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## A STUDY ON THE OUTCOME OF PREGNANCY WITH CONTROLLED GESTATION DIABETES MELLITUS

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### Abstract:

**Objectives:** The aim of this research work was to assess the outcome of pregnancy having complications due to gestation diabetes and this complication was well-managed by professionals.

**Methodology:** The information regarding all singleton pregnancies with the identification of gestation diabetes retrieved retroactively from the files of patients. The duration of this research work was from December 2018 to May 2019 in endocrinology department of Mayo Hospital Lahore. The standards of O'Sullivan & NDDG (national diabetes data group) were in use for the diagnosis of the gestational diabetes. SPSS V.17 was in use for the analysis of data. Median and range were in use for the expression of the discrete as well as continuous variables. Percentages were in use for the presentation of the categorical information.

**Results:** The occurrence of gestation diabetes mellitus was 6.10% (n: 94) among total deliveries but seventy-eight patients of GDM were the part of this research work. The rate of maternal & neonatal morbidity was 32.0% (n: 25) & 29.50% (n: 23). The average age of patients was thirty-five years with a range of 23 to 47 year of age. Majority of the patients were multipara 50.0% (n: 39). We saw the highest body mass index in the final three months of pregnancy period with an average of 32.30 (from 28.0 to 35.70). The hemoglobin of the patients was 10.70 (from 8.50 to 12.80). The rate of cesarean surgery was 25.60% (n: 20) whereas 19.20% (n: 15) patients developed the hypertension because of pregnancy. But, 14.10% (n: 11) neonates got admission in the intensive care unit of neonates because of hypoglycemia in 24.4% (n: 19). About 19.20% (n: 15) neonates were suffering from the distress of the respiration system.

**Conclusion:** The occurrence of gestational diabetes mellitus was 6.10%. The outcome of pregnancies associated with well-controlled diabetes was also adverse with many complications.

**KEY WORDS:** Gestation, Diabetes, Retroactive, Maternal & Neonatal Morbidity, Distress, Respiration, Hypoglycemia.

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**INTRODUCTION:**

In accordance with the definition of the ADA (American diabetes association), GDM the intolerance to the glucose after the start of pregnancy period [1]. In accordance with the research work of Khalifa, 8.90% to 12.50% pregnancies were available with intolerance to glucose level [2] whereas Ramos-Leví reported it from 1.0% to 17.80% in various populations with different ethnicity [3]. In accordance with a research work based on the start and development of the disease, the danger of the adverse pregnancy consequences constantly enhanced as an operation of the glycaemia of mothers from 24 to 28 pregnancy weeks. We found no threshold for most of these problems but prevention and in time diagnosis of gestational diabetes is developing the concerns about health [4].

In his research work, Ayaz explained that constant rise of the level of maternal glucose in the pregnancy period which causes fetal hyperinsulinemia which can lead to macrosomia and it enhances the danger of dystocia of shoulder at delivery time. Hypoglycemia, distress in the respiration system & jaundice are the abnormalities faced by the neonates of mothers with GDM [5]. Females with gestational diabetes produce a vital problem for the public health due to the adverse outcome of pregnancy. There is more propensity for the development of diabetes in these females and in their neonates as well as other complication liked with the diabetes [6]. The aim of this research work was to assess the maternal as well as neonatal outcome in the pregnant females suffering from gestational diabetes mellitus in a well-controlled condition.

**METHODOLOGY:**

This retroactive research work was conducted from December 2017 to May 2018 in endocrinology department of Mayo Hospital Lahore. The annual delivery rate in this hospital is more than three thousand. We retrieved the data of pregnant females with single baby with confirm GDM, diagnosed according to international standards. All the pregnant females suffering from other serious complications other than GDM as anemia, hypertension due to pregnancy, asthma and the problems of heart were not the part of this research work. The females suffering from diabetes in first trimesters considered to have type-2 diabetes and excluded from this research work [7, 8]. We retrieved the information about the identification of the GDM. Glucose challenge method with a fifty-gram load of glucose [9] carried out for every patient. If the test was

positive, then we performed the OGTT in accordance with the guidelines of the NDDG [10]. OGTT carried out with sample of the plasma of blood from with the utilization of the chemistry analyzer.

