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Original Research Article

Maternal and Fetal Outcome among Postdated Pregnancy at BPKIHS

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Abstract: ***Background***: The aim of the study was to find the maternal and fetal outcome among postdated pregnancy. ***Procedure***: 156 patients with singleton pregnancy beyond 40 weeks were taken and maternal and fetal outcomes were calculated. ***Results & Conclusion***: Most of the studies have shown postdated pregnancy poses risk to both fetal and maternal outcomes. With early intervention and management may decrease the complications to fetal and mother due to post dated pregnancy.

Keywords: Postdated pregnancy, Maternal outcomes, Fetal outcomes, Singleton pregnancy, Induction of labor.

INTRODUCTION

Postdate, post term, post maturity and prolonged pregnancy is accepted terms by World Health Organization and the International Federation of Gynaecology and Obstetrics to describe pregnancy beyond expected dates of delivery(EDD) [1]. Prolonged pregnancy or postdated pregnancy is the pregnancy which has exceeded duration considered to be upper limit of normal pregnancy that is above 40 completed weeks or 280 days from first day of last menstrual period [2].

The incidence of postdated pregnancy ranges from 4 to 14 % depending on the method used to determine gestational age. It complicates with an average of approximately 10 % of all gestation and is associated with an increased adverse outcome in both the fetus and mother [3].

The timely onset of labour and birth are an important determinants of perinatal outcome [4]. Resources and maternal wish needs to be considered when managing a prolonged pregnancy [5]. Prolonged pregnancies are associated with increased risk of fetal and maternal complications [6]. The cause of prolonged pregnancy is not clear and may represent simpleetiological variation. Postterm pregnancy is more common in primigravida women and a previous prolonged pregnancy gives a relative risks of 2.2 for subsequent pregnancies to be prolonged [7]. In most developed countries, prolonged pregnancy is now managed by planned delivery [8]. It is recognized as high risk problem faced by obstetricians. Perinatal morbidity and mortality are increased significantly and, for that reason, most obstetrics units offer routine induction of labour between 41 and 42 weeks of gestation to minimize the adverse perinatal risks [7-10].

Prolonged pregnancy is associated with increased incidence of macrosomia. Macrosomic infants accounts for 1% of term deliveries and 3 to 5% of post term deliveries [11]. Post maturity infants particularly with macrosomia and post maturity are at increased risk of hypoglycemia, they also have increased chance of polycythemia [12]. It has been reported that in a pregnancy which has crossed the expected date of delivery, there is an increased risk of intrapartum fetal distress mostly due to oligohydramnios, meconium stained liquor, macrosomia and cesarean delivery [13].

The maternal risks of postdated pregnancy are often underappreciated. These include an increase in labour dystocia 9-12 % in postdated pregnancy vs 2-7% at term. There is an increase in severe perineal injury (3rd and 4th degree

perineal lacerations) related to macrosomia 3.3% in postdated vs 2.6% in term during operative vaginal delivery. There isincreased rate of cesarean delivery 14% inpostdated vs 7% in term [14-17]. Cesarean delivery is associated with higher risks of complications such as endometritis, hemorrhage and thromboembolic events [16-18].

The incidence of Post Term Pregnancies varies according to the calculation based on theclinical examination andhistory alone, or whether early pregnancy ultrasound examination was done to estimate gestational age [19, 20]. The assessment of the gestational age by early ultrasound examination has reduced the incidence of PTP by 50.0% [21].

The most common risk factors for postdated pregnancy is error in recalling the last menstrual period. It is more common in primigravida and with previous history of prolonged pregnancy. It is also associated with maternal obesity.Placental sulfatase deficiency which is an X-linked recessive disorder,resulting in reduced placental estrogen synthesis leading to poor expression of oxytocin and prostaglandins receptors in myometrium is also a risk factor for Postdated pregnancy [22, 23].

