Maternal and Perinatal Outcome in Pregnancy beyond 40 Weeks

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ABSTRACT

Background: Fetal, Neonatal and Maternal complications associated with pregnancy beyond 40 weeks have always been underestimated. However emerging evidence demonstrates that the incidence of complications increases after 40 weeks of gestation. The present study is conducted to find out the fetomaternal outcome of such prolonged pregnancy.

Methods: This is a prospective cross sectional observational study of 100 patients with uncomplicated prolonged pregnancy fulfilling the inclusion and exclusion criteria.

Results: Out of 100 patients, 68 (68%) were in the age group of 18-25 years, majority cases were multigravida 51 (51%), 68 (68%) were between 40-41 weeks of gestation and 28 (28%) were between 41-42 weeks of gestation. Overall caesarean section rate was 44%, in whom most common indication being meconium stained liquor with fetal distress (34.1%), fetal distress (14%) was the most common fetal complication and oligohydromnios (16%) was the most common maternal complication.

Conclusions: With Regular antenatal check-up, incidence of postdated pregnancy can be decreased as it is associated with increased perinatal morbidity and mortality. Confirmation of diagnosis of exact term of pregnancy is very important as many patients don't have regular menstrual history and LMP.

Keywords: Prolonged pregnancy, Fetal distress, Meconium aspiration syndrome, Primigravida.

I. INTRODUCTION

Term pregnancy was defined as a pregnancy with gestational age from 3 weeks before till 2 weeks after the estimated date of delivery and post-term pregnancy as a pregnancy with a gestational age of 42 completed weeks or more.¹ The reported frequency of post term pregnancy is approximately 7%.²

The frequency of adverse neonatal outcome is lowest among uncomplicated pregnancies delivered between 39 and 40 weeks of gestation.^{3,4}

The most frequent cause of prolonged pregnancy is inaccurate dating.^{5,6} The risk factors are primiparity, maternal genetic factors, prior postdatism, obesity and male gender of the fetus.^{7,8} Criteria for diagnosing postdates are correlation of menstrual history, clinical findings and USG. Ultrasonographic dating in early pregnancy can improve reliability of EDD.

Complications to both mother and fetus are seen in postdated pregnancies. It has been reported that in a pregnancy which has crossed the expected date of delivery; there is an increased risk of oligohydramnios, meconium stained amniotic fluid, macrosomia, fetal postmaturity syndrome, and cesarean delivery, all of which jeopardize the baby as well as the mother. Prolonged pregnancy has always been regarded as a high-risk condition because perinatal morbidity and mortality is known to rise.⁹

The maternal risks include an increase in labor dystocia, an increase in severe perineal injury related to macrosomia and operative vaginal delivery and an increase in the rate of cesarean delivery and postpartum hemorrhage.^{10, 11}

The interest in postdatism (just beyond expected date of delivery) has been recent and the management is controversial, more so with the advent of sonography providing information about placental aging and amount of amniotic fluid.^{9,12,13} The aim of the present study was to analyze the outcome of pregnancies which crossed the expected date of delivery.

Most of the obstetricians prefer termination of pregnancy before 42 weeks as the risk of fetal mortality is doubled in pregnancies which have crossed 42 weeks than the pregnancies at 40 weeks.¹⁴ The purpose of our study is to find out mode of delivery, maternal and neonatal outcome in pregnancy beyond 40 weeks.

II. METHODS AND MATERIAL

This study includes both primigravida and multigravida beyond 40 weeks of gestation admitted from September 2017 to August 2018 in labour ward, 100 bed hospitals, Saidpur, Nilphamari.

Study design

The study design was prospective cross sectional observational study.

Setting

The study was conducted at labour ward, 100 beded hospital, Saidpur, Nilphamari.

Duration of study

Duration of the study was one year from September 2017 to August 2018.

Sample size

The sample size was one hundred.

Sampling technique

Sampling technique was nonrandom sampling (purposive) method.

