A cross sectional observational study to evaluate the maternal and fetal outcome in postdated pregnancies

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INTRODUCTION

Post-dated pregnancy is when the gestation is more than 40 weeks or 280 days. They last longer than the estimated date of delivery also known as the due date in layman’s terms. Pregnant women who have passed their estimated date of delivery but who have not reached 42 weeks of gestation yet (those between 40 and 42 completed weeks of gestation) remain an important group for whom there is ongoing research regarding antenatal fetal surveillance and indications for induction of labour. The prevalence varies worldwide but is estimated to be 5-10%. The reported frequency of post term pregnancy is 3-12%.

Assuming that the incidence of postdate pregnancy may be slightly higher than that of post term is reasonable. Although a 2004 Practice Bulletin from the American College of Obstetricians and Gynecologists recommends avoiding the term “postdates” owing to its being poorly defined, this term continues to be used as a common reason for induction of labor for pregnancies that continue after 41 completed weeks of gestation. It is associated with an increased risk of perinatal mortality and morbidity together with a higher risk of maternal obstetrical complications. It has been reported...
that in a pregnancy that has crossed its expected date of
delivery there is an increased risk of oligohydramnios,
meconium stained amniotic fluid, macrosomia fetal post
maturity syndrome, and caesarean delivery, all of which
jeopardize the baby and the mother. 

Prolonged pregnancy is regarded as a high risk condition
because perinatal morbidity and mortality is known to
rise. The interest in postdatism is recent and the
management is controversial, more so with the advent of
sonography providing information about placental ageing
and amount of amniotic fluid.

The most common cause of prolonged pregnancies is
inaccurate dating. The use of standard clinical criteria
to determine the estimated date of delivery tends to
overestimate the gestational age and consequently
increases the incidence of postdated pregnancies.
Common risk factors for postdated pregnancies include
primiparity, previous prolonged pregnancy, male fetus,
obesity, hormonal factors and genetic predisposition.

Altered levels of circulating hormones that are thought to
play a role in the causation of spontaneous labor may also
play a role in the causation of prolonged pregnancy.
Abnormal fetal HPA and adrenal hypoplasia as in
anecephaly results in deficiency of dehydroepiandrosterone which leads to reduced fetal
cortisol response and hence delayed onset of labor.
Placental sulfatase deficiency, a rare X linked disorder
can prevent spontaneous labor due to defect in the
placental sulfatase activity and the resulting decreased
estriol levels.

The combination of continued fetal growth and arrested
placental growth may lead to situation of decreasing
placental reserve, compromised fetal circulation and
eventually fetal distress. According to an electron
microscopy study of placental changes in prolonged
pregnancy suggests uteroplacental ischemia and not
ageing may be more important in the genesis of post
maturity.

The perinatal mortality rate at 42 weeks is twice as high
as at term, increases to 4 folds at 43 weeks and 5-7 folds
at 44 weeks. It is believed that uteroplacental
insufficiency, meconium aspiration and intrauterine
infection are the underlying cause of the increased
perinatal mortality in such cases. Fetal morbidity also
increases beyond 41 weeks of gestation. This includes
passage of meconium, macrosomia, neonatal acidaemia
dysmaturity. Birthweight in excess of 4000g are
threefold to sevenfold more common in postdated
pregnancies with an overall incidence of 25% at 42
weeks.

As the pregnancy progresses towards its culmination a
series of changes occur in the amniotic fluid, placenta and
fetus. Amniotic fluid gradually decreases and it has been
observed that after 42 weeks there is 33% decrease in
amniotic fluid volume. Pregnancy beyond 40 weeks

needs frequent Amniotic fluid index monitoring. Decrease in renal blood flow is associated with
postdatism which is the cause for this oligohydramnios. It also becomes milky and cloudy because of presence of
abundant flakes of vernix caseosa. It may also become
meconium stained as a result of intrauterine hypoxia.
Placental changes can be seen on USG - the indentation
in the chorionic plate becomes more prominent giving the
appearance of cotyledons. There is also appearance of
hemorrhagic infarcts and calcifications. The fetus grow in
utero and become macrosomic which may lead to
cephalopelvic disproportion, prolonged labor or shoulder
dystocia.

Mothers are at risk of labor dystocia, severe perineal
lacerations, operative vaginal delivery, caesarean
deliveries. Risk of complications such as
chorioamnionitis, severe perineal lacerations,
endomyometritis all increase progressively. The
emotional impact of prolonged pregnancy should not be
underestimated either.

Postdated pregnancy is an obstetric situation which
demands special attention in developing countries where
neglected pregnancies are common. Accurate assessment
of gestational age and diagnosis of postdated pregnancy
as well as recognition and management of risk factors
may reduce the risk of adverse outcomes. Though the
correct choice of management remains controversial,
considering the above mentioned complications most of
the patients will benefit from more aggressive induction
of labor at 41 weeks. With this background the present
study was undertaken to find out the maternal and fetal
outcome was in pregnancy beyond 40 weeks of gestation
to know the maternal complications beyond expected
date of delivery and to know fetal morbidity and
mortality.

