Maternal & Fetal Outcome after Induction and Expectant Management of Labor in Primigravida and Multigravida

Dr. Saumya Chaubey (M.B.B.S., Jr. 3rd year in M.S. Obst & Gynaec.);
Dr. Yadav Kanti (M.S. Senior Professor & H.O.D.),
Dr. Kumari Sandhya (M.S. Assistant Professor),
Dr. Sawariya Meenakshi (M.S. Assistant Professor),
Dr. Sharma Ajay (M.S. Assistant Professor),
Dr. Mathur Shikha (M.S. Assistant Professor).
Department of Obstetrics and Gynecology; J.L.N. Medical College, Ajmer.

**Abstract:**

**Background and Objectives:** Induction of labour is the process in which, medical or surgical means are used to initiate uterine contractions in the non-laboring pregnant women to bring about cervical dilatation and one hopes, vaginal delivery. The objectives of this study was to identify whether, electively induced labour places the mother or the fetus at an increased risk compared to her spontaneous labour cohort.

**Methodology:** This present study was carried out during the year 2014-15 at Rajkiya Mahila Chikitsalya, Ajmer. On 200 pregnant women at term in lateral phase of labour. Out of which after Ravelam secretion 100 served as study group and 100 patients served as control. Each group comprised 50 primigravida and 50 multigravida. The study group (100 in no.) composed of 50 primigravida and 50 multigravida, was electively induced with cervical ripening and labour inducing agent while the control group composed of 50 primi and 50 multigravida were allowed to go in spontaneous labour.

**Results:** 70% women in primigravida study group and 80% women in primigravida control group delivered vaginally ($P > 0.05$) while 16% of study primigravida and 14% of control primigravida were undergone caesarean delivery. In the same way 96% of multigravida study group and 94% of multigravida central group delivered vaginally, caesarian section was required in 4% of study multigravida and 6% of control multigravida group. There was no significant difference in caesarean section rate between the nulliparous patients of study group and control group (16% Vs 14%). The multiparous women of both the group also did not differ significantly in caesarean section rates (4% Vs 6% La study group and control group respectively $P > 0.05$). Foetal distress was the commonest indication of caesarean section in both groups (50% in study group and 57% in control group) non progression of labour requiring caesarean section occurred more commonly (28.8% Vs 23%) in study group than in control group. There was no statistically significant difference in the rate of respiratory distress and neonatal jaundice in study and control group.

**Conclusion:** Induction of labour protocol which incorporates, labour induction, augmentation of all the stages of labour shortens the overale duration of labour and aims at reduction of third stage blood loss and has no adverse effect on baby and is a very effective method for progressive and safe labour.

**Keyword:** Induction of labour, cervical ripening agents labours induction agents, progression of labour.

**INTRODUCTION:**

One of the most important tool in an obstetrician’s armamentarium is the capacity to deliver a patient when required. This is possible by induction of labour or by doing caesarian section.

Timely induction of labour can reduce maternal mortality and morbidity and ensure the delivery of a healthy baby. The goal of the obstetrician today should therefore, not just revolve around a neonate being born alive but a neonate being born well. Modern obstetric techniques have in recent years greatly increased the safety and reliability of induction labour with the result that it can now be performed with greater confidence of success.

The spectrum of indications of induction of labour has increased to the point where the slightest risk to the foetus is often considered sufficient indication for induction of labour.

Moreover, there is hope that elective induction of labour might contribute not only to reduction in perinatal mortality rate but also in no of mature unexplained still birth. Induction of labour heaps to reduce the number of foetal deaths due to placental insufficiency caused by the prolongation of pregnancy beyond 40 weeks.
METHODS:

The study was carried out on 200 pregnant women at term in latent phase of labour in Rajkiya Mahila Chikitsalya, Ajmer 2014-2015. Out of which after random selection of 100 served as study group and 100 patients served as controls. Each group comprised 50 primigravida and 50 multigravida. The study group (100 in numbers composed of 50 primigravida and 50 multigravida) were electively induced with cervical ripening and labour inducing agents while the control group compose of 50 primi and 50 multigravida were allowed to go in spontaneous labour.

In order to assess the effects of labour in healthy low risk pregnant women the study was kept limited to both primigravidae and multigravidas with singleton fetuses in vertex position and 38-41 weeks of gestational age with intact membranes and normal obstetric history and adequate pelvis.

