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Original Research Article

A study to assess the maternal and perinatal outcome of postdated pregnancy at a tertiary care institution of Eastern India

Suvidha Saurabh*

Department of Obstetrics and Gynaecology, ESIC Medical College and Hospital, Bihta, Patna, Bihar, India

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***Correspondence:**
Dr. Suvidha Saurabh,
E-mail: suvidhasourav4@gmail.com

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ABSTRACT

Background: Post term pregnancy has been defined as a pregnancy that persists beyond 294 days or 42 weeks of gestation. It most likely occurs in less than 5% gestation and has been associated with increased perinatal mortality rate. There is a strong body of evidence that the induction of labour at term and prior to 42 weeks of gestation is associated with reduction in perinatal complications without an associated increase in CS rates.
Methods: This observational study was carried out in obstetrics/gynaecology department of ESIC Medical College and Hospital, Bihta. All the primi or multi gravida beyond the expected date of delivery and coming under the inclusion criteria were taken. Taking in consideration about the incidence of cases of post term deliveries last year, we are getting 6 to 7 cases every month. So,70 cases in 1 year of study duration was taken from October 2022 to September 2023.
Results: This observation study showed that the incidence of postdated pregnancy was higher in primi gravida. Incidence of fetal distress and NICU admissions increased as the period of gestation increases.
Conclusions: Post dated pregnancy was associated with perinatal complications like fetal distress, meconium aspiration syndrome and fetal asphyxia. There was increased risk of obstetric complications like postpartum haemorrhage, perineal tear, cervical tear and shoulder dystocia. Management of postdated pregnancy is a challenge to obstetrician and policies regarding induction of labour beyond expected date of delivery can reduce untoward complications.

Keywords: Menstrual period, Date of delivery, Induction of labour, Post-dated pregnancy, Fetal distress

INTRODUCTION

Post date, post term, post maturity and prolonged pregnancy are the accepted terms by WHO and the International Federation of Gynaecology and Obstetrics to describe pregnancy beyond the expected date of delivery. It most likely occurs in less than 5% gestation and has been associated with increased perinatal mortality rate.[1] As defined by WHO, post term pregnancy is a pregnancy that occurs beyond 294 days or 42 weeks of gestation.[2] The reported frequency is approximately 7%.[3] Post dated pregnancy maybe due to error in the last menstrual period. It is more common in primigravida. There may be a previous history of prolonged pregnancy. Maternal obesity, placental sulfatase deficiency has also been linked to post term pregnancy.[4] Incidence of post term pregnancy is also related to lack of knowledge and awareness about the risks related to prolonged pregnancy. The incidence of post term pregnancy varies depending on whether the calculation is based on the history and clinical examination alone or whether early pregnancy Ultrasound examination is used to estimate gestational age. The assessment of gestational age by first trimester ultrasound has decreased the incidence of post term pregnancy by 50%.[5]

Post dated pregnancies associated with an increased risk of fetal and neonatal mortality and morbidity as well as increased maternal morbidity. It has been noted that in a

pregnancy which has crossed the expected date of delivery, there is increased likelihood of oligohydramnios, meconium-stained liquor, macrosomia, fetal post maturity syndrome and increased operative interference. Antepartum still birth at and beyond term is a major public health problem. Galal et al found that the incidence of of still birth increases from 39 weeks onwards with a sharp rise after 40 wks of gestation.[6] Prolonged pregnancy has always been regarded as a high risk condition because perinatal morbidity and mortality is known to rise. Perinatal mortality from postdated pregnancy could be prevented by induction of labour. However, both clinicians and patients are concerned about the risk of induction of labour including uterine hyper stimulation, failed induction and increased cesarean section rates.Post term pregnancies are also associated with increased cost related to antenatal fetal monitoring and induction of labour and optimisation of these conflicting pressures is a clinical challenge.

Aims and objectives

The purpose of this study was to assess the parity wise distribution of pregnancy beyond EDD, type of labour whether spontaneous or induced, mode of delivery whether vaginal or caesarean, Incidence of fetal distress and birth weight of neonates.

METHODS

Inclusion criteria

The patients who were primi or multi gravida with low-risk singleton pregnancy, with vertex presentation, with LMP definitely known or earliest scans available and regular menstrual cycles were taken in study. EDD was calculated as per Naegles formula.

Exclusion criteria

All high-risk pregnancies, multiple gestation and non-vertex presentation were excluded from the study.

