

## Observational Study On Maternal And Perinatal Outcome In Pregnancy Of $\geq 40$ Weeks Gestation With Respect To Various Modes Of Delivery

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### Abstract

#### Aims and Objectives

1. To observe the mode of delivery.
2. To study the perinatal outcome.
3. To study the maternal outcome.

**Material and methods:** This is an observational study done in 100 pregnant women of gestational age  $\geq 40$  weeks

**Results:** The spontaneous delivery rate is 24%, successful delivery after induction is 4%, instrumental delivery 4%, and the cesarean section rate is 68%. In this study, the cesarean section rate in women beyond 40 weeks of gestation is 68%. The incidence of meconium-stained liquor was highest in the gestational age group  $\geq 41$  weeks (77.7%). In our study the incidence of fetal weight  $> 3.5$  kg is 0.1% in 40-41 weeks and 11.1% beyond 41 weeks. An APGAR score of  $> 7$  at 1<sup>st</sup> minute was observed in 42% of newborns, and 98% of the newborn had an APGAR score  $> 7$  at 5<sup>th</sup> minute. 5 minute APGAR was between 4-7 in 11.1% of neonates who delivered beyond 41 weeks. One intrauterine death was reported in women of  $> 42$  weeks. 7.7% and 33.3% of the newborn who delivered between 40-40wk6d and more than 41 weeks respectively were admitted in NICU. **Conclusion:** According to the present study, it seems reasonable to induce labour at 41 weeks of gestation as perinatal mortality and morbidity are significantly more in  $> 42$  weeks of gestation in our setup.

**Keywords:** maternal and perinatal outcome, mode of delivery

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### Introduction

**Definition** Pregnancy from gestational age of 37<sup>0/7</sup> to 40<sup>6/7</sup> weeks is defined as term pregnancy. The International definition of prolonged pregnancy, endorsed by the American College of Obstetricians and Gynecologists, is one that exceeds 42<sup>0/7</sup> weeks, namely, 294 days or more from the first day of the last menstrual period<sup>1,2</sup>.

Pregnancy of gestation  $\geq 40$  weeks has been commonly associated with abnormalities like oligohydramnios, meconium aspiration, neonatal asphyxia, macrosomia, and shoulder dystocia, congenital anomalies<sup>55</sup>. The estimation of the gestational age by early sonographic examination has reduced the incidence of Post-term pregnancy by 50.0%<sup>21</sup>

The problems associated with the pregnancy with  $\geq 40$  weeks gestation are:

1. Increased risk of operative delivery.
2. Increased anxiety in the mother.
3. Fetus is at increased risk for fetal distress, Fetal Heart Rate abnormalities, post maturity, Meconium-stained Amniotic fluid, Meconium Aspiration Syndrome. The risk factors are maternal

genetic factors, primiparity, prior postdatism, obesity, and the male gender of the fetus.

In this study, the mode of delivery and fetomaternal outcome were studied in pregnancy beyond 40 weeks.

#### Materials & Methods

This is an observational study done in 100 pregnant women of gestational age  $\geq 40$  weeks admitted in the Department of Obstetrics and Gynaecology in Alluri Sitarama Raju Academy of Medical Sciences, Eluru, during a period of July 2018 to September 2020.

#### Inclusion Criteria

1. Antenatal cases equal to or beyond 40 weeks of gestation aged between 18yrs and 35 yrs.
2. With regular menstrual cycles and known L.M.P. or with first trimester scan.
3. Singleton pregnancy with vertex presentation.

#### Exclusion Criteria

1. Chronic hypertension, pre eclampsia and eclampsia
2. Pre existing or gestational diabetes
3. Heart diseases
4. Antepartum haemorrhage
5. Irregular menstrual cycles and unknown L.M.P.
6. Multiple gestation
7. Non-vertex presentation

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**Table 1: Contributing Factors**

| Maternal factors                                       | Fetal placental factors  |
|--|--|
| Prepregnancy body mass index (B.M.I.) $\geq 25^{8,26}$ | Anencephaly (pituitary / adrenal insufficiency).                 |
| Previous prolonged pregnancy <sup>19</sup>             | Placental sulphatase deficiency (an X-linked recessive disorder) |
| Maternal socioeconomic status                          | Male fetuses <sup>25,27</sup>                                    |

**Results**

Of the total 100 women, 90 % were in 40wk – 40wk 6D group, 9% in 41wk-

41wk-6D group and 1 % were in  $\geq 42$  weeks group.

➤ In the study population, 64% were primigravida, and 36% were multigravida.

