

## Perinatal and maternal outcome in post-dated pregnancy: A retrospective study

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### Abstract

**Background:** Prolonged pregnancy or post-dated pregnancy is that pregnancy which has exceeded duration considered to be upper limit of normal pregnancy that is above 40 completed weeks or 280 days from the first day of last menstrual period. The objective was to evaluate the maternal and perinatal outcome of post-dated pregnancy. **Materials and method:** This is a retrospective observational study done in 1<sup>st</sup> Jan 2020 and to 31<sup>st</sup> December 2020 in the Department of Obstetrics and Gynaecology in Mahatma Gandhi Medical College, Indore. In this study, data was collected retrospectively from hospital records and we tried to find out the incidence of post dated pregnancy (pregnancies beyond 40 weeks) and its maternal and fetal outcome. **Results:** In the present study, total of 9167 cases were studied out of which 760 cases were post dated pregnancies. The incidence of post dated pregnancy was 8.29%. PRIMIs were more prone for post dated pregnancies according to our study. Foetal distress and meconium release occurred more commonly in postdated pregnancy. There was a progressive decrease in the amniotic fluid volume after 40 weeks. Rate of LSCS was higher that is 39%. Common indications being foetal distress, failure of induction, non-progress of labour thick meconium in the perinatal outcome 25% of neonate require NICU admission with complications like birth asphyxia, transient tachynea of newborn, sepsis. **Conclusion:** Postdated pregnancy is associated with both, maternal and foetal complications. Timing of induction has to be decided carefully, as early induction leads to failure and increased rates of LSCS, while late induction leads to increased foetal complications. Maternal and fetal morbidity and mortality can be reduced by electively inducing pregnant women at 40+0 weeks as allowing them to continue beyond this gestational age has shown adverse fetomaternal outcomes

**Keywords:** perinatal, maternal & pregnancy.

**Study Design:** Observational Study.

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### Introduction

A post-term or prolonged pregnancy is the one which extends to or beyond 42 weeks or 294 days from the first day of the L.M.P and has an incidence of 5% to 10% [2]. A post dated pregnancy is the one which extends to or beyond 40 weeks or 280 days from the first day of the L.M.P and has an incidence of 4% to 14% [3].

Postdate, postterm, postmaturity, and prolonged pregnancy is accepted terms by WHO and the International Federation of Gynaecology and Obstetrics to describe pregnancy beyond dates (expected date of delivery). As per WHO, postterm pregnancy (PTP) is defined as a pregnancy that persists beyond 294 days or 42 weeks of gestation [4]. Prolongation of pregnancy complicates up to 10% of all pregnancies and carries increased risk to mother and foetus [1].

Post-term pregnancy has been associated with an increased risk of perinatal mortality and morbidity including meconiumstained liquor, meconium aspiration syndrome, oligohydramnios, macrosomia, fetal birth injury, fetal septicemia, non-reassuring fetal heart rate (NST) or fetal distress in labour and maternal complications including increased rate of cesarean delivery, cephalopelvic disproportion, cervical tear, dystocia and postpartum hemorrhage [2].

It has been proven that pregnancy prolongation beyond 42 weeks is a hazard for the fetus. The rate of post-dated pregnancy has become a marker of quality of Perinatal Units, considering most deliveries occurring after 294 days have adverse outcomes. As far as policies are concerned, nothing could be concluded on the two contrasting attitudes, i.e. whether to do expectant management till 290-92 days or do elective induction of labour at 287th day. Since the evidencebased medicine approach do not allow any definite conclusion regarding this aspect, the choice about when to induce should be balanced considering the orientation and the anxiety of the patient and the obstetrician. Keeping in mind the above background, aim of the present retrospective study was to analyse the outcome of pregnancies which crossed the expected date of delivery.

### Objective

- To study the incidence of postdatism and maternal complications in postdated pregnancies.
- To study the perinatal mortality and morbidity in postdated pregnancies

### Materials and methods

It was a retrospective observational study done in December 2020 and included 760 post-dated pregnancies from 1<sup>st</sup> Jan 2020 to 31<sup>st</sup>

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#### Inclusion Criteria

- Antenatal cases beyond 40 weeks of gestation.
- With regular menstrual cycles and known LMP or with first trimester scan for EDD calculation
- Singleton pregnancy with vertex presentation

#### Exclusion Criteria

- Any associated complications such as malpresentations, placenta previa, abruption, anaemia, and other medical complications.

- Foetal anomalies

Data was collected retrospectively from hospital records of all patients meeting the inclusion criteria till the study duration. Details including demographic profile, period of gestation in weeks, amniotic fluid level, mode of delivery, maternal and neonatal complications.

