

## A Study on Fetomaternal Outcome in Gestational Diabetes Mellitus Complicating Pregnancy in a Tertiary Care Center

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### **Abstract:**

#### **BACKGROUND:**

Gestational diabetes mellitus means hyperglycemia in pregnancy. By definition it is “carbohydrate intolerance with onset or first recognition during pregnancy”<sup>1</sup>. In recent times there is increasing prevalence of pregnancies complicated by gestational diabetes mellitus. the worldwide prevalence ranges between 11-14%. The prevalence is slightly higher in the Indian population (16.5%)<sup>2</sup> as we Indians are inherently more vulnerable to get affected owing to our hereditary and genetic make up and ethnicity.

**STUDY DESIGN:** Prospective observational study

**PERIOD OF STUDY:** One year

#### **METHODOLOGY:**

Study involves 400 patients diagnosed with GDM (diagnosed by the 75g OGCT) attending Chengalpattu Medical College hospital during the study period. Height, weight, and blood pressure were measured at every visit. Through proper history taking and clinical examination and lab investigations these patients are followed up from antenatal period till six weeks postpartum and fetomaternal complications, perinatal outcome, the number of patients developing glucose intolerance postpartum (diagnosed by 75 g OGTT) are evaluated during the study period

**RESULTS:** In this study, the maximum population of GDM patients came under the age group 26-30 years (32.7%). Majority of the study population delivered via lower segment caesarean section (49%) out of which 21.2% delivered via elective LSCS and 27.8% delivered via emergency LSCS. It was observed that in the study population, the Caesarean section rate was higher in those women who were on insulin when compared to those on meal plan (p value=0.001) which was statistically significant. In this study, 238 out of 400 women were started on insulin (59.5%) and the remaining 162 women had their glycemic control achieved with meal plan alone. Pre eclampsia was seen in 26% of the study population (n = 104). Svere preeclampsia was seen in 17% (n = 68) and mild pre eclampsia was seen in 9% (n=36). PROM was seen in 68% of the study population. Out of the 400 gdm pregnancies, 380 were live birth (95%). intra uterine death was seen in 2% (n= 8). Out of these eight, 3 of them were preterm IUDs and the remaining 5 were term IUDs. Macrosomia (> 4kg) was seen in 13.1% of the babies (n = 53). Out of 400 pregnancies, shoulder dystocia and birth trauma was seen in 1.8% (n= 7).

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### **I. Introduction**

Gestational diabetes mellitus means hyperglycemia in pregnancy. By definition it is “carbohydrate intolerance with onset or first recognition during pregnancy”<sup>1</sup>. In recent times there is increasing prevalence of pregnancies complicated by gestational diabetes mellitus. the worldwide prevalence ranges between 11-14%. The prevalence is slightly higher in the Indian population (16.5%)<sup>2</sup> as we Indians are inherently more vulnerable to get affected owing to our hereditary and genetic make up and ethnicity.

The condition occurs exclusively in the antenatal period when there certain physiological maladaptations in the regulation of carbohydrate metabolism in pregnancy that turn out to be pathological contributing to the onset and progression of the condition. It can cause a wide range of complications as well as long term implications in both the mother and fetus. The severity of the condition should not be overlooked. The International Diabetic Federation found that one out of seven births in India is affected by GDM. A large proportion of women also progress to become overt diabetics in the future hampering with their quality of life by causing morbidity in various forms. Early detection and prompt management of this condition can tremendously reduce the short term and long term complications in both the mother and fetus.

### AIMS AND OBJECTIVE

- To study the prevalence of antepartum ,intrapartum and postpartum complications in patients with gestational diabetes mellitus
- To study the outcome of pregnancy in patients with gestational diabetes mellitus
- To study the incidence of patients with glucose intolerance/overt diabetes mellitus during the postpartum follow up of patients with gestational diabetes mellitus.

