CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES
http://doi.org/10.5281/zenodo.3270630

Available online at: http://www.iajps.com *Research Article*

ANALYSIS OF RISK OF COMPLICATIONS OF PREGNANCY IN WOMEN WITH TYPE I DIABETES MELLITUS

Dr Anam Gull[1], Dr Nuzhat Fatima[2], Dr Hafiza Ramsha Aftab[3]

[1]Sir Ganga Ram hospital Lahore, [2]Allama Iqbal Memorial Teaching Hospital Sialkot,
[3]CMH hospital Lahore.

Article Received: May 2019 **Accepted:** June 2019 **Published:** July 2019

Abstract:

Introduction: *Type 1 diabetes holding pregnant women are also associated with a highly increased risk of congenital malformations, neonatal morbidity, and obstetric complications.*

Objectives of the study: *The main objective of the study is to analyse the risk of complications of pregnancy in women with type I diabetes mellitus.*

Methodology of the study: *This cross-sectional study was conducted in Sir Ganga Ram hospital, Lahore during October 2018 to April 2019. The data was collected from 100 female patients who visited the OPD of the hospital during their pregnancy. The data was collected through a questionnaire analysis.*

Results: *The data was collected from 100 patients. Maternal age, parity, and race did not differ significantly from those of the general pregnant population. Mean first trimester HbA_{1c} was 6.5% (SD 0.7%); glycaemic control was excellent ($HbA_{1c} \leq 6.0\%$) in 90 (32%), good (6.1-7.0%) in 122 (43%), and not optimal (> 7.0%) in 71 (25%) of the pregnancies. Mean HbA_{1c} during pregnancy was 6.2% (0.9%); excellent in 113 (40%), good in 121 (43%), and not optimal in 49 (17%) pregnancies. Mean HbA_{1c} early in pregnancy determined in the central laboratory was 6.7% (0.7%).*

Conclusion: *It is concluded that despite a high frequency of planned pregnancies, resulting in overall good glycaemic control (early) in pregnancy and a high rate of adequate use of folic acid, maternal and perinatal complications were still greatly increased in women with type 1 diabetes.*

Corresponding author:

Dr. Anam Gull,
Sir Ganga Ram hospital Lahore.

QR code

Please cite this article in press Anam Gull et al., ***Analysis Of Risk Of Complications Of Pregnancy In Women With Type I Diabetes Mellitus.,*** *Indo Am. J. P. Sci, 2019; 07[07].*

INTRODUCTION:

Type 1 diabetes holding pregnant women are also associated with a highly increased risk of congenital malformations, neonatal morbidity, and obstetric complications. These highly adverse results are related to pre-conceptional care typically related to the glycaemic control level. Sufficient pre-conceptional care declines the congenital malformation frequency and boosts the pregnancy result [1]. Encouraging diabetic women to manage their pregnancies; to begin supplements of folic acid; to optimize in the control of glycaemic before conception; is however considered as a recognized objective. Our gathered data is based on the PubMed Database, collected through different centers with specific thought of pregnancy and diabetes, but not associated with the total local population. Nationwide population data are infrequent and most of the data have been gathered retrospectively [2].

Pregnancy in women with type 1 diabetes mellitus is associated with an increased risk of congenital malformations, obstetric complications, and neonatal morbidity [3]. These adverse outcomes are at least in part related to periconceptional care, especially the level of glycaemic control. Adequate preconceptional care reduces the frequency of congenital malformations and improves outcome of pregnancy. Motivating diabetic women to plan their pregnancies, to optimise glycaemic control, and to start folic acid supplementation before conception is thus an established goal [4]. With this strategy, it is hoped that the goals of the St Vincent declaration can be achieved, with outcomes of pregnancy approximating those of non-diabetic women.

Some authors have indeed found that outcomes of pregnancy in women with type 1 diabetes approached those of the non-diabetic population. However, most of these data were from centres with a special interest in diabetes and pregnancy and were therefore not representative of the total population [5]. Three studies from large regions in the United Kingdom have shown that high levels of non-attendance at preconceptional care facilities and poor glycaemic control still exist among women with diabetes. Pregnancy outcome was poor in these studies, with high rates of congenital malformations. Data from nationwide populations are scarce, and most of them have been collected retrospectively [6].

OBJECTIVES OF THE STUDY:

The main objective of the study is to analyse the risk of complications of pregnancy in women with type I diabetes mellitus.

METHODOLOGY OF THE STUDY:

This cross-sectional study was conducted in Sir Ganga Ram hospital, Lahore during October 2018 to April 2019. The data was collected from 100 female patients who visited the OPD of the hospital during their pregnancy. The data was collected through a questionnaire analysis. Eligible women filled in questionnaires at inclusion (at around 10 weeks' gestation), at the end of the first trimester (around 17 weeks), and during the third trimester (around 34 weeks). Internists filled in a questionnaire including general characteristics, medical history, and diabetes related items; gynaecologists gave information about the outcome of pregnancy; and paediatricians filled in a questionnaire to collect information of the newborns.

STATISTICAL ANALYSIS:

We used SPSS for the statistical analyses.[28] We present data as means with standard deviations or as percentages. We compared continuous data by using Student's *t* test (and non-parametric tests if appropriate).

RESULTS:

The data was collected from 100 patients. Maternal age, parity, and race did not differ significantly from those of the general pregnant population. Mean first trimester HbA_{1c} was 6.5% (SD 0.7%); glycaemic control was excellent ($HbA_{1c} \leq 6.0\%$) in 90 (32%), good (6.1-7.0%) in 122 (43%), and not optimal (> 7.0%) in 71 (25%) of the pregnancies. Mean HbA_{1c} during pregnancy was 6.2% (0.9%); excellent in 113 (40%), good in 121 (43%), and not optimal in 49 (17%) pregnancies. Mean HbA_{1c} early in pregnancy determined in the central laboratory was 6.7% (0.7%). Two hundred and seventy-one (84%) of the women had planned their pregnancy, and (70%) had started folic acid supplementation before conception.