The better management of the gestational diabetes included control of diet according to the advice of the dietician for every female with gestational diabetes. The obstetrical administration included the baseline interrogation which carried out for all the patients as Rh factor, urine examination, ultrasound, blood group & hemoglobin. The test of function of liver, uric acid in serum & tests for the function of kidneys carried out for some indications. Maternal level of glucose in plasma monitored after every hour and the dose of insulin adjusted to maintain concentration of glucose in the blood from 70 to 110 mg/dl [11]. A pediatrician evaluated the neonates just after the delivery. Ultrasonography was in use for the identification of the pregnancy duration as well as the last menstruation period [12]. The monitoring of BP carried out for the presentation of the hypertension. Patients were hypertensive if the BP was more than 140/90 mmHg. Perinatal mortality was the death of the fetal or the infant from twenty-two week of pregnancy to the first four weeks after the delivery [13]. The diagnosis of hypoglycemia of the neonates carried out in accordance with the standards of Cornblath & Reisner [14]. There was requirement of the treatment of the hyperbilirubinemia [15]. The baby was available with low birth weight if the weight at the time of birth was >90<sup>th</sup> percentile for the corresponding gender & duration of pregnancy [16].

The ethical committee of the hospital gave the approval of this research work. The analysis of the collected information carried out with the help of SPSS V.17. Median and range were in use for the presentation of the discrete as well as continuous information. Percentages used for the categorical information.

**RESULTS:**

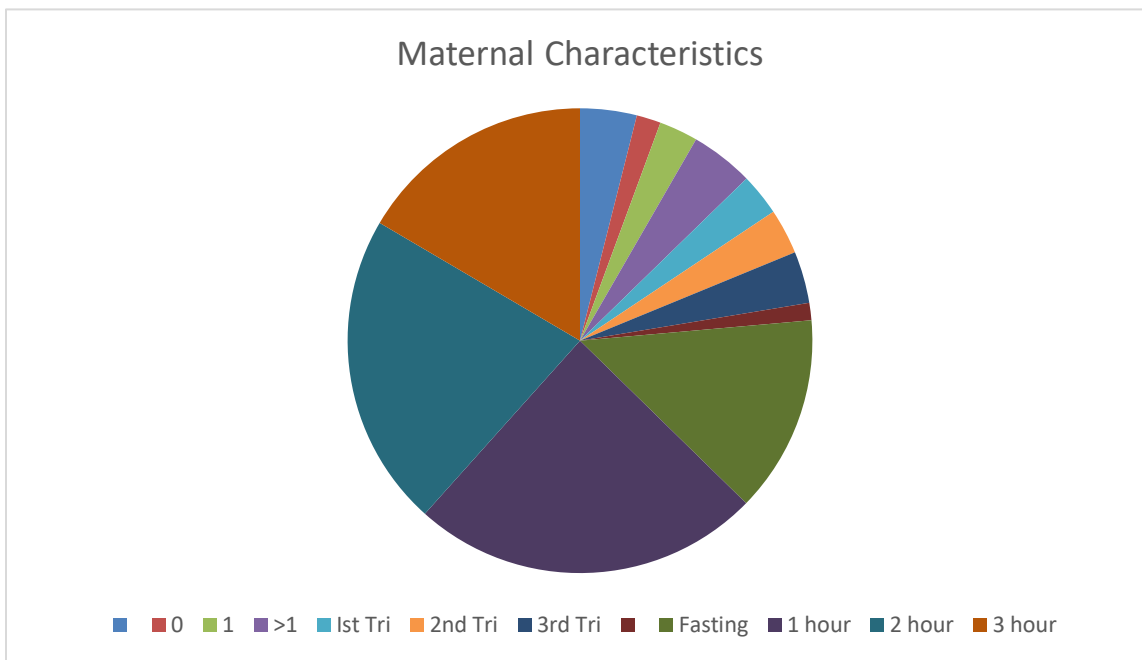
In the duration of this research work, total one thousand five hundred and fifty deliveries occurred. There were total 6.10% (n: 94) diagnosed patients of gestational diabetes but total seventy-eight patients were the part of his research work. Total 16 females excluded from research work due to adverse glycemic whereas ten females left the proper follow up and remaining females found with other complications in severe condition which were able to have an impact on the pregnancy outcome. The

