

Induction of Labor in Gestational Diabetes; Experience at a tertiary care hospital

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INTRODUCTION

The rising trend of Type 2 DM in South Asian population is reflected in an increasing rate of Gestational Diabetes Mellitus (GDM) which results in adverse perinatal outcomes. An early-term delivery by routine induction of labor is proposed to prevent/ reduce these complications. On the flip side, induction of labor would increase the risk of cesarean delivery,neonatal morbidity due to respiratory distress, and therefore expectant management can be continued where blood sugars are well controlled in the absence of maternal or fetal complications.

OBJECTIVE

To compare outcomes among women with gestational diabetes mellitus who were induced at different gestational ages at term with those whose pregnancy was managed expectantly

METHODOLOGY

This study was conducted between 1st January 2019 and 30th June 2020 at Aga Khan University Hospital, Pakistan. All women with singleton pregnancy who were diagnosed with GDM at any point of pregnancy were included.

We compared women who underwent induction of labor (IOL) between 37 and 37+6 weeks (37-IOL group) and women who remained undelivered between 38 and 40+6 weeks (37-expectant group). Similarly, we compared women who were induced at 38-38+6 weeks (38-IOL group) with women who remained undelivered between 39 and 40+6 weeks (38-expectant group). Furthermore, we compared women who underwent IOL at 39-39+6 weeks (39-IOL group) with women who had not delivered until at least 40+6 weeks (39-expectant group).

Data was collected on a structured performa and was analyzed in SPSS v.20.

RESULTS

During the study period, 8924 women gave birth at our hospital and out of those 293 were found to be eligible for the study. The baseline demographics of the study population and parameters related to GDM are shown in Table 1.

Variables	Statistics	
Age (Years)	29.49±4.77	
BMI (kg/m²)	27.97±5.11	
Gestational Age (weeks)		
- At diagnosis	27.42±5.71	
- At Induction	38.02±0.84	
Parity		
- Nulliparous	167. (57%)	
- Multiparous	126. (43%)	
Diagnosis of GDM		
- Fasting Sugar	10 (3.4%)	
- OGTT	209 (71%)	
- Sugar Series	74 (25%)	
Treatment		
- Diet	72 (24.6%)	
- Oral hypoglycemic drug	179 (61.1%)	
- Insulin	29 (9.9%)	
- Oral hypoglycemic drug + Insulin	13 (4.4%)	
Evidence of intrauterine growth restriction or abnormal doppler		
SGA (Normal dopplers)	7 (2.4%)	
IUGR (Abnormal Dopplers or growth < 3 rd centile)	6 (2%)	

Table 1: Baseline demographics and parameters related to GDM

VARIABLES	Weeks of Gestation								
	37 Weeks			38 Weeks			39 Weeks		
	Induction n=78	Expectant n=215	P-value	Induction n=151	Expectant n=64	P-value	Induction n=43	Expectant n=21	P-value
Treatment			0.076			0.072			0.010*
- Insulin	12(15.4%)	17(7.9%)		12(7.9%)	5(7.8%)		4(9.3%)	1(4.8%)	
- Metformin	44(56.4%)	135(62.8%)		99(65.6%)	36(56.3%)		29(67.4%)*	7(33.3%)	
- Insulin + Metformin	6(7.7%)	7(3.3%)		7(4.6%)	0		0	0	
- Diet	16(20.5%)	56(26%)		33(21.9%)	23(35.9%)		10(23.3%)	13(61.9%)	
Mode of delivery			0.945			0.938			0.747
- SVD	53(67.9%)	147(68.4%)		103(68.2%)	44(68.8%)		29(67.4%)	15(71.4%)	
- C/S	25(32.1%)	68(31.6%)		48(31.8%)	20(31.3%)		14(32.6%)	6(28.6%)	
Evidence of IUGR or abnormal Doppler									NA
Normal Dopplers	1(1.3%)	6(2.8%)	0.67	6(4%)	0(0%)	0.182	0	0	
Abnormal Dopplers	1(1.3%)	5(2.3%)	0.99	5(3.3%)	0(0%)	0.141	0	0	
Bishop Score at time of induction	4.09±1.83	4.19±1.74	0.67	4.31±1.69	3.91±1.81	0.123	4.02±1.84	3.67±1.77	0.465
Birth Weight (kg)	2.88±0.33	3.05±0.36	0.001	3.00±0.36	3.15±0.36	0.008	3.08±0.36	3.28±0.32	0.031
Apgar score at 5 min	8.91±0.29	8.94±0.24	0.381	8.93±0.26	8.97±0.17	0.24	8.98±0.15	8.95±0.22	0.606
NICU Admission	1(1.3%)	0	0.266	0	0	NA	0	0	NA
Blood Sugar level (mg/dl)	63[55.75-78]	64[55-81]	0.718*	64[55-84]	64[56-80]	0.871*	63[58-80]	65[55-77]	0.830*

Table 2: Characterisitics of Different Gestational Age Induction Versus Expectant groups.

RESULTS

Table 2 shows the comparison of different outcomes in women induced at 37, 38, and 39 weeks with their respective expectant groups. Multivariable logistic regression analysis was used to adjust for potential confounders such as maternal age, parity, insulin and metformin therapy, and BMI while studying the different characteristics of the induction and expectant groups.

CONCLUSION

The routine induction of labor due to gestational diabetes mellitus at 37, 38 or 39 weeks of gestation showed similar results in terms of mode of delivery and neonatal outcomes. We therefore propose that in situations, where there are concomitant indications (like fetal growth restriction) for delivery in GDM women, induction of labor can safely be offered at early term.