A Clinical Study on Labour Analgesia in Full Term Primigravida Patients

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ABSTRACT

Background: Labour is defined as the progressive dilatation of cervix with co-ordinate uterine contractions that effect in and expulsion of the products of conception. Experience has shown that providing pain relief to the mother allays fear, anxiety and provides a more favourable environment for improved obstetric outcome.

Aims and Objectives: To compare the effects of programmed labour protocol with epidural analgesia and traditional method of labour.

Materials & Methods: This study is a prospective, randomized controlled study conducted in the department of Obstetrics & Gynaecology at Teerthanker Mahaveer Medical College & Research Centre Moradabad. 90 pregnant women in active labour were enrolled in the study. They were allocated to three groups after randomization. Group A - 30 pregnant women received epidural analgesia. Group B - 30 pregnant women received programmed labour protocol. Group C - 30 pregnant women with traditional labour management.

Results: There was excellent relief of pain in group A patient compared to other methods with shortening of duration of labour.

Conclusion: Labour analgesia is a simple, effective method for painless and safe delivery and thus can reduce the number of caesarean section.

Key words: Epidural Analgesia, programmed labour, traditional labour

INTRODUCTION

Labour is defined as the progressive dilatation of cervix with co-ordinate uterine contractions that effect in and expulsion of the products of conception. These uterine contractions are perceived as labour pains and impose a fear on mind of labouring mother to give birth to a new life. Experience has shown that providing pain relief to the mother allays fear and anxiety, and provides a more favourable environment for improved obstetric outcome. Currently, the proven obstetric analgesia is epidural anaesthesia.¹

Programmed labour protocol developed by Daftary et al (1992) over a period of many years rests on three pillars -

1. Ensuring adequate uterine contractions and active management of labour.
2. Providing optimum pain relief by analgesics and antispasmodics.
3. Close clinical monitoring of labour events and maintaining a Partogram.

In places where epidural analgesia cannot be provided, Tramadol, a centrally acting non opioid analgesic has been used as a labour analgesic.² Ketamine, a dissociative


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anaesthetic, is gaining popularity as it provides excellent pain relief and patient satisfaction. [3] The present study attempts to compare the duration of labour and maternal outcome in Epidural analgesia, programmed labour protocol and conventional labour protocol.

**Aims and Objectives**

To compare the effects of programmed labour protocol with epidural analgesia and traditional method of labour with regards to:

(a) Duration of 1st, 2nd and 3rd stage of labor.
(b) Level of analgesia using following scale.
   (1) Score 0 - No relief
   (2) Score 1 - Mild relief
   (3) Score 2 - Moderate relief
   (4) Score 3 - Excellent relief
(c) Mode of delivery
(d) Amount of blood loss
(e) Maternal / fetal complications

**METHODS**

This study is a prospective, randomized controlled study conducted in the department of Obstetrics & Gynaecology at Teerthanker Mahaveer Medical College & Research Centre Moradabad. 90 pregnant women in active labour were enrolled in the study. They were allocated to three groups after randomization using table of random numbers. Group A - 30 pregnant women received epidural analgesia. Group B - 30 pregnant women received programmed labour protocol. Group C - 30 pregnant women with traditional labour management.

**Inclusion criteria**

1. Primigravida between 37 to 41 weeks of gestational age.
2. Single live intrauterine gestation with vertex presentation
3. At the onset of active phase of labour.

**Exclusion criteria**

1. Clinical evidence of cephalopelvic disproportion
2. PIH, premature rupture of membranes
3. Pregnancy complicated by any medical illness
4. Hydramnios, IUGR
5. Antepartum haemorrhage
6. Previous uterine and cervical surgeries

**Drugs used**

1. Oxytocin infusion - 2.5 milli units/min.
2. Inj. Pentozacine - 6mg, slow iv
3. Inj. Diazepam - 2mg, slow IV
4. Inj. Tramadol – 1mg/kg body wt. IM
5. Inj. Drotaverine – 40mg IM, repeated 2nd hrly
7. Inj. Valethamate bromide – 8mg, IV, three doses 1/2hrly &
8. Inj. Methyl Ergometrine – 0.2 mg IV.

