



## Investigating pregnancy outcomes in diabetic patients referring to Imam Ali Hospital in Zahedan in 2016

Batul shahraki mojahed<sup>1</sup>, Morteza Salarzai<sup>2</sup>, Fateme Parooei<sup>2</sup>

<sup>1</sup> Department Obstetrics and Gynecology, Mental and Fetal Health Research center, Zabol, Iran

<sup>2</sup> Medical Student, Student Research Committee, Zabol University of Medical Sciences, Zabol, Iran

\*Corresponding author: Morteza Salarzai :Medical Student, Student Research Committee, Zabol

University of Medical Sciences, Zabol, Iran

Email: [mr.mortezasalar@gmail.com](mailto:mr.mortezasalar@gmail.com)

### Abstract

**Introduction:** Pregnancy is a common and prevalent medical condition in the field of carbohydrate intolerance which affects the phenomenon of pregnancy and can lead to undesirable outcomes and high-risk childbirth and affect the mother and the fetus. The most important concerns are overgrowth of the fetus, maternal damage following fetal macrosomia, as well as other fetal and maternal complications, especially preeclampsia. Therefore, the purpose of this study is to examine the outcomes of pregnancy in diabetic mothers undergoing treatment.

**Methods:** The present cohort study was conducted on 30 diabetic pregnant patients and 60 non-diabetic patients, categorized through simple sampling, over one year. The obtained data was recorded in the computer and, then, analyzed through Mann-Whitney, t-test, and chi-square;  $P < 0.05$  was considered significant.

**Results:** The mean age of mothers was  $32.4 \pm 5.8$  years in diabetic patients and was  $25.3 \pm 5.4$  years in the non-diabetic group. 18 subjects had gestational diabetes, 8 subjects had type 2 diabetes, and 4 subjects had type 1 diabetes. There was a significant difference in birth weight between diabetic mothers ( $3.39 \pm 0.34$  kg) and control group ( $3.3 \pm 0.84$  kg). 42% of newborns of diabetic mothers turned out to have LGA birth weight; i.e. Large for gestational, while this ratio was 12% in the control group and this difference was statistically significant ( $P < 0.001$ ).

**Discussion and conclusion:** Generally speaking, the results of our study showed that maternal and neonatal complications did not show a significant difference between diabetic mothers and healthy mothers, which can be indicative of the effectiveness of diabetes treatment in reducing pregnancy complications. Therefore, it is highly recommended to conduct research on complications in groups with and without risk factors in people with gestational diabetes and in other areas of our country. Given the importance of measuring the economic cost of screening based on location, a cost-effective screening survey is recommended throughout the country.

**Keywords:** pregnancy, diabetic patients, Investigation

### Introduction

Pregnancy is a critical period in which maternal health plays a vital role in the health of the baby; so underlying conditions, illness and disorders caused during pregnancy or external factors can endanger the health of the mother, the fetus or both. (1).

Some problems during pregnancy, such as the presence of pregnancy blood pressure, the incidence of childbirth bleeding, premature rupture of the embryo, early childbirth and inappropriate weight of the fetus, can lead to unpleasant outcomes (2). The outcome of

pregnancy is heavily influenced by the health of the mother and her physical condition as well, and issues such as medical problems or maternal surgeries will affect pregnancy outcomes. Pregnancy-related diabetes mellitus can be commonly cited in this period (4). Pregnancy is a common and prevalent medical condition in the field of carbohydrate intolerance which affects the phenomenon of pregnancy and can lead to undesirable outcomes and high-risk childbirth and affect the mother and the fetus (5). The adverse effects of motherhood include increased prevalence of hypertension and preeclampsia, increased cesarean section rate, Cardiovascular diseases and complications associated with dyslipidemia, abdominal obesity, hydramnios, pyelonephritis and long-term hospitalization (6). Possible fetal complications, also, include increased risk of fetal macrosomia, fetal growth restriction, unjustified death of the fetus, neonatal hypoglycemia, hyperbilirubinemia, cardiac hypertrophy, hypocalcemia, polycythemia, and obesity. Progressive prevalence of diabetes and its subsequent as a serious medical problem have been quite tangible in recent decades (7-8). The most important concerns are overgrowth of the fetus, maternal damage following fetal macrosomia, as well as other fetal and maternal complications, especially preeclampsia. The apparent outbreak of type 2 diabetes in the future is seen in women with diabetes mellitus and their offspring; half of these women will have diabetes over the next 20 years. Another important observed fact was the strong association between gestational obesity and childbirth obesity (9). On one hand, London et al study showed that although the treatment of A1 gestational diabetes in which, merely, GTT is affected and the rate of fasting blood glucose is normal, decreases the risk of preeclampsia and macrosomia, it is not that much different in other neonatal complications, such as

hyperbilirubinemia and Intrauterine. Therefore, the purpose of this study is to examine the outcomes of pregnancy in diabetic mothers undergoing treatment.

