

Neonatal Outcome in Post-term Pregnancy

FARHAT NAZ, AMINA JAVID, SARA SAEED, ALTAZ BEGUM, AMTULLAH ZAREEN

ABSTRACT

Objective: The aim of this study was to evaluate the neonatal outcome among the pregnant women who delivered after post-term pregnancy.

Design: A descriptive case series.

Place & duration of study: The study was conducted at Gynae Unit I, Allama Iqbal Medical College/ Jinnah Hospital, Lahore from January 2009 till September 2009.

Material & methods: The study comprised of 60 patients with 42 weeks of gestation or beyond. Patients with intrauterine demise, medical disorders, or pregnancy complications were not included in the study. Parameters of poor neonatal outcome were identified. Variables like age, parity, gestational age, fetal movement, past prolonged pregnancy, ultrasound & admission CTG findings and mode of delivery were studied.

Results: Majority of the patients 36.67% (n=22) were between 20 – 25 years of age. In the study group primigravida and multi gravida were found in 45.67% (n=25) and 58.33% (n=35) respectively. Gestational age for the patients included in the study was more than 42 weeks in 75% (n=45). Decreased fetal movements were recorded in 50% (n=30). The mode of delivery was spontaneous vaginal in 18.33% (n=11), instrumental vaginal in 11.67% (n=7), emergency caesarean section in 66.67% (n= 40) and elective caesarean section in 3.33% (n=2). Male babies born were 66.67% (n= 40) and female babies were 33.33% (n=20). Majority of the babies 63.33% were admitted to the neonatal ICU. The maximum stay in ICU was 7 days for one baby. Three babies had birth trauma. Among the fetal complications meconium aspiration syndrome was most common which was found in 68.33% (n=41), followed by asphyxia neonatorum in 55% (n=33), respiratory distress syndrome in 48.33% (n=29), jaundice neonatorum in 8.33% (n=5) and sepsis neonatorum in 6.67% (n=4). There was no fetal mortality.

Conclusion: Pregnancy should not be allowed to go post-term due to association of higher neonatal morbidity and mortality rate, and should be managed before 42 weeks of gestation

Key words: Post term pregnancy, neonate,

INTRODUCTION

Post term pregnancy is defined as pregnancy that exceeds 42 complete weeks (294 days) and beyond after last menstrual period. The reported frequency of post term pregnancy is approximately 6 – 12%¹. However, the actual incidence is likely less since the most frequent cause of post term pregnancy diagnosis is inaccurate dating². Risk factors for actual post term pregnancy include primiparity, prior post term pregnancy, male gender of the fetus and genetic factors³. . More recently described factor is obesity and fish consumption in first two trimesters⁴. Last menstrual period (LMP) has been traditionally used to calculate the estimated due date (EDD), but many inaccuracies exist using this method in women who have irregular cycles, have been on recent hormone

birth control methods or who have first trimester bleeding⁵. Thus, not only LMP date, but regularity and length of cycle must be taken in account when estimating gestational age. Ultrasonographic dating in early pregnancy can improve the reliability of EDD⁶. However, it is necessary to understand the margin of error reported at various times during each trimester.

Post-term pregnancy is associated with increased incidence of prolonged labour and operative delivery (forceps or vacuum-assisted birth). Patients are at increased risk for vaginal birth trauma due to a large baby⁷. Cesarean delivery is twice as likely in a post-term pregnancy because of the size of the baby. Patients are also at increased risk for infection and wound complications, and postpartum hemorrhage⁸. There are also risks for the fetus and newborn in a post-term pregnancy. Toward the end of pregnancy, the placental function decreases, amniotic fluid volume may decrease and the fetus may stop gaining weight. Birth injury may also occur

Department of Obstetrics & Gynaecology, Allama Iqbal Medical College/Jinnah Hospital, Lahore
Correspondence to Dr. Farhat Naz, Associate Professor
Email: drkfmm@hotmail.com.0333 4282112. 042 35210203.

if the baby is large. Babies born after 42 weeks may be at risk for meconium aspiration⁹.

