our study, out of 85 pregnant women 10 had history of previous macrosomic babies, 4 women had bad obstetric history with 3-4 abortions.

## Conclusion

GDM is an important co-morbid condition among pregnant population in worldwide. Women with GDM are at increased risk for adverse maternal and perinatal outcome. Early detection and appropriate management could bring down the incidence and prevent relative complications, achieve favorable outcome for mother and child.

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