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Original Research Article.

A Study to Assess Outcome of Pregnancy of Early Detected Gestational Diabetes at a Tertiary Care Hospital

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ABSTRACT

Background: Gestational diabetes mellitus (GDM) prevalence 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. Untreated GDM is associated with an increased rate of neonatal and obstetric complications. The present study was conducted to assess outcome of pregnancy of early detected gestational diabetes.

Materials and Methods: The present study was conducted to assess outcome of pregnancy of early detected gestational diabetes. It consisted of 80 women diagnosed with gestational diabetes mellitus (GDM). Demographic profile of the patients was recorded. A standardized questionnaire was used to collect relevant. A complete antenatal examination was done. In all patients maternal and neonatal outcome was recorded. The recorded data was compiled, and data analysis was done using SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA).

Results: In the present study out of 80 women with GDM 52.5% were of age group 18-25 yrs, 35% were of 26-30 yrs, 12.5% were of age group more than 30 yrs. 66.25% women were multigravida and 33.75% were primigravida. Maternal complications shows prevalence as Caesarean section was given in 61.25% women followed by Pre-term labour which occur in 18.75% women, Pregnancy induced hypertension was present in 10% women, Recurrent Urinary tract infections were seen in 6.25% women. Neonatal Hyperbilirubinemia was seen in 18.755 followed by neonatal hypoglycaemia which was seen in 15% neonates.

Conclusion: The present study concluded that Maternal complications shows prevalence as Caesarean section was given in 61.25% women followed by Pre-term labour which occur in 18.75% women, Pregnancy induced hypertension was present in 10% women. Neonatal Hyperbilirubinemia was seen in 18.75% followed by neonatal hypoglycaemia which was seen in 15% neonates.

Keywords: Maternal Complications, Neonatal Complications, Gestational Diabetes Mellitus (GDM).

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INTRODUCTION

Gestational diabetes mellitus (GDM) is defined as glucose intolerance detected during pregnancy.[1] Gestational diabetes mellitus (GDM) is associated with significant transgenerational maternal and neonatal morbidity.[2-4]

Gestational diabetes mellitus (GDM) is defined by the WHO as hyperglycaemia first detected during pregnancy that does not meet diagnostic criteria for diabetes mellitus. Untreated, GDM can lead to a series of adverse outcomes including fetal macrosomia, fetal hypoglycaemia and hyper-insulinemia, prematurity, need for C-section, and preeclampsia. However, GDM can often be asymptomatic in the mother.[2,5,6] The prevalence of GDM is rising, in part reflecting the changing demographics of women of childbearing age, with an increasing incidence of both obesity and advanced maternal age.[7-9]

The prevalence of gestational diabetes mellitus (GDM) varies, depending on the screening methods and diagnostic cut-off values applied. For decades, there have been attempts to standardize the definition, but a consensus has yet to be reached. In 2010, the International Association of the Diabetes and Pregnancy Study Group (IADPSG) proposed new diagnostic criteria based on the Hyperglycemia and Adverse Pregnancy Outcomes (HAPO) study.[2,10]

These guidelines recommended universal GDM screening using a 2-h 75-g oral glucose tolerance test (OGTT). The proposed cut-off values represented an odds ratio of 1.75 for birthweight > 90th centile, cord C-peptide > 90th centile (indicating neonatal hyperinsulinemia) and percent body fat > 90th centile. Importantly, for the first time, these diagnostic criteria were based on perinatal

outcomes instead of the mother's subsequent diabetes risk.[11] 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 ≥ 5.1 mmol/l and/or 1-h plasma glucose level ≥ 10.0 mmol/l and/or 2-h plasma glucose level ≥ 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.[12] 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.[13] The present study was conducted to assess outcome of pregnancy of early detected gestational diabetes.

MATERIALS AND METHODS

The present study was conducted in Department of Obstetrics & Gynaecology, Rama Medical College Hospital and Research Centre, Hapur, Uttar Pradesh (India) to assess outcome of pregnancy of early detected gestational diabetes. It consisted of 80 women diagnosed with gestational diabetes mellitus (GDM). Written consent was taken from the patients after explaining the study. Demographic profile of the patients was recorded. Total numbers of antenatal women with gestational age of 24-28 weeks of pregnancy were enrolled. The exclusion criteria were pre-diabetic, severe PET, twin pregnancy. A standardized questionnaire was used and details pertaining to their anthropometrics, family history, medical, and obstetric history and other relevant information were collected. A complete antenatal examination was done. All routine antenatal investigations were sent. In all patients maternal and neonatal outcome was recorded. The recorded data was compiled, and data analysis was done using SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). P-value less than 0.05 was considered statistically significant.