The risk of fetal mortality is doubled in pregnancies which have crossed 42 weeks than the pregnancies at 40 weeks because of that most obstetricians prefer termination of pregnancy before 42 weeks [24]. The purpose of our study is to find out mode of delivery, maternal and neonatal outcome in pregnancy beyond 40 weeks.The interest in postdatism (just beyond expected date of delivery) has been recent and management options controversial, more so with the advent of sonography providing information about placental aging and amount of amniotic fluid [13-26].

Postdated pregnancy imposes significant burden on health institute due to need of induction of labour, increased monitoring during labour, increased time of hospital stay and some studies even have reported, increase in maternal and fetal morbidities because of postdated pregnancy and induction itself. Management strategies for postdated pregnancy is not uniform worldwide and differs from institute to institute. This study is designed to observe maternal and fetal outcomes among postdated pregnancy of BPKIHS.

Material and Methods

All women with singleton pregnancy beyond 40 weeks of Period of gestation presenting to the Obstetrics and Gynaecology Emergency with complain of crossing of date (Calculated from first day of last menstrual period or first trimester ultrasonography) from study period, either presenting with spontaneous onset of labour or needing induction were included in the study group and admitted in Antenatal ward. All women with post-dated pregnancy regardless of age were enrolled.

All pregnant women meeting the inclusion criteria, history were taken and general physical examination, per abdomen examination, per vaginal examination was done. Women with multiple pregnancy, women with associated complications such as previous LSCS, malpresentations, placenta Previa, gestational diabetes, anemiawere excluded. Women with any medical disorders like cardiac disease, overt diabetes mellitus, asthma which is likely to influence the mode of delivery were excluded from the study. Women with indication of emergency LSCS and LSCS on maternal request were excluded from the study. Complete clinical assessment of post dated pregnancy were done including associated maternal conditions and complications. Women presenting with spontaneous onset of labour were planned for delivery. Mode of delivery (vaginal vs caesarean) were decided by clinical evaluation and progress of labour. Fetal monitoring was done with daily fetal movement count and regular fetal heart sound auscultation at ward and labour room. Patients were managed according to the hospital protocol. Both maternal and fetal outcome were assessed till discharge of mother and baby.

Results

Baseline Characteristics

In our study patient's age ranged from 17 to 41 years of age. Most of the women in the study group (87%) were between 16-30 years of age as shown in Table 1.

Table 1: Age distribution of Patients

Age of Patients in years	Number of Patients	Percentage
16-20	28	17.9
21-25	68	43.5
26-30	40	25.6
31-35	15	9.6
36-40	4	2.5
>40	1	0.6
Total	**156**	**100**

Birth weight of the new born was between 2501 – 3500 grams in 73.2%. Only 2.6% had a weight greater than 4000 as shown in Table 2.

Table 2: Birth Weight of Neonate

Birth Weight (in grams)	Number of patients	Percentage
2000-2500	6	3.8
2501-3000	57	36.6
3001-3500	57	36.6
3501-4000	32	20.4
4000+	4	2.6
Total	**156**	**100.0**

Most newborn (95.5%) had APGAR score of >7 at 1,5 and 10 minutes of time. Among 156 babies only 3.2% needed some sort of Resuscitation as seen in Table 3.

Table 3: Need for Neonatal Resuscitation

Resuscitation	Number of patients	Percentage
Yes	5	3.2
No	151	96.8
Total	**156**	**100.0**