#### Results and discussion

The total no. of deliveries over the period of 24 months were 9167, out of which 760 patients were beyond 40 weeks of gestation so the incidence of post-dated pregnancy was 8.29 % at our centre.

**Table 1: Distribution of patients according to age group (n=760)**

AGE GROUP	NUMBER OF PATIENTS	%
<20yr	148	19.48%
20-30	502	66.04%
≥30 yr	110	14.48%

**Table 2: Distribution of patients according to Parity (n=760)**

PARITY	NUMBER OF PATIENTS	%
Primi	354	46.58%
II	198	26.06%
III	111	14.60%
Multiparity	97	12.76%

Among the study group 66% of women were between 21-30 years. Only 14% women were > 30 year. Among those 46% primigravida and only 12% were multipara

The results are similar to Parimalam *et al* study who demonstrated 68% of women were between 21-30 years and 44% were primigravida[5]. While Mc Kiddle noted no significant difference in the age group of the postdated pregnancy.

In our study, majority cases were primigravida (46.5%) which is similar to Mahapatro[7] and Alexander *et al.*'s study[21].

**Table 3: Distribution of patients according to Gestational Age (n=760)**

Gestational age (in weeks)	NUMBER OF PATIENT	%
40-41	322	42.36%
41-42	278	36.57%
>42	160	21.07%

42% of patients delivered between 40 weeks 1 day of gestation and 41 weeks of gestation. 36% patients delivered between 41 weeks 1 day of gestation and 42 weeks and only 21% patients delivered beyond 42 weeks. While Lata, Sinha A, Prasad D, *et al* study shows 68% of postdated pregnancy between 40-41 week and only 3% were beyond 42 weeks[6].

Reddy UM *et al* found in their study that women who are of advance maternal age are at higher risk of still birth throughout gestation, the peak risk period is 37 to 41 weeks[17].

**Table 4: Distribution of patients according to associated risk factors (n=760)**

ASSOCIATED FACTORS	NUMBER OF PATIENT	%
Previous LSCS	54	7.1%
Preeclampsia	132	17.36%
Severe oligo	218	28.70%
IUGR	129	17%
CPD	98	12.90%
GDM	24	3.10%
PROM	105	13.84%

In these study some associated factors were found to be present, most common factor associated is oligohydramnios which is 28% in this study group.

**Table 5: Distribution of patients according to Amniotic fluid Index (n=760)**

AMOUNT OF LIQUOR	NUMBER OF PATIENT	%
Adequate (AFI 8-18)	342	45%
Decrease (AFI 5-8)	251	33%
Very low (AFI < 5)	167	22%

There was a progressive decrease in the amniotic fluid volume after 40 weeks. With 40 completed weeks of pregnancy the liquor was decrease in 33 % of cases and liquor was found to be very low in 22% of post dated pregnancy in this study group.

Beischer *et al* (1986) had also demonstrated such a decrease beginning after 40 weeks of pregnancy Incidence of birth asphyxia and perinatal mortality was 27.2% and 9% respectively when there was oligohydramnios A Palimilan *et al* study[5].

Delivery should be considered if there is evidence of fetal compromise or oligohydramnios (Crowley *et al.*, 1984; Phelan *et al.*, 1985)[8].

Oligohydramnios may result from feto-placental insufficiency or increased renal artery resistance (Oz *et al.*, 2002)[10] and may predispose to umbilical cord compression, thus leading to intermittent fetal hypoxemia, meconium passage, or meconium aspiration. Frequent (twice weekly) screening in postterm pregnancies is suggested because amniotic fluid can become drastically reduced within 24 to 48 hours (Clement *et al.*, 1987)[9].

**Table 6: Distribution of patients according to Mode of delivery (n=760)**

MODE OF DELIVERY	NUMBER OF PATIENTS	%
Spontaneous vaginal delivery	140	18%
Induced vaginal delivery	326	43%
LSCS	294	39%

In this study group, 18% of patients had spontaneous onset of labour, induction of labour done in 43% which was quite high.

The incidence of induction quoted by various authors ranged between 20-40%. Present study- 43%. Our results are matching with Shime and Schneider studies[15].

Rate of LSCS in our study was 39%. Cesarean section was significantly more common in women with post dated pregnancy. Similar finding was also observed in a study conducted by Luckas *et al* which compared outcomes of spontaneous labor in uncomplicated term and post dated pregnancy[16].

As the pregnancy goes beyond expected date of delivery, the rate of LSCS, oligohydramnios, and perinatal morbidity increases progressively. Similar findings were observed by Bhreiguet *al*[20].

