

Study of the Feto-Maternal Outcomes at Late-Term Pregnancy in a Tertiary Level Hospital in Western Nepal

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ABSTRACT

Introduction: The incidence of prolonged pregnancy is 7%. There is an increased risk to the fetus after 41 weeks of gestation due to a decrease in placental function, oligohydramnios, and meconium aspiration. The risk to the mother also increases leading to an increased incidence of cervical tear, perineal injury, labour dystocia, operative deliveries, and postpartum hemorrhage.

Method: This was an observational, prospective cross-sectional study. A hundred and eleven women at and beyond 41 weeks of gestation fulfilling the inclusion criteria, were included in the study. Data entry and analysis were done using the latest SPSS software version 21 Fisher exact test was used and were depicted in tables, diagrams and charts as required.

Result: Majority of the women had cesarean section 62.2% (n=69), 33.7% (n=37) delivered vaginally and 4.5% (n=5) had assisted vaginal delivery. The most common indication for cesarean section was meconium-stained liquor (20.3%, n=14). Only one woman had postpartum hemorrhage (PPH), one had retained placenta and one had pre-eclampsia. Altogether 10.8% (n=12) neonates needed admission. The adverse fetomaternal outcomes were similar in 41-41 6/7 weeks and completed 42 weeks and beyond the gestational age (p=0.64).

Conclusion: Late-term pregnancy is associated with a higher incidence of cesarean section. However, there was no statistical difference in the feto-maternal outcome at 41-41 6/7 weeks and 42 and beyond weeks of gestation.

Keywords: *Cesarean Section; Pregnancy Outcome; Pregnancy, Prolonged*

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INTRODUCTION

A singleton pregnancy lasts an average gestational period of 40 weeks (280 days) from the first day of the last menstrual period to the estimated date of delivery.¹ Previously, the term pregnancy was considered from 3 weeks before until 2 weeks after the estimated



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date of delivery, that is 37 completed weeks to 42 completed weeks of gestation considering the neonatal outcome in this period was good and uniform. However, it was found that the neonatal outcomes vary depending on the timing of delivery within these 5 weeks of gestational age. The neonatal outcomes were good at 39 to 40 6/7 weeks of gestation. Hence, the pregnancy between 37 0/7 weeks through 38 6/7 weeks is considered early term, 39 0/7 weeks through 40 6/7 weeks is considered full term, 41 0/7 through 41 6/7 weeks is considered late term, and 42 0/7 and beyond is considered post-term pregnancy.² The WHO and the International Federation of Gynaecology and Obstetrics have accepted the terms: postmaturity; post-date; post-term; and prolonged pregnancy to describe pregnancy beyond the expected date of delivery.³ The incidence of prolonged pregnancy is 7%.⁴ Prolonged pregnancies have increased the risk to both mother and fetus. Several studies have shown that postdated and post-term pregnancies are associated with increased neonatal and maternal morbidity and mortality. There is the possibility of meconium-stained liquor, oligohydramnios, non-reassuring fetal heart rate (NST), poor Apgar score, increased operative delivery, and an increase in neonatal intensive care unit (NICU) admission, and stillbirth.^{5,6,7,8,9} The perinatal morbidity and mortality increase with the increase in gestational age after 40 completed weeks of gestation.^{10,11} There is also a risk to the mother leading to increased incidence of cervical tear, perineal injury, labour dystocia, operative deliveries, and postpartum hemorrhage.^{7,12} There is an increased risk to the fetus after 41 weeks of gestation due to a decrease in placental function, oligohydramnios, and meconium aspiration. The perinatal mortality is twice at 42 weeks of gestation as compared to 40 weeks of gestation and increases to four-fold at 40 to 43 weeks of gestation and five to seven-fold at 44 weeks.^{13,14}

The present study aims at finding the maternal and fetal outcome, mode of delivery, maternal

complications, and need for NICU admission.

METHODS

This was an observational, prospective cross-sectional study that was conducted in the department of Obstetrics and Gynecology, Manipal Teaching hospital, Pokhara. The study was conducted after ethical approval.

All the women beyond 41 completed weeks booked and unbooked in our hospital and willing to participate in the study fulfilling were included. Detailed history regarding a menstrual cycle, flow, and use of contraceptives were taken. Gestational age was calculated from the last menstrual period if the cycle was regular (i.e duration of 302 days and flow of 5-8 days). If the cycle was irregular, then gestational age was confirmed by the ultrasound performed between 11-14 weeks of gestation or between 18-22 weeks of gestation whichever was available as ultrasound performed in these gestational ages has similar accuracy.¹⁵ Pregnant women less than 41 weeks of gestation, not willing to participate in the study, irregular menstrual history without early ultrasound (USG), previous history of a scarred uterus, multiple pregnancies, malpresentation, congenital anomaly fetus, obstetric complications like hypertensive disorders in pregnancy, cephalopelvic disproportion, antepartum hemorrhage and high-risk pregnancies like diabetes, heart disease, and other medical problems were excluded from the study.

The mode of delivery, indications for operative deliveries, fetal outcome (birth weight, APGAR score at 5 minutes, IUFD, neonatal death), and NICU admission with indications were recorded. The cases were followed till discharge.

The sample size was calculated using the following formula: $N = Z^2 \times p(1-p) / d^2$ where, N= desired sample size, Z= reliability quotient (1.96 for 95% reliability), p= prevalence calculated from the previous study where prevalence is equal to 7%.⁴ d= margin of error. The sample size was calculated as 100

and adding 10% for dropouts, the estimated sample size is taken as 100. However, 111 women were included in the study.