**Group A**

When the patient enters in to the active phase of labour, Oxytocin infusion in 500ml of RL started at the rate of 2.5milli units /min and dosage titrated according to uterine contractions to a maximum of 11milli units /min. At the same time Epidural Analgesia was given.

**Group B**

An intravenous infusion line with 5% Ringer Lactate solution @ 20 drops/min ensuring that pains are optimal. If necessary, 2 units of oxytocin was added and titrated according to contractions. An ampoule of 30 mg Pentazocine was diluted with a diluent and similarly an ampoule of diazepam in 10 ml of diluent. 1/5 of each drug was administered, i.e. 6.0 mg of F Pentazocine and 2.0 mg of diazepam, slowly in bolus form through the tubing of the infusion line. [4,5] Inj. Tramadol 1 mg/kg body wt. was injected Intramuscularly, along with an antispasmodic like Inj. Drotin 40 mg, (other alternatives include Inj. Anafortan, Buscopan, or Epidosin, as per clinician’s choice). [6,9] The progress of labour was observed by charting Partogram. When the patient is in advanced labor, and the fetal head presses down on the pelvic floor, the patient starts complaining of severe pain, or bearing down sensation. At this time the cervix is often almost 7-8 cm dilated. This was the time to administer Inj. Ketamine if required, in the following manner: [10] Initial dose: Inj. Ketamine 0.25 mg to 0.5/kg body weight. Dilute the drug in 10 ml of saline, and administer slowly through the tubing of the infusion line as a bolus over a period of a few minutes until the desired effect is obtained. Often a small dose of 0.25 mg/kg or less suffices.

**Group C**

When the patient enters in to the active phase of labour, Oxytocin infusion in 500ml of RL started at the rate of 2.5milli units /min and titrated according to uterine contractions to a maximum of 11milli units /min. At the same time injection Tramadol 1.5 mg/kg body weight injected IM and half of the initial dose of Tramadol repeated subsequently. If the Cervical dilatation was not favourable based on the partogram, then Inj. Valethamate bromide – 8 mg, IV, 3 doses ½ hrly given. Inj. ethylergometrine 0.2mg given iv at the delivery of anterior shoulder.

**RESULTS**

In this study 90 women in labour were considered for labour analgesia. Thorough examination was done to check that the patient was in active labour. The premedication and post medication pain relief scoring were assessed and compared.

**Table 1: Parturient Profile.**

<table>
<thead>
<tr>
<th>Parturient profile</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (yrs)</td>
<td>25.67</td>
<td>24</td>
<td>25.5</td>
</tr>
<tr>
<td>Mean gestational Age(weeks)</td>
<td>38.6</td>
<td>38.6</td>
<td>38</td>
</tr>
<tr>
<td>Mean fetal heart rate (per min)</td>
<td>138.3</td>
<td>136.8</td>
<td>132.2</td>
</tr>
<tr>
<td>Mean rate of cervical dilation(cm/hr)</td>
<td>2.1</td>
<td>1.9</td>
<td>1.75</td>
</tr>
</tbody>
</table>

**Table 2: Pain score premedication.**

<table>
<thead>
<tr>
<th>Pain score</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>No pain</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mild pain</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bearable pain</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Unbearable pain</td>
<td>26</td>
<td>25</td>
<td>26</td>
</tr>
</tbody>
</table>
There was excellent relief of pain in group A patient as shown in table 3 compared to other methods.