Objectives of the study was to study the maternal
complications in postdated pregnancies and to study the
neonatal outcome in postdated pregnancies.

METHODS

This cross sectional observational study was carried out
in the Department of Obstetrics and Gynecology in R.L.
Jalappa hospital which is a tertiary care centre from July
2018 to July 2019. Data will be collected from previous
records of postdated pregnancies of RLJH hospital during
the period of study. Approval of the institutional ethics
committee was taken prior to commencement of the
study.

Sample size for the study is estimated based on the major
complications associated with postdated pregnancies i.e.,
meconium aspiration syndrome that was reported to be
13% in a study called “Management and outcome of
post-dated pregnancy at Rajshahi Medical College and
Hospital.” The estimated sample size with 99% confidence interval and 5% absolute error is 106.
**Inclusion criteria**

Pregnant women more than 40 weeks of gestation, who were sure about LMP and their pregnancy was dated by 1st trimester scan, singleton pregnancies, cephalic presentation were included in the study.

**Exclusion criteria**

Women who were not sure about LMP, not dated by early scan, multiple pregnancy, pregnancies complicated by medical disorders, fetal anomalies were excluded from the study.

Data was collected using case record form after taking informed consent of the participants during the study period. Total 106 patients were selected based on the gestational age of the patients. Detailed clinical history was noted including menstrual, obstetrics history, past, personal and family history. Gestational age was calculated as per the LMP and the first trimester scan. If there was a discrepancy of more than 5 days, the gestational age as per the first trimester was considered. The patients general condition, systemic examination and per abdominal examination were recorded. Records were kept about the mode of delivery and if any postpartum maternal complication if occurred. The baby details were noted. The cause of NICU admission was noted if there were any. Any neonatal deaths that occurred were also recorded. Data collected was entered in Microsoft Excel Spread Sheet Using statistical package for social services (SPSS) for analysis.

**RESULTS**

**Table 1: Distribution of participants according to their demographic data.**

<table>
<thead>
<tr>
<th>Demographic data</th>
<th>No. of participants</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group (in years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-21</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>21-24</td>
<td>40</td>
<td>37</td>
</tr>
<tr>
<td>24-27</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td>27-30</td>
<td>11</td>
<td>10.3</td>
</tr>
<tr>
<td>30-33</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Gestational age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 weeks - 40 weeks 6 days</td>
<td>85</td>
<td>79.4</td>
</tr>
<tr>
<td>41 weeks - 41 weeks 6 days</td>
<td>21</td>
<td>19.8</td>
</tr>
<tr>
<td>Parity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primigravida</td>
<td>58</td>
<td>55</td>
</tr>
<tr>
<td>Multigravida</td>
<td>48</td>
<td>45</td>
</tr>
<tr>
<td>Booking status</td>
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<td></td>
</tr>
<tr>
<td>Booked</td>
<td>47</td>
<td>44</td>
</tr>
<tr>
<td>Unbooked</td>
<td>59</td>
<td>56</td>
</tr>
</tbody>
</table>

Out of 106 patients who were studied majority i.e., 59 patients (56%) were unregistered with our health care centre where as 47 patients (44%) were registered with us for regular ANC visits. Mean age of the patients that were studied was 22. Maximum participants were in the age group 21-24 years. The least number of participants were above 30 years of age (Table 1).

**Table 2: Distribution of participants based on their clinical parameter.**

<table>
<thead>
<tr>
<th>Mode of delivery</th>
<th>Number of participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTND</td>
<td>50</td>
<td>47</td>
</tr>
<tr>
<td>Cesarean section</td>
<td>48</td>
<td>45</td>
</tr>
<tr>
<td>Operative vaginal delivery</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>FTND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spontaneous</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Induced</td>
<td>41</td>
<td>82</td>
</tr>
<tr>
<td>Operative vaginal delivery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forceps assisted</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>Vacuum delivery</td>
<td>4</td>
<td>75</td>
</tr>
</tbody>
</table>

**Table 3: Distribution of participants based on indication for C section.**

| Cesarean delivery indications                | Number of participant | Percentage |
|----------------------------------------------|                       |            |
| Meconium stained liquor                      | 12                     | 25         |
| Severe oligohydramnios                       | 10                     | 21         |
| Fetal distress                               | 8                      | 17         |
| CPD                                          | 6                      | 13         |
| Previous LSCS                                | 5                      | 10         |
| Non progression                              | 3                      | 6          |
| Failed induction                             | 2                      | 4          |
| Obstructed labour                            | 2                      | 4          |

**Table 4: Distribution of participants based on the fetal outcome.**

| Fetal outcome          | Number of participants | Percentage |
|------------------------|                        |            |
| Motherside             | 61                      | 58         |
| NICU admission         | 45                      | 42         |