Favorability of cervix was assessed by the Bishop score. After assessment of pre induction Bishop score, if the cervix was found to be favorable (Bishop score ≥6) the patient was induced with oxytocin infusion starting with a dose of 2mU/min and doubling the dose half hourly till good uterine contraction i.e. ≥3 in a 10 minutes period with each contraction lasting for almost 40 seconds or a maximum dose of 10mU/min was achieved.

Amniotomy was performed if the labour established. Failure of establishment of labour after 2 trials of 14 and 6 hours of oxytocin infusion was recorded as failure of procedure.

In cases with unfavorable cervix (Bishop score misoprostol or dinoprostone gel were instilled for ≤4) induction. Misoprostol was administered by oral as well as vaginal route. Patients were planned to receive 25µg of misoprostol to the posterior vaginal fornix or 50µg orally. The doses were reported four hourly until active labour establishes or a maximum of six doses (300µg orally and 150µg vaginally) were given. The patients were monitored continuously for uterine contractility and foetal heart rate. Assessment of the Bishop score was done every six hours.

In both the group the maximum number of patients had Bishop Score between 4 and 5. The mean Bishop Score of the whole population was 3.98±1.1 with primigravidae women in study group 3.86±1.1 and 3.92 in multigravida study group. The mean Bishop score in primigravidae control group was 4.02±1.1 and 4.22±0.86 in multigravidae control group.

There was no difference in Bishop Score between study and control group.

<table>
<thead>
<tr>
<th>Method of labour induction in primigravida study group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
</tr>
<tr>
<td>Dinoprostone (PGE$_2$)</td>
</tr>
<tr>
<td>Misoprostol</td>
</tr>
<tr>
<td>Oxytocin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Method of labour induction in multigravidae group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
</tr>
<tr>
<td>PGE$_2$</td>
</tr>
<tr>
<td>Misoprostol</td>
</tr>
<tr>
<td>Oxytocin</td>
</tr>
</tbody>
</table>

Labour and delivery were monitored according to the delivery suite protocol followed in the institution along with the monitoring of foetal heart and uterine contraction. Once the patient entered into active phase of labour, cervical examination was done two hourly. The Apgar score was assessed at 1 and 5 minutes of birth.

Uterine activity was assessed to identify women with tachy systole more than 5 uterine contraction per 10 minutes for two consecutive 10 minute period, hypersystole or hypertonus (one uterine contraction with duration of ≥90 seconds) and hyperstimulation (tachysystole associated with an abnormal FHR pattern). Foetal distress was defined as FHR abnormalities requiring emergency delivery (forceps or caesarean section). The neonatal evaluation was performed by the obstetrician attending the delivery or by the paediatrician in cases of neonatal distress requiring resuscitation. The effects of labour inducing agents were observed with respect to maternal, foetus and neonatal effects.

RESULTS & DISCUSSION:

The study of induction of labour maternal and foetal outcome in active management of labour in primigravida and multigravida was carried out in Department of Obstetrics and Gynaecology, J.L.N. Medical College, Ajmer (Rajasthan).

The study was carried out on 200 pregnant women at term in latent phase of labour. The age group of patients in this study was from 20-20 years.
In present study group patient the baseline foetal heart rate before induction was 132.00 (S.D.±2.70) beats/min. in primigravidae that increased insignificantly to 132.57 (S.D.±3.61) beats/minute before induction that increased in significantly to 133.16 (S.D.±2.36) beats/min.

**Total mean duration of 1st stage and active phase of labour**

Total mean duration of 1st stage of labour was 8.83±1.39 hour in study group of primigravida which were significantly less than the control group where it was 11.29±1.57 hours.

Similarly in multigravida mean duration of 1st stage of labour was 6.68±0.84 hours and in study group in comparison to control group where it was 7.87±1.49 hours.

**Duration of 2nd stage of labour**

In present study mean duration of 2nd stage of labour in primigravida was 17.36 min. in study group (S.D.±5.31) and 31.2min (S.D.±6.25) in control group. In multigravida it was 15.9 min. in study group (S.D.±3.89) while 25.45 minute in control group (S.D.±9.49). This shows marked reduction in 2nd stage of labour in study group of both primigravidae and multigravidae due to augmentation of labour.

**Duration of 3rd stage of labour**

Mean duration of 3rd stage of labour in primigravidae was 4.78 minutes in study group (S.D.±1.34) which is much less than 8.79 minute (S.D.±3.59) in control group. In multigravida it was 6.54 minute in study group (S.D.±2.16) and 11.70 minutes in control group (S.D.±3.84).

**Blood loss in 3rd stage**

The mean blood loss in primigravidae was 106.90 ml in study group (S.D.±11.15 ml), 142.95 ml in control group (S.D.±23.31ml). In multigravida it was 112.9ml in study group (S.D.±17.79) and 163.58ml in control group (S.D.±18.25).