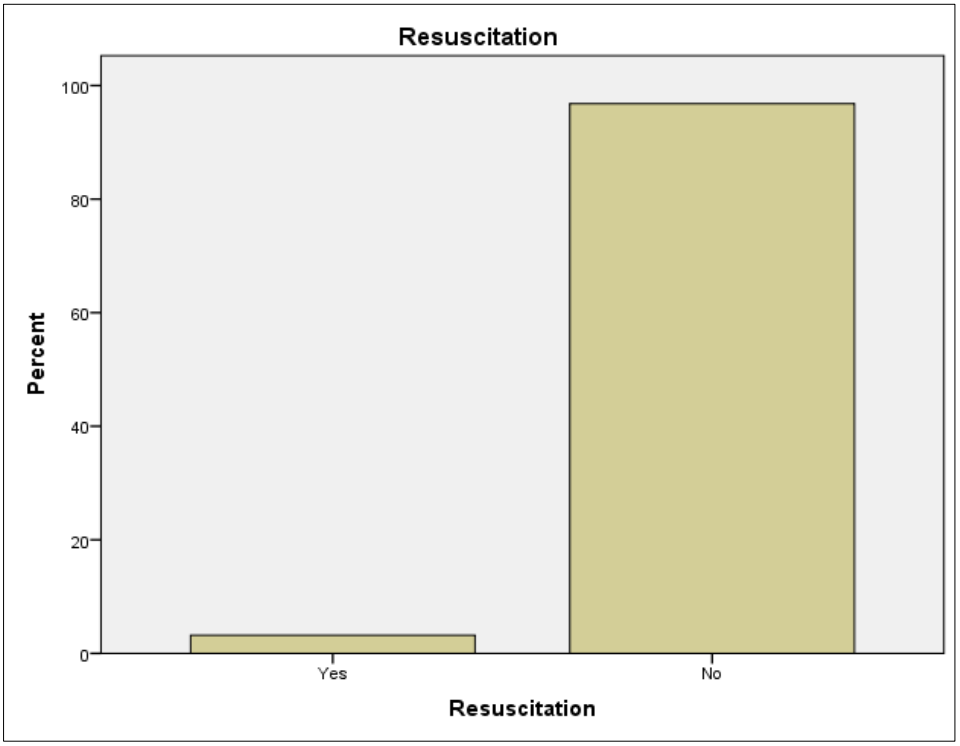

Figure 1: Need for Neonatal Resuscitation

Only 4 babies (2.5%) needed NICU admission and one admitted in Nursery as shown in Table 4.

Table 4: Neonatal admission

Neonatal Admission	Number of patients	Percentage
NICU	4	2.6
Nursery	1	.6
Total	5	3.2
Mother Side	151	96.8
Total	**156**	**156**

Among 5 admitted newborns indication for admission were Respiratory Distress 1.92% and Perinatal Asphyxia 1.28%.

Table 5: Indication for Neonatal admission

Indication	Number of patients	Percentage
Respiratory Distress Syndrome	3	1.92%
Perinatal Asphyxia	2	1.28%

Among 3 patients with maternal complications, one case was of PPH another cervical tear and severe oligohydramnios was noted in 1 case.

Table 6: Maternal Complications

Maternal complications	Number of patients	Percentage
PPH	1	0.6
Severe Oligohydramnios	1	0.6
Cervical tear	1	0.6

DISCUSSION

The purpose of this study is to assess maternal fetal outcomes beyond 40 weeks of gestation. In our study, 156 women without confounding variables such as hypertension, diabetes, prior cesarean birth, non-cephalic presentation, fetal malformations or placenta previa were included for a period of 12 months.

In our study mean age was 24.88 ± 4.53(17 - 41 years). Most of the women in the study group (43.5%) were between 21-25 years of age, 17.9% cases in 16-20 years of age, 25.6% in age group 26-30 years of age, 9.6% in 31-35 years of age, 2.5% in 36-40 years of age and 0.6% in greater than 40 years of age. Study by Bhriegu *et al*., [27], 79% cases were under 20–25 years, while the mean age was 23.56 + 2.75 (20–35 years). While the mean age in Mahapatro's [28], study was 24.19 ± 3.30, while the mean age in Eden et al.'s [29], study was 25.8 years. Simlilar result was seen in study done by Neetu Singh *et al*., in which maximum cases (72%) were in between 20-25 years of age [30].

Out of the 156 patients only 30.8% were booked and 66% of the patients were unbooked group in our study. Similar study done by Bhriegu *et al*.**,** [27], in which 82% were booked cases and 18% unbooked cases. Nikhil *et al*., [31], conducted similar study in which booked cases were 45.29% and unbooked cases were 54.70% cases. Study done by Lata *et al*., [32], showed most of the patients (64%) were unbooked. Most of the patients are unbooked because our center being tertiary referral centre we get referral from different hospitals from the many parts of Eastern Nepal.