Table 01: Maternal outcome of pregnancies complicated by diabetes mellitus type 1 compared with national data

	Type 1 diabetes			
Outcome	**No**	**% (95% CI)***	**National data (n=196 981) (%)**	**Relative risk (95% CI)**
Pre-eclampsia	40	12.7 (9.0 to 16.4)	1.05	12.1 (9.0 to 16.1)
Prematurity	101	32.2 (27.0 to 37.4)	7.1	4.5 (3.8 to 5.3)
Caesarean section	139	44.3 (38.8 to 49.8)	12.0	3.7 (3.2 to 4.2)
Maternal mortality	2	0.6	0.01	60.0 (14.3 to 249.6)

DISCUSSION:

This study showed strong correlations between type 1 diabetes and multiple adverse outcomes, including pregnancy-related hypertension, preeclampsia, eclampsia, cesarean delivery, stillbirth, and preterm birth. In addition to these well-recognized adverse outcomes, we also found that patients with type 1 diabetes were associated with high risks of other major morbidities, including adult respiratory distress syndrome, pulmonary edema, sepsis, chorioamnionitis, puerperal cerebrovascular disorders, acute renal failure, and shock [5]. These data emphasize that type 1 diabetes is associated with increased adverse outcomes in both mothers and fetuses.

Our data revealed alarmingly higher risks in many adverse outcomes in pregnant women with type 1 diabetes as compared with those without the disease. These findings were unexpected. The National Health Insurance program was built in 1995 in Taiwan to reduce barriers to the health care system for all citizens; nearly all diabetes-related treatment costs are reimbursed for type 1 diabetes, and diabetes care is provided by teams consisting of physicians, certified educators, and dietitians [7]. However, these management measures appeared to have been insufficient to lead to satisfactory results in pregnant women with type 1 diabetes between 2001 and 2012 in the country.

We found that the only improvement in outcome was a lower risk of preeclampsia in the late period as compared with that in the early period in pregnant women with type 1 diabetes. The reasons behind for this improvement are unclear [8]. Better glucose and blood pressure control, dietary and lifestyle modification, low-dose aspirin, and calcium supplementation in women with low dietary calcium intake have been reported to reduce the risk of preeclampsia [9]. We further supposed that the availability of free glucose test strips had relieved the financial stress associated with the disease and led to better diabetes care and outcomes [10]. The decreased risk of preeclampsia is of high clinical significance because preeclampsia is associated with maternal morbidity and mortality during pregnancy and is a strong predictor of future cardiovascular disease in mothers [11].

CONCLUSION:

It is concluded that despite a high frequency of planned pregnancies, resulting in overall good glycaemic control (early) in pregnancy and a high rate of adequate use of folic acid, maternal and perinatal complications were still greatly increased in women with type 1 diabetes.

REFERENCES:

1. Fuhrmann K, Reiher H, Semmler K, Fischer F, Fischer M, Glockner E. Prevention of congenital malformations in infants of insulin-dependent mothers. Diabetes Care 1983;6: 219-223.
2. Kitzmiller JL, Gavin LA, Gin GD, Jovanovic-Peterson L, Main EK, Zigrang WD. Preconception care of diabetes: glycemic control prevents congenital anomalies. JAMA 1991;265: 731-6.
3. Casson IF, Clarke CA, Howard CV, McKendrick O, Pennycook S, Pharoah POD, et al. Outcomes of pregnancy in insulin dependent diabetic women: results of a five year population cohort study. BMJ1997;315: 275-8.
4. Hawthorne G, Robson S, Ryall EA, Sen D, Roberts SH, Ward Platt MP. Prospective population based survey of outcome of pregnancy in diabetic women: results of the Northern Diabetic Pregnancy Audit, 1994. BMJ 1997;315: 279-81.
5. Platt MJ, Stanisstreet M, Casson IF, Howard CV, Walkinshaw S, Pennycook S, et al. St. Vincent's declaration 10 years on: outcomes of diabetic pregnancies. Diabet Med 2002;19: 216-20.
6. Jervell J, Bjerkedal T, Moe N. Outcome of pregnancies in diabetic mothers in Norway 1967-1976. Diabetologia 1980;18: 131-4.
7. Hanson U, Persson B, Thunell S. Relationship between haemoglobin A_{1c} in early type 1 (insulin-dependent) diabetic pregnancy and the occurrence of spontaneous abortion and fetal malformation in Sweden. Diabetologia 1990;33: 100-4.
8. Hanson U, Persson B. Outcome of pregnancies complicated by type 1 insulin-dependent diabetes in Sweden: acute pregnancy complications, neonatal mortality and morbidity. Am J Perinat 1993;4: 330-3.
9. Cnattingius S, Berne C, Nordström ML. Pregnancy outcome and infant mortality in diabetic patients in Sweden. Diabet Med 1994;11: 696-700.
10. Gestation and Diabetes in France Study Group. Multicenter survey of diabetic pregnancy in France. Diabetes Care 1991;14: 994-1000.
11. Tamborlane WV, Champion MC, Rizza RA, Service FJ, Bergenstal RM for the KROC Collaborative Study Group. Observations on control of glycemia with conventional insulin therapy or continuous subcutaneous insulin infusion. Diabetes 1985;34(suppl 3): 22-6.