Thus it is obvious that the blood loss was significantly reduced with active management of 3rd stage of labour.

**Mode of delivery**

In present study 78% cases of study group and 80% of control group had normal vaginal delivery in primigravidae while 16% of study primigravidae group and 14% of control primigravidae were undergone caesarean delivery.

In the same way 96% of multigravida study group and 94% of multigravidae control group delivered vaginally. Caesarean were required in 4% of study multigravida group and 6% of control multigravida.

**1 and 5 minute Apgar Score**

In primigravida the mean apgar score at 1 minute in study group was 8.90 (S.D.±030) and in control group it was 8.80 (S.D.±0.33).

The mean apgar score at 5 min in study group was 9.96 (S.D.±0.20) and in control group 9.90 (S.D.±0.36).

The difference in apgar score in both group was insignificant (P>0.05).

The mean apgar score in multigravida at 1 min in study group was 8.84 (S.D.±0.37) and in control group 8.84 (S.D.±0.37).

The mean apgar score at 5 min in study group was 9.94 (S.D.±0.24) and in control group was 9.08 (S.D.±0.39). The difference in apgar score in both group was insignificant (P>0.05).

**COMPLICATION OF LABOUR**

8% case of study group and 8% of control group in primigravidae had foetal distress because of shortening duration of labour in study group. In study group 2% cases had accidental haemorrhage. 4% cases of study group and 4% cases of control group in primigravidae had non progression of labour.

In multigravida 2% of cases of study group and 4% cases of control group had foetal distress because of shortening of duration of labour in study group. In both group have had accidental haemorrhage. 2% of study group and 2% of control group had deep transverse arrest in primigravidae.

No significance differences between the two group were observed for the incidence of lacerations, maternal intrapartum and postpartum complication. There is significant difference noted in gastrointestinal symptoms in 1st stage of labour may have been side effects of prostaglandins since they were notably absent in the control group.

Postpartum complication and haemorrhage was more common in multigravida.
Neonatal Morbidity and Mortality in Primigravida & Multigravida

Respiratory distress occurred in one case each of study (2%) and control group (2%) multigravida and primigravida for which the babies were stuffed in nursery (NICU) but none developed respiratory distress syndrome and none babies were shifted to the mother after 24 hour of observation. Birth asphyxia occurred in one case each of primigravida and multigravida control group while none occurred in study group. There were no cases of septicemia in either group. Neonatal bilirubinemia (Billirubin > 12 mg%) occurred no more frequently after induced labour both in primigravida and multigravida than in control group.

In primigravida, meconium was found more after than in multigravida.

Discussion:

There was a significant difference between both the groups in the duration of labour 8.31±1.57 hour in study group and 10.20±2.22 hour in control group. The duration of first stage of labour in study group was 7.57±1.56 hours and 9.44±2.1 in control group (P <0.001). The duration of 2nd stage of labour was similar in both group (44.76±5.18 min.) in study group and 45.0±6.39 minutes in control group.

Among the nulliparous women, the mean duration of labour was significantly shorter in the induced labour group than in the spontaneous labour group (8.83±1.39 hours V/s 11.29±1.57 hours) (P<0.001).

The mean duration of labour in multiparous study group was 6.68±0.84 hours as compared to 7.87±1.49 hours in those in control group (P<0.01).

There was no statistically significant difference in the rate of respiratory distress and neonatal jaundice both group. No case of birth asphyxia was seen in study group while are case occurred in control group. IUGR was seen in control group while same in study group.

A number of studies have examined the outcome of elective induction and most have concluded that there is litter difference in outcomes between who undergo elective induction and those who have spontaneous labour. Although many of these studies actively reported more frequent occurrence of caesarean section or instrumental delivery in the group with induced labour the present study emphasizes that with better method of induction labour can progress uneventfully in most patients resulting in more normal vaginal deliveries and lesser incidence of caesarean sections and instrumental deliveries than as previously reported.

It is likely that nulliparous women differ from multiparous women with respect to cervical ripeness. However, the efficacy of newer cervical ripening agents has led to significant decrease in the length of the first stage of labour even in nulliparous women with a lower Bishop score and cultivated in favourable maternal and foetal outcome.

Thus it can be safely concluded that elective induction at term is an excellent modality for management of labour and patient should be encouraged to optive for elective induction.

References:

5. Ekman Gunover – Ordeberg (2002); AMJ Obs & Gynae.