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Original Research Article

Study to determine feto maternal outcomes of programmed labor in a tertiary care hospital of Jharkhand

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ABSTRACT

Background: Programmed labor aims to minimize duration and inconvenience of labor both for patient and obstetrician. The present study attempts to provide labor analgesia by using infusion paracetamol in place of conventional ketamine and tramadol.
Methods: This study was conducted in the labor room of department of obstetrics and gynecology, RIMS, Ranchi from March 2019 to February 2020. 50 primigravida and 50 multigravidas were studied, with singleton pregnancy, cephalic presentation presenting with spontaneous onset of labor with Gestational age of 37-41 week.
Results: 30% of patients were greater than 40 weeks gestation.65% of primigravida experienced severe pain, but only 20% of multigravidas had severe pain.60%primigravidas and 60% multigravidas (of 20% who had severe pain) experienced adequate pain relief with labor analgesia. 60 % primigravida presented with <4 cm cervical dilatation, whereas 40% multigravidas had <4 cm dilatation. 60% primigravida had shortened active phase (3.5 hrs), 60% multigravidas (2.5 hrs) which is suggestive of benefit of obstetrical analgesia in programmed labor. 90% patients had third stage labor less than 3 minutes. Only one multigravida landed in postpartum hemorrhage. All neonates had Apgar score greater than 8. There was no perinatal mortality. Only one primigravida landed in caesarean section due to arrest in second stage. 2 multigravidas had instrumental delivery. Maternal side effects like tachycardia, nausea, cervical and vaginal tears were more in primigravida.
Conclusions: Participants with good response to obstetrical analgesia fared better than rest. Response was more satisfactory in primigravida in terms of labor progress.

Key Words: Labor, Analgesia, Pain, Singleton, Satisfaction, Paracetamol

INTRODUCTION

Labor is defined as a series of events that take place in the genital organs in order to expel the products of conception to the outer world. It is ranked high on the pain rating scale when compared to other painful life experiences Stress of pain disturbs the maternal autonomic functions and liberates catecholamines which predisposes to dysfunctional labor. Pain-free labor is known to improve obstetric outcome. Modern day obstetrics has no place for prolonged labor due to its detrimental accompaniments like obstructed labor, uterine rupture, postpartum hemorrhage. Programmed labor in India was developed by Daftary et al.[1] Its main purpose is to provide pain relief and to hasten the labor process for better obstetric and neonatal outcome. Its protocol incorporates 3 basic principles: Active management of labor: Use of amniotomy and oxytocin to augment labor. Obstetric analgesia: Use of analgesics and antispasmodics for pain management. Partograph: The graphical representation of labor introduced by Friedmann (1955) helps pick up dysfunctional labor at the earliest and take timely

interventions. Currently, the proven obstetric analgesia is epidural anesthesia.[2] In places where epidural analgesia cannot be provided, tramadol, a centrally acting non opioid analgesic has been used as a labor analgesic Ketamine, a dissociative anesthetic, is gaining popularity as it provides excellent pain relief and patient satisfaction.[3,4] The present study attempts to provide labor analgesia by using infusion paracetamol in place of conventional ketamine and tramadol. Programmed labor aims to minimize duration and inconvenience of labor both for patient and obstetrician.

Aim and objectives

Aim and objectives of current study were to evaluate the effect of programmed labor on duration of labor, to assess efficiency of analgesics in reducing severity of labor pains and to analyse maternal and fetal outcomes of programmed labor.

METHODS

This study was conducted in the labor room of department of Obstetrics and Gynecology, RIMS, Ranchi from March 2019 to February 2020. 50 primigravida and 50 multigravidas were studied.

Study type, duration and location

Prospective cross-sectional study conducted from March 2019 to February 2020 at Labor room of department of Obstetrics and Gynecology, RIMS, Ranchi.

Inclusion criteria

Primigravida and multigravida with singleton pregnancy with cephalic presentation with spontaneous onset of labor with gestational age of 37-41 week who were 3-4 cm of cervical dilatation and consent for obstetrical analgesia during labor having admission CTG reassuring were included.

Exclusion criteria

Patients with antepartum hemorrhage, preeclampsia, polyhydramnios, oligohydramnios cephalopelvic disproportion, malpresentation, pre labor rupture of membranes, previous surgical intervention on uterus like myomectomy or LSCS, medical disorders of pregnancy like heart disease, diabetes, jaundice, chronic liver or kidney disease were excluded from this study.

Protocol

Patients in active labor (cervix should be 3.0-4.0 cm dilated, >50% effaced and head is at 0 or -1 station) who were included in this study , amniotomy was performed at 4 cm dilatation and color of liquor was seen. Intravenous infusion line with 5% Ringer Lactate solution was started along with partograghic charting and per vaginum examination 4 hourly. Uterine contractions were monitored to see whether adequate or (3-4/45”/10’). Oxytocin drip 2.5 units in 500 ml Ringer Lactate was started at 8-10 drops/min and titrated every 30 mins till adequate contractions (3-4c/35-45”/10’) were achieved. Routine intermittent auscultation was performed every 15 minutes in first stage of labor and every 5 minutes in second stage of labor. Oxytocin infusion was stopped in case of hypertonus, fetal distress or any maternal discomfort. Injection drotaverine hydrochloride 40 mg IM single dose was given at amniotomy for short duration analgesia in early labor. Infusion paracetamol was given slow iv in participants demanding labor analgesia. After delivery active management of third stage of labor was done. Postpartum hemorrhage if any was managed with Oxytocin, Methergin, Prostodin as per obstetrical hemorrhage management protocols. Neonatal assessment was done with APGAR score at 1 min and 5 min. Pain severity and relief after analgesia in each patient is noted

Analysis

Quantitative data was assessed by taking out percentages, whereas qualitative data was assessed by qualitative scoring like mild, moderate and severe.

