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Research Article

**INCIDENCE OF PREGNANCY AND ITS ASSOCIATED
OUTCOMES WITH GESTATIONAL DIABETES: A
HISTORICAL GROUP RESEARCH**¹Fatima Chatta, ²Iqra Aftab, ²Javaria Gulzar¹Holy Family Hospital Rawalpindi / Rawalpindi Medical College²Mayo Hospital Lahore / King Edward Medical University**Abstract:**

Background: The high level of glucose due to deficiency or loss of functioning of insulin which creates type 2 diabetes is found in eight percent pregnancies of the world and it has also increased the difficulties faced during pregnancy period. This disease also increased the death rate of the children in the body of the females. The main purpose of this study is to give the awareness to the people about the dangers of diabetes during pregnancy period and its effects on mother and her baby. The main aim of this research was to prevent these types of disagreeable conclusions.

Methodology: This research is a historical group study. The participants of the study were the four hundred and twenty women having babies in their body. Research was carried out at Mayo Hospital, Lahore (September, 2016 to October, 2017). Seventy participants were suffering of diabetes and three hundred and fifty participants were the healthy controls. Question answer method was used for the gathering of information. This data was analysed by T-test. Data was recorded by the use of SPSS software for exact information.

Results: The repetition rate of diabetes during pregnancy was more than seventy-two percent. There was a visible disparity between the participants of the both groups in having different complications as miscarriage, state of having a large foetus, breathing difficulties, abnormally low blood sugar, jaundice in the new-born babies, requires additional breathing support, hereditary abnormalities and delivery of child with caesarean operation. The above mentioned relative risk factors did not prove any disparity between the IUGR known as intra uterine growth retardation, a slow labour pain or slow delivery or other delivery related problems.

Conclusion: Miscarriage, a state of having abnormally large foetus, breathing difficulties, abnormally low blood sugar and jaundice in new born small baby are very normal in the females with diabetes in the pregnancy period. It is very important to take the preventive measures to control this disease for the best results.

Key Words: Preventive measures, pregnancy, diabetes, foetus, new born, jaundice, breathing, abnormality.

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INTRODUCTION:

Diabetes during the pregnancy period known as gestational diabetes abbreviated as GD happens in eight percent of pregnancy cases [1]. This disease is linked with many dangerous aspects of pregnancy outcomes which includes abnormal large foetus, a slow difficult labour or delivery, delivery through operation and increased rate of death cases [2-4]. Many research works have confirmed the high risks of miscarriage and hereditary abnormalities with high value of blood sugar level [5 – 7].

Different research work has proved that the danger of having heart or mental abnormalities in the children of new born to four week of age are eight percent higher in the mothers suffering of type I diabetes than the mothers not suffering of this dangerous disease [8]. This causes fifty percent deaths of the babies before birth in the women suffering of diabetes [9]. This disease increases the size of the foetus up to abnormal one and also increases some parts of body and their capacity of the baby inside mothers suffering of diabetes other than the healthy females [10]. These types of difficulties cause many secondary problems in the mothers having diabetes [11].

GD also increases the problem of slow labour pain and slow delivery in the diabetic mothers [2 – 6]. This fact is totally opposite in the non-diabetic mothers [12, 13]. The women suffering of diabetes are to bear delivery before the actual time and this is three time higher than the healthy women [14]. Diabetes in the pregnancy period are also linked with the sugar level abnormalities which causes the start of the diabetes in the females having pregnancy and it will continue in future in period without pregnancy [15 – 17].

The repetition rate of the diabetes in the pregnancy period is presented thirty to seventy percent [15, 18 – 27] and the presence of clear diabetes in the females having background history of the GD are presented from thirty-five percent to seventy-three percent [28]. Therefore, pregnancies are dangerously affected by diabetes and this also causes the disagreeable results and it will lead to the diabetes type two in some latter years; so, early discovery of the disease and its treatment is very necessary [29].

Other researches do not show any relation of GD with other difficulties. There is a lot of opposite views regarding this fact of relation between disagreeable results and GD [6, 7, 12, 17]. The main aim of this study was to know about the disagreeable results of diabetes during pregnancy by giving special

importance to the babies from new born to four months of age.

METHODOLOGY:

This current group research was carried out on pregnant females who were referred to hospital. Research was carried out at Mayo Hospital, Lahore (September, 2016 to October, 2017). The patients were the mothers who were suffering of diabetes during the period of having child in their body. This abnormality was rare. So, patients were enrolled through a method of random sampling until a specific quantity of the participants was obtained. Controls were the healthy mothers who delivered their children in the same hospitals. The healthy controls were also selected through the method of random sampling. The participants remain the part of study from the very start of the admission at the time of start of labour pain to the time of leave from hospitals.