### II. Methodology

Study involves 400 patients diagnosed with GDM (diagnosed by the 75g OGCT) attending Chengalpattu Medical College hospital during the study period. Height, weight, and blood pressure were measured at every visit. Through proper history taking and clinical examination and lab investigations these patients are followed up from antenatal period till six weeks postpartum and fetomaternal complications , perinatal outcome ,the number of patients developing glucose intolerance postpartum (diagnosed by 75 g OGTT) are evaluated during the study period.

#### Inclusion criteria

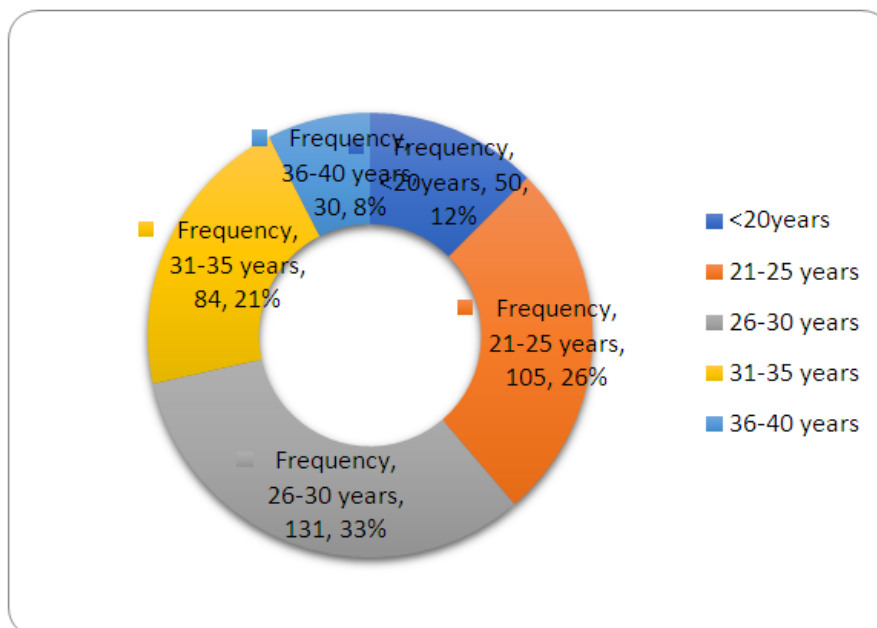
- Patients diagnosed with gestational diabetes mellitus (by 75g OGCT according to DIPSI guidelines)
- Singleton pregnancy

#### EXCLUSION CRITERIA:

- Chronic hypertension
- Patients with pregestational diabetes mellitus
- Patients on medications that can alter the glucose metabolism like steroids,antipsychotics,diuretics ,oral contraceptive pills,beta blockers
- Patients with abnormal thyroid profile
- Cushings syndrome
- Chronic medical illness
- Autoimmune disease
- Multiple pregnancy

### III. Results

#### 1. Age Distribution



2. Mode of delivery:

Mode of Delivery	Frequency	Percent
ELECTIVE LSCS	85	21.2
EMERGENCY LSCS	111	27.8
INSTRUMENTAL	20	5
LABOUR NATURA	184	46
Total	400	100

Majority of the study population delivered via lower segment caesarean section ( 49%) out of which 21.2% delivered via elective LSCS and 27.8 % delivered via emergency LSCS. The most common indications for emergency LSCS were the following in order

- Failed induction – 65.3 %
- Meconium stained liquor – 15.2%
- Fetal distress- 15.5%
- Cephalopelvic disproportion in labour -14%