Management of prolonged pregnancy in the absence of other complications is controversial. The Royal College of Obstetricians and Gynaecologists/NICE guidelines recommend that women should be offered induction after 41 weeks.¹⁰ Women who decline induction should be offered increased antenatal monitoring from 42 weeks, consisting of twice-weekly cardiotocography (CTG) and ultrasound estimation of single deepest amniotic pool. A pool depth of < 8 cm indicates increased intrapartum risk to the fetus.¹¹ If expectant management is used, some sources recommend labour should be induced at the beginning of the 43rd week.¹² However, in a recent randomized trial there were no differences between induced (at 289 days) and monitored groups (every 3 days) in neonatal morbidity, mode of delivery, and general outcome¹³.

MATERIAL & METHODS

The study was conducted in Gynae unit I of Jinnah hospital affiliated with Allama Iqbal Medical College Lahore, from January 2009 till September 2009. This was a descriptive study and sample size calculated with 7% margin of error, 95% confidence interval. The study comprised of 60 un booked patients having a duration of pregnancy 42 weeks or more who were sure about their LMP date or had first trimester ultrasound report and with regular menstrual cycle. Patients with intrauterine demise, medical disorders, or pregnancy complications like Antepartum haemorrhage and premature rupture of membranes were not included in the study. After taking informed consent data was collected and variables like age, parity, gestational age, fetal movement, past prolonged pregnancy, ultrasound & admission CTG findings were studied. Factors affecting the poor perinatal outcome like APGAR score, birth weight, birth trauma, asphyxia, meconium aspiration, respiratory distress syndrome, neonatal sepsis and jaundice, admission and duration of stay in neonatal ICU were specifically noted.

Data was collected and analyzed using SPSS version 10.0. The quantitative variables like age were presented by as Mean \pm SD and parity was presented as percentage. The qualitative variables like parity were presented by calculating frequency distribution and percentages. Categorical variables like birth asphyxia were calculated as frequencies and percentages.

RESULTS

Majority of the patients 36.67% (n=22) were 20-25 years old. 33.33% (n=20) were between 26-30 years, 16.66% (n=10) were between 31–35 years and 13.33% (n=8) were more than 35 years of age. The number of multigravida 58.33% (n=35) patients was more than primigravida, 45.67% (n=25). Gestational age of the patients is shown in Table 1.

Table 1: Distribution of cases by gestational age (n=60)

Gestational Age (weeks)	=n	%age
42	45	75
43	15	25
>43	0	0
Total	60	100.0

Decreased fetal movements were recorded in 50% (n=30) and previous history of prolonged pregnancy was seen in 38.33% (n=23). The ultrasonographic findings confirmed that all patients were having longitudinal lie and none of the patients presented with the transverse lie. Estimated weight of the majority 80% (n=48) of the fetus was 3-3.5kg, while only 20% (n=12) were found to have 3.6-4 kg weight. Cephalic presentation was found in 91.67% (n=55) and only 8.33% (n=5) was found with breech presentation. The amount of liquor was adequate in 41.67% (n=25) and less than adequate in 58.33% (n=35). Most of the patients 83.33% (n=50) were having fetal heart rate of 110-150 per minute, while 16.67% (n=10) had rate of less than 110 per minute. Table 2 shows the biophysical profile of the patients.

Table 2: Biophysical profile of patients (n = 60)

Biophysical profile score	=n	%age
6/10	06	10
8/10	30	50
10/10	24	40

Table-3: Mode of delivery (n = 60)

Mode of delivery	=n	%age
Vaginal Delivery		
Spontaneous	11	18.33
Instrumental	07	11.67
Caesarean Section		
Emergency	40	66.67
Elective	02	3.33

The babies delivered were male in 66.67% (n=40) and female in 33.33% (n=20). Due to instrumental delivery 5% (n=3) developed birth trauma. 63.3% (n=38) babies were shifted to neonatal ICU.

Maximum babies 52.65% (n=20) were discharged within 3 days, 36.28% (n=14) were discharged between 4-5 days and 10.53% (n=4) were discharged between 6-7 days from neonatal ICU. Neonatal complications seen are shown in Table 4.