Sample selection

Inclusion Criteria

1. Those who crossed expected date of delivery

- 2. Singleton pregnancy
- 3. Cephalic presentation.
- 4. Surity of dates
- 5. One first trimester USG

Exclusion Criteria

1. Any associated complications such as previous lower segment cesarean section (LSCS), malpresentations, placenta previa, abruption, PIH, gestational diabetes, anemia, and other medical complications 2. Fetal anomalies.

Methods

This is a prospective cross sectional study done in labour ward of 100 beded Hospital, Saidpur, Nilphamari. Patients attended ANC at OPD and patients admitted in labor wards were included with consideration of inclusion and exclusion criteria.

Total 100 patients were selected according to the clinical examination of the patient after per abdominal examination and per vaginal examination¹⁵ i.e. assessment of bishop's score¹⁶.

Bishop score >6 is regarded as a favourable cervix and 5 are regarded as unfavourable. To all patients history of good perception of fetal movements was asked and correlated with the history and well being of the fetus. A patient was considered postdate, corelating her LMP (Naegele's rule¹⁷), clinical examination and obstetric ultrasound findings.

Fetal heart rate record was kept half hourly in the first stage and every 15 minutes in the second stage of labor. After ARM the color of liquor was noted, can be clear, meconium tinged, meconium stained, or thick meconium. If the liquor was thick meconium and spontaneous delivery was not possible, then the decision of LSCS was taken. If the liquor was meconium stained or meconium tinged then the decision of LSCS was taken according to the fetal heart rate after thorough monitoring. Winkel et al empirically set the limits of normal fetal heart rates of 120-160 b/min.¹⁸ Fetal distress was defined as an abnormality of fetal heart rate necessitating that the obstetrician terminate labor by assisted vaginal delivery or caesarean section. Accordingly the mode of delivery, maternal and perinatal outcome was studied.

Table 1: Bishop score classification					
Score	0	1	2	3	
Cervical dilatation	0	1-2	3-4	5+	
Cervical length	3	2	1	1	
Station	-3	-2	-1,0		
Consistency	Firm	Moderate	Soft		
Position	Posterior	Middle	Anterior		

The patients who were not in labor and were for the induction after evaluation, cervical ripening agent Misoprostol 50 mg was used.

Then the patients were observed for uterine contractions and strict fetal heart rate monitoring. After 4 hrs of Misoprostol instillation per vaginal examination was done and repeated if needed with the same prerequisites.

Again after 4 hrs per vaginal examination was done and if cervix was favourable, oxytocin augmentation was done after assessing the uterine contractions.

Augmentation was done with amniotomy with good cervical dilatation and oxytocin drip started as per need. If per vaginal findings were same after second (repeat instillation), it was labelled as failure of induction,

and decision of caesarean section was taken. The color of liquor was seen after amniotomy, if it was meconium tinged, stained or thick meconium, then the decision was taken for Caesarean section and the maternal and fetal outcome was studied. The data gathered of all 100 patients analyzed. The primary aim is to know maternal and neonatal outcome in the form of maternal and neonatal morbidity and mortality.

Perinatal morbidity by low APGAR score meconium aspiration syndrome, neonatal intensive care unit (NICU) admission and mortality if any. Maternal morbidity as atonic PPH, 3rd degree and 4th degree perineal tear.

Other measures studied were mode of delivery and need for caesarean section. Patients were followed up to 7 days after delivery; maternal and fetal morbidity or mortality was recorded.

Statistical analysis

Statistical analysis was performed using descriptive and inferential statistics using Chi-square test. Software used in the analysis was SPSS 17.0 version.

Observation and Result:

Maximum 68% cases were of age group 18–25 years, 22% cases were of age group 26–30 years, and only 10% cases were of age group 31–35 years mean \pm standard deviation 24.56 \pm 2.75 (18–35 years) [Table 1]. Sixty-two percent patients were uneducated and 38% were educated [Table 2].

Fifty-four percent booked cases and 46% unbooked cases [Table 3].