Five healthy controls were selected for one diabetic participant. A low quantity of required sample number was obtained from a studies formula. We were in need of forty-six patients and two hundred and thirty healthy controls in eighty percent of power; but finally this study interrogated the seventy patients and three hundred and fifty healthy controls. Information was gathered with the help of question answer method which was held and headed by the specialist in the specific field. This data involved the physical features of the participants as height, their weight, body mass index, blood pressure, pregnancy age, size of the foetus, breathing problems, high glucose level, jaundice and other related abnormalities which lead to different complications. To save the research from any bias, educated staff of midwifery from each medical institute was involved in the data collection. T test and fisher test were used for the analysis of the collected information with the help of a special software SPSS.

RESULTS:

Four hundred and twenty pregnant ladies were selected for this research. Three hundred and fifty pregnant women were the non-diabetic healthy controls and seventy pregnant women were suffering of diabetes which they acquired during the period of pregnancy. Twenty-eight affected participants were with a background history of the diabetes. Twenty women got this dangerous disease during the current pregnancy tenure. The participants of the infected group showed a clear disparity by blood pressures, age factor, body mass index and age at the time of pregnancy with the healthy controls but there was not too much difference in the height of the participants

of both groups.

Table number one shows all the average variables. The results of GD on the new born babies are displayed in table number two. There was a complete disparity about the miscarriage RR 8.87, the abnormal large size of the foetus RR 7.38, breathing abnormalities RR 5.16, high sugar level RR 13.38, jaundice to the new-born RR 3.28, requires additional respiration RR = 3.17) and other complications. All

these complications were greater in the patients of diabetes than the healthy controls. This research work focused on the link between GD and before birth results in the patients. Caesarean delivery method was used for the females suffering of diabetes. This research did not show an important disparity in labour, abnormalities of placenta and other related complication as mentioned in table number three.

Table – I: Association between demographic variables in participants and their neonate's exposure to gestational diabetes

Variables	Cases group (70)		Control group (350)		P value
	Mean	± SD	Mean	± SD	
Age (year)	31.2	6.04	26.32	5.03	<0.001
Height (cm)	159.96	5.98	160.74	6.85	0.335
Systolic blood pressure (mm Hg)	123.19	12.78	116.47	12.59	<0.001
Diastolic blood pressure (mm Hg)	79.57	8.98	74.29	9.85	<0.001
BMI	29.14	5.15	26	3.82	<0.001
Gestational age (day)	262	23	272	12	0.002
Neonatal weight (gr)	3324	978	3099	558	0.072
Prenatal apgar	8.52	1.16	8.77	0.73	0.088
Apgar after 5 minute	9.69	0.74	9.7	0.56	0.856

