



Delivery and Neonatal Outcomes of Term Pregnancy beyond 40 Weeks⁺

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Objective: The purpose of the study was to determine delivery and neonatal outcomes beyond 40 weeks of gestation.

Materials and Methods: From January, 2005, through December 2005, 242 consecutive women presenting at 40 weeks' of gestation or more who were candidates for labor were reviewed in a retrospective manner. Patient ages, parity, gestational ages were recorded. Delivery outcomes and perinatal complications were main outcomes. Cesarean delivery rates were calculated for patients at 40 (n = 139), 41 (n = 83) and 42 (n=20) weeks and were compared with rates for patients who had spontaneous labor.

Results: Mode of delivery was similar in three groups (p = 0.86). Umbilical cord pH (p=0.39) and neonatal intensive care unit admission (p = 0.27) were similar in all groups.

Conclusion: In our study group, mode of delivery and neonatal outcome did not differ with increasing gestational age.

Key Words: Mode of delivery, neonatal outcomes, prolonged pregnancy.

40. Gebelik Haftasından Sonra Doğum ve Neonatal Sonuçlar

Amaç: Çalışmanın amacı 40. gebelik haftasından sonra doğum şekli ve neonatal sonuçların değişip değişmediğini incelemektir.

Materyal-Metod: Çalışmada 1 Ocak 2005 tarihinden Aralık 2005'e kadar kliniğimize eylemde başvurmuş 40. gebelik haftası ve sonrasında olan gebeler retrospektif olarak tarandı. Hasta yaşı, paritesi ve gebelik yaşı kaydedildi. Doğum şekli ve perinatal komplikasyonlar incelendi. Doğum şekli, doğum ağırlığı, göbek kordonu arter pH değerleri ve yenidoğan yoğun bakım ünitesine kabul oranları 40. gebelik haftası (n = 139), 41. gebelik haftası (n = 83) ve 42. gebelik haftası için (n = 20) hesaplandı ve her bir gebelik haftası ile karşılaştırıldı.

Bulgular: Doğum şekli üç grupta da benzerdi (p = 0.86). Göbek kordonu kanı pH değerleri (p = 0.39) ve yenidoğan yoğun bakım ünitesine yatış (p = 0.27) da üç grupta anlamlı farklılık göstermemekteydi.

Sonuç: Çalışma grubumuzda doğum şekli ve neonatal sonuçlar gebelik yaşının artmasıyla değişmemiştir.

Anahtar Kelimeler: Doğum şekli, neonatal sonuçlar, uzamış gebelik.

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Prolonged pregnancy, defined as any pregnancy that reaches 42 weeks' of gestation, is associated with an increased risk of perinatal mortality and morbidity. These include asphyxia, aspiration, bone fracture, perinatal death, pneumonia and septicemia.¹ The reported incidence of prolonged pregnancy ranges from 5% to 10 %.²

A combination of non-stress test and amniotic fluid index starting from the end of the 41st week appears to be a reasonable approach,³ but there is lack of general consensus in the literature with regard to benefits and risks of this policy. The other option is elective induction of labor.⁴ A Cochrane review⁵ of 19 randomized controlled trials found that routine labor induction at 41 weeks' of gestation resulted in lower perinatal mortality but similar cesarean delivery rates. For patients with a gestational age of 41 weeks, after discussion with patient about risks and benefits of labor induction, patient and physician will choose the best option for the patient in low-risk pregnancies. If expectant management comes to scene, antenatal surveillance should be started. The antenatal fetal surveillance in

these patients is based on ultrasound assessment of amniotic fluid index (AFI) twice weekly after 40 weeks and non-stress test. If no problem exist, expectant management may continue until week 42 is complete.

The purpose of the study was to determine whether delivery and neonatal outcomes change beyond 40 weeks of gestation.

MATERIALS AND METHODS

We designed a retrospective study to determine whether delivery and neonatal outcomes change beyond 40 weeks of gestation. Our institution is a tertiary level center with approximately 2000 deliveries. Data were acquired from medical records. From January 1, 2005, through December, 2005, 242 consecutive women presenting at 40 weeks' gestation or more who were candidates for labor were reviewed. For this study, preterm deliveries (n=192) and multiple births (n=57) were excluded from the analysis. Gestational age was determined according to the date of the last menstrual period preceded by regular cycles and confirmed by ultrasonography at early weeks.

Patient age, gestational age and parity were recorded. Delivery outcomes and perinatal complications were used to determine outcome. Cesarean delivery rates were calculated for patients at 40, 41 and 42 weeks and were compared with rates for patients who had spontaneous labor. Birth weight, umbilical cord pH and neonatal intensive care unit admission were recorded. Measurements of the pH in the umbilical cord blood may help to identify the fetus in serious stress.

Statistical analysis was done with SPSS 12 (SPSS, Chigaco, IL). A significance level of $p < 0.05$ was used for all tests. Kolmogorov-Smirnov analyses were used

to test if the results were normally distributed. Analysis of variance with the Kruskal-Wallis test was used when three groups were compared. After the difference was detected between the groups, the groups were compared for statistical significance using the Mann-Whitney U-test.