**Table 5: Distribution of participants based on cause for NICU admission of the baby.**

| Cause of NICU admission | Number of participants | Percentage |
|-------------------------|                        |            |
| Fetal distress          | 21                      | 20         |
| Thick meconium stained liquor | 12                   | 11         |
| Macrosomia              | 2                       | 2          |
| Perinatal asphyxia      | 6                       | 6          |
| IUGR                    | 4                       | 4          |

**Table 6: Distribution of participants based on maternal complications.**
Majority of patients i.e. 85 patients (80.1%) had gestational age between 40 weeks to 40 weeks 6 days and 21 patients (19.8%) had gestational age between 41 weeks to 41 weeks 6 days. Majority of the patients belonged to the primigravida group 58 (55%) and 48 (45%) patients were multigravida (Table 1). 14 out of 48 multigravidas had history of previous postdated pregnancies. Out of 50 patients who had full term normal delivery 41 (82%) were induced and delivered vaginally and 9 patients (18%) had spontaneous onset of labor (Table 2). Mode of delivery in 61 patients (58%) was found to be Full term normal delivery and 48 patients (49%) underwent cesarean section and 3 patients had operative vaginal delivery (Table 2).

Among all the patients who needed operative vaginal delivery (8), majority of 6 cases (75%) was delivered by Vacuum assisted vaginal delivery and 2 patients (25%) had forceps delivery (Table 2). Among all the patients who underwent cesarean section (48), indication for caesarean section was thick meconium stained liquor with poor bishop score in 12 patients (25%). Severe oligohydranmios was indication in 10 cases (21%) which was followed by isolated fetal distress in 8 cases (17%) and CPD in 6 cases (13%). 5 cases (10%) underwent cesarean section in view of previous LSCS and 3 cases (6%) due to non-progression of labor, 2 patients also underwent section due to failed induction and another 2 due to obstructed labor (Table 3).

The majority 61 (58%) babies born to participants did not need NICU admission, while 45 babies (42%) were admitted to NICU (Table 4). The primary reason as to their admission to NICU was fetal distress, seen in 21 babies (20%) and thick meconium stained liquor in 12 babies (11%) followed by perinatal asphyxia in 6 babies (6%). 4 babies (6%) were IUGR because of which they got admitted to NICU and 2 babies because of macrosomia (4%) (Table 5). No neonatal deaths were recorded. Out of the total patients studied, 13 patients ended up with some complications. In this study 7 patients (54%) had post-partum hemorrhage, 3 patients had perineal tears, 2 patients went into obstructed labor and 1 patient (15%) had septicemia (Table 6).

**DISCUSSION**

The aim of the study was to evaluate the maternal and fetal complications associated with postdated pregnancies. This study includes both primigravida and multigravida admitted between July 2018 to July 2019 in the department of Obstetrics and Gynecology in Sir Devraj Urs Medical College, Kolar.

In our study out of 100 cases, 40 cases were between 21-24 years, 22 between 24-27 years and 6 cases (5%) were above 30 years. The mean age in our study was 22 years, while the mean age in Mahapatro’s study was 24.19 and Eden et al.‘s study was 25.8 years. In our study majority of the cases were primigravida (58%) which is similar to Mahapatro and Alexander et al.’s study. In our study out of 100 cases 50 were full term normal deliveries, whereas 44 cases were of LSCS and 6 cases were of instrumental deliveries. It was observed that out of the 50 cases who delivered normally only 9 cases (18%) delivered spontaneously and 41 cases (82%) delivered after induction of labor. In our study the rate of LSCS was 45% whereas in Singhal et al it was 16.7% and in the study of Mahapatro it was 28.9%.

The rate of instrumental delivery was 5% in our study which is similar to the study done by Mahapatro where it was 5.72%. In the study done by Singhal et al it was 8.6%. In our study it was observed that Meconium stained liquor with fetal distress was the most common indication of LSCS (46%), like in Mahapatro’s study where fetal distress was the most common indication (65.5%). Total NICU admissions in our study was seen in 42% of the cases, most common indication for which was fetal distress (21%). Most common maternal complication that occurred was postpartum hemorrhage seen in 7 cases.

**CONCLUSION**

Management of postdated pregnancy is a challenge to obstetrician and a careful advice and monitoring can alleviate maternal anxiety and untoward complications. Frequent Amniotic fluid index monitoring should be done in pregnancy beyond 40 weeks as in our study we found more cases of oligohydramnios. In our study we concluded that prolonged pregnancy was associated with significant risk of perinatal complications such as fetal distress, meconium aspiration syndrome and IUGR. There was increased risk of obstetric complications as well like atonic PPH, oligohydramnios, obstructed labor. The adverse outcome can be reduced by making accurate gestational age and diagnosis of postdated pregnancies as well as recognition and management of risk factors.

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**Ethical approval:** The study was approved by the Institutional Ethics Committee

**REFERENCES**


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