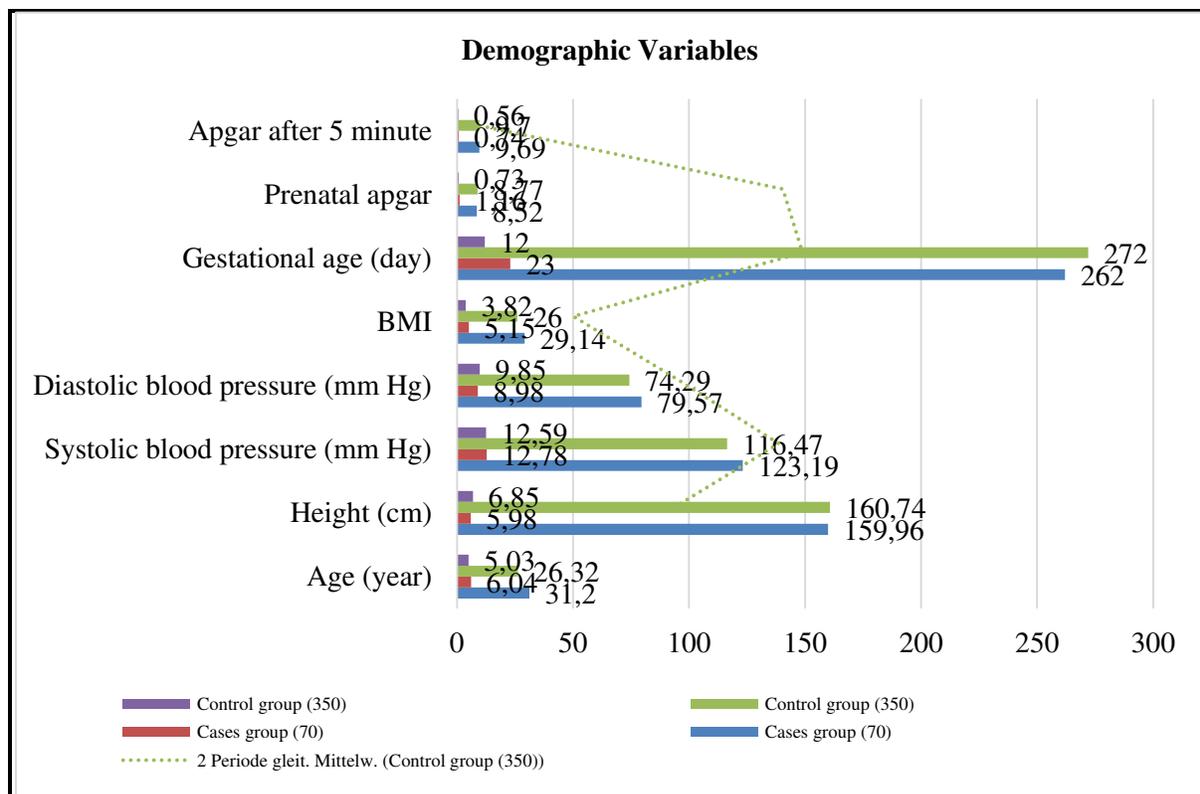
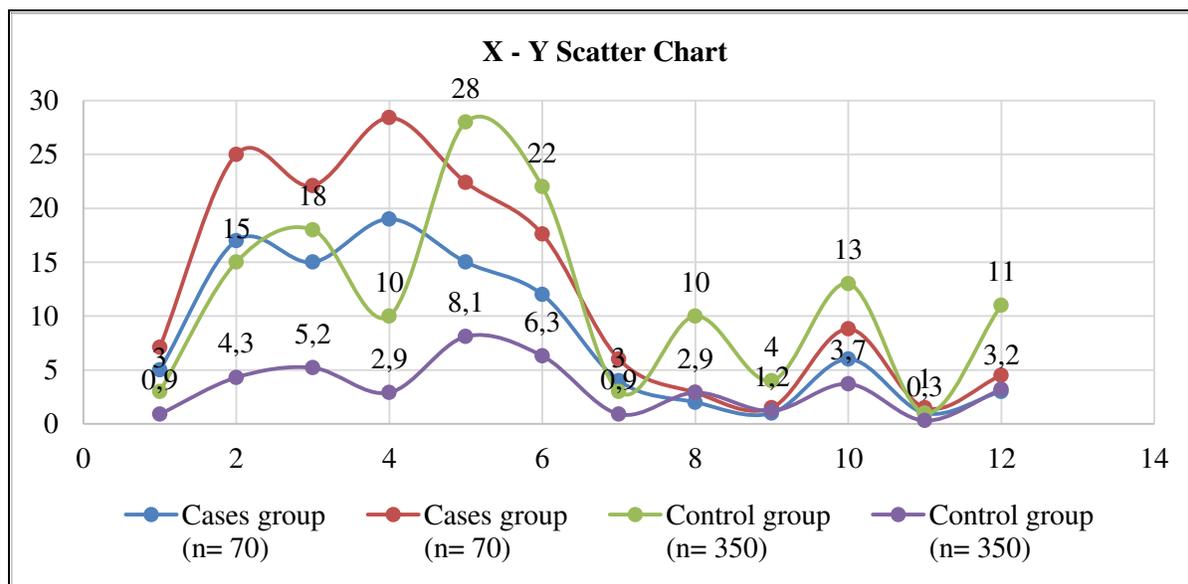
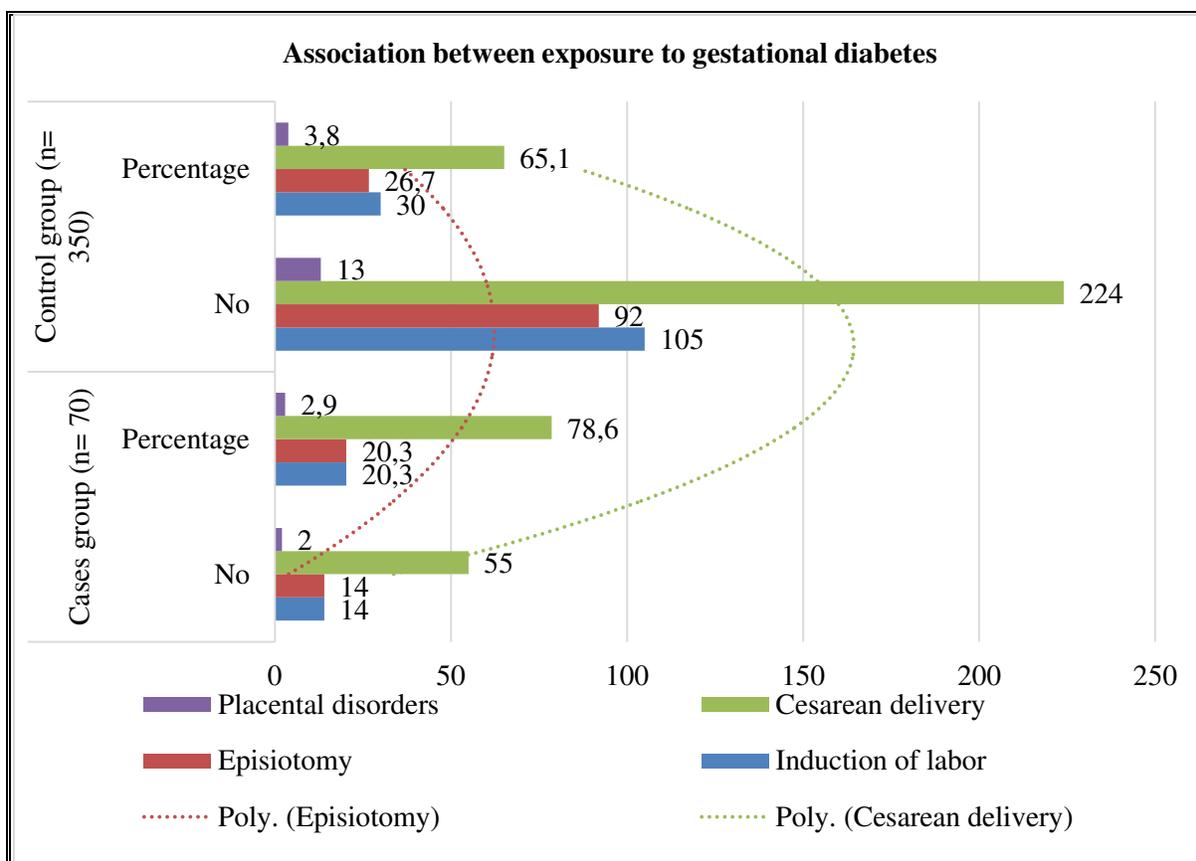


