

# Outcome of Pregnancy of Early Detected Gestational Diabetes- A Retrospective Study

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Received: October 2020

Accepted: October 2020

## ABSTRACT

**Background:** Gestational diabetes mellitus (GDM) is defined as glucose intolerance detected during pregnancy. The present study assessed outcome of pregnancy of gestational diabetes mellitus. **Methods:** The present study was conducted on 104 women diagnosed with gestational diabetes mellitus (GDM). In all patients maternal and neonatal outcome was recorded. **Results:** The mean age of females was 36.2 years, parity was primi in 34, Multipara in 70, 45 had history of first degree relative with DM, hypertension was seen in 52, treatment given was insulin in 68 and metformin in 36. The difference was significant ( $P < 0.05$ ). Pre- term delivery was occurred in 42 and term delivery in 62, birth weight  $< 4000$  grams was seen in 30, 4000- 4499 grams in 45 and  $> 4500$  grams in 29 babies. 5 mins APGAR  $< 7$  was seen in 48, 5 mins APGAR  $> 7$  was seen in 56, respiratory support was observed in 38, Hypoglycemia was evident in 40, hyperbilirubinaemia was seen in 21 and still birth was seen in 5 babies. **Conclusion:** Authors found that GDM has high impact on neonates as compared to those delivered from normal mothers.

**Keywords:** Gestational diabetes mellitus, Hyperbilirubinaemia, Neonatal.

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## INTRODUCTION

Gestational diabetes mellitus (GDM) is defined as glucose intolerance detected during pregnancy.<sup>[1]</sup> The prevalence of GDM is increasing and affects between 1 and 14% of all pregnancies, caused by a global increase in the number of women with obesity around reproductive age and by more stringent diagnostic criteria for GDM. Untreated GDM is associated with an increased rate of neonatal and obstetric complications. Adverse pregnancy outcomes have been shown to improve with timely diagnosis and treatment of GDM.<sup>[2]</sup>

The International Association of Diabetes and Pregnancy Study Group (IADPSG) proposed more stringent diagnostic thresholds for GDM. These new diagnostic criteria (fasting plasma glucose level  $\geq 5.1$  mmol/l and/or 1-h plasma glucose level  $\geq 10.0$  mmol/l and/or 2-h plasma glucose level  $\geq 8.5$  mmol/l) have been adopted by the American Diabetes Association in 2010, the World Health Organization (WHO) in 2013, and the International Federation of Gynaecology and Obstetrics in 2015.<sup>[3]</sup> American Diabetes Association (ADA) does not acknowledge the existence of E-GDM, while the WHO advocates that GDM could be diagnosed at any time during pregnancy using the same glucose threshold. Most of the current glucose threshold for the diagnosis of GDM are driven from the HAPO trial and are only validated between 24 and 32 weeks' gestation.<sup>[4]</sup>

Sweeting et al,<sup>[5]</sup> reported that patients with GDM diagnosed prior to 12 weeks' gestation had pregnancy outcomes similar to pre-existing DM, while patients with GDM diagnosed between 12 and 23 weeks of gestation had more frequent hypertensive disorders compared with those diagnosed between 24 and 28 weeks' gestation. The present study assessed outcome of pregnancy of gestational diabetes mellitus.

## MATERIALS & METHODS

The present study was conducted in the department of gynecology & Obstetrics. It consisted of 104 women diagnosed with gestational diabetes mellitus (GDM). The ethical committee approved the study. All patients were informed regarding the study and their consent was obtained.

Demographic profile of the patients was recorded. In all patients maternal and neonatal outcome was recorded. Results were tabulated and subjected to statistical analysis. P value less than 0.05 was considered significant.

## RESULTS

**Table 1: Maternal characteristics**

Variables	Number	P value
Mean age (Years)	36.2	-
Parity		
Primi	34	0.02
Multipara	70	
First degree relative with DM	45	-
Hypertension	52	-
Treatment		
Insulin	68	0.05
Metformin	36	

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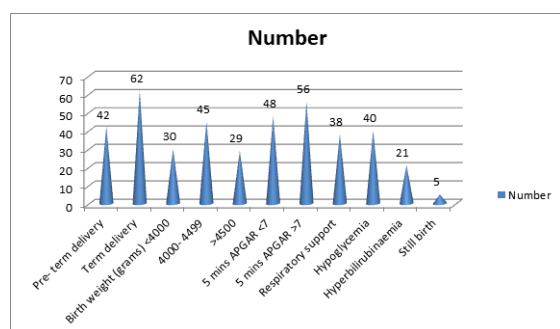
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[Table 1] shows that mean age of females was 36.2 years, parity was primi in 34, Multipara in 70, 45 had history of first degree relative with DM, hypertension was seen in 52, treatment given was insulin in 68 and metformin in 36. The difference was significant ( $P < 0.05$ ).