Table-4: Neonatal Complications

Complication	=n	%age
Meconium aspiration syndrome	41	68.33
Asphyxia neonatorum	33	55
Respiratory distress syndrome	29	48.33
Jaundice neonatorum	05	8.33
Sepsis neonatorum	04	6.67

DISCUSSION

For more than two decades, post term pregnancy has been defined as a pregnancy that persists beyond 294 days or 42 weeks of gestation¹. The most common reason to diagnose it is inaccurate pregnancy dating. Last menstrual period with regular menstrual cycle is the best physiological landmark to assess the gestational age in pregnancy.. However, a few women are sure of their dates and often cause anxiety when they come with postdates². The cause of post-term pregnancy is unknown. Post-term pregnancy happens more often in nulliparous, obese and in women who have had previous post-term pregnancy^{4,14}. Post term pregnancies are associated with higher risk of perinatal mortality and morbidity including meconium aspiration syndrome, asphyxia neonatrum respiratory distress syndrome, jaundice neonatrum, sepsis neonatorum, oligohydramnios, macrosomia, fetal birth injury, fetal distress and increased rate of caesarean section¹⁵

This study was conducted with a view to determine the fetal outcome among the post term pregnancies. In our study, most of the patients, 90%, belonged to the age group of 20-30 years. Similar findings have been seen in another study conducted at Oakland¹⁶, which showed 80.6% patients younger than 34 years of age. These finding conclude that incidence of prolonged pregnancy is common in age group of 20-25 years. Although post term pregnancies are more common in nulliparous patients, majority of our patients 58.33% were multigravida. Similar incidence has been reported by Cucco et al¹⁷.

One of the most recognized factors for post term pregnancy is previous history of such event in multigravida patients. The patients with previous history of post term pregnancy are at 2-3 fold increased risk of having post term pregnancy in subsequent pregnancy¹⁸. 38.33% of our patients had past history of post term pregnancy. On behalf of these findings, obstetricians and patients must take

special care for prevention of subsequent post term pregnancy and should be under regular follow up to avoid any complication.

Although many studies have reported abnormal fetal heart rate, only 16.67% of our patients had deceleration. Post term pregnancy is not associated with breech presentation. Only 8.33% of our patients had breech presentation¹⁹ and breech presentation itself is associated with increased rate of caesarean section. There is quite high variability in the rate of caesarean section in post term pregnancy. The reported incidence varies from 15 to 80%²⁰. Almost one third of our patients were delivered vaginally, thus avoiding the risks of operation. In our study, 70% of the patients had caesarean delivery. The reason for this higher rate is probably that all our patients were unbooked and presented to OPD for first time or to labour room directly and had no follow up. Most of our patients had unfavorable cervical findings at the time of presentation, this also contributed to the high rate of caesarean section among our patients.

Post term pregnancy causes increased fetal morbidity. Fetal distress, asphyxia is more common due to poor placental reserves and reduced liquor volume²¹. Meconium aspiration incidence increases, as a result of physiological passage of meconium occurs due to the maturation of parasympathetic system by 42 weeks of gestation²². The incidence of neonatal complications like, meconium aspiration syndrome, respiratory distress syndrome, asphyxia, jaundice and sepsis neonatrum, was quite high in our study which is similar to the internationally reported incidence of these complications^{7,8}.

Management of prolonged pregnancy in the absence of other complications is controversial. There is debate among obstetricians on elective induction of labour versus expectant management of the post term patients^{20,23}. Prevention of post term pregnancy may include stripping or sweeping the membranes and unprotected coitus²⁴. In any case close fetal monitoring required avoiding fetal morbidity. Individual patient management should involve careful counseling regarding the risks and benefits of each of the components of care.

CONCLUSION

Pregnancy should not be allowed to go post term, as they are associated with higher neonatal morbidity and mortality. Those women should be offered induction of labour before 42 weeks of gestation to avoid adverse neonatal consequences.