Most of the study agrees that the pregnancy beyond 40 weeks is found mainly in primigravida, and similar scenario can be seen in our study too as 50 % of patients were primigravida, G_2 33.3%, 12.8% were G_3, 3.2% G_4 and G_5 0.6%. Similar result can be seen in study by Lata *et al*., [32], with 71% primigravida and Bhriegu *et al*., [27]. 62 % primigravida in their studies. Another study done by Akhter *et al*., [33], in which 53% were nullipara, 21% para-2, 18% were para-3, 8% were para-4. Study done by Neetu Singh *et al*., [30]. Postdated Pregnancy: its maternal and fetal outcome 68% were primigravida.

Out of 156 women in our study, 56.4% presented at 40+1– 40+6 weeks of gestation, 35.3% presented at 41-41+6 weeks gestational age group, 7.7% presented in 42-42+6 weeks and 0.6% presented in ≥43 weeks' of gestation.

Sixty two patients needed induction out of which 56.4% were induced between 41 to 41+6 weeks. Gestational age at delivery for most women 90.4% were 40+1-41+6 weeks. Cases delivered between 40+1-40+6 weeks were 48.1%, 41-41+6 were 42.3%, 42-42+6 were 8.3% and 1.3% cases were > 43 weeks. Study done by Bhriegu *et al*., [27], maximum, i.e., 88% cases were of gestational age between 40 weeks 1 day and 41 weeks and 12% cases were of gestational age between 41 weeks 1 day and 42 weeks. In study done by Neetu Singh *et al*., [30], maximum women 81% were in between 40+1 to 41 weeks of gestation age, 14% were in between 41-42 weeks of gestation age and 5% were in between more than 42 weeks of gestation age. In studies done by Patel N *et al*., [34], maximum patients were between 40 to 40+6 weeks which is similar to this study.Similar study done by Lata *et al*., [32], 68% of patients delivered between 40 weeks 1 day of gestation to 41 weeks of gestation. 29% patients delivered between 41 weeks 1 day of gestation to 42 weeks. While only 3% went beyond 42 weeks for delivery.

As we compare the mode of delivery, vaginal versus cesarean among women with postdated pregnancy, we found that most of the women delivered normally with 69.2% as compared to LSCS 24.4% only and instrumental delivery was seen in 10 patients (6.4%).Similar outcome can be seen with two other studies Lata *et al*., [32], with Normal delivery 63% and LSCS 32%. Study done byBhriegu *et al*., [27], showed Normal delivery 64% and LSCS 34% with 2% instrumental delivery. In study done by Neetu Singh *et al*., [30], maximum cases (66%) were delivered normally, caesarean section were performed in 32% while in 2% instrumental delivery were performed. Shinge N *et al*., [35], studied that maximum patients

(53.7%) underwent spontaneous vaginal delivery, 9.5% patients required instrumental delivery and 37% patients required caesarean section as mode of delivery.16,22 The rate of instrumental delivery in this study was 2%, whereas in Mahapatro's study it was found to be 5.72% [28]. As compared to other study instrumental delivery rate is more in our center, it is attributed to early intervention and timely management of prolonged second stage of labour at our institute.

In our study the onset of labour, spontaneous versus need of induction among women with postdated pregnancy, we found that 60.3% had spontaneous onset of labour while 39.7% were induced. A prospective study which was conducted by PrabhaSingal *et al*., to evaluate the maternal and fetal outcome in prolonged pregnancy at Ajmer in which labor started spontaneously in 54% and induction was done in 46% of the total 150 postdated patients. In the study vaginal delivery rates in the spontaneous labor group and induced group were 91.4% and 74% respectively [36].