**Table 2: Neonatal outcomes**

Variables	Number	P value
Pre- term delivery	42	0.05
Term delivery	62	
Birth weight (grams) <4000	30	0.12
4000- 4499	45	
>4500	29	
5 mins APGAR <7	48	0.15
5 mins APGAR >7	56	
Respiratory support	38	-
Hypoglycemia	40	-
Hyperbilirubinaemia	21	-
Still birth	5	-

[Table 2 & Figure 1] shows that pre- term delivery was occurred in 42 and term delivery in 62, birth weight <4000 grams was seen in 30, 4000- 4499 grams in 45 and >4500 grams in 29 babies. 5 mins APGAR <7 was seen in 48, 5 mins APGAR >7 was seen in 56, respiratory support was observed in 38, Hypoglycemia was evident in 40, hyperbilirubinaemia was seen in 21 and still birth was seen in 5 babies.



**Figure 1: Neonatal outcomes**

## DISCUSSION

Gestational diabetes mellitus (GDM) represents glucose levels in the high end of the population distribution during pregnancy.<sup>[6]</sup> GDM carries a small but potentially important risk of adverse perinatal outcomes and a longer-term risk of obesity and glucose intolerance in offspring. Mothers with GDM have an excess of hypertensive disorders during pregnancy and a high risk of diabetes mellitus thereafter. Diagnosing and treating GDM can reduce perinatal complications, but only a small fraction of pregnancies benefit.<sup>[7]</sup> Nutritional management is the cornerstone of treatment; insulin, glyburide and metformin can be used to intensify treatment. Fetal measurements compliment maternal glucose measurements in identifying pregnancies that need such intensification. Gestational diabetes mellitus

can negatively affect the pregnancy and result in adverse perinatal outcome such as macrosomia, birth trauma, shoulder dystocia, and higher rates of cesarean section.<sup>[8]</sup> The present study assessed outcome of pregnancy of gestational diabetes mellitus.

In this study, mean age of females was 36.2 years, parity was primi in 34, Multipara in 70, 45 had history of first degree relative with DM, hypertension was seen in 52, treatment given was insulin in 68 and metformin in 36. Boriboonhirunsarn et al,<sup>[9]</sup> compared 284 patients with GDM diagnosed before and after 20 weeks' gestation and found no difference in pregnancy outcomes.

GDM is a form of hyperglycaemia. Similar to other forms of hyperglycaemia, GDM is a disease of the pancreatic  $\beta$  cells, which do not produce sufficient insulin to meet the increased requirements of late pregnancy. The simplicity of this description belies a more complex set of aetiologies for GDM.<sup>[10]</sup> Mechanistic studies of GDM reveal at least three separate underlying causes of  $\beta$ -cell dysfunction. First, some women have circulating immune markers (for example, anti-islet cell antibodies or antibodies to glutamate decarboxylase 65) that are diagnostic of evolving type 1 diabetes mellitus (T1DM). The frequency is generally <10% of all women with GDM and it tends to parallel the background prevalence of type 1 diabetes mellitus in the population.<sup>[11]</sup>

We found that pre- term delivery was occurred in 42 and term delivery in 62, birth weight <4000 grams was seen in 30, 4000- 4499 grams in 45 and >4500 grams in 29 babies. 5 mins APGAR <7 was seen in 48, 5 mins APGAR >7 was seen in 56, respiratory support was observed in 38, Hypoglycemia was evident in 40, hyperbilirubinaemia was seen in 21 and still birth was seen in 5 babies. Goedegebure et al,<sup>[12]</sup> included a total of 1386 women with GDM. Women in the WHO-2013-cohort were older and had a higher pre-gestational body mass index. They were diagnosed earlier (24.9 [IQR 23.3–29.0] versus 27.7 [IQR 25.9–30.7] weeks,  $p = < 0.001$ ) and less women were treated with additional insulin therapy (15.6% versus 43.4%,  $p = < 0.001$ ). Rate of spontaneous delivery was higher in the WHO-2013-cohort (73.1% versus 67.4%,  $p = 0.032$ ). The percentage large-for-gestational-age (LGA) neonates (birth weight > 90th percentile, corrected for sex, ethnicity, parity, and gestational age) was lower in the WHO-2013-cohort, but not statistical significant (16.5% versus 18.5%,  $p = 0.379$ ). There were no differences between the cohorts regarding stillbirth, birth trauma, low Apgar score, and preeclampsia.

## CONCLUSION

Authors found that GDM has high impact on neonates as compared to those delivered from normal mothers.

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**How to cite this article:** Ojha M. Outcome of Pregnancy of Early Detected Gestational Diabetes- A Retrospective Study. *Ann. Int. Med. Den. Res.* 2020; 6(6):OG04-OG06.

**Source of Support:** Nil, **Conflict of Interest:** None declared