## Methodology

The present cohort study was conducted on 30 diabetic pregnant patients and 60 non-diabetic patients, categorized through simple sampling, over one year. A group of patients diagnosed with diabetes before the 28th week of gestational age were categorized in diabetic patients group and the patients who were diagnosed with gestational diabetes were selected for screening during pregnancy. The control group also included 60 normal pregnancies that did not have a specific illness during pregnancy and were also included in the list of high risk patients. They did not have a baby and they were delivered to the same hospital. The obtained data was recorded in the computer and, then, analyzed through Mann-Whitney, t-test, and chi-square;  $P < 0/05$  was considered significant.

## Findings

The mean age of mothers was  $32.4 \pm 5.8$  years in diabetic patients and was  $25.3 \pm 5.4$  years in the non-diabetic group. 18 subjects had gestational diabetes, 8 subjects had type 2 diabetes, and 4 subjects had type 1 diabetes. There was a significant difference in birth weight between diabetic mothers ( $3.39 \pm 0.34$  kg) and control group ( $3.3 \pm 0.84$  kg). 42% of newborns of diabetic mothers turned out to have LGA birth weight; i.e. Large for gestational, while this ratio was 12% in the control group and this difference was statistically significant ( $P < 0.001$ ).

Table 1. comparison of pregnancy outcomes in diabetic mothers with healthy subjects

Outcome	Group	Diabetic patients (30 subjects)	Control group (60 subjects)	P-value
Pregnancy age	Term	24(80%)	55(92%)	0/004
	Preterm	6(20%)	5(08%)	
Embryo embolism	Cephalic	27(90%)	52(90%)	0/001
	Non-Cephalic	3(10%)	6(10%)	
Delivery method	Natural	6(20%)	39(65%)	0/001
	Caesarean section	24(80%)	21(35%)	
Maternal side effects	Yes	27(90%)	54(90%)	0/005
	No	3(10%)	6(10%)	

Table 2. Comparison of undesirable neonatal outcomes in diabetic mothers under treatment and healthy subjects

Outcome	Diabetic mothers	Control group
respiratory distress	5(16%)	13(22%)
hypoglycemia	4(14%)	1(1/5%)
Respiratory distress- Hypoglycemia	2(06%)	1 (1/5%)
No side effect	19(64%)	45 (75%)
Total	30(100%)	60 (100%)

## Discussion and Conclusion

Diabetes increases the incidence of fetal, maternal and infantile complications in pregnancy (10). Gestational diabetes is a type of diabetes that is thought to be the intolerance of various carbohydrates with the onset or early diagnosis of pregnancy (11). There is no precise control of women with gestational diabetes with fetal outcomes and accurate control of complications (12). The present study investigated pregnancy outcomes in diabetic patients referring to Imam Ali Hospital in Zahedan in 2016. According to the results of several studies, the birth weight of infants born from diabetic mothers increases, although this increase can be due to their high age and obesity compared to healthy ones. There was no statistically significant difference, that could be due to the higher gestational age in the diabetic group, between the average weight of the newborn in both healthy and gestational diabetes groups. The results of this study showed that there was a significant difference in the distribution of frequency and severity of complication between the two groups of diabetic mothers and healthy mothers, as well as the percentage of cesarean section, which turned out to be considerably higher in the group of diabetic patients. According to the findings of Rosenberg et al study, chronic diabetes and gestational diabetes significantly increased the risk of cesarean delivery and preterm delivery (13). Additionally, the findings of Cummingham et al study showed that the rate of cesarean section turned out to be 80% in patients with diabetes, which was totally consistent with the results of the present research (14). In this study, the mean birth weight of newborns in diabetic mothers was similar with control group and there was no significant difference between two groups. However, most studies reported macrosomia as an important complication in patients with diabetes. The reason for this difference might be the fact that there are some cases of patients with diabetes in our study and it has been shown that diabetes can cause IUHR (Intera Uterine Growth Restrictions) and ultimately reduce the weight of the fetus in advanced stages. Therefore, the average weight of the neonates was not high in this group.

Comparing the results of our study with other studies showed that although proper control can reduce the complications, these findings have not been confirmed in all studies, which could be due to differences in the design of studies and the impact of race and ethnicity, as well as the level of blood glucose. Generally speaking, the results of our study showed that maternal and neonatal complications did not show a significant difference between diabetic mothers and healthy mothers, which can be indicative of the effectiveness of diabetes treatment in reducing pregnancy complications. Therefore, it is highly recommended to conduct research on complications in groups with and without risk factors in people with gestational diabetes and in other areas of our country. Given the importance of measuring the economic cost of screening based on location, a cost-effective screening survey is recommended throughout the country.