REFERENCES

1. Mary Hannah M, and the Maternal-Fetal Medicine Committee of the Society of Obstetricians and Gynaecologists of Canada. Post-term pregnancy. SOGC Clinical Practice Guideline No. 15, March 1997. Available at: http://www.sogc.org/members/guide/library_e.asp.
2. Bennett KA, Crane JMG, O'Shea P, Lacelle MD, Hutchens D, Copel J. First trimester ultrasound screening is effective in reducing postterm induction rates: a randomized controlled trial. *Am J Obstet Gynecol* 2004; 190:1077-81.
3. Hilder L, Costeloe K, Thilaganathan B. Prolonged pregnancy: evaluating gestation-specific risks of fetal and infant mortality. *Br J Obstet Gynecol*.1998;105:169-73.
4. Olesen AW, Westergaard JG, Olsen J; Prenatal risk indicators of a prolonged pregnancy. The Danish Birth Cohort 1998-2001. *Acta Obstet Gynecol Scand*. 2006;85(11):1338-41.
5. Gardosi J, Vanner T, Francis A. Gestational age and induction of labour for prolonged pregnancy. *Br J Obstet Gynaecol* 1997;104(7):792-7.
6. Savitz D, Terry JW, Dole N, Thorp JM, Siega-Riz AM, Herring AH. Comparison of pregnancy dating by LMP, ultrasound scanning, and their combination. *Am J Obstet Gynecol* 2002;187:1660-6.
7. Smith GCS. Life-table analysis of the risk of perinatal death at term and post term in singleton pregnancies. *Am J Obstet Gynecol* 2001;184:489-96
8. Olesen AW, Westergaard JG, Olsen J. Perinatal and maternal complications related to postterm delivery: a national register-based study, 1978-1993. *Am J Obstet Gynecol* 2003;189:222-7.
9. Hilder L, Costeloe K, Thilaganathan B. Prolonged pregnancy: evaluating gestation-specific risks of fetal and infant mortality. *Br J Obstet Gynecol*.1998;105:169-73.
10. Royal College of Obstetricians and Gynecologists. Induction of labour. Evidence based clinical Guideline No. 9, June 2001. London: RCOG Press.
11. Dasari P, Niveditta G, Raghavan S; The maximal vertical pocket and amniotic fluid index in predicting fetal distress in prolonged pregnancy. *Int J Gynaecol Obstet*. 2007 Feb;96(2):89-93
12. Treger M, Hallak M, Silberstein T, Friger M, Katz M, Mazor M. Post-term pregnancy: should induction of labor be considered before 42 weeks? *J Matern Fetal Med* 2002;11:50-3.
13. Gelisen O, Caliskan E, Dilbaz S, Ozdas E, Dilbaz B, Ozdas E, Haberal A. Induction of labor with three different techniques at 41 weeks of gestation or spontaneous follow-up until 42 weeks in women with definitely unfavorable cervical scores. *Eur J Obstet Gynecol Reprod Biol* 2005;120(2):164-9.
14. Roach VJ, Rogers MS. Pregnancy outcome beyond 41 weeks gestation. *Int J Gynecol Obstet* 1997;59:19-24.
15. Cleary-Goldman J, Bettes B, Robinson JN, Norwitz E, D'Alton ME, Schulkin J. Postterm pregnancy: practice patterns of contemporary obstetricians and gynecologists. *Am J Perinatol*. 2006 Jan;23(1):15-20.
16. Aaron B, Caughey MD. Maternal and obstetric complications of pregnancy are associated with increasing gestational age at term. *Am J Obstet Gynecol*. 2009;200:683-5.
17. Cucco C, Osbrone MA, Cibils LA. Maternal-fetal outcomes in prolonged pregnancy. *Am J Obstet Gynecol*. 1989; 161:916-20.
18. James C, George SS, Guanekar N, Seshadri L. Management of prolonged pregnancy: A randomized trial of induction and antepartum foetal monitoring. *Nat J India* 2001;14:270-3.
19. Hannah ME. Postterm pregnancy: should all women have labour induced? A review of the literature. *Fetal and Maternal Medicine Review* 1993;5:3-17.
20. Heimstad R, Skogvoll E, Mattson L, Johansen OJ, Eik-Nes SH, Salvesen KA. Induction of labor or serial antenatal fetal monitoring in postterm pregnancy. *Obstet Gynecol* 2007;109:609-17.
21. Caughey AB, Snegovskikh VV, Norwitz ER. Postterm pregnancy: how can we improve outcomes? *Obstet Gynecol Surv*. 2008 Nov;63(11):715-24.
22. Ingrid Morgan, Hans Stenlund, Ulf Hodberg. Recurrence of prolonged pregnancy. *Int Epidem Assoc* 1999; 28:253-7.
23. Herabutya Y, Prasertsawat PO, Tongyai T, Isarangura Na Ayudhya N. Prolonged pregnancy: the management dilemma. *Int J Gynecol Obstet*.1992;37:253-8.
24. de Miranda E, van der Bom JG, Bonsel GJ, Bleker OP, Rosendaal FR. Membrane sweeping and prevention of post-term pregnancy in low-risk pregnancies: a randomized controlled trial. *BJOG* 2006;113:402-8.