➤ Patients with history of previous postdated pregnancy constitute 15 (20.2%)

**Table 2: Mode of Delivery**

| Mode of Delivery  | No. of pregnant women | Percentage |
|---|-----------------------|------------|
| Spontaneous Vaginal Delivery                              | 24                    | 24         |
| Successful Induction<br>(Total induced pregnant women-18) | 4                     | 4          |
| Instrumental  | 4                     | 4          |
| Caesarean Section-<br>Elective                            | 1                     | 1          |
| Emergency*  | 67                    | 67         |
| Total   | 100                   | 100        |

➤ \*Includes cases of failed induction also.

➤ The spontaneous delivery rate is 24%, successful delivery after induction is 4%, instrumental delivery 4%, and the cesarean section rate is 68%.

➤ Induction was carried out in 18 women. Out of 18 women induced, 4 (22.2%) had a successful vaginal delivery.

➤ 44.4 % of women induced with PGE2 gel and 25% women induced with oxytocin delivered vaginally.

**Table 3: Mode of Induction**

| Method of induction  | Cerviprime | Misoprostol | Oxytocin |
|----------------------|------------|-------------|----------|
| Total induction      | 9          | 5           | 4        |
| Successful induction | 4          | 0           | 1        |
| Failed induction     | 5          | 5           | 3        |

Induction was carried out in 18 women. 9 (50%) women were induced with oxytocin.

induced with PGE2 gel, 5 (27.7%) with misoprostol and 4 (22.2%)

**Table 4: Type of Induction and Vaginal Delivery Rate**

| Type of Induction | Number | %    | Delivered Vaginally | %    |
|-------------------|--------|------|---------------------|------|
| Misoprostol       | 5      | 27.7 | 0                   | 0    |
| PGE2 gel          | 9      | 50   | 4                   | 44.4 |
| Oxytocin          | 4      | 22.2 | 1                   | 25   |
| Total             | 18     | 100  | 5                   | 27.7 |

44.4 % of women induced with PGE2 gel and 25% women induced with oxytocin delivered vaginally.

**Table 5: Indication For Caesarean Section**

| Indication             | No. of women | Percentage |
|------------------------|--------------|------------|
| Fetal Distress         | 22           | 32.3%      |
| Failed Induction       | 14           | 20.6%      |
| CPD                    | 13           | 19.2%      |
| Oligohydramnios        | 17           | 25%        |
| Deep Transverse Arrest | 2            | 2.9%       |
| Total                  | 68           | 100%       |

**Table 6: Bishop Scoring**

| Gravida | Gestational age | Bishop score $\leq 4$ | 5-6 | $> 6$ |
|---------|-----------------|-----------------------|-----|-------|
| Primi   | 40-40wk6d       | 39                    | 10  | 7     |
|         | 41-41wk6d       | 6                     | 1   | 1     |
|         | $\geq 42$ wks   | -                     | -   | -     |
| Multi   | 40-40wk6d       | 10                    | 8   | 16    |
|         | 41-41wk6d       | -                     | 1   | -     |
|         | $\geq 42$ wks   | -                     | -   | 1     |

In primigravida, 64.5% had Bishop score  $\leq 4$ , 31.25% had a score 5-6 and 4.25% had a score  $> 6$ .

• In multigravida, 18.5% had Bishop score  $\leq 4$ , 55.5% had a score 5-6, and 26% had a score  $> 6$ .

**Table 7: Incidence of Meconium Stained Liquor**

| Gestational Age   | Grade | Total | %    |
|-------------------|-------|-------|------|
| 40 W.K. - 40WK 6D | Thin  | 19    | 21.1 |
|                   | Thick | 5     | 5.5  |
| 41WK- 41WK 6D     | Thin  | 4     | 44.4 |
|                   | Thick | 3     | 33.3 |
| $> 42$ WK         | Thin  | 0     | 0    |

|  |       |   |   |
|--|-------|---|---|
|  | Thick | 0 | 0 |
|--|-------|---|---|

- The incidence of meconium-stained liquor was highest in the gestational age group ≥41 weeks (77.7%)
- Birth weight of the newborn was between 2.5 – 3.5kg in 82% of women in gestational age ≥40 weeks. In our study the incidence of fetal weight >3.5 kg is 0.1% in 40-41 weeks and 11.1 % beyond 41 weeks.

