



Maternal and neonatal outcomes in controlled gestational diabetes undergoing induction of labor at early and late term – does timing matter?

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Objective

To compare maternal and neonatal outcomes in women with controlled gestational diabetes undergoing induction of labor at early and late term.

Methods

A retrospective cohort study of all women with singleton pregnancies and well-controlled gestational diabetes (either via appropriate diet or medication), undergoing induction of labor at the early term (37+0-38+6 weeks of gestation) and late term (39+0-40+6 weeks of gestation), in one university affiliated medical center (2014-2016). Exclusion criteria: pre-gestational diabetes, multiple gestations and elective cesarean section. Maternal outcomes collected: post-partum hemorrhage (PPH), blood products transfusion, and cesarean or instrumental delivery. Neonatal outcomes recorded: neonatal intensive care unit (NICU) admission, Respiratory distress syndrome (RDS), hypoglycemia and jaundice. Maternal and neonatal outcomes were compared between groups. P value < 0.05 was considered significant.

Results

Overall, 430 women met the inclusion criteria. Amongst them, 193 (44.88%) were induced at early term and 237 (55.11%) were induced at late term. No differences were noted in maternal age and BMI ($p > 0.05$). There was a significantly higher rate of hypertension of any kind and specifically pre-eclampsia, in women induced at early term (11.04% vs. 4.26%, $p = 0.021$, and 5.92% vs. 1.60%, $p = 0.04$, respectively). There were no differences in maternal outcomes between early and late term, including rates of cesarean and instrumental delivery (9.33% vs. 10.13%, and 12.95% vs. 11.39%, respectively, $p = 0.864$), and rates of PPH (3.29% vs. 2.15%, $p = 0.736$). Groups were comparable regarding neonatal outcomes, including birth weight (median 3383g vs. 3320g, $p = 0.068$), PH (median 7.34 vs. 7.34, $p = 0.386$), need for NICU (3.63% vs. 2.53%, $p = 0.578$), respiratory composite outcome (2.07% vs. 1.69%, $p = 1.0$) and hypoglycemia (0.52% vs. 0%, $p = 0.449$). Rates of composite maternal outcome and composite neonatal outcome did not differ between groups (OR 0.92, 95% CI 0.59-1.44, $p = 0.73$, and OR 0.78, 95% CI 0.47-1.3, $p = 0.36$, respectively).

Conclusion

Women with controlled gestational diabetes may be safely induced at early term, when other indications exist, without a rise in adverse maternal or neonatal outcomes.

Table 1 – Baseline Maternal Characteristics

Variable	Early term (N=193)	Full term (N=237)	p-value
Age (years)	33(22-44)	33(21-46)	0.814
BMI (Kg/m ²)	25.75(18.13-42.97)	25.07(17.30-48.5)	0.195
VBAC	1(0.52)	5(2.11)	0.230
Any hypertension ^a	17(11.04)	8(4.26)	0.021
Preeclampsia	9(5.92)	3(1.60)	0.04

Continuous variables are presented as median (range) and categorical numbers are presented as n(%).

VBAC – Vaginal Birth after Cesarean;

^aAny hypertension – Including gestational hypertension and chronic hypertension.

Table 2 – Maternal and Neonatal outcomes

Maternal outcomes	37-38 weeks (N=193)	39-40 weeks (N=237)	p-value
PPH	5(3.29)	4(2.15)	0.736
Maternal need for transfusion	1(0.66)	1(0.54)	1.0
Fever	3(1.99)	3(1.60)	1.0
Mode of delivery			0.864
NVD	150 (77.72)	186(78.48)	
VE	25(12.95)	27(11.39)	
CS	18(9.33)	24(10.13)	
Neonatal outcomes			
Birthweight (grams)	3283(2064-4372)	3320(2460-4324)	0.068
Apgar 1 min	9(1-9)	9(2-9)	0.931
Apgar 5 mins	10(3-10)	10(4-10)	0.701
Ph	7.34(7.06-7.48)	7.34(6.78-7.56)	0.386
NICU	7(3.63)	6(2.53)	0.578
SGA	0(0)	1(0.42)	1.0
LGA	3(1.55)	1(0.42)	0.330
Jaundice	31(16.06)	30(12.66)	0.333
TTN	2(1.04)	1(0.42)	0.590
RDS	0(0)	0(0)	
Respiratory composite	4(2.07)	4(1.69)	1.0
Fracture of clavicle	3(1.55)	3(1.27)	1.0
Acidosis	0(0)	1(0.42)	1.000
Hypoglycemia	1(0.52)	0(0)	0.449

Continuous variables are presented as median (range) and categorical numbers are presented as n(%).