



## A PROSPECTIVE STUDY OF PARACERVICAL BLOCK ON RELIEF OF LABOUR PAINS AND DURATION OF ACTIVE PHASE OF LABOUR IN PRIMGRAVIDAS AT S.M.S. MEDICAL COLLEGE, JAIPUR.

### Obstetrics & Gynaecology

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### ABSTRACT

**Introduction:** Present study was conducted to find out efficacy of paracervical block on pain relief during labour and to find effect of paracervical block in new-born in term of APGAR.

**Methodology:** A prospective randomized study conducted on 44 patients. **Inclusion Criteria:** Patients was with term, singleton pregnancy, primigravida and cephalic presentation dilatation > 3cm and having contractions and women who gave consent to be part of study. **Exclusion criteria:** Patients with Uteroplacental insufficiency, Diabetes, Gestational hypertension, IUGR, Antepartum haemorrhage, Multiple pregnancy were excluded. Visual pain scale was performed first of all for first and second stage of labor. The patients with score of 8-10 were allotted in study and was monitored every 15 and 30 minutes.

**Results:** The mean age of cases were  $25.34 \pm 3.67$  years. In both cases and controls majority of patients (52.%; 36.4%) were having gestational age between 39-40 weeks. In cases 56.8% patients had dilation of 3 cm followed by 43.2% had dilation of 4 cm. In study group majority (38.6%) of cases had bishop score between 6-7 followed by 34.1% had score between 4-5. The mean active phase of labor in cases was  $177.7 \pm 84.6$  min. The mean active phase of labor in 2<sup>nd</sup> stage labour in cases was  $31.6 \pm 4.3$  min and mean active phase of labor in 3rd stage labour in cases was  $5.8 \pm 0.8$  min. At 1 min we found that in study group 47.7% had Apgar score of 9 followed by 29.5% had Apgar score of 8 and 22.7% had Apgar score of 10. At 5 min we found that in study group 95.5% had Apgar score of 10 followed by 4.5% had Apgar score of 9.

**Conclusion:** Paracervical block is very effective in accelerating the first stage of labor and hence in shortening the whole process of labour and delivery. It is a good method providing pain relief with a very high efficacy.

### KEYWORDS

Paracervical block, APGAR score, Labor, visual analogue scale, cesarean section.

### INTRODUCTION

The experience of labour is complex and subjective. However as a consistent finding, labour pain is ranked high on the pain rating scale when compared to other painful life experiences (1).

Women's pain varies both between individual women and within the same woman over time as well. The mean intensity of labour pain is closely related to the progression of labour and increases with greater cervical dilatation (1). In addition, labour pain correlates with the intensity, duration, and frequency of uterine contractions (2).

When pain assessments are made more than once for each woman, conclusions made on the management of labour pain will be based on repeated measures data.

The aim of pain relief in labour is to render parturients relatively pain free whilst still able to participate in the birth experience. Ideally there should be no associated side effects or risks to both mother and baby. In reality, there are several methods of pain relief available but none are ideal.

Recently, nerve blocks are used to prevent or control pain. Nerve blocks can be surgical or nonsurgical. Nonsurgical nerve blocks involve injection of a medication around a specific nerve or a bundle of nerves. One of the block is paracervical block used for pain relief.

The simplicity and safety of paracervical block for the relief of the discomfort of the first stage of labour has been noted by several authors and it has been used for decades (3,4). A paracervical block is performed by infiltration of local anaesthetic in the cervix. It is injected into between two to six sites at a depth of 3 mm to 7 mm alongside the vaginal portion cervix in the vaginal fornices.

A paracervical block stops transmission of visceral afferent nerve impulses from the uterus and cervix through the paracervical, or Frankenhäuser's, ganglia. Advantages include excellent analgesia for the first stage of labor, before fetal descent, without somatic sensory or motor block. However, the block is not continuous and it does not relieve somatic pain caused by distension of the pelvic floor, vagina, or perineum.

The present study was conducted to find out efficacy of paracervical block on pain relief on visual analogue scale. And, to find out effect of

paracervical block on duration of labour, on cesarean section rate and on new born in term of APGAR

### METHODOLOGY

A prospective randomized study was conducted in the department of Obstetrics and Gynaecology, SMS Medical college and Hospital, Jaipur

Sample size is calculated at 80% study power and error of 0.05 assuming standard deviation of 1.59 in visual analogue scale after 1 hour of paracervical block as per results of seed article.

