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FETAL OUTCOME IN DIABETIC PREGNANT MOTHERS AT ISRA UNIVERISTY HOSPITAL

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ABSTRACT

Objectives: To determine the frequency of congenital abnormalities,abortions intrauterine deaths, still births, macrosomic babies and biochemical abnormalities in pregnant women having diabetes coming to Isra University Hospital.
Place and duration: This study was carried out in the Department of Obstetrics and Gynecology at Isra University Hospital, Hyderabad, from1st April 2005 to 30th March 2006.
Study design: Observational & descriptive study.
Materials & Method: Total 150 women were included who had gestational diabetes or established diabetes. Glycemic control of patients was assessed by doing pre and post meal sugar levels, while admitted in hospital, women who were booked sugar profile form was given to them to assess sugar level at home at least twice week.Neonatal assessment was done immediately after birth by performing Apgar score.Outcome of fetus included IUD, stillbirth, ENND, CA, abortion, weight of baby biochemical abnormalities, hypoglycemia, hypocalcaemia and Hyperbillirubenemia. Data was collected on simple questionnaire after taking informed consent and was analyzed in SPSS version 16.0.
Results: Study outcome was measured by immediate neonatal assessment. Among fetal complications macrosomia was seen in 34%, IUD were 3.3% still born were 2.6%, congenital abnormalities seen in 4.6%, birth Asphyxia was seen in 36 infants.
Conclusion: Final conclusion drawn from this study is that lack of prenatal care, poor health information and sub optimal glycemic control is associated with adverse fetal out comes. we need to encourage preconception counseling vigilant antenatal care, screening of DM, intensive care for neonates and management according to standard obstetric procedures for better out comes.

Keywords: Diabetes Mellitus, Fetal outcome, Pregnancy and Diabetes.

INTRODUCTION:

Diabetes mellitus is a syndrome in which hereditary and environmental factors interact leading to inadequate insulin action.[1]

Abnormal maternal glucose regulation occurs in 3-10% of pregnancies, and gestational diabetes mellitus (GDM), which is defined as glucose intolerance of variable degree with onset or first recognition during pregnancy, accounts for 90% of cases of diabetes mellitus (DM) in pregnancy. However, the rising prevalence of diabetes mellitus—21 million people (7% of the population) have some form of diagnosed diabetes[2]; another 6 million people may be undiagnosed[3]—particularly type 2 among women of childbearing age in the United States, has resulted in increasing numbers of pregnant women with preexisting diabetes. Currently, type 2 diabetes mellitus accounts for 8% of cases of diabetes mellitus in pregnancy, and preexisting diabetes mellitus now affects 1% of all pregnancies.

It is generally classified in to Type-I diabetes ,Type II diabetes and Gestational Diabetes.It

can have a much higher incidence in certain minority populations with a greater predisposition to diabetes[4].the prevalence of DM among in child bearing age is increasing due to sedan try life styles and change in diet.[5]

More than 10% of adult population in Pakistan suffers from D.M[6] GDM in Pakistani women is comparable to Western counterparts but complications rates are higher possibly due to poor glycemic control[7]. Expert committees for obstetricians and diabetes specialists have recommended[8]. Screening for GDM at around 24 – 28 weeks of gestation[9].

Perinatal outcome is related to the onset and duration of glucose intolerance, hyperglycemia induced teratogenicity occurs almost exclusively in pregestational diabetes. reduced insulin activity in pregnant diabetic women leads metabolically abnormal environment as a result birth defects and spontaneous abortions occurs in sixth and seventh week of gestation, and diabetic fetopathy predominantly macrosomia and fetal hyper insulinemia occurs in second and third trimesters.

Despite of improvements in the overall outcome of diabetic pregnancies the rate of congenital abnormalities has not changed in recent years and perinatal mortality remains 3 to 5 times higher than normal population. Infants of diabetic mothers (IDM's) have double the risk of serious birth injuries, triple the likelihood of cesarean delivery, quadruple the incidence of new born intensive care unit admission[5]

Treatment of diabetes in pregnant women should be aimed at achieving HbA1c levels within normal range i.e.<6.0%[10].

It is stressed that more large studies are needed in our community [11].

Normoglycemia with exercise, diet, control, prepregnancy planning, good prenatal care, early screening, fetal surveillance during pregnancy, advances in neonatal care and management of diabetic women by multidisciplinary approach, glycemic control right from conception to delivery can improve the outcomes.

MATERIALS METHODS:

This observational & descriptive study was carried out in the Department of Obstetrics and Gynecology at Isra University Hospital, Hyderabad, from 1st April 2005 to 30th March 2006. Total 150 pregnant women were included who had Gestational Diabetes or Established Diabetes. Glycemic control of patients was assessed by doing pre and post meal sugar levels, while admitted in hospital, women who were booked sugar profile form was given to them to assess sugar level at home at least twice week.The women who participated in this study were around 20 to 40 years of age.Neonatal assessment was done immediately after birth by performing Apgar score.Outcome of fetus included IUD, stillbirth, ENND, CA, abortion, weight of baby biochemical abnormalities, hypoglycemia, hypocalcaemia and Hyperbillirubenemia. Information was collected on proforma by verbal interviews after taking informed consent. Glycemic control was assessed by doing pre and post meal sugar levels of both admitted and OPD patients.

STATISTICAL ANALYSIS:

Data was analyzed in statistical program SPSS version 20.0. Simple frequencies and percentages of qualitative data such as age (in groups), parity of the women, gestational age (in groups), locality, type of diabetes, duration of diabetes were presented as n(%). No statistical test was applied.

