MATERNAL AND FOETAL OUTCOME OF GESTATIONAL DIABETES MELLITUS

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ABSTRACT

Introduction: Diabetes during pregnancy carries important implications for mother and child. These include postpartum hyperglycaemia, anxiety disorder, UTI, respiratory infection, cerebrovascular accident, atonic PPH, hyperbilirubinemia, respiratory distress syndrome, sepsis, hypoglycaemia, acidosis and congenital heart disease as well as increased rates of LSCS. The main objective of the study was to determine the maternal and foetal outcome of mothers with gestational diabetes mellitus. **Methods:**Record based retrospective descriptive study with quantitative approach was undertaken on 70 pregnant women with gestational or pre-gestational diabetes mellitus admitted in tertiary care Hospital. Consecutive sampling technique was used in selecting the records of the pregnant women. The tools used for data collection were structured questionnaire for sample characteristics and structured checklist for assessment of risk factors and outcome of pregnancy. **Results:** The study results highlighted the causative factors for development of gestational diabetes mellitus i.e. age (>35), primipara, family history of diabetes mellitus, advanced gestational age, previous history of gestational diabetes mellitus and other co morbid conditions. The maternal and foetal outcome of the gestational diabetes mellitus was caesarean section, hyperbilirunmia, respiratory distress syndrome and urinary tract infection**. Conclusion**: Gestational diabetes mellitus as a disease entity adversely affects maternal and foetal outcomes. It was concluded that early detection, constant supervision, strict glycaemic control, delivery with intensive intrapartum monitoring and facilities of expert neonatologist can result in good maternal and foetal outcome, without much morbidity

Key words: Gestational Diabetic Mellitus, Pregnant mother, Maternal & foetal outcome.

INTRODUCTION

Gestational diabetes mellitus is the development of symptoms and signs of diabetes mellitus during pregnancy and the glucose intolerance revert to normal during puerperium. Depending on the type of population and the diagnostic criteria used, gestational diabetes is said to complicate

1-16% of all pregnancies.[1] Many researchers in American, European and Asian settings have reported 3-6% prevalence. [2][3] [4] Compared with white European women, the prevalence rate for GDM is increased approximately eleven fold in women from the Indian subcontinent. [5]

Impaired glucose tolerance is usually more prevalent than diabetes in women of child bearing age. Increasing maternal age, overweight, increasing parity and a family history of diabetes are all risk factors for gestational diabetes.[6]The worldwide epidemic of glucose intolerance predicted by the latest WHO studies will undoubtedly increase the burden of gestational diabetes, especially in the developing countries.[6])Pregnancy related morbidity and mortality in gestational diabetes is less than that of overt diabetes mellitus, however if not treated it is significantly higher than for non-diabetic women.[7][8]

There remains a small increase in unexplained stillbirths in mothers with gestational diabetes. Unlike established diabetes there is no increase in congenital malformation rates since significant maternal hyperglycaemia occurs when organogenesis is complete.[8]

There is increased caesarean section rate because of macrosomic babies and obstructed labour especially in developing countries. There is also associated birth trauma especially when these babies are delivered vaginally.[9]Most studies have found that women with gestational diabetes who develop pregnancy-related hypertension tend to be older and heavier.[10]

Glucose tolerance returns to normal in the majority of women with gestational diabetes but one to two-thirds of women will have glucose intolerance in subsequent pregnancies.[11]

The maternal and foetal outcome among women who develop gestational diabetes mellitus in India is not well documented. Therefore the major objective of this study was to determine maternal and foetal outcomes among women with gestational diabetes admitted in a tertiary care hospital.

METHODOLOGY

Record based retrospective descriptive study with Quantitative approach was undertaken on 70 pregnant women with gestational or pre-gestational diabetes mellitus admitted in the tertiary care hospital. Duration of study period was one month. Consecutive sampling technique was used in selecting the records of the pregnant women. Administrative and Ethical permission was obtained from the concerned authority. The tools used for data collection were a structured questionnaire for sample characteristics and a structured checklist for assessment of

risk factors and outcome of pregnancy.

RESULTS

The frequency and percentage wise distribution of sample characteristics of pregnant women revealed the following facts.