RESULTS

In the present study out of 80 women with GDM 52.5% were of age group 18-25 yrs, 35% were of 26-30 yrs, 12.5% were of age group more than 30 yrs. 66.25% women were multigravida and 33.75% were primigravida. Maternal complications show prevalence as Caesarean section was given in 61.25% women followed by Pre-term labour which occur in 18.75% women, Pregnancy induced hypertension was present in 10% women, recurrent Urinary tract infections were seen in 6.25% women. Neonatal Hyperbilirubinemia was seen in 18.75% followed by neonatal hypoglycaemia which was seen in 15% neonates.

Table 1: Demographic details

Variables	N(%)
Age group(yrs)	
18-25	42(52.5%)
26-30	28(35%)
More than 30	10(12.5%)
Gravida	
Primigravida	27(33.75%)
Multigravida	53(66.25%)

Table 2: Distribution of cases according to Maternal & neonatal complications.

Complications	N(%)
Maternal Complications	
Pregnancy induced hypertension	8(10%)
Recurrent vaginal infections	2(2.5%)
Recurrent urinary tract infection	5(6.25%)
Pre-term labour	15(18.75%)
Caesarean section	49(61.25%)
Neonatal complications	
None	38(47.5%)
Respiratory distress	7(8.75%)
Hyperbilirubinemia	15(18.75%)
Hypoglycaemia	12(15%)
Congenital anomalies	5(6.25%)
Still birth	3(3.75%)

DISCUSSION

Gestational diabetes mellitus (GDM) represents glucose levels in the high end of the population distribution during pregnancy.[14] GDM is characterised by impaired pancreatic β-cell function that is insufficient to overcome the insulin resistance that occur at the second half of pregnancy, which is multifactorial and is largely influenced by placental hormones.[15-17] 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.[18]

In the present study out of 80 women with GDM 52.5% were of age group 18-25 yrs, 35% were of 26-30 yrs, 12.5% were of age group more than 30 yrs. 66.25% women were multigravida and 33.75% were primigravida. Maternal complications shows prevalence as Caesarean section was given in 61.25% women followed by Pre-term labour which occur in 18.75% women, Pregnancy induced hypertension was present in 10% women, recurrent urinary tract infections were seen in 6.25% women. Neonatal Hyperbilirubinemia was seen in 18.75% followed by neonatal hypoglycaemia which was seen in 15% neonates.

Compared to European women, the prevalence of gestational diabetes has increased 11-fold in women from the Indian subcontinent.[19]

The prevalence of gestational diabetes mellitus in other studies were - Rajput et al as 7.1%, Wahi et al as 6.94%.[20,21]

A recent Australian study concluded that despite early diagnosis, high-risk women suffered higher rates of preterm delivery, caesarean delivery, preeclampsia, and macrosomia, even a-er excluding diabetes in pregnancy.[22] On the contrary, studies which used different diagnostic criteria have found that early diagnosed GDM was associated with a similar frequency of adverse outcomes, such as macrosomia, to routinely diagnosed GDM[23,24] and even women without GDM.[25]

A single prospective cohort study showed that women in whom GDM was diagnosed early (before 24 weeks of gestation) were more likely to be hypertensive, to have poorer glycaemic control, and to have greater need for insulin therapy, with all cases of neonatal morbidity and mortality occurring in this cohort.[26]

Landon et al. also demonstrated that offering early treatment to women with modest degrees of hyperglycaemia in pregnancy results in reduction of foetal overgrowth.[27]

CONCLUSION

The present study concluded that Maternal complications shows prevalence as Caesarean section was given in 61.25% women followed by Pre-term labour which occur in 18.75% women, Pregnancy induced hypertension was present in 10% women. Neonatal Hyperbilirubinemia was seen in 18.75% followed by neonatal hypoglycaemia which was seen in 15% neonates.

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