morbidity of mother and neonate was 32.0% (n: 25) and 29.50% (n: 23). The mean age of the females was thirty-five years with a range from 23 to 47 years. Whereas most of the females were multipara as 50.0% (n: 39).

We saw the greatest BMI in the last three months of pregnancy as 32.30 from 28.0 to 35.70 and the hemoglobin of the females was 10.70 (from 8.50 to 12.80) (Table-1).

**Table-I: Maternal Characteristics (n=78)**

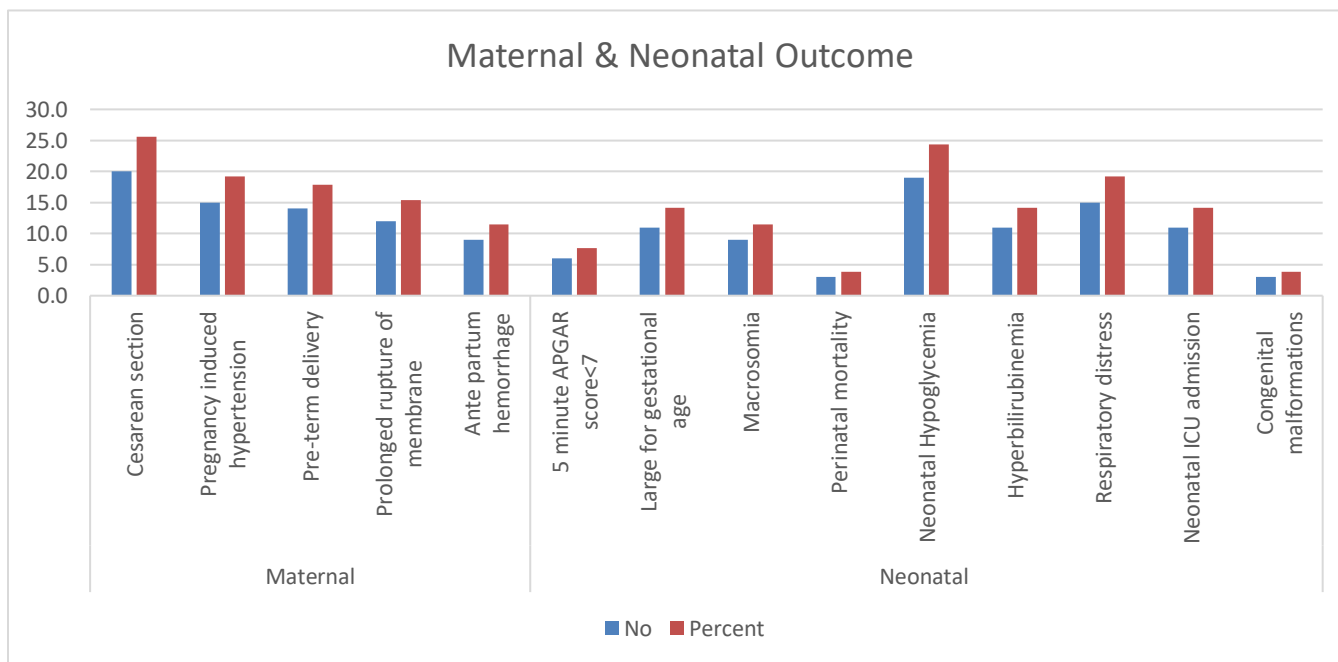
Variables		No / Mean	Percent /
Age		35.0	23-47
Parity	0	15.0	19.2
	1	24.0	30.8
	>1	39.0	50
BMI (kg/m <sup>2</sup> )	Ist Tri	26.0	24-32.6
	2nd Tri	28.0	25.2-33.2
	3rd Tri	32.0	28-35.7
Hemoglobin		10.7	8.5-12.8
fOGTT mg/dl	Fasting	122.0	105-139
	1 hour	216.0	199-339
	2 hour	194.0	174-327
	3 hour	147.0	144-257