- ✓ Majority (39%) of women were in the age group of less than 30.
- ✓ Majority (27%) of the women were primipara.
- ✓ Majority (65%) of the women admitted in general ward.
- ✓ 23% of women had a family history of Diabetes.
- ✓ 14% of women had a past history of diabetes during pregnancy.
- ✓ 95% of women had gestational diabetes and only 5% of them having pre gestational Diabetes.
- ✓ 36 % of women had other co-morbid condition.
- ✓ Regarding treatment majority (70%) of the women had treatment of choice as dietary modification and exercise, 34% had insulin therapy and (17%) had the drug Metformin.
- ✓ Almost all (95%) the women had their blood sugar level in control.
- ✓ Majority (84%) of women were in the gestational age between 37-42 weeks at the time of delivery.
- ✓ Majority (67%) of the women had caesarean section as a mode of delivery.
- ✓ Majority of the women had the baby with birth weight of 2.5 – 3.5 kgms.
- ✓ All most all (99%) babies had the APGAR score of >7 .

Table No.2: Frequency and percentage wise distribution of foetal complications after delivery of women with diabetes mellitus

S. No.	Foetal Complications	Frequency	Percentage
1	Hperbilirubinemia	14	56
2	Respiratory Distress Syndrome	05	20
3	Sepsis	02	08
4	Hypoglyoemia	02	08
5	Acidosis	01	04
6	Congenital Heart Disease	01	04

Frequency and percentage wise distribution of foetal complications after delivery of women with diabetes mellitus revealed the following facts. Out of 70 babies 25 developed complications of which majority (56%) of babies developed hyper-bilirubinumia, 20% of babies developed respiratory distress syndrome, Every 8th of the infant developed a sepsis & hypoglycaemia and every 4th infant developed acidosis and congenital heart disease.

Table No.3: Frequency and percentage wise distribution of maternal complications after delivery of women with diabetes mellitus

S. No.	Maternal Complications	Frequency	Percentage
1	Postpartum hyuperglycemia	1	14
2	Anxiety Disorder	1	14
3	UTI	2	29
4	Respiratory Infection	1	14
5	Carebro Vascular Accident	1	14
6	Atonic PPH	1	14

Frequency and percentage wise distribution of maternal complications after delivery of women with diabetes mellitus revealed the following facts. Out of 70 women 7 developed the complications, of which majority (29%) of mothers developed UTI and similar percentage (14%) of mothers developed postpartum hyperglycaemia, anxiety disorder, respiratory infection, CVA and Atonics PPH respectively.

DISCUSSION

This study is important in providing information about the maternal and neonatal outcomes of gestational diabetes. The age group at risk of getting gestational diabetes in this study was less than 35 years. This was similar to other studies where age was equal to or more than 25 years and was considered as a high risk for screening.[6] Majority of the mothers with gestational diabetes were of low parity (1-3) and only few were of high parity (more than 3). Similar studies have shown that increased parity was less consistently associated with increased risk for developing gestational diabetes mellitus.[8]

The study demonstrated that most of the gestational diabetic mellitus mothers had understand for LSCS. Similar results showed that Caesarean rate of 19.5% in the GDM patients.[12]Increasing parity, as an associated risk factor for GDM was well demonstrated while, one of the investigators reported that 80% of the patients with GDM were multi- parous. [13]

This study results indicate that antenatal mothers with GDM are likely to have outcomes of pregnancy that are different from those in the general obstetric population. Antenatal mothers with GDM gave birth to more neonates clinically diagnosed as having RDS and had more neonates sent to the NICU for 24 hours. Ashyperglycaemia and hyperinsulinemia lead to delayed pulmonary maturity, RDS may have been diagnosed in neonates with wet lungs or transient tachypnea of the newborn.[14]

Infants of diabetic mothers have an increased risk of developing congenital heart disease. Woonet et.al in their study found that severe and major congenital heart diseases occurred in 15.5% infants while this rate was 4% in the parents.[15] Women with GDM experience more number of urinary tract infection incidences than women who do not have GDM. This increased infection incidence is thought to be due to the increased amount of glucose in the urine beyond the normal glycosuria that is present in pregnancy.

As the study was retrospective in nature, the inherent limitations of this study design, such as omission of data, must be taken into account. The data analysis was limited by having to use only what was readily available in hospital records. Details regarding diabetes therapy

and even documentation of this treatment being given, may have been omitted.

Conclusion

The findings of this study support the predicted increase in frequency of maternal and neonatal morbidity associated with GDM. Outcomes of the pregnancies in women with GDM showed an increased incidence of hyper-bilirubinemia, respiratory distress syndrome, sepsis, hypoglycaemia, urinary tract infection, post-partum hyperglycaemia, anxiety disorder and caesarean section compared with the general obstetric population.

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