RESULTS

Total 30% of patients were greater than 40 weeks gestation.65% of primigravida experienced severe pain, but only 20% of multigravidas had severe pain 60% primigravidas and 60% multigravidas (of 20% who had severe pain) experienced adequate pain relief with labor analgesia.

Table 1: Gestational age.

Weeks of gestation	% of participants
37-38	50
38-39	20
≥40	30

Table 2: Pain perception.

Pain perception scores	4-6	6-8	>8
Primigravida (%)	15	20	65
Multigravida (%)	60	20	20

Table 3: Pain relief.

Pain relief scores with analgesia	Mild	Moderate	Excellent
Primigravida (%)	10	30	60
Multigravida (%)	15	25	60

60% primigravida presented with <4 cm cervical dilatation, whereas 40% multigravidas had <4 cm dilatation. 60% primigravida had shortened active phase (3.5 hrs), 60% multigravidas (2.5 hrs) which is suggestive of benefit of obstetrical analgesia in programmed labor.

Table 4: Participants who received labor analgesia/did not receive analgesia.

Labor progress	Primigravida	Multigravida
Mean duration active phase (hrs)	3.5/4	2.5/3
Mean cervical dilatation (cm/hour)	2.5/1.75	4.5/3
Mean duration 2nd stage (minutes)	20/30	10/15
Mean duration 3rd stage (minutes)	3/4	2.5/3

Table 5: Maternal outcome.

Complications	Primigravida	Multigravida
Nausea	2	1
Vomitting	1	2
Tachycardia	2	0
Post partum hemorrhage	0	1
Cervical/vaginal tear	0	0

90% patients had third stage labor less than 3 minutes. Only one multigravida landed in postpartum hemorrhage. All neonates had Apgar score greater than 8. There was no perinatal mortality. Only one primigravida landed in caesarean section due to arrest in second stage.2 multigravida had instrumental delivery. Maternal side effects like tachycardia, nausea, cervical and vaginal tears were more in primigravida.

DISCUSSION

Intrapartum care of labouring woman has undergone massive evolution over the years. Programmed labor aims to make process of labor more joyful and less horrifying. This study aims to compare the response of programmed labor in primigravida and multi gravida visiting the labor room at RIMS, Ranchi from March 2019 to February 2020.

Pain perception

About 65% of primigravida experienced immense labor pain but only 20% multigravidas experienced intolerable pain. This is physiological response as first labor are generally very painful as compared to subsequent labor.

Pain relief

60% of primigravida had adequate pain relief and 5% had equivocal response. Rest 35% responded to sympathetic handling of birth companion and residents on duty. Only 20% multigravidas wanted pain relief of whom 60% had adequate relief. Hence, labor analgesia proved to be more effective in primigravida than in multigravida. This may be attributed to the fact that first labors with no prior experience and with analgesia, even a small relief must have felt like a huge one. This is in contrast to study by Gupta et al where cases who had analgesia responded better than controls with no analgesia.[5] Jyoti et al noticed that 54% achieved good and 32% achieved moderate pain relief.[6] Veronica et al reported total pain relief in 70% cases.[7]

Active phase

Only those participants who received labor analgesia (60% of primigravida had active phase (3.5 hrs), 60% multigravidas (2.5 hrs), who had adequate pain relief had shorter active phase. Chauhan et al found duration of first stage of labor to be 3.4 hours.[8] Daftary et al reported active phase duration to be 3.5 hours in cases with labor analgesia.[1]

According to Mishra et al and Singh et al it is the effect of drotaverine.[8,9] In our study we found it attributable to judicious use of combined effect of obstetrical analgesia. Maximum patients delivered before crossing left line of partograph. Only one primigravida landed to caesarean section due to fetal distress in late first stage labor. 2 multigravidas had to be delivered by forceps as they were on verge of crossing alert line.

Cervical dilatation

65% of primigravida and 20% of multigravidas demanded labor analgesia. Cervical dilatation was 2.5 cm/hour and 4.5 cm/hour respectively. Rest 35% primigravida and 80% multigravidas had rate of 1.75 cm/hour and 3 cm/hour. Veronica et al noticed that rate of cervical dilatation was nearly double (2.3 cm/hour) in subjects and (1.2 cm/hour) in controls.[7]

Maternal outcome

Those participants who opted for labor analgesia drug related side effects like nausea, vomiting, drowsiness, tachycardia were seen, which was more for primigravida. All the side effects subsided by second day of puerperium. Veronica et al and Gupta et al had similar findings.[5,7]

Limitations

Limitations were the study has taken patients coming to our labor room at the cross section of time of study period. This may not be representative of the entire patient load coming to labor room RIMS, Ranchi.

CONCLUSION

This study analyses the effects of programmed labor and labor analgesia in primigravida and multigravida. Participants with good response to obstetrical analgesia fared better than rest. Response was more satisfactory in primigravida in terms of labor progress. There were no adverse fetal or maternal outcomes.

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