**Table 8:** Gestational Age & Neonatal APGAR Score

| APGAR score | 40WK - 40WK 6D | 41W-41WK 6D | > 42W    |
|-------------|----------------|-------------|----------|
| 1min< 4     | 2 (2.2%)       | 0           | 1 (100%) |
| 4 – 7       | 51 (56.6%)     | 4 (44.4%)   | 0        |
| > 7         | 37 (41.1%)     | 5 (55.5%)   | 0        |
| 5min< 4     | 0              | 0           | 1 (100%) |
| 4 – 7       | 0              | 1 (11.1%)   | 0        |
| > 7         | 90 (100%)      | 8 (88.8%)   | 0        |

- In the present study, an APGAR score of > 7 at 1<sup>st</sup> minute was observed in 42% of newborns, and 98% of the newborn had an APGAR score >7 at 5th minute.
- 5 minute APGAR was between 4-7 in 11.1 % of neonates who delivered beyond 41 weeks. One intrauterine death was reported in women of >42 weeks. 7.7% and 33.3% of the newborn who delivered between 40-40wk6d and more than 41 weeks respectively were admitted in NICU.

**Discussion**

The purpose of this study is to assess the pregnancy outcomes, mode of delivery at 40-41, 41-42, and beyond 42 weeks of gestation. 64% were primigravidae in our study, which coincides with the study conducted by Lata (62%)<sup>53</sup>. Mahapatro has a similar incidence of 62% in primigravidae<sup>54</sup>. Prabha Singal et al.<sup>38</sup> conducted a prospective study to evaluate the maternal and fetal outcome in prolonged pregnancy at Ajmer in which spontaneous labour started in 54%, and Induction was done in 46% of the total 150 postdated patients. In our study, out of 18 women induced, 4(22.2%) had a successful

vaginal delivery. The rate of successful vaginal delivery is less after induction in our study. 44.4 % of women induced with PGE2 gel and 25% women induced with oxytocin delivered vaginally. No successful vaginal delivery is reported with administration of misoprostol. No. of patients who underwent cesarean section were 61 (67.7%) in the 40-41 weeks, 7 (77.7%) in 41-42 weeks and 0(0%) in > 42 weeks group. The indications for cesarean section were failed Induction (45.5%), fetal distress (33.3%), CPD, and deep transverse arrest. In our study, the most common cause was fetal distress by meconium stained liquor and abnormal NST.

**Table 9:** Incidence of Meconium Stained Amniotic Fluid in Different Studies

| Authors                         | 40 WKS | 41 WKS |
|---------------------------------|--------|--------|
| Meisetal., 1978                 | 30%    | -      |
| Steer <sup>39</sup> et al.,1989 | 30%    | -      |
| Miller <sup>40</sup> &Read 1981 | 30%    | -      |
| Williams Obstetrics             | 21%    | 25%    |
| Present Study                   | 15.5%  | 20%    |

Most women (82%) had babies weighing between 2.5 and 3.5kg. 9 women in 40 weeks group, 1 in the 41 weeks group, and 0 in > 42 weeks group had babies weighing more than 3.5 kg.

**Table 10:** Perinatal Outcome in Various Studies

|                                 | 40 Weeks | > 41 Weeks |
|---------------------------------|----------|------------|
| A. Meconium Aspiration          |          |            |
| Eden & Associates <sup>44</sup> | 0.6%     | 1.6%       |
| Present Study                   | 26.6%    | 77.7%      |

Table 11

| B. Apgar Scores <7 at 5 min |       |       |
|-----------------------------|-------|-------|
| Luis Sanchez <sup>43</sup>  | 1.1%  | 1.4%  |
| Present Study               | 0%    | 11.1% |
| C. NICU Admissions          |       |       |
| Luis Sanchez <sup>43</sup>  | 11.7% | 12.5% |
| Present Study               | 7.7%  | 33.3% |

Admission to NICU has progressively worsened with increasing gestational age beyond 40 weeks. The perinatal mortality rate identified in the study group is 1%. The perinatal morbidity rate was 0.3% in 40 weeks group, 22% in 41 weeks group and 100% in beyond 42 weeks group. In our study 7.7% and 33.3% of the newborn who delivered between 40-40wk6d and more than 41 weeks respectively were admitted in NICU.

**Conclusion**

WHO has recommended at least 8 antenatal contacts for better nutritional and medical support at the earliest. All the healthcare

workers especially A.S.H.A. and A.N.M. have to educate the mothers regarding warning signs in pregnancy, importance of immunisation and need for balanced nutrition. Pregnancy beyond dates is one of the most frequent clinical dilemma faced by the obstetrician. Though the correct choice of management remains controversial, according to the present study, it seems reasonable to induce labour at 41 weeks of gestation as perinatal mortality and morbidity are significantly more in > 42 weeks of gestation in our setup. Also, induction of labor at 41 weeks has not led to an increase in the cesarean section.

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