Prevalence of Gestational Diabetes in South Kerala

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ABSTRACT

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Introduction: The most prevalent chronic medical condition in the pregnant population is diabetes. The prevalence of gestational diabetes is increasing globally and may be as high as 14%, particularly in women from ethnic minority group.

Objective: To find out the prevalence and of gestational diabetes and to see the perinatal outcome.

Methodology: A total of 700 patients who attended the antenatal clinic of the S U T Hospital were studied. Patients with history of Pre-gestational diabetes were excluded. Two tests were done during the study: the glucose challenge test, followed by the 0'Sullivan Test.

Result: The study group comprised of patients who belonged to the higher socio-economic strata. There were a total of 78 patients with gestation al diabetes (GDM). Thus the prevalence of GDM was found to be 11.2% which was quite high compared to different studies.

Keywords: Gestational diabetes, Perinatal outcomes, Prevalence of gestational diabetes.

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MATERIALS AND METHODS

A total of 700 patients who attended the antenatal clinic of the S U T Hospital were studied. Patients with history of Pre-gestational diabetes were excluded. Two tests were done during the study: the glucose challenge test, followed by the 0'Sullivan Test.

Non diabetic patients were taken as controls. All these patients were followed upto delivery and the perinatal outcome analyzed. Complications such as PIH. IUGR, hydramnios, macrosomia and intra uterine death, during antenatal period; prematurity, shoulder dystocia, hypoglycemia, hypocalcaemia, jaundice and neonatal death during the post natal period were the parameters analysed. Statistical analysis for determining the significance was also done using the chi-square test.

RESULT

Our study group comprised of patients who belonged to the higher socio-economic strata. There were a total of 78 patients with gestation al diabetes (GDM). Thus the prevalence of GDM was found to be 11.2% which was quite high compared to different studies.

Table 1. Prevalence of GDM- Total number of subjects studied 700

Task to be performed	Positive Family history in 1st degree relatives	No Family history
	252	448
O'Sullvian +ve	64	14
Prevalence	25%	6%
Overall prevalence	78/700 (11%)	

Table 2. Antenatal complications

	GDM %	Control %	Significance
IUGR	16.7	5.5	s
PIH	38.5	9.9	s
Hydramnios	5.1	0.5	s
Macrosomia	1 4.1	7.4	NS
Congenital anomalies		2.0	

IUGR- Intra uterine growth retardation PIH- Pregnancy induced hypertension

Table 3. Foetal complications

	GDM %	Control%	Significance
Prematurity	5.3	1.5	NS
Shoulder dvstocia	3.9	-	S
Hypoglycaemia	9.0	1.0	S
Hvpocalcaemia	2.6	0	S
Hyperbilirubinaemia	5.1	1.5	NS

S: Significant NS: Not significant

DISCUSSION

The most prevalent chronic medical condition in the pregnant population is diabetes. Diabetes in pregnancy

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is classified as Pregestational diabetes (established Type 1 diabetes & Type 2 DM before pregnancy or established impaired glucose tolerance (IGT) and impaired fasting glucose (IFG) before pregnancy) and Gestational diabetes which is vdefined as 'carbohydrate intolerance of varying degrees of severity with onset or first recognition during pregnancy'. There is general consensus that the prevalence of gestational diabetes is increasing globally and may be as high as 14%, particularly in women from ethnic minority group.

Risk assessment for GDM should be undertaken at the first prenatal visit. Women should be tested as soon a feasible, and if they are found not to have GDM at that initial screening, they should be retested between 24 and 28 weeks of gestation. Women of average risk should have testing undertaken at 24-28 weeks of gestation.