Maximum, i.e., 68% cases were of gestational age between 40 weeks 1 day and 41 weeks and 28% cases were of gestational age between 41 weeks 1 day and 42 weeks [Table 4].

Maximum cases (51%) were multigravida [Table 5].

A total number of vaginal deliveries were 56, out of which 48 cases were of gestational age 40 weeks 1 day to 41 weeks and 8 cases were of gestational age 41 weeks 1 day to 42 weeks. A total number of cesarean sections were 44, out of which 20 cases were of gestational age 40 weeks 1 day to 41 weeks and 20 cases were of gestational age 41 weeks 1 day to 42 weeks. [Table 6].

The most common indication for cesarean sections was meconium stained liquor with fetal distress (23.53%), in 22.7% cases indications were failure of induction, in 20.59%, in 11.4% cases indications were CPD, in 22.7% cases indications were nonprogress of labor, and in 9.1% cases indications were cervical dystocia [Table 8].

Oligohydramnios found in 16% cases, perineal tear in 10% cases, atonic PPH in 6% cases, and shoulder dystocia in 3% cases [Table 9].

Fetal distress found in 14% cases, meconium aspiration syndrome in 5%, and intrauterine growth restriction (IUGR) in 3% cases [Table 10].

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Age in years.	Numbers of cases (%)
18-25	68 (68)
26-30	22 (22)
31-35	10 (10)
Total	100 (100)

Table 1: Distribution of cases according to the age of patients.

Table 2: Distribution of patients according to educational status

Educational status	Number of cases (%)
Educated	38 (38)
Uneducated	62 (62)
Total	100 (100)

Table 3: Distribution	of cases	according to	booking status

Booking status	Number of cases (%)
Unbooked	54 (54)
Booked	46 (46)
Total	100 (100)

Table 4: Distribution of cases according to period of gestation		
Period of gestation (Weeks)	Number of cases (%)	
40-41	68 (68)	
41-42	28 (28)	
>42	4 (4)	
Total	100 (100)	

Table 5: Distribution of cases according to parity

Parity	Number of cases (%)
Primigravida	49 (49)
Multigravida	51 (51)
Total	100 (100)

Table 6: Comparison of mode of delivery with gestational age			
Gestational age (weeks)	Vaginal Delivery (n=56)	LSCS (n=44)	
40 - 41	48	20	
41 - 42	8	20	
>42	0	4	
Total	56	44	

Table 7: Correlation of gestational age with type of delivery

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Gestational age	Total number of	Induced labour	Spontaneous labour	
(weeks)	delivery (n=56), n (%)	(n=31), (%)	(n=25), (%)	
40 - 41	48 (100)	26 (54.2)	22 (45.8)	
41 - 42	8 (100)	5 (62.5)	3 (37.5)	
>42	0	0	0	
Total				

Table 8: Indications for lower segment cesarean section (n=44)

Indications for LSCS	Number of cases (%)
Cervical dystocia	4 (9.1%)
Cephalopelvic disproportion	5 (11.4%)
Failure of induction	10 (22.7%)
Meconium stained liquour with fetal distress	15 (34.1%)
Nonprogress of labour	10 (22.7%)

Table 9: Distribution of patients according to maternal complications

Maternal complication	Number of cases (%)
Oligohydramnios	16 (16)ĺ
Perineal tear	10 (10)
Atonic PPH	6 (6)
Shoulder dystocia	3 (3)

Table 10: Distribution according to fetal complictions		
Fetal complications	Number of patients (%)	
Fetal distress	14 (14)	
Meconium aspiration syndrome	5 (5)	
IUGR	3 (3)	
Jaundice neonatorum	1 (1)	
Macrosomia	2 (2)	

III. DISCUSSION

This study includes both primigravida and multigravida beyond 40 weeks of gestation admitted from September 2017 to August 2018 in labour ward 100 bed hospital, Saidpur, Nilphamari.

