



Maternal and fetal outcome in pregnant patients with diabetes.

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ABSTRACT... Objective: To observe maternal and fetal outcome in pregnant patients with diabetes. Aim of my study is to access the poor fetal maternal outcome with diabetes so that we can focus more on early and proper disease and have fair management throughout the pregnancy. **Study Design:** Descriptive study. **Setting:** Independent University Hospital Faisalabad. **Period:** January 2017 to January 2019. **Material & Methods:** It is descriptive study, 200 patients were selected who were pregnant with diabetes. The patients included who were newly diagnosed by glucose challenge test (GCT) or by glucose tolerance test (GTT) or who already had elevated HbA1c. The study was started after acquiring permission from ethical committee. **Result:** The above study concluded that the adverse outcome with diabetes is increased in terms of congenital malformation, miscarriage, preterm labour, pre eclampsia and postpartum haemorrhage. There is dire need to concentrate more on early diagnosis and timely management of diabetes with pregnancy. The tenet of management is to maintain euglycemic state throughout pregnancy. **Conclusion:** Prepregnancy care was associated with improved glycemic control in early pregnancy and significant reductions in adverse pregnancy outcome (malformation, stillbirth, and neonatal death) and very premature delivery. However, prepregnancy care failed to have an impact on glycemic control in later pregnancy or to reduce the risk of macrosomia and preeclampsia.

Key words: Glucose Tolerance Test, Gestational Diabetes, Type 1 Diabetes, Type 2 Diabetes Glucose Challenge Test.

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INTRODUCTION

Pregnancy has a diabetogenic effect therefore 2-17% of pregnant women develop gestational diabetes. As normal pregnancy progresses insulin resistance increases and pancreatic β cells reserve is stressed aiming to maintain blood sugar within normal levels. That's why gestational diabetes develop. After delivery of placenta anti insulin effect is vanished so blood sugar level come to normal values.¹ Pregnancy can also occur in women with already diagnosed diabetes. In USA incidence of pregnancy with diabetes rising from 10-21% between 1999 and 20005.² Gestational diabetes, type1 and type 2 diabetes can pre dispose fetus and mother to many complications. In fetus it can lead to many alteration in organogenesis, growth restriction, intrauterine death and macrosomia. In mother it

lead to miscarriage, pre eclampsia, PPH, preterm labour and polyhydroamnios.¹

Gestational diabetes mellitus (GDM) can be defined as glucose intolerance of variable degree which first time diagnosed during pregnancy after 24 weeks of gestation.³ GDM accounts for 90% of cases and type 2 diabetes accounts for 8% of such cases. Screening for GDM can be done by GCT or GTT in high risk patients.^{4,5} According to Nice guide lines type1 diabetes is diagnosed in childhood or adolescence; it is rarely diagnosed during pregnancy but type 2 diabetes can be diagnosed by anyone of the following criteria;

- Hemoglobin Hb A1c > 6.5%
- Fasting blood glucose > 126mg/dl
- Two hour blood glucose > 200mg/dl during 75g GTT

- Random blood glucose > 200mg/dl in a patients with hyperglycemia⁶

Pregnancy loss, neonatal mortality and congenital malformations is four to ten times higher in pregnant women with diabetes compared to the nondiabetic population.⁷ Recently, a population-based cohort study conducted in the UK by Casson et al. has shown that women with type 1 diabetes have a higher risk of late fetal loss, presenting a four- to five-fold increase in perinatal death, and a four- to six-fold in stillbirth.⁸

Schaefer et al. have found a two-fold increase in the risk of congenital anomalies when fasting glucose levels are already greater than 120 mg/dl when first detected during pregnancy.⁹ Pregnancy with diabetes is associated with increased expansion of maternal erythrocyte number, uterine enlargement, placental development and fetal growth that's why folic acid requirement is increased otherwise it can lead to congenital malformation in multiple systems.¹⁰ The pathogenesis of congenital malformations of all systems have four to ten times higher incidence in pregnant women with diabetes mellitus.¹¹

Maternal morbidity and mortality is higher among patients with diabetes. Rates of pre eclampsia, cesarean section hypertension and post partum hemorrhage are higher than in the background population.^{1,12,13}

MATERIAL & METHODS

This descriptive study was carried out in Independent University Hospital Faisalabad from January 2016 to January 2018. All pregnant patients with known diabetes or who developed diabetes during pregnancy (GDM) were included in the study. The patients who were not diabetic or who have normal GCT or GTT were excluded from study. Total 200 patients were selected. The data was filled in the perfoma including age, parity, type of diabetes, fetal and maternal complications, outcome with NICU admissions.