**Table 7: Distribution of patients according to Indication of LSCS (n=294)**

Indication of LSCS	NUMBER OF PATIENTS	%
Foetal distress	78	28%
Failed Induction	67	23%
Non progress of labour	28	9.5%
Prev LSCS	44	15%
Malpresentation	12	1.6%
CPD	10	4%
Thick meconium	55	18.9%

A total number of Caesarean sections were 294. Maximum number of cases, i.e., 28% indications were foetal distress, in 23% cases indications were failed induction, in 18% indications were thick meconium, in 15% indication was previous LSCS, in 9.5% it was done for non progress of labour, and 4% for CPD.

In our study, it is observed that fetal distress is the main indication for LSCS 28% like Mahapatro's study[7], in which fetal distress was found to be the most common indication for LSCS (65.5%) and in also study by Bhreigu R *et al*[20] main indication was meconium stained liquor with fetal distress.

**Table 8: Distribution of patients according to Maternal complications (n=760)**

Maternal complications	NUMBER OF PATIENTS	%
PPH	136	18%
Sepsis	91	12%

Postpartum hemorrhage and septicemia were maternal complication in study subjects, 18% patients had PPH and 12% patients had develop sepsis.

According to study done by Aaron, estimated rates of maternal complications increase beyond 40 weeks of gestation. Beyond that the rates of operative vaginal delivery, perineal laceration and chorioamnionitis all increases. and rates of postpartum hemorrhage, endometritis and primary caesarean delivery increased at 41 weeks of gestation[18].

However Fernando Arias found that complications start to increase significantly once pregnancy continues beyond 40 weeks[19].

**Table 9: Distribution of patients according to Indication of perinatal outcome (n=760)**

PERINATAL OUTCOME	NUMBER OF PATIENTS	%
IUD	34	4.5%
NICU admission	190	25%
Healthy: does not require NICU	536	70.5%
Total	760	100%

In this study group, 70.5% neonates were found to be healthy and do not require NICU admission, while 25% of neonates require NICU Admission and 4.5% of post dated pregnancy were diagnosed with Intrauterine foetal loss. Similar results were found in a study conducted by Luckas M more neonates born after post dated pregnancy require NICU admission[16].

**Table 10: Distribution according to Details of perinatal outcome (n=760)**

PERINATAL OUTCOME	NUMBER OF PATIENTS	%
IUD	34	4.5%
NICU admission for asphyxia	74	9.8%
NICU admission for TTN	37	4.9%
NICU admission for RDS	45	6%
NICU admission for LBW	12	1.5%
NICU admission for sepsis	22	2.8%
healthy	536	70.5%

In this study 190 neonate require NICU admission ,out of which 10% was due to asphyxia, 6% was due to RDS ,5% was due TTN, 2.8% indicated for neonatal sepsis and only 1.5% for LBW.In Singh S *et al* study 17% among the post dated outcome require NICU admission and main culprit was HIE and meconium aspiration[13].A study from Scotland published in 2010 demonstrate increase risk of still birth as pregnancy advances especially after 39 weeks of gestation[11]. Aspiration of meconium during intrauterine life may result in meconium aspiration syndrome, is a leading cause of perinatal death as reported by Kistka *et al*[12].

Perinatal morbidity increased in the form of NICU admission, the rate almost doubled at 41 weeks compared to 40 weeks in study of Puna BS. It was 23% between 41-42 weeks and 53% beyond 42 weeks.

### Conclusion

The present study shows that the incidence of post dated pregnancy is 8.29%. There is definite increase in the incidence of induction of labour compared to spontaneous onset of labour.

Maternal morbidity increased in the form of emergency LSCS, postpartum haemorrhage, instrumental deliveries, as the gestational age increased beyond 40 weeks. The study also shows that there is significant increase in perinatal morbidity and perinatal mortality in the form of birth asphyxia, meconium aspiration syndrome, increased rate of admission into NICU and perinatal death as the gestational age went beyond 40 weeks.

Management of post-dated pregnancy requires timing of induction to be decided wisely as early induction leads to failure and increased rates of LSCS, while late induction leads to increased foetal complications. To improve the outcome attempts should be made to determine the estimated date of confinement in all pregnancies before the third trimester by emphasizing the early and regular antenatal check up. Any pregnancy that goes beyond 41 weeks of confirmed gestational age foetal well-being must be assessed and proper management should be done to reduce the rate of perinatal morbidity and mortality.

To conclude, maternal and fetal morbidity and mortality can be reduced by electively inducing pregnant women at 40+0 weeks as allowing them to continue beyond this gestational age has shown adverse fetomaternal outcomes

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