Procedure

This observational study was carried out in Obstetrics and Gynaecology department of ESIC Medical College and Hospital, Bihta from for a period of one year from October 2022 to September 2023.All patients attending OPD or emergency of ESIC Medical College Obstetrics and Gynaecology department with postdated pregnancy and fulfilling the inclusion criteria were included in the study. History was taken to assess the age, parity, BMI, socioeconomic status, LMP and EDD of the patients. Examination was done including general examination to note the onset of labour, PV findings of the patients. The progress of labour was monitored. Mode of delivery noted. The birth weight of the neonate as well as need for NICU admission was noted. This was an observational study so ethical approval was not required. All the samples were collected using non-random methods and results were analysed using descriptive statistics. The patients who were admitted were divided into 2 groups of gestational age; 40 to 41 weeks, 41 to 42 weeks. The patients who were admitted were divided into 3 categories; admitted for induction were assessed according to their Bishops score and induction done accordingly with foleys or CP gel, admitted in spontaneous labour were monitored for FHR and progress of labour and admitted with meconium-stained liquor/fetal distress was taken for LSCS stat. Parity of the patients, gestational age at the time of admission, cervical findings, induction and augmentation of labour was followed and mode of delivery and outcome and weight of baby was noted. Requirement of NICU was noted.

RESULTS

Out of around 1200 deliveries conducted in ESICMC &H between the time period of 1 October 2021 to 1 October 2023, around 70 were postdated.

Table 1: Age of the patients and incidence of postdated pregnancy (n=70).

Age (years)	N	%
20-25	34	48.56
26-30	22	31.42
31-35	10	14.28
>35	4	5.71

Table 2: Relationship of BMI with incidence of postdated pregnancy (n=70).

BMI	N	%
Less than 18.5	15	21.4
18.5-24.9	29	41.4
25-29.9	18	25.7
>30	8	11.4

So the frequency of post-dated pregnancy was about 5%. About 48% of patients were in age groups 20-25yrs,31% were in age groups 26-30 yrs 14% were in age groups 31 - 35 yrs and 5.7% were in age groups more than 35 yrs. 21% of patients had BMI less than 18.5,41%of patients had their BMI 18.5 to 25.9, 25.7% of patients had their BMI between 25-29.9 while 11.4% had their BMI greater than 30. Out of 70 postdated deliveries conducted in our hospital 47 were of rural population while 23 were of urban population. 51.4% of primigravidas and 8.5% of multi gravida were between 40-41 wk gestational age. 22.86% of primigravida and 1.4% of multi gravida were between 41-42 wk of gestational age. 8.5% of primi gravida were-of greater than 42 wks of gestation. 6 patients out of total patients between the gestational age of 40-41 wks were admitted with spontaneous labour and delivered vaginally. 34 patients in gestational age 40 -41 weeks were induced out of which 14 patients had vaginal deliveries and 20 were converted to LSCS.8 patients in gestational age 40 -41 wks had LSCS stat.

Table 3: Parity wise distribution of cases (n=70).

Gestational age (wks)	Primi	%	Multi	%
40-41	36	51.4	6	8.5
41-42	16	22.86	1	1.4
>42	6	8.5	-	-

Table 4: Incidence of postdated pregnancy in rural and urban population.

Parameters	N	%
Rural	47	67.1
Urban	23	32.9

Table 5: Type of labour.

Parameters	N	
Spontaneous (weeks)	**Vaginal**	**Converted to LSCS**
40-41	6	-
41-42	4	-
>42	2	-
Induced (weeks)		
40-41	14	20
41-42	6	6
>42	-	-
LSCS stat		
40-41	8	-
41-42	2	-
>42	4	-

Total 4 patients in gestational age 41 to 42 weeks delivered vaginally while 12 patients in 41 to 42 weeks were induced out of which 6 patients had vaginal deliveries and 6 were converted to LSCS. 2 patients in 41 to 42 weeks had LSCS stat. 2 patients had spontaneous vaginal deliveries in gestational age >42 wks, no patients were induced and 4 patients had LSCS stat.

Table 6: Mode of delivery in various gestational age groups.

Gestational age (weeks)	Vaginal delivery		LSCS	
	N	%	N	%
40-41 (N=48)	20	41.6	28	58.3
41-42 (N=18)	10	55.5	8	44.44
>42 (N=6)	2	33.33	4	66.66

So the mode of delivery was vaginal in 41.6% and LSCS in 58.3%. Mode of delivery was vaginal in 55.5% and LSCS in 44.44% in the gestational age group of 41-42 weeks. Mode of delivery was vaginal in 33.33% and LSCS in 66.66% in gestational age group of >42 weeks. 14 cases of total LSCS done for postdated pregnancies were due to failure of induction, 4 cases due to nil liquor, 12 cases for non-progress of labour, 6 cases due to Meconium-stained liquor and fetal distress and 4 cases were due of cephalopelvic disproportion.

Table 7: Indication of LSCS (n=40).

Indication	N	%
Failure of induction	14	50
Absent liqour	4	10
NPOL	12	30
Meconium stained liquor, fetal distress	6	15
CPD	4	10

Table 8: Incidence of NICU admissions.

Gestational age (weeks)	N	%
40-41 (N=48)	8	16.67
41-42 (N=18)	6	33.33
>42 (N=6)	4	66.67

Table 9: Weight of newborns in postdated pregnancy.