The indications for elective lscs included

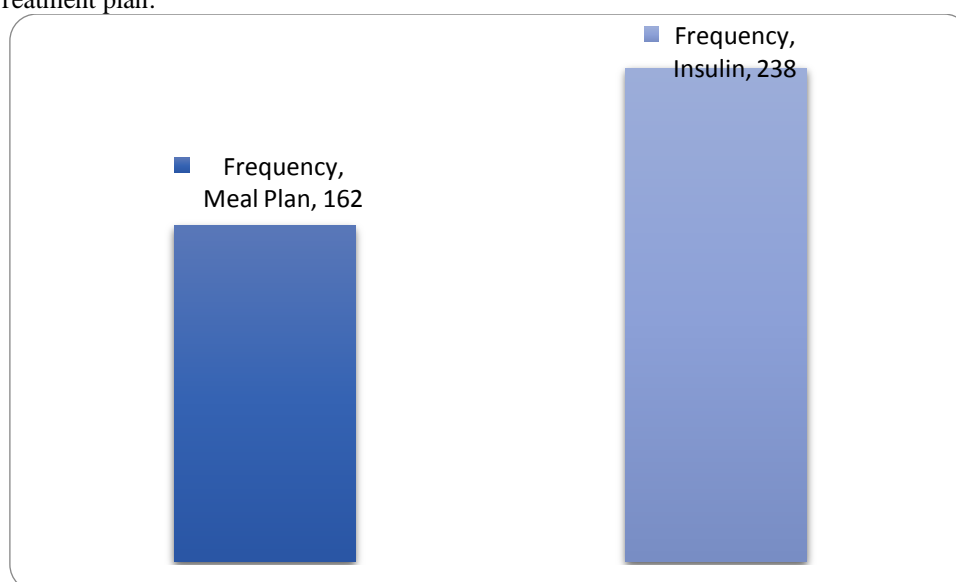
- Macrosmia
- Repeat LSCS

Out of 400 women , 175 women were primi gravida in whom the incidence of GDM was maximum (43.8%). 166 women were 2<sup>nd</sup> gravidas with a previous live child (41.5%). Higher order births constituted 11.7 % .

3. Gestational age at diagnosis:

Gestational Age	Frequency	Percent
< 20 weeks	16	4
20 – 28 weeks	34	8.5
28 – 34 weeks	105	26.2
34 – 36 weeks	217	54.2
>36 weeks	28	7
Total	400	100

4. Treatment plan:



5. Maternal complications:

In thi study, out of 400 women, 70 women had polyhydramnios (17.5%) .In these 70 women 44 women were on insulin and 26 women were on meal plan, 32 % of them underwent preterm labour. Pre eclampsia was seen in 26 % of the study population ( n = 104 ). Svere preeclampsia was seen in 17 % ( n = 68 ) and mild pre

eclampsia was seen in 9% (n=36). Among those who had severe preeclampsia 80% of them were on insulin (n=55) and the remaining 13% were on meal plan (n=13). 44 out of 400 gdm women had urinary tract infection. Out of these 44 women 32 women underwent preterm labour (72%), giving birth to low weight babies. Most of UTI was seen in late half of 1<sup>st</sup> trimester and the 2<sup>nd</sup> trimester. 8.8% had preterm labour (n=35). Most of them had associated complications of polyhydramnios and urinary tract infection indicating that these could be the causative factors for the preterm birth.

6. Fetal outcome:

Fetal Outcome	Frequency	Percent
IUD	8	2
Still Born	2	0.5
Live Birth	380	95
Early Neonatal Death	10	2.5
Total	400	100

Most (46.5%) of the babies born to GDM mothers had birth weight ranging from 2.5 to 3.5 kg (n=186). 11.6% of babies were low birth weight (n=46). Of these 46 babies, 35 were preterm. 28.8% (n=115) weighed between 3.6 to 4 kgs, Macrosomia (>4kg) was seen in 13.1% of the babies (n=53). Of these babies, 48 were born to mother who were on insulin and the p value was statistically significant (0.001). Shoulder dystocia and birth trauma was seen in 1.8% (n=7). The incidence of congenital anomalies was seen in 5.2% (21/400). 50% of these congenital anomalies occurred in early onset GDM (n=11), where the gestation age was less than 20 weeks.

7. Postpartum followup:

Post Partum OGTT	Frequency	Percent
Normal	287	71.8
Elevated	91	22.8
Loss to follow up	22	5.5
Total	400	100

Post Partum	Meal Plan	Insulin	OR	P
Normal	131	156	2.63	<b>0.001</b>
Elevated	22	69		

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