RESULTS

There were 1743 singleton deliveries at our institution during the study period. There were 139 patients who were delivered at 40 weeks of gestation. Twenty patients were at or beyond 42 weeks' gestation. The demographics of maternal age, gravidity, parity and pregnancy complications were similar between the three study groups (Table I).

Prostaglandin E₁ (misoprostol) was administered to 42 women at 40 weeks. Thirty four (41%) women presenting at 41 weeks' gestation with a Bishop score of $< \text{ or } = 4$ received prostaglandin E₁. Labor was induced in nearly 30 % of patients at 42 weeks. For patients at any week who had induction of labor, the risk of cesarean delivery was not increased. Also, the risk of cesarean section was not significantly different in three groups. When birth weights were examined by week of gestation, there were no significant differences in three groups. Umbilical cord pH and neonatal intensive care unit admissions were similar between the three groups (Table II).

DISCUSSION

Clinicians must balance the risk of delivery against the fetal or maternal complications of continuing pregnancy. Such risks include prolonged labor, increased analgesic requirements, increased intervention (invasive antenatal testing, operative vaginal delivery, failed induction and caesarean section) and ultimately increased maternal morbidity.⁶

Table I. Characteristics of patients categorized by gestational age

	40 weeks (n=139)	41 weeks (n=83)	42 weeks (n=20)	P
Age (years)*	26.2 ± 5.4	26.3 ± 5.2	26.2 ± 4.4	0.99
Gravida**	2 (1-16)	2 (1-16)	2 (1-6)	0.62
Parity**	1 (0-9)	1 (0-13)	0.5 (0-4)	0.80
Antenatal care (n, %)				
Without complication	123 (88.5)	73 (88)	15 (75)	0.34
Hypertensive disorders	11 (7.9)	9 (10.8)	4 (20)	
Diabetes mellitus	3 (2.2)	0 (0)	0 (0)	
Others	2 (1.4)	1 (1.2)	1 (5)	

* Values are mean ± standard deviation

** Values are median (minimum-maximum)

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Table II. Delivery and neonatal outcomes

	40 weeks (n=139)	41 weeks (n=83)	42 weeks (n=20)	P
Mode of delivery (n,%)				
Vaginal delivery	92 (66.2)	54 (65.1)	12 (60)	0.86
Cesarean delivery	47 (33.8)	29 (34.9)	8 (40)	
Induction of labor (n,%)				
Misoprostol	42 (30.2)	34 (41)	6 (30)	0.27
Oxytocin	5 (3.6)	5 (6)	0 (0)	
C/S indications (n,%)				
Fetal distress	14 (29.8)	13 (44.8)	3 (37.5)	0.63
Malpresentation	3 (6.4)	3 (10.3)	2 (25)	
Previous C/S	15 (31.9)	3 (10.3)	1 (12.5)	
CPD	6 (12.8)	3 (10.3)	1 (12.5)	
Tubal ligation	3 (6.4)	3 (10.3)	0 (0)	
Placenta previa	1 (2.1)	0 (0)	0 (0)	
Others	5 (10.6)	4 (13.8)	1 (12.5)	
Birth weight (g)*	3314±486	3334±492	3362±575	0.90
Cord pH*	7.2±0.1	7.3±0.1	7.2±0.1	0.39
NICU admission (n,%)	1 (0.7)	1 (1.2)	1 (5)	0.27

C/S: Cesarean section, CPD: Cephalopelvic disproportion, NICU: Neonatal intensive care unit admission

*Values are mean ± standard deviation

In contrast to our study, Caughey et al ⁷ found that the rates of immediate neonatal morbidity increased with increasing gestational age. Accurate determination of these rates was important in the determination of gestational age at which the risk of continuing the pregnancy outweighed the risk of induction of labor.

Another study by Alexander et al ⁸ compared labor characteristics and neonatal outcomes of pregnancies at 40, 41 and 42 weeks' gestation. They found that labor complications (including oxytocin induction, length of labor, and prolonged second stage of labor, forceps use and cesarean delivery) increased from 40 to 42 weeks. Neonatal outcomes were similar in the three groups.

Otoide and Okonofua ⁹ evaluated whether routine induction of labor at 41-42 weeks of gestation has an increased risk for operative delivery, maternal or fetal complication compared with spontaneously initiated labor of similar gestation. There was no significant difference in caesarean section rates in the induction group, compared with spontaneously initiated labor. Fetal complications were similar.

Çağlar and Avşar ¹⁰ also determined the mode of delivery and fetal distress rates after 40 completed weeks of gestational age. 75% of the patients were at 40 completed weeks of gestational age, 20% were at 41 completed weeks of gestational age, 4.85% were at 42 completed weeks of gestational age. In their study, cesarean delivery and fetal distress rates were increased after 40 completed weeks of gestational age.

Another study from our country by Argüloğlu et al ¹¹ aimed to find out the incidence of macrosomia and the best approach to the delivery of postterm pregnancy and revealed the incidence of macrosomia to be 23.5%. Cesarean section rate was 30% in postterm group and 17% in term group ¹¹

Based on different results from different studies, debate on optimum management option continues.¹² In our study group, mode of delivery and neonatal outcome did not differ with increasing gestational age. This may bring expectant management until week 42 is complete in low-risk patients. Larger prospective studies are needed to draw more firm conclusions.

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