Table 4: Mean duration of labour

<table>
<thead>
<tr>
<th>Stage of labour (in min)</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active stage</td>
<td>180.2</td>
<td>204.2</td>
<td>260.2</td>
</tr>
<tr>
<td>2nd stage</td>
<td>55.5</td>
<td>40.2</td>
<td>30.5</td>
</tr>
<tr>
<td>3rd stage</td>
<td>5.1</td>
<td>6.3</td>
<td>5.2</td>
</tr>
</tbody>
</table>

Duration of labour was prolonged in Group C patients compared to others as shown in table 4.

Table 5: Mode of delivery

<table>
<thead>
<tr>
<th>Mode of Delivery</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>SVD</td>
<td>26</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Instrumental</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>LSCS</td>
<td>1</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

There was no significant difference in mode of delivery of the patients in all groups as shown in table 5.

Table 6: Maternal Complications

<table>
<thead>
<tr>
<th>Maternal Complications</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPH</td>
<td>-</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Injuries</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Diarrhoea, Vomiting</td>
<td>-</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Drowsiness</td>
<td>-</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

Maternal complications were less in group A patients as compared to other groups as shown in Table 6.

Table 7: Parturient satisfaction

<table>
<thead>
<tr>
<th>Parturient satisfaction</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>0</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Average</td>
<td>2</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Good</td>
<td>5</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Excellent</td>
<td>23</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

Parturient satisfaction was more in Group A patients as shown in Table 7.

DISCUSSION

Giving birth to a new life is an event of joy and satisfaction but sometimes it turns into a bad experience for the mother due to unbearable labour pain. Now a days incidence of Elective caesarean section is increasing due to fear of bearing labour pains in primigravida. In this study, 90 pregnant women in labour were taken. All of them entered the study in active phase of labour. Majority of the cases in this study included those with 4 cm dilatation followed by 5 cm, and a very few had dilatation above 6 cm. Our study has shown significant relation between premedication and post medication pain relief score. Out of 90 cases, 11 had bearable pain and 79 cases had unbearable pain. 73% had excellent pain relief and 26.6% had substantial pain relief with epidural analgesia (table 3) which is similar to the study by Veronica et al. In similar study by Meena Jyoti et al., Suvonakote et al and Prasertsawat et al the good pain relief was 54%, 40% and 24% respectively. Hema Divakar and Prasertsawat and Anupama Patil of Banglore analyzed their data on cases treated as per the Programmed Labor protocol and concluded that 85% of patients experienced substantial pain relief. The duration of labour was much curtailed, the obstetric interventions did not increase, they reported a Caesarean section rate of 4.5% and a vaginal assistance rate of 6%, the neonatal outcome was satisfactory, and there was no perinatal loss. The present study, indicates ample shortening of duration of labour due to adequate adequate pain relief (Table 4). Amniotomy seems to accelerate the process of labour along with pain relief. A Cochrane review from 2002 analysed that early amniotomy seemed to reduce labour duration from between 60 to 120 minutes. In the present study, amniotomy was done after good effacement of cervix. This helped in shortening the duration of labour which in turn helped in a better pain relief for the parturient. Majority had vaginal deliveries with very few instrumental deliveries and very low Caesarean rates, maternal morbidity was minimal. Perinatal outcome was good with no neonatal morbidity or mortality. Average blood loss of women in the study group was also much less compared to those in the control group. This was attributed to the effect of Carboprost administered at the anterior shoulder – active management of third stage. Daffary et al and Jyoti M et al noted the same. There was no major difference in the percentage of normal delivery in all groups (Table 5). This was in accordance with the observations of Daffary et al, and Jyoti M et al. Thus, Epidurally administered opioids provide promise as ideal analgesics for labour because of their selective effect on perception of pain and sparing of motor, autonomic and other sensory modalities. Drugs which have shorter onset of action were more acceptable to parturients. Quick relief from pain is as important as higher degree of relief of pain.

CONCLUSION

Labour analgesia is a simple, effective method for painless and safe delivery and thus can reduce the number of Caesarean Section. Labour Analgesia not only relieves pain but also reduces the duration of labour.

REFERENCES