Cesarean surgery performed in total 25.60% (n: 20) patients whereas 19.20% (n: 92) developed hypertension because of pregnancy. Total 14.10% (n: 11) neonates got admission in the intensive care unit of neonates followed by hypoglycemia of neonates in 24.40% (n: 19). Total 19.20% (n: 15) neonates were suffering from the distress of the respiration (Table-2).

**Table-II: Maternal and Neonatal Outcome (n=78)**

Outcome (n=78)		No	Percent
Maternal	Cesarean section	20.0	25.60
	Pregnancy induced hypertension	15.0	19.20
	Pre-term delivery	14.0	17.90
	Prolonged rupture of membrane	12.0	15.40
	Ante partum hemorrhage	9.0	11.50
Neonatal	5 minute APGAR score<7	6.0	7.70
	Large for gestational age	11.0	14.10
	Macrosomia	9.0	11.50
	Perinatal mortality	3.0	3.80
	Neonatal Hypoglycemia	19.0	24.40
	Hyperbilirubinemia	11.0	14.10
	Respiratory distress	15.0	19.20
	Neonatal ICU admission	11.0	14.10
	Congenital malformations	3.0	3.80



**DISCUSSION:**

In current research work, the occurrence of gestational diabetes was 6.10%, whereas the occurrence of this disease in Qatar was 16.30%, in UAE as 20.60% & in Bahrain as 5.40% [17-19]. The research work of Gasim is very much comparable

with this current research work. The outcome of pregnancy in the females suffering from gestational diabetes displayed meaningfully high occurrence of disorders of hypertension, rate of cesarean surgeries, macrosomia & admission in the intensive care unit of neonates in comparison with the mother who had no

diabetes [20]. There was a clear proof that aggressive therapy of gestational diabetes has the ability to decrease the complications treatment [21].

Khalifa in his research work gave a comparison of the outcome of neonates with well-controlled gestational diabetes with healthy pregnancies and concluded adverse consequences in the patients of gestational diabetes. This outcome is similar with this current work as well as the work of Gasim [2]. In one research work, the occurrence of gestational diabetes was 8.60%. The rate of cesarean section was 21.60% whereas morbidity of mothers was available in 1.20%. The prevalence of admissions of neonates in ICU was 4.90% which was lower than the half amount of our results [22]. Research work of Napola A concluded the findings of the outcome of pregnancy with the comparison of well-controlled GDM with healthy pregnant females. The frequency of cesarean surgery & macrosomia was 34.90% vs. 33.20% & 8.70% vs. 7.40% between both groups correspondingly. Most of the findings of that research work were in opposition of current research work [23]. One research work from Qatar showed that GDM had very high risk for the development of PIH, hemorrhage after delivery and rate of cesarean section [17].

#### CONCLUSION:

There is very adverse outcome of pregnancies even with well-controlled gestational diabetes. The occurrence of gestational diabetes was 6.10% in this research work. Very high cesarean section rate & hypoglycemia of neonates were very frequent abnormalities. The reduction in the complications is possible with the suitable strategies for the prevention of gestational diabetes with in time diagnosis and treatment of the complication.

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