For minimum detectable difference in mean visual analogue scale score of 1, 40 patients in each group are required as sample size but it has been enhanced to 44 patients in each group considering 10% attrition rate.

**Inclusion Criteria:** Patients was with term, singleton pregnancy, primigravida and cephalic presentation dilatation > 3cm and having contractions and women who gave consent to be part of study.

**Exclusion criteria:** Patients with Uteroplacental insufficiency, Diabetes, Gestational hypertension, IUGR, Antepartum haemorrhage, Multiple pregnancy were excluded.

Visual pain scale was performed first of all for first and second stage of labor. The patients with score of 8-10 were allotted in study and was monitored every 15 and 30 minutes. There were 2 groups, one group only received tranquilizer (promethazine 25mg/3hr/im); and the other group which received Para cervical block and promethazine 25mg/3hr/im). In this study real relief of pain was determined as a reduction in the analgesic scale from 8-10 to 0-2. Rate of caesarean section was reported. APGAR scores of neonates after 1 and 5 minutes was recorded and all of them were revisited 6 hrs later.

Before performing paracervical block, each patient was thoroughly examined including vaginal examination, especially noted the following points: Blood pressure of the patients, Maternal pulse rate, Duration and frequency of uterine contraction, Foetal heart rate, Condition of the cervix and its dilatation and effacement, Station of the presenting part. Modified Bishop's Score and Visual analogue scale was used. Statistical analysis were done.

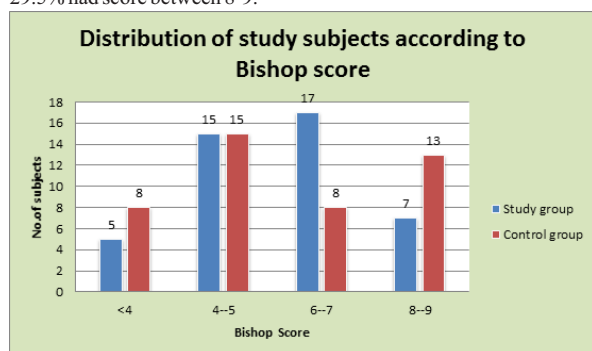
## RESULTS

The mean age of cases were  $25.34 \pm 3.67$  years and that of control were  $26.39 \pm 3.31$  years. The majority (52.3%) of females in cases were in age group 21-25 years followed by 29.5% in age group 26-30 years. In cases 56.8% patients had dilation of 3 cm followed by 43.2% had dilation of 4 cm. In control group 75% patients had dilation of 3 cm followed by 25% had dilation of 4 cm. Majority of cases 43.2% had effacement between 50-69 (Table:1).

**Table: 1 Distribution of study subjects according to cervical dilation and effacement**

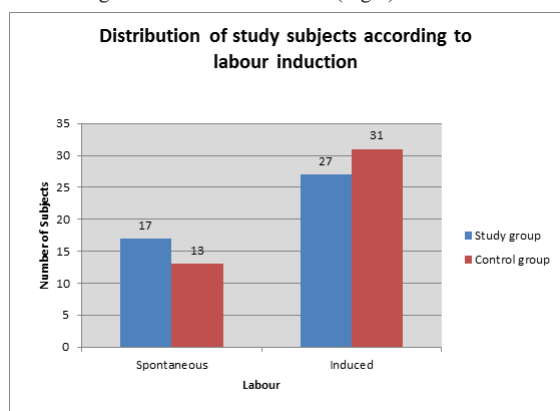
| Cervical dilation (cm) | Study group |      | Control group |      |
|------------------------|-------------|------|---------------|------|
|                        | N           | %    | N             | %    |
| 3 cm                   | 25          | 56.8 | 33            | 75   |
| 4 cm                   | 19          | 43.2 | 11            | 25   |
| Total                  | 44          | 100  | 44            | 100  |
| Effacement (%)         |             |      |               |      |
| <50                    | 10          | 22.7 | 9             | 20.5 |
| 50-69                  | 19          | 43.2 | 17            | 38.6 |
| 70-89                  | 12          | 27.3 | 12            | 27.3 |
| 90-100                 | 3           | 6.8  | 6             | 13.6 |
| Total                  | 44          | 100  | 44            | 100  |

Fig 1: shows that in study group majority (38.6%) of cases had bishop score between 6-7 followed by 34.1% had score between 4-5. In control 34.1% patients had bishop score between 4-5 followed by 29.5% had score between 8-9.