Weight (kg)	N	%
<2.5	20	28.57
2.6-3	32	45.71
3.1-3.5	14	20
3.6-4	4	5.71
>4	-	-

16% of newborns in gestational age group 40-41 weeks required NICU admission, 33.33% of newborns in gestational age group of 41-42 weeks required NICU admissions and66.67% of newborns in the gestational age group of >42 weeks required NICU admissions. 20 newborns out of the 70 delivered, approximately 28% were less than 2.5 kg, 32 newborns were between 2.6 to 3 kg about 45%, 14 newborns were between 3.1 to 3.5 kg about 20% and 4 were between 3.6 to 4 kg approximately 5.7%.

DISCUSSION

The present study was conducted to find out the incidence of maternal complications, perinatal mortality and morbidity in postdated pregnancy. Total cases were 70 which were enrolled based on inclusion and exclusion criteria.In this study the maximum cases were between the age of 20 to 25 years while the maximum cases in a study conducted by Akhtar et al were in the age group of 18 to 29 years.[7] In the study by Dobariya et al there were 58 patients in the age group of 20 to 30 years and in the study by Patel et al there were 32 cases in the age group of 20 to 30 years.[8,9] In the study conducted by Singh N et al, maximum cases that is 72% were in the age groups of 20 to 25 years.[10] In our study maximum postdated pregnancies occurred in gestational age group of 40-41 weeks. In studies done by Patel et al maximum patients were between 40 to 40 weeks 6 days which was similar to our study.[9]

Maximum patients in our study were primigravidas. Similarly in studies conducted by Mahapatro et al maximum patients, that is 72% were primi gravidas.[11]

Morgreaset et al found in their studies that primi parity was significantly associated with post term pregnancy.[12] In the study conducted by Singh et al maximum cases around 81% were in the gestational age group of 40 to 41 weeks.[10] In our study 47 patients out of 70 postdated pregnancies were from the rural population while 23 patients were from urban population. Improper antenatal check-ups were observed in rural women and mostly they came directly in labour room. In our study 41% of patients in 40 to 41 weeks of gestational age group had vaginal delivery, 55.55% of patients in 41 to 42 weeks gestational age had vaginal delivery while 33.33% in gestational age greater than 42 weeks had vaginal delivery whereas rate of cesarean section was 58.3% in the gestational age group of 40 to 41 weeks, 44.4% in the gestational age group of 41 to 42 weeks and 66.66% in the gestational age group of greater than 42 weeks but in the study conducted by Shinge et al maximum patients underwent spontaneous vaginal delivery and 37% patients required cesarean section as the mode of delivery.[13] There were no cases of instrumental deliveries in our institution in case of postdated pregnancy whereas in study conducted by Singh et al 2% of instrumental deliveries were seen in the gestational age group of 40 to 41 weeks.[10] The rate of instrumental delivery in Mahapatro study was 5.7%.[11]

In our study the indication of cesarean section was 50% for failure of induction, 10% for absent liquor, 30% for non-progress of labour, 15% for meconium stained liquor and fetal distress and 10% for CPD while in study conducted by Mahapatro et al fetal distress was found to be most common indication of LSCS.[11] In the study by Akhtar et al caesarean section was done in view of fetal distress in 32% of cases, for non-progress of labour in 25.3% of cases and for failure of induction in 24% of cases.[7] In the study conducted by Singh et al the total number of cesarean sections were 32% and they indication of meconium steel liquor with fetal distress was 8 was 26%; 21% of cesarean section where for failure of induction while 19% was for severe oligohydramnios, 5% for cephalopelvic disproportion and 5% for non-progress of labour in 1% of cases seen in the study by Singh et al indication of cesarean section was absent liquor.[10] NICU admission rates of the newborns we're high as the gestational age increases in our study. In study conducted by Singh et al similarly NICU admission rates were high as compared to general population.[10] Though this study focused on calculating the postdatism through LMP and correlating it with earliest scan, many a times unbooked patients with no early scan turned up in emergencies with just their LMP to rely upon. The study being conducted in ESIC Medical College Bihta which was a newly established tertiary care centre our sample size was small. It was difficult to educate the women from the rural area about risks of postdated pregnancy.

CONCLUSION

Post dated pregnancy is associated with fetal, neonatal and maternal complications including morbidity and perinatal mortality. These risks were originally underestimated because of inaccurate pregnancy dating and denominator used to define stillbirth. The use of routine ultrasound for dating in the first trimester has decreased the overall rate of post term pregnancy. 42 weeks of gestation does not represent a threshold under which risks are uniformly distributed and there is emerging evidence that fetal neonatal and maternal complication do increase before 42 weeks of pregnancy. Therefore, the definition and management of post term pregnancy has been challenged in several studies in recent years and so earlier intervention with induction of labour after 40-41weeks appears appropriate management. More training of peripheral health workers is required for calculation of accurate dating, making diagnosis and proper management to reduce its incidents and also educate the patient about the risks of prolonged pregnancy. When any pregnant patient who comes in antenatal period she should be counselled regarding the importance and necessity of accurate LMP to reduce postdated pregnancy and its complications.

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