In our study, out of 100 cases, 68 (68%) cases were under 18–25 years, 22 (22%) cases were under 26–30 years, and 10 (10%) cases were under 31–35 years. While the mean age was 24.56 + 2.75 (18–35 years). While the mean age in Mahapatro's¹⁹ study was 24.19 ± 3.30 , while the mean age in Eden et al.'s²⁰ study was

25.8 years. In our study, majority cases were multigravida (51%) while it was primigravida in Mahapatro¹⁹ and Alexander et al.'s study.²¹

In our study, out of 100 cases, 56 cases were vaginal delivery, whereas 44 cases were of LSCS. It was observed that out of 56 vaginal delivery 48 patients delivered between 40.1 weeks and 41 weeks of gestational age, out of 48 cases 22 (45.8%) progressed and delivered spontaneously, and 26 cases (54.2%) delivered after induction of labour. Out of 56 vaginal deliveries 8 cases were between 41 weeks 1 day and 42 weeks out of which 3 cases (37.5%) progressed and delivered spontaneously and 5 (62.5%) cases were delivered after induction of labour, P value was significant <0.0001.

In our study, overall cesarean rate was 44%. In Singhal et al.²² rate of LSCS was 16.7% and in the study by Mahapatro¹⁹ it was found to be 28.9%. Out of 44 pregnancies the rate of LSCS beyond 41 weeks was found to be 24 (54.5%) which was (21.1%) by Kaplan et al.'s study.²³

In our study, it is observed that Meconium stained liquor with fetal distress is the most common indication for LSCS 15 (34.1%) like Mahapatro's¹⁹ study (65.5%).

In our study, fetal distress was the most common fetal complications (14%), meconium aspiration syndrome found in 5% cases and IUGR in only 3% cases, which is similar to Vndana Nmbargi et al.'s study.

Prolonged delivery was associated with increased risks of perinatal complications such as fetal distress and meconium aspiration syndrome. The rate of cesarean section was higher in prolonged pregnancies.

The timely onset of labor and birth is an important determinant of perinatal outcome. Most pregnancies undergoing post term induction are not post term when assessed by ultrasound dates. Regardless of whether prolonged pregnancy is considered to be a risk factor requiring intervention, the proportion of pregnancies considered "post term" can be reduced considerably by a dating policy which ignores menstrual dates and establishes the expected delivery date on the basis of ultrasound dates alone.

Management of postdated pregnancy is a challenge to obstetrician and a careful advice and monitoring can alleviate maternal anxiety and untoward complications.

Pregnancy beyond 40 weeks needs frequent amniotic fluid index monitoring as in our study we found more cases of oligohydramnios.

In our study, we observed pregnancy beyond 41 weeks increases rate of cesarean section and NICU admission.

In our study, we concluded that prolonged pregnancy was associated with significant risk of perinatal complicationssuch as fetal distress, meconium aspiration syndrome, and IUGR. There was significantly increased the risk of obstetric complications such as oligohydramnios, perineal tear, atonic PPH, and shoulder dystocia.

The adverse outcome can be reduced by making accurate gestational age and diagnosis of post term gestation as well as recognization and management of risk factors. Confirmation of diagnosis of exact term of pregnancy is very important as many patients don't have regular menstrual history and LMP. Diagnosis is confirmed by first trimester ultrasound which is most important non-invasive method and readily available.

IV. CONCLUSION

In our study we concluded that prolonged pregnancy was associated with significant risk of perinatal complications like fetal distress, meconium aspiration syndrome and IUGR. There was significantly increased risk of obstetric complications like oligohydramnios, perineal tear, atonic PPH and shoulder dystosia. With Regular antenatal check-up, incidence of postdate pregnancy can be decreased and it is important as it is associated wih increased perinatal morbidity & mortality especially those who do not come for regular antenatal check-up.

Recommendation

Considering the maternal and neonatal morbidity associated with prolonged pregnancy, pregnancy should not be allowed to go post term. The patient should be counseled about risk of increasing gestational age. These women should be offered induction of labour before 42 weeks of gestation to avoid adverse neonatal consequences.

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Conflicts of interest There are no conflicts of interest.

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