## References

- 1 Salarzaei M, Saravani S, Heydari M, Aali H, Malekzadegan A, Soofi D, et al. PREVALENCE OF URINARY TRACT INFECTION IN CHILDREN WITH NEPHROTIC SYNDROME. International Journal of Pharmaceutical Sciences and Research. 2017;8(7):1346-50.
- 2 Mahmoodi Z, Behzadmehr M, Salarzaei M, Havasian MR. Examining High-Risk Behaviors and Behavioral Disorders in Adolescents with Addicted and Non-Addicted Fathers in Public School of Zabol in the Academic Year 2016–2017. Indian Journal of Forensic Medicine & Toxicology. 206.-251:(2)11;17
- 3 Abadi AJ, Saravani S, Aali H, Movaghar E, Far RE, Salarzaei M, et al. Investigating the Epidemiology of Patients with Intracranial Hemorrhage Caused by Head Trauma at the Khatamolambia Hospital in Zahedan. INTERNATIONAL JOURNAL OF ADVANCED BIOTECHNOLOGY AND RESEARCH. 2016;7(4):1803-11.

- .4 Poureisa M, Behzadmehr R, Daghighi MH, Akhoondzadeh L, Fouladi DF. Orientation of the facet joints in degenerative rotatory lumbar scoliosis: an MR study on 52 patients. *Acta neurochirurgica*. 2016;158(9):473-3
- .5 Nemati M, Hajalioghli P, Jahed S, Behzadmehr R, Rafeey M, Fouladi DF. Normal Values of Spleen Length and Volume: An Ultrasonographic Study in Children. *Ultrasound in medicine & biology*. 2016;42(8):1771-8.
- .6 Association AD. Gestational diabetes mellitus. *Diabetes care*. 2004;27(suppl 1):s88-s90.
- .7 Bellamy L, Casas J-P, Hingorani AD, Williams D. Type 2 diabetes mellitus after gestational diabetes: a systematic review and meta-analysis. *The Lancet*. 2009;373(9677):1773-9.
- .8 Buchanan TA, Xiang AH. Gestational diabetes mellitus. *Journal of Clinical Investigation*. 2005;115(3):485.
- .9 Chu SY, Callaghan WM, Kim SY, Schmid CH, Lau J, England LJ, et al. Maternal obesity and risk of gestational diabetes mellitus. *Diabetes care*. 2007;30(8):2070-6.
- .10 Ferrara A. Increasing prevalence of gestational diabetes mellitus. *Diabetes care*. 2007;30(Supplement 2):S141-S6.
- .11 Kahkhaie KR, Keikhaie KR, Vahed AS, Shirazi M, Amjadi N. Randomized comparison of nylon versus absorbing polyglactin 910 for fascial closure in caesarean section. *Iranian Red Crescent Medical Journal*. 2014;16(4).
- .12 Keikhaie KR, Kahkhaie KR, Mohammadi N, Amjadi N, Forg AA, Ramazani AA. Relationship between Ultrasonic Marker of Fetal Lung Maturity and Lamellar Body Count. *Journal of the National Medical Association*. 2017.
- .13 Rosenberg TJ, Garbers S, Lipkind H, Chiasson MA. Maternal obesity and diabetes as risk factors for adverse pregnancy outcomes: differences among 4 racial/ethnic groups. *American journal of public health*. 2005;95(9):1545-1.
- .14 Cunningham F, Leveno K, Bloom S, Hauth J, Rouse D, Spong C. Preterm birth. *Williams obstetrics*. 2001;1:689-727.
- .15 Brydon P, Smith T, Proffitt M, Gee H, Holder R, Dunne F. Pregnancy outcome in women with type 2 diabetes mellitus needs to be addressed. *International journal of clinical practice*. 2000;54(7):418-9.

<b>Access this Article in Online</b>	
	Website: <a href="http://www.ijarbs.com">www.ijarbs.com</a>
<b>Quick Response Code</b>	Subject: Medical Sciences
DOI: <a href="https://doi.org/10.22192/ijarbs.2017.04.08.010">10.22192/ijarbs.2017.04.08.010</a>	

**How to cite this article:**

Batul shahraki mojahed , Morteza Salarzaei , Fateme Parooei. (2017). Investigating pregnancy outcomes in diabetic patients referring to Imam Ali Hospital in Zahedan in 2016. *Int. J. Adv. Res. Biol. Sci.* 4(8): 64-67.  
 DOI: <http://dx.doi.org/10.22192/ijarbs.2017.04.08.010>