Two or more of the venous plasma concentrations must be exceeded for a positive diagnosis of Gestational Diabetes. 100 or 75g of glucose can be given.[2]

The normal values have been further reduced by WHO. Pregnant women who shows a 2hr. Post glucose value of 140 mg% or more (after 75gm of glucose) are classified as having gestational diabetes and in the range of 120-140 mg as having impaired gestational diabetes. The target values to be maintained is fasting blood sugar below 95 mg%, and Post Prandial Blood Sugar 120mg%.[3]

The role of oxidative stress and the effect of tumour necrosis factor-alfa (TNF-") and apoptosis play a role in the occurrence of embryopathy. The prevalence of major congenital malformations is three to five times greater in infants of diabetic mothers than in the offspring of non diabetic women. Diabetes is associated with a variety of malformations, mainly related to the bea1t, central nervous system, musculoskeletal system and renal system. The pathognomonic malformation associated with both type 1 and type 2 diabetes is caudal regression syndrome or sacral agenesis, which is at least 200- fold more frequent. Although the weight of infants of diabetic mothers tend to be skewed towards the upper range, intra-uterine growth restriction (IUGR), defined as a weight less than 10th centile for gestational age, can also occur. IUGR can occur in those mothers with complicated diabetes with hypertension and renal disease. The intelligence quotient is found to be lower in low birth weight children of diabetic mothers and low birth weight is a risk factor for future adult diseases including hypertension, cardiovascular disease and diabetes.[6] Macrosomia is defined as birth weight more than 4Kg. This is due to hyperinsulinemia. A birth weight of >4kg is found in 5-10% of all infants, but may be as great as 33% in diabetic women Macrosomia contributes to a high Caesarean section rate, prolonged labour and fetal asphyxia and in later life contributes to increased risk of obesity and diabetes. Stillbirth is more common in diabetics, frequent in macrosomic fetuses, and occurs more commonly around 38 weeks. Fetal hyperinsulinaemia results in fetal hypkalaemia which can lead to cardiac arrhythmias and sudden death. Neonatal morbidities include shoulder dystocia, hypoglycaemia, hypocalcaemia, hypomagnesemia, hyperbilirubinaemia and respiratory distress syndrome (RDS). Strict maternal glycaemic control will significantly reduce short term neonatal morbidities. Foetal lung maturity can be assessed by measuring phosphalidyl glycerol or lecithin in the amniotic fluid.[7] Administration of betamethasone in women before delivery will reduce the risk of RDS. The most serious acute metabolic complication is diabetic keto acidosis, most frequently in women with type1 diabetes. Fetal demise is usually related to the seve1ity of the metabolic decompensation which can result in fetal acidaemia and hypoxaemia. Diabetic vascular complications include retinopathy, nephropathy and hypertension. There is a 50% chance of further progression in those with proliferative or severe proliferative retinopathy. Hypertension and pre-eclampsia are two additional important risk factors for progression of retinopathy. Pan retinal photocoagulation is performed in the presence of proliferative or severe preproliferative disease. Diabetic nephropathy is present in 5- 10% of diabetic pregnancies related to increased renal filtration rate seen in pregnancy. Hypertension is also a key factor in the progression. Strict control of hypertension is vital to optimize pregnancy outcome in these women with a target blood pressure of < 130/80mm Hg.

Table 4. Diagnosis of GDM with a 100g or 75g glucose load (OGTT) (Venousplasma glucose level)

	mg/dL	mmol/L
Fasting	95	5.3
1h	180	10.0
2h	155	

Pregnancy-related complications include Hypertension and pre-eclampsia. The risk factors for developing pre-eclampsia in women with pregestational diabetes include duration of diabetes, pre-existing hyperten-

sion, microalbumimuria and poor glycaemic control. The incidence of Polyhydramnios is reported to be between 16% and 29% and may be associated with preterm labour, premature rupture of membranes (PROM), sepsis, cord prolapse and an increased risk of stillbirth.[8] Normalization of glucose and preconception care for women with established diabetes reduces the incidence of fetal ma l formations and spontaneous abortions.[9]

CONCLUSION

There was a significant increase in the incidence of antenatal complications (IUGR, Pill and Hydramnios) and foetal complications (shoulder dystocia, hypoglycaemia and hypocalcaemia) in gestational diabetes as compared to normal pregnancies.

END NOTE

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