

## **Gestational Diabetes Mellitus with Foetal And Maternal Outcome : A Comparative Study in A Tertiary Care Hospital of Kolkata, west Bengal, India.**

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**Abstract:** Gestational diabetes mellitus (GDM) is any degree of glucose intolerance with onset or first recognition during pregnancy. It is a real threat to maternal and foetal health and complicates 3% to 5% of pregnancies. So the observational institution based study was undertaken to evaluate the relation between pregnancy-diabetes, hypertension, and foetal outcome (prematurity, macrosomia, APGAR score, congenital lesions) and maternal outcome (incidence of lower uterine caesarean section, sepsis) in case of GDM mothers (n=54) and normal pregnancy state (n=54). It was found that women with GDM are at significantly increased risk of hypertension compared with women who do not have GDM. Women with Sub-optimal control of blood glucose had a higher occurrence of macrosomia, premature labour, caesarean section. Women with GDM present a unique population in which early interventions targeting improvement of CVD risk factors can benefit a significant portion of the female population

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### **I. Introduction**

Gestational diabetes mellitus (GDM) is any degree of glucose intolerance with onset or first recognition during pregnancy. It is a real threat to maternal and foetal health and complicates 3% to 5% of pregnancies. Women with a history of GDM have an 18% -50% risk of developing type 2 diabetes mellitus (T<sub>2</sub> DM) within 5 years following pregnancy. This study is undertaken to evaluate the relation between pregnancy-diabetes, hypertension, and foetal outcome (prematurity, macrosomia, APGAR score, congenital lesions) and maternal outcome (incidence of lower uterine caesarean section, sepsis) in case of GDM mothers and normal pregnancy state.

### **II. Methodology**

It is an observational study. Vivekananda Institute of Medical Sciences, Ramakrishna Mission Seva Pratishthan, Kolkata. GDM patients admitted in obstetric ward. Approximately 108 patients. Simple random sampling, taking prevalence of gdm 16.55% in India and 1.3% in general female population using 95% confidence limits and 80% power sample size come to 108 (54 cases and 54 control) Patients having pre-gestational diabetes mellitus (PGDM), gestational diabetes mellitus (GDM) & previous GDM as per criteria determined by 'Diabetes in Pregnancy Study in India (DIPSI)'.  
N=108

### **III. Results**

After extensive study of 108 subjects among whom 54 cases were of GDM & 54 cases of control non-GDM mothers about their cardio-metabolic status over a period of 1 year in Ramakrishna Mission Seva Pratishthan & Vivekananda Institute of Medical Sciences in the department of endocrinology & department of gynaecology & obstetrics, we are now able to conclude the following :-

1. Women with GDM are at significantly increased risk of hypertension compared with women who do not have GDM. A diagnosis of GDM may provide an opportunity to intervene with high-risk women years before hypertension would normally present
2. Women with Sub-optimal control of blood glucose had a higher occurrence of adverse events measured by the composite outcome, which include the presence of macrosomia, premature labour, caesarean section..

IV TABLES

**Table1.** Relationship between gestational diabetes mellitus with maternal complications and outcome

Variables	Gdm	Non Diabetic	Total	P Value
Hypertensive				
Yes	13	2	15	0.017
No	41	52	93	
	54	54	108	
Lucs	Gdm	Non Diabetic	Total	0.066
No	22	14	36	
Yes	32	40	72	
	54	54	108	
Sepsis	Gdm	Non Diabetic	Total	0.462
No	50	52	102	
Yes	4	2	6	
	54	54	108	

**Table2.** Relationship between gestational diabetes mellitus with foetal complications and outcome

Variables	Gdm	Non Diabetic	Total	P Value
Premature Birth				
No	44	52	96	0.044
Yes	10	2	12	
	54	54	108	
Macrosomia	Gdm	Non Diabetic		
No	50	51	101	0.748
Yes	4	3	7	
	54	54	108	
Macrosomia	Hypertensive	Non Hypertensive	Total	0.098
No	10	40	50	
Yes	2	2	4	
	12	42	54	

IV. Discussion

In our study the prevalence of hypertension is more among GDM mothers than controls (23% vs. 3.3%, P value = 0.017, significant) emphasizing dysglycemia results in macro and micro-vascular complications independently. **Bond MJ et al<sup>1</sup>** in their study observed that about 20% of pregnant diabetic women suffer from gestational hypertension or pre-eclampsia.

Among 70 GDM mothers 13 patients had premature birth occurrence which is statistically significant event than the non – GDM mothers (18.6% vs. 3.3%, p value = 0.044, significant).

**Gillmer MDG et al<sup>2</sup>** in their study had shown that premature labour occurs up to 20% of diabetic pregnancies. **Perveen N et al<sup>3</sup>** in their ‘Experience at Sheikh Zayed Hospital’ in Lahore has shown that 38% of diabetic women delivered pre –term. Incidence of macrosomia in our study is 8.60% (among 70 GDM mothers 6 had LGA babies).

**Falls J et al<sup>4</sup>** in their study showed the incidence of macrosomia to be 25-40%. **MU Farooq et al<sup>5</sup>** in their study observed it to be 36%. Early detection of GDM and instituting in time, appropriate management with better glycemic achievement might have contributed to such an observation in our study. In our study incidence of delivery by caesarean section among GDM mothers was 60% compared to non-GDM mothers in whom delivery by CS was in 40% of cases.

**Ferchiou M et al<sup>6</sup>** in their study reported a 41.8% caesarean section rate among GDM mothers .The high percentage of caesarean deliveries in the present study was due to the fact that we considered macrosomia as a risk factor for shoulder dystocia and birth trauma, in planning the mode of delivery .Elective caesarean section was hence reserved for those diabetic women who had foetal macrosomia, history of previous C-section or had more than one risk factor. In our study incidence of macrosomia is more in poorly controlled GDM patients (40% versus 3.3% among well controlled patients, p value = 0.000, highly significant). **Persson et al<sup>7</sup>** divided 202 women with GDM randomly to treatment with diet alone or diet plus insulin. A subgroup of the diet- treated group (14%) had insulin treatment added when prescribed limits for hyperglycaemia were exceeded on the diet –alone protocol. Macrosomia was relatively low compared with such events in controls who had higher blood sugar values.

## **V. Conclusion**

Because of the strong association between GDM and future T2DM, many organizations worldwide recommend regular post partum screenings for T2DM amongst GDM women. Policies for the post –partum period should involve concomitant screening not only for T2DM, but also for CVD risk factors, such as blood pressure. Nevertheless, women with GDM present a unique population in which early interventions targeting improvement of CVD risk factors can benefit a significant portion of the female population

Conflict of interest-nil

## **Reference**

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