Table – II: Association between exposure to gestational diabetes in participants and their neonatal unpleasant outcomes

Variables	Cases group (n= 70)		Control group (n= 350)		RR ¹	CI ²	P value
	No	%	No	%			
Still Birth	5	7.1	3	0.9	8.87	2.07-38.04	0.004
Macrosomia	17	25	15	4.3	7.38	3.47-15.69	<0.001
Respiratory distress	15	22.1	18	5.2	5.16	2.45-10.85	<0.001
Hypoglycemia	19	28.4	10	2.9	13.38	5.87-30.48	<0.001
Neonatal jaundice	15	22.4	28	8.1	3.28	1.64-6.55	0.001
Need for respiratory rehabilitation	12	17.6	22	6.3	3.17	1.48-6.76	0.004
Congenital anomalies	4	6	3	0.9	7.28	1.59-33.32	0.015
IUGR	2	2.9	10	2.9	N.S ³	N.S ³	0.614
Shoulder Dystocia	1	1.5	4	1.2	N.S	N.S	0.594
Breech Labor	6	8.8	13	3.7	N.S	N.S	0.072
Need for Insulin	1	1.5	1	0.3	N.S	N.S	0.298
Meconium problems	3	4.5	11	3.2	N.S	N.S	0.401

**Table – III:** Association between exposure to gestational diabetes in participants and prenatal unpleasant outcomes

Variables	Cases group (n= 70)		Control group (n= 350)		RR (CI)	P value
	No	Percentage	No	Percentage		
Induction of labor	14	20.3	105	30	N.S	0.066
Episiotomy	14	20.3	92	26.7	N.S	0.17
Cesarean delivery	55	78.6	224	65.1	1.96 (1.07-3.62)	0.018
Placental disorders	2	2.9	13	3.8	N.S	0.541



DISCUSSION:

In this research, the sufferers group of GD had nine times greater miscarriage of the children similar to the research outcome of Keshavarz [30], but there was not much disparity as reported in Victoria research [31]. The outcomes of this research proved that high value of the eccentricities of macrosomia birth in GD patients is 7 times in the infants as mention by Victoria [31], Ray [32] and Keshavarz [30]. The new born babies of the suffering females were reported with five times more breathing abnormalities as compared to the healthy controls. This result is also common with the outcome given by Keshavarz [30] and Victoria [31].

The outcomes of this study related to the slow labour pain and delivery were not much different from the results of other studies [30, 31, 33]. These outcomes were opposite to only Ray [32] and Kamali [33]. The repetition rate of GD was more than seventy-two percent which was very common with the outcomes of the other research works [15, 18 – 26]. Most of the females suffering of GD delivered their child with caesarean delivery method.

CONCLUSION:

Many research works in the same field has proved that diabetes during the pregnancy period is dangerous for both mother and her child. If blood sugar is managed to be controlled during the period of pregnancy, it is beneficial and provides normal state for the mother and foetus. Therefore, the discovery of blood sugar state of the pregnant females at the stage of start and execution of this period of pregnant female and the way of delivery under the check of specialist is very compulsory.

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