Table No. I:

Demographic characteristics of the pregnant mothers (n =150)

Characteristics	No. of patients	Percentage
Age (in groups):		
20 to 30 years	59	39.3%
31 to 35 years	74	49.3%
36 to 40 years	17	11.3%
Parity of the women:		
Primigravida	57	38%
Multiparous	93	62%
Gestational age(n = 104):		
28-30 weeks	52	50%
31-34 weeks	33	31.7%
34 weeks onward	19	18.2%
Locality:		
Rural	92	61.3%
Urban	58	38.6%
Type of diabetes:		
Known diabetes	46	30.6%
Gestational diabetes	104	69.3%
Duration of DM (in years):		
1-5	26	56.52%
6-10	17	36.95%
10-20	03	6.52%

Table No. II:

Complications occurred during pregnancy (n =150)

Complication	No. Of Patients	Percentage
Polyhydroamous	09	6.0%
Preterm Labor	04	2.6%
PIH	17	11.3%

RESULT:

Total numbers of women included in this study were 150. Majority of patients came with diabetes in pregnancy, were between 30 to 35 years of age (49.3%).57 women (38%) were primigravida and 93(62%) were multiparous, 49 women were booked (32.6%) had proper antenatal check up, while, 101(67.3%) were un-booked.Patients were grouped according to type of diabetes; weather known diabetics or GDM.

46 (30.6%) women were known diabetics, while 104 (69.3%) were having GDM.Women were distributed according to status of diabetic control 65.3% (98) were with poorly controlled diabetes, that were mostly those who were received in emergency, having irregular antenatal visits and poor compliance, while 34.6%(52) had well controlled glucose levels. Mode of delivery of women Total 56 (37.3%) had normal vaginal delivery, only 10 (6.6%) required assisted vaginal delivery, 81(54%) women delivered by emergency or elective cesarean section .Table shows the fetal outcome of diabetic mothers, because of poor glycemic control and irregular antenatal visits. 5(3.3%) were intrauterine deaths (IUD), 4(2.6%) were still born, 9 (6.0%) were Early neonatal deaths (ENND). 7(4.6%) had multiple congenital anomalies. abortions were 3(2%). Macrosomia was the significant morbidity seen in 51(34%) babies, after delivery 88(58.6%) were found hypoglycemic on checking blood sugar after delivery. 30(20.0%) developed mild to moderate hyperbillirubinemia. Hypocalcemia seen in 20(13.3%). Birth Asphyxia seen in 36(24%). Different congenital anomalies in babies,cardiac abnormalities seen in 2 babies,gastrochises in 1 baby,anencephaly in 2 babies,esophageal atresia in 1 and multiple congenital anomalies in 1 baby.

DISCUSSION:

Diabetes mellitus is one of the most important medical disorders complicating pregnancies and associated with a myriad of fetal and maternal complications.

In developing countries like ours, the rate of perinatal mortality and morbidity is very high, probably due to illiteracy, poor maternal health and lack of medical facilities.

In our study high parity and advanced maternal age is associated with increased risk of diabetes in pregnancy.Audit of recent international study demonstrated that arrangements for formal pre-pregnancy care were generally poor and that less than half of pregnancies were reported as being planned[12]

In my study majority of women were un-booked this shows lack of health education and neglegncy of women In our society. Incidence of DM varies in different studies,GDM is much more common then pre-existing diabetes[13]A nationwide population based survey revealed that nearly 4% of pregnant women in the United States have diabetes: 88% had GDM while 12% were known diabetics[14].

Our women have poor glycemic control because either they do not come for antenatal or do not receive proper treatment. we achieved good glycemic control in only 34.6% of the women, while 65.3% had poor glycemic control,that's why cesarean section rate was very high 54%.One study conducted in lady reading Hospital Peshawar around half 51.43% of the women had poor control of diabetes. Good control diabetics were 31.4%[15].

Fetuses born to diabetic mothers have greater frequency of developing macrosomia.One study conducted in New Zealand they concluded increased maternal weight and glycemia is associated with greater proportion of large babies among glucose tolerant women[16].Macrosomia occurs 10 times more often in diabetic women then in non-diabetic.

Approximately 10% of babies born to diabetic mothers have deliveries complicated by shoulder dystocia[17].Audit of my results show macrosomia was seen in 34% offspring's, which is comparable with back ground studies.The prevalence of congenital anomalies in diabetic births has been reported to vary between 2% and 10%. The British survey of diabetic pregnancies reported congenital malformation rate of 5.7%[18]Studies done at Faisalabad Hospital congenital anomalies were seen in 4% of babies, which is comparable with this study malformations were seen in 4.6% offspring's[19].

Metabolic derangements disturbances and their consequences in diabetes are well known[20]. IDM's are at increased risk of transient tachypnea, RDS, and Asphyxia. These complications are 5-6 times higher in IDM's we observed asphyxia in 36 newborns.In diabetic pregnancy PNM has decreased 30 fold since the discovery of insulin and intensive obstetrical care. nevertheless, the current PNM rates among diabetic women remain approximately twice high then non-diabetic population.Studyconducted in Denmark, Fetal outcome was very poor[21]

Data analysis of my study shows stillbirths in 2.6%, IUD in 3.3%, ENND in 4%, congenital anomalies in 4.6%, hypoglycemia was commonly seen in 88 infants.

PNM is now less than 3% in most major centers in the West, this can only be achieved if fetal health risk detected early and treated by standard obstetric procedures.

CONCLUSION:

Overall results conclude that, Perinatal mortality and morbidity is directly proportional to degree of maternal hyperglycemia. We need to encourage health education to women and increase literacy rate.Diabetic women must be managed by multidisciplinary approach.Final conclusion drawn from this study is that pre conception counseling, planned pregnancies, early screening, vigilant antenatal management, neonatal intensive care and glycemic control right from conception to delivery can improve fetal out comes.

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