**Fig: 1 Distribution of study subjects according to Bishop score**

Here, in study group 38.6% females undergo spontaneous labour induction and 61.4% undergo induced labour induction. In control group 29.5% females undergo spontaneous labour induction and 70.5% undergo induced labour induction (Fig:2).



**Fig: 2 Distribution of study subjects according to labour induction**

The mean active phase of labor in cases was  $177.7 \pm 84.6$  min and in controls was  $259.4 \pm 106.9$  min. there was statistically significant difference in mean active phase of labour in cases and controls. The mean active phase of labor in 2<sup>nd</sup> stage labour in cases was  $31.6 \pm 4.3$  min and in controls was  $32.9 \pm 3.21$  min. There was statistically non-significant difference in mean active phase of labour in cases and controls. The mean active phase of labor in 3rd stage labour in cases was  $5.8 \pm 0.8$  min and in controls was  $5.4 \pm 0.7$  min. There was statistically non-significant difference in mean active phase of labour in cases and controls (Table:2).

**Table:2 Mean time of labour.**

| Active phase (min)          | Study group | Control group |
|-----------------------------|-------------|---------------|
| Mean±SD                     | 177.7±84.6  | 259.4±106.9   |
| 2 <sup>nd</sup> phase (min) |             |               |
| Mean±SD                     | 31.6±4.3    | 32.9±3.21     |
| 3 <sup>rd</sup> stage (min) |             |               |
| Mean±SD                     | 5.8±0.8     | 5.4±0.7       |

The mean injection to delivery time in cases was  $216.9 \pm 97.5$  min and in controls was  $285.8 \pm 79.9$  min. There was statistically non-significant difference in mean active phase of labour in cases and controls.

We calculated Apgar score at 1 min and 5 min. At 1 min we found that in study group 47.7% had Apgar score of 9 followed by 29.5% had Apgar score of 8 and 22.7% had Apgar score of 10. Similarly in control group 45.5% had Apgar score of 9 followed by 34.1% had Apgar score of 8 and 20.5% had Apgar score of 10. There was no significant difference between two groups. At 5 min we found that in study group 95.5% had Apgar score of 10 followed by 4.5% had Apgar score of 9. Similarly in control group 95.5% had Apgar score of 10 followed by 4.5% had Apgar score of 9. There was no significant difference between two groups (Table:3).

**Table: 3 Distribution of study subjects according to APGAR Score at 1 min and 5 min**

| APGAR Score (1 min) | Study group |      | Control group |      | Total |      |
|---------------------|-------------|------|---------------|------|-------|------|
|                     | N           | %    | N             | %    | N     | %    |
| EIGHT               | 13          | 29.5 | 15            | 34.1 | 28    | 31.8 |
| NINE                | 21          | 47.7 | 20            | 45.5 | 41    | 46.6 |
| TEN                 | 10          | 22.7 | 9             | 20.5 | 19    | 21.6 |
| APGAR Score (5 min) |             |      |               |      |       |      |
| NINE                | 2           | 4.5  | 2             | 4.5  | 4     | 4.5  |
| TEN                 | 42          | 95.5 | 42            | 95.5 | 84    | 95.5 |

## DISCUSSION

The need to shorten the duration of labour in the present day obstetrics has been recognized. Labour and delivery should be an emotionally satisfying process for mother. Acceleration of labour forms an integral part of active management of labour.

Paracervical block has been used to relieve pain during labor for almost 70 years (5). It has been shown to be a simple and effective technique to control pain during labor by many authors (6).

Here, in cases majority (52.3%) females were in the age group 21-25 years followed by 29.5% in age group 26-30 years. In controls majority (43.2%) females were in age group 21-25 years followed by 26-30 years. Van et al (7) found majority of studied population in age group 21-30 years. Pagre et al (8) also found majority of cases in age group 21-25 years.