All the data were noted in the proforma. Data entry and analysis were, done using the latest SPSS software version 21 Fisher's exact test was used and was depicted in tables, diagrams and charts as required.

Table 1: Distribution of patient and adverse maternal and fetal outcomes based on the gestational age

Period of Gestation	Normal Outcome	Adverse maternal and Fetal outcome	Total	p-Value
41 weeks	6	1	7	
42 weeks	90	14	104	
Total	96	15	111	0.64

Table 2: Maternal complications

Complication	Frequency	Percentage(%)
None	108	97.3%
PPH	1	0.9
Pre-eclampsia	1	0.9
Retained placenta	1	0.9
Total	111	100

PPH: Postpartum hemorrhage

RESULTS

A total of 111 postdated ladies were included in our study. Overall, the mean age was 25.9 ± 4.6 years with an age range of 18 to 38 years. Most of the ladies were second gravida (41.4%).

Ladies were divided into two groups based on the gestational age by last menstrual period. Ladies with gestational age between 41 weeks and 41 weeks 6 days were included in the 41weeks group and ladies with gestational age 42 weeks and above were included in the 42 weeks group. Fisher's exact test was used to see the association between the gestational age and maternal and fetal complications (Table 1). There was no significant association ($p=0.64$) between the two gestational age

groups and adverse fetomaternal outcomes. Conditions like NICU admission and maternal complications like PPH, Preeclampsia, and retained placenta were included in the adverse fetomaternal outcome group. There was no neonatal death (Table 2).

The lower section caesarian section (LSCS) was done in 69 patients(Table 3). Meconium-stained liquor was the most common indication for LSCS (Table 4).

Most of the ladies had an uneventful pregnancy. NICU admission was required in 12 children with a mean hospital stay of 3.5 ± 2.1 days. NICU stay ranged from 1 to 7 days.

Table 3: Mode of delivery

	Frequency	Percentage (%)
Vaginal	37	33.3
LSCS	69	62.2
Assisted vaginal delivery	5	4.5
Total	111	100

Table 4: Indications for cesarean section

Indication of Caesarian section	Frequency	Percentage
Abruption placenta	1	1.4
Oligohydramnios	9	13
Previous lower segment cesarean sections	7	10.1
Severe pre-ec lampsia	1	1.4
Breech Presentation	4	5.8
Cephalopelvic disproportion	12	17.4
Failed I5duction	1	1.4
Meconium stained liquor	14	20.3
Foetal Bradycardia	8	11.6
Nonreassuring NST	3	4.3
Nonprogress of labor	7	10.1
Oblique lie	2	2.9
Total	69	100

LSCS: Lower section cesarean section

DISCUSSION

The present study was conducted to assess the pregnancy outcome beyond completed 41 weeks of gestation which included the mode of delivery, maternal complications like PPH, retained placenta, pre-eclampsia, indication for cesarean section, and fetal morbidity which include NICU admission.

Nulliparity is one of the factors associated with prolonged pregnancy.¹⁶ However, in this study, the incidence of prolonged pregnancy was more in multigravida (64%, n=71). This is similar to the study conducted by Akhter et al., where 51.8% of patients were multigravida.¹⁷ Similarly, a study conducted by Naz et al. has also shown that prolong pregnancy was more in multigravida (58.33%).¹⁸

Several studies have shown that prolong pregnancy is associated with adverse fetomaternal outcomes which include NICU admission, pre-eclampsia, retained placenta, and increased risk of feto-maternal morbidity.^{5,6,7,12,13} In the study conducted by Kandalgaonkar and Kose, 5.20% had PPH, and there were 2 stillbirths and 1 neonatal death.¹⁹ However, in our study, one had PPH, one had Retained placenta and one had pre-eclampsia. There was no stillbirth, IUFD, and neonatal mortality.

Approximately 7% of pregnancy is prolonged beyond the expected date of delivery.⁴ The risk of perinatal morbidity and mortality increases from 0.7% to 5.8% as the pregnancy prolongs from 37 to 43 weeks of gestation.²⁰ However, in this study there was no significance (p=0.64) in the adverse fetomaternal outcome between 41- 41 6/7 weeks and 42 completed and beyond weeks of gestation.

In this study, 62.2% (n=69) underwent LSCS, 33.3% (n=37) had vaginal delivery and 4.5%(n=5) had assisted vaginal delivery. Studies conducted by Katz et al. and Chaudhary et al. have shown that the numbers of cesarean sections were more in postdated pregnancy as compared to normal pregnancy.^{21,22} Other studies, however, have shown vaginal delivery more as compared

to cesarean section.^{19,23} The most common indication for LSCS was meconium-stained liquor (20.3%, n=14)., followed by cephalopelvic disproportion(17.4%, n=12). This is consistent with the several studies which show that the most common indication for LSCS was fetal distress (meconium-stained liquor).^{19,21,23} Only 10.8% (n=12) had NICU admission., the common indication being respiratory distress. However, there was no neonatal mortality. This was similar to the study conducted by Chaudhary et al., which showed that transient tachypnea of newborns was a common factor requiring NICU admission.²¹ Similarly, a study done by Kandalgaonkar et al., has also shown that the primary reason for NICU admission was respiratory distress.¹⁹

CONCLUSION

Late-term pregnancy is considered high risk given the feto-maternal outcome. It is associated with a high incidence of cesarean section, meconium-stained liquor being the most common cause. The adverse feto-maternal outcome in regards to postpartum hemorrhage, retained placenta, pre-eclampsia, and NICU admission is statistically not significant in 41-41 6/7 weeks gestation and 42 weeks and beyond gestational age. However, this study reflects only a certain geographical area.

CONFLICT OF INTEREST

None

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None

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