RESULTS

Out of 200 patients 80 patients (40%) were in age group 26-30 years, 65 patients (32.5%) were in

age group 20-25 years, 35 patients (17.5%) were in age 31-35 and 20 patients (10%) were in age > 35 years.(Table-I)

For gestation out of 200 patients 72 patients (36%) were in gestation 32-37 weeks, 30 patients (15%) were < 24 weeks, 50 patients (25%) were in gestation 25-32 weeks and 20 patients (10%) were > 37 weeks of gestation.(Table-II)

According to parity out of 200 patients 120 patients (60%) were > P5, 60 patients (30%) were P3-25 and 20 patients (10%) were P1-3. (Table-III)

Out of 200 patients 120 patients (60%) delivered by cesarean section for various indications, 47 patients (23.5%) delivered vaginally and 3 patients (1.5%) have instrumental delivery and 30 patients (15%) had early pregnancy loss (Table-IV)

According to my study among fetal complications, 90 fetuses (45%) got NICU admissions, 40 fetuses (20%) were pre mature, 30 (15%) were macrocosmic and 10(5%) were with multiple congenital anomalies. (Table-V)

For maternal complications out of 200 patients, 80 patients (40%) were with preterm labour, 40 patients (20%) were with pre eclampsia, 30 patients (15%) got miscarriage, 20 patients (10%) having polyhydroamnios, 27 patients (13.5%) have intra uterine death (IUD), 3 patients (1.5%) got post partum haemorrhage. (Table-VI)

Out of 200 patients, 140 (70%) were known diabetic and 60 patients (13%) were diagnosed as gestational diabetes (GDM). (Table-VII)

Age of Patient	No of Patient	Percentage
20-25 years	65	32.5
26-30 years	80	40
1-35 years	35	17.5
>35 years	20	10

Table-I. Distribution of patients according to age.
n=total no of patients (200)

Weeks of Gestation Age	No of Patient	Percentage
<24 weeks	30	15
25-32 weeks	50	25
33-37 weeks	72	36
>37 weeks	20	10

Table-II. Distribution of patients according to Gestation age. n=total no of patients (200)

Parity	No of Patient	Percentage
P1-3	20	10
P3-5	60	30
>P5	120	60

Table-III. Distribution of patients according to parity. n=total no of patients (200)

Mode of Delivery	No of Patient	Percentage
NVD	47	33.5
Instrumental delivery	3	1.5
Cesarean section	120	60
D&C/ Spontaneous miscarriage	30	15

Table-IV. Distribution of patients according to mode of delivery. n=total no of patients (200)

Fetal Complications	No of Patient	Percentage
Congenital malformation	10	5
Pre maturity	40	20
Macrosomia	30	15
NICU admissions	90	45
Miscarriage	30	15

Table-V. Fetal complications. n=total no of patients (200)

Maternal Complications	No of Patient	Percentage
Miscarriage	30	15
Preterm labour	80	40
IUD	27	13.5
Polyhydroamnios	20	10
PPH	3	1.5
Pre eclampsia	40	20

Table-VI. Maternal complications. n=total no of patients (200)

Diabetes	No of patient	Percentage
Known diabetic (type1 and 2)	140	70
Gestational diabetes	60	30

Table-VII. Distribution of patients according to type of diabetes. n=total no of patients (200)

DISCUSSION

In our study out of 200 patients 40% of patients were in age group 26-30 years. While study in India in 2008 showed that age > 25 years is risk factor for diabetes patients.¹⁴

In our study 30% patients of were > P4-5 and study by Sehiah et al 25.8% were > Gravida 4 and above.¹⁵

The CEMACH report in 2007 by Caoorn shows the cesarean section rate was 67%¹⁶ and in our study it was 60% another study by jadhav shows that NVD 72.5 and instrumental deliveries is 3% while our study showed that NVD is 28.5% and instrumental delivery is 1.5%.¹⁷

For fetal complications in patients with diabetes with pregnancy in our study the most common adverse effect was NICU admissions for multiple reasons which was 45% and the second common complication was prematurity 20%, macrosomia 15% and congenital marformations 5%. This result was comparable by study 2017 by Jadhav that prematurity 16.25, and fetal anomalies 3%.¹⁷

According to study by Penney G in university of Edinburg, miscarriage was 14.7% and still birth was 18.5% in diabetic patients and in our study miscarriage was 15% and still birth 13.5%.¹⁸

Macrosomia was 43% in diabetic patients by study 2005 by SILVA and in our study macrosomia was 20%.¹⁹

In our study the adverse outcome observed were preterm labour 40%, Polyhydroamnios 10% and pre eclampsia was 11.25%. This results were similar by study of Jadhav that preterm labour 16.25, polyhydroamnios 7.5% and pre eclampsia 11.25%.¹⁷

In 2012 study by Asammani, postpartum was 1.2% in diabetes patients while in our study out of 200 diabetic patients postpartem haemorrhage (PPH) it was 1.5%.²⁰

CONCLUSION

The above study concluded that the adverse

outcome with diabetes is increased in terms of congenital malformation, miscarriage, preterm labour, pre eclampsia and postpartum haemorrhage. There is dire need to concentrate more on early diagnosis and timely management of diabetes with pregnancy. The tenet of management is to maintain euglycemic state throughout pregnancy.

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AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	Uzma Manzoor	Literature review.	uzma manzoor
3	Irum Aslam	Data collection.	Irum Aslam
4	Saadia Bano	Reference writing.	Saadia