Here, in both cases and controls majority of patients (52%; 36.4%) were having gestational age between 39-40 weeks, followed by 25% cases and 28.4% cases in controls had gestational age between 38-39 weeks. The mean gestational age of cases was 39.1 weeks and that of controls was 38.8 weeks. There were no significant difference in gestational age of patients in both group (p-value=0.603). In study by Latha and Kanchan (9) found mean gestational age of cases was 38.7 weeks and that of controls was 38.6 weeks. Inieminen and Puolakk (6) found gestational week of approx. 40 in both groups.

In study group majority (38.6%) of cases had bishop score between 6-7 followed by 34.1% had score between 4-5. In control 34.1% patients had bishop score between 4-5 followed by 29.5% had score between 8-9. From this we found that cervical dilation occur more in paracervical block as compared to control group.

The mean active phase of labor in cases was  $177.7 \pm 84.6$  min and in controls was  $259.4 \pm 106.9$  min. there was statistically significant difference in mean active phase of labour in cases and controls. The mean active phase of labor in 2<sup>nd</sup> stage labour in cases was  $31.6 \pm 4.3$  min and in controls was  $32.9 \pm 3.21$  min. There was statistically non-significant difference in mean active phase of labour in cases and controls. The mean active phase of labor in 3rd stage labour in cases was  $5.8 \pm 0.8$  min and in controls was  $5.4 \pm 0.7$  min. There was statistically non-significant difference in mean active phase of labour in cases and controls. In study by Latha and Kanchan (9) found The mean active phase of labour in the study group was 3 hrs 14 min where

it was 5 hrs 48 min in the control group, which was statistically significant ( $p < 0.001$ ). There was no difference in the second and third stage of labour in the two groups. The mean injection to delivery time in cases was  $216.9 \pm 97.5$  min and in controls was  $285.8 \pm 79.9$  min. There was statistically non-significant difference in mean active phase of labour in cases and controls. Several studies have found a statistically significant reduction in the injection-delivery interval. Nagal et al 1995, (10) Jina 1990, (11) Shravage JC 1997, (12) found a considerable reduction in the injection- delivery interval in the study group. In the control group the injection to delivery interval varied from 4 hrs 47 min to 5 hrs 48 min (present study). However in the paracervical group it varied from 2 hrs 30 min to 3 hrs 14 min (10). Pagare et al (8) found Mean duration of labour was found to be reduced in study subjects when compared with standard duration of labour. Deshpande et al (13) found that the average duration of active phase from the time of injection to full dilation was 3 hrs 48 min in cases as compared to 6hrs 12 min duration of active phase in the control group which is statistically significant. Van et al (7) found The duration of action of the block in the 80 primiparas was 31 to 120 minutes in 86%, and over 120 minutes in 6%. Of the blocks in 73 multiparas, 72% lasted 31 to 90 minutes, 11% were 90 to 120 minutes, and 3% over 120 minutes.

In our study, we calculated Apgar score at 1 min and at 5 min and found that at 1 min and found that in study group 47.7% had Apgar score of 9 followed by 29.5% had Apgar score of 8 and 22.7% had Apgar score of 10. Similarly in control group 45.5% had Apgar score of 9 followed by 34.1% had Apgar score of 8 and 20.5% had Apgar score of 10. There was no significant difference between two groups ( $P = 0.896$ ). And, at 5 min and found that in study group 95.5% had Apgar score of 10 followed by 4.5% had Apgar score of 9. Similarly in control group 95.5% had Apgar score of 10 followed by 4.5% had Apgar score of 9. There was no significant difference between two groups ( $P = 1.0$ ). Study by Pagare et al (8) found that at 1 min and found that in study group 64 patients had Apgar score of 6-7 followed by 36 patients had Apgar score of 8-10. Similarly, at 5 min all patients had Apgar score of 8-10. Deshpandey (13) calculate Apgar score at 5 min and found that all patients in study group had Apgar score greater than or equal to 8. The Apgar score is not affected by paracervical block as shown by the study of Nagal et al (10) and present study.

## CONCLUSION

### From present study we, conclude that :

Paracervical block is very effective in accelerating the first stage of labor and hence in shortening the whole process of labour and delivery. It is a good method providing pain relief with a very high efficacy. The block did not have any adverse effect on the mother or foetus and hence the mode of delivery. Paracervical block is a simple, easy method, which does not require any expertise for administration and is helpful for patients and obstetrician.

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