In our study Non-Reactive NST and meconium stained liquor was the most common indication for Cesarean Delivery i.e.28.9%,followed by Failed Induction 18.4%, arrest of descent and dilatation in 10.5 % cases, fetal distress in 7.8% cases, severe oligohydramnios 2.6% and absent fetal movement 2.6%. Similar result was shown in study done by Bhriegu *et al*., [27], in which Meconium stained liquor with fetal distress was the most common indication for LSCS 23.5%. Mahapatro's conducted similar study [28], in which fetal distress was found to be the most common indication for LSCS (65.5%). Another study done by Lata *et al*., [32], in which 37.5% indication for LSCS was failure of induction.In the study done by Neetu Singh *et al*., [30], indication for caesarean section was meconium stained liquor with fetal distress in 26% and failure of induction in 21%. In the study by Akhtar P *et al*., caesarean section was done in view of fetal distress in 32% cases [33].

In our study 100 patients (64.1%) had a clear liquor and 7.1% had a thick MSL. Study by Prabha Singal *et al*., states meconium stained liquor was seen in 7.4% in spontaneous labor group and in 15.9% in induced labor group [36]. But according to meta analysis patients whose labor was induced were less likely to have meconium staining compared to those who underwent expectant management [37].

In our study the birth weight among babies delivered to postdated women were between 2501 – 3500 grams in 73.2%. Only 2.6% had a weight greater than 4000 grams. Similar study done by Verma *et al*., [38]. 3.84% infants were having birth weight >4 kg. Study conducted by Beischer *et al*., [39], which shows 18.2% infant of birth weight >4kg. The difference observed from Beischer *et al*., study may result from different socioeconomic and demographic profile between enrolled patients.

Similarly for the neonatal admission rate and indications for admission, most newborn (95.5%) had APGAR score of >7 at 1,5 and 10 minutes of time. Among 156 babies only 3.2% needed some sort of Resuscitation. Only 4 babies (2.5%) needed NICU admission and indication for admission were Respiratory Distress and Perinatal Asphyxia.

In our study the Labour complications were minimal as one case had a maternal complication as PPH, one case with oligohydramnios, one with cervical tear and as for the fetal complications only 4 babies (2.5%) needed NICU admission. In a study by Lata *et al*., [32]. 25 babies had a NICU admission and 31 patients had some sort of Maternal complications with Oligohydramnios being leading cause of maternal complication and APGAR<6 being the most common indication for NICU admission. Bhriegu *et al*., [27], with NICU admission 17 and Maternal complication in 29 patients with Oligohydramnios being leading Maternal complication and Fetal Distress being leading cause for NICU admission. In study done by Neetu Singh *et al*., [30], most common maternal complication was postpartum haemorrhage (PPH) 6% while most common fetal complications was meconium aspiration syndrome with 8% case.

Compared to other studies our study had a less maternal complications as majority of cases were unbooked and spontaneously progressed. Many cases presented with no proper antenatal documents and USG scans done previously, hence majority of cases of oligohydramnios was missed out. As for the NICU admission is considered, due to the unavailability of the vacant beds in the hospital most of the babies are kept in mother side with routine visits from Pediatrician. Babies born here had a good APGAR score and less resuscitation was needed, so less babies were admitted.

CONCLUSION

This study assessed the maternal and fetal outcome among postdated pregnancy at BPKIHS. Majority of patients were unbooked as our center being referral center we get referral for postdated pregnancy from different hospitals in Eastern Nepal. Most patients had spontaneous onset labour with no need for labour induction. Most of the delivery was vaginal. Most common indication for LSCS was NRNST and meconium stained liquor as observed in other study also.

Regarding the maternal and fetal complications there was less number of complications than observed in other study. Maternal complications as postpartum hemorrhage, cervical tear and severe oligohydramnios was seen among 3 cases. Macrosomia was observed in 2.6% of cases and hence no complications related to macrosomia was observed.

Neonatal admission was 3.2% and majority of babies were in mother side with most newborn (95.5%) had APGAR score of >7 at 1,5 and 10 minutes of life.

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