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Original Research Article

FETO maternal outcome in programmed labour protocol

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Abstract

Background: Labour pain is among the maximum excruciating pain experienced by all women. Labour pain impacts maternal psychology and course of labour causing apprehension, tension, and strain. Pain relief throughout labour is predicted to lessen maternal strain and improve maternal and perinatal outcome. Many Nonpharmacological & Pharmacological methods of pain relief available. In this study we are comparing efficacy & safety of Paracetamol & Tramadol as labour analgesics.
Objective: To analyse the outcome of Programmed labour protocol vs expectant management of labour with respect to
1. Mean rate of cervical dilatation.
2. Mean duration of first, second, third stage of labour.
3. Pain relief in labour.
4. Mode of Delivery.
5. APGAR scores at 1min and 5min.

Methods: All women admitted in the labour room, meeting the inclusion criteria and willing to participate in study are categorized into group A and group B.
Programmed labor group(A) and expectant group. (B)
The study group A includes primigravida at term in active phase. Admitted in labor who will receive Programmed labor protocol. And group B will be managed expectantly.
After obtaining informed consent all women willing to participate will be examined according to protocol.
Results: In our study both the groups were comparable in relation to age, gestational weeks and cervical dilatation. Most common mode of delivery was vaginal in both the groups. Duration of first stage of labour and second stage of labour is significantly reduced compared to control group. Pain relief scoring in study group moderate to complete pain relief is 85.7%. Mean cervical dilatation among the study group was 2 cm/hour which is higher compared to the control group (1 cm/hour). In study group-11.5% underwent LSCS which is lesser compared to the control group (15.5%). All the babies had Apgar score of 7-9 at one and five minutes. 4babies in the control group had Apgar score of six at one minute and on resuscitation, they had Apgar score of 8-9 at 5 minutes. Mean Apgar of the babies at one and five minutes in both the groups were comparable.
Conclusion: Programmed labor is an easier, safer means for ensuring less painful delivery. It reduces the duration of the labour without serious maternal and neonatal side effects. Pain relief is effective with minimal maternal side effects due to the drugs used. Labour and childbirth are cherished by the mother and her family. It can be adapted safely in all

Maternity hospitals in low risk gravid woman.

Keywords: Labour analgesia, primigravida, pentazocine, tramadol, diazepam

Introduction

Pregnancy and motherhood are a major milestone in the life of a female which changes her position in the family and the society giving more self-confidence and independence [1]. “The delivery of the infant with conscious and pain-free mother is one of the most exciting and rewarding moments in medicine"-Moir [2]. The International Association for the Study of Pain (IASP) declared 2007-2008 as the "Global Year against Pain in Women-Real Women, Real Pain". The focus was to study both acute pain and chronic pain in women. Labour pain was found to be a good study model for treating acute pain [3]. The experience of labour is complex and subjective. Several factors affect a woman's perception of labour making each experience unique. However, as a consistent finding, labour pain is ranked high on the pain rating scale when compared to other painful life experiences [4]. Programmed labour is indigenously developed for the labour management, developed with the objective of providing optimum pain relief and to hasten the labour process for better obstetric and neonatal outcome [5].

Materials and Methods

This was a prospective randomised study conducted in the department of obstetrics and gynaecology. All the primigravida with singleton cephalic in the age group of 18-35 years admitted to the labour room in the active phase of labour with no medical comorbiditis are included in the study. Cephalopelvic disproportion, Malpresentations, Ante partum Haemorrhage, Evidence of IUGR, oligo or polyhydramnios, Multiple pregnancy, Pregnancy complicated by any medical illness are excluded from the study.

All women admitted in the labour room, meeting the inclusion criteria and willing to participate in study are categorized into group A and group B. Programmed labour group (A) and expectant group (B). The study group A includes primigravida at term in active phase. Admitted in labour who will receive Programmed labor protocol. And group B will be managed expectantly. The patient is taken up for programmed labour only after she enters active phase of labour. From this point onwards all events in labour are documented on a partogram and labour is monitored. In study group amniotomy should be performed at 3-4 cms dilatation to ensure presence of clear liquor and satisfactory fetal heart rate pattern. At 3-4 cm of cervical dilatation, administer a small dose of 2mg Diazepam + 6mg Pentazocine diluted in 10 ml of saline, slow I/V as bolus to initiate pain relief. Then administer Injection Tramadol 50 mg IM in patients BMI<25, If patient’s BMI >25the dose is to be increased to 1.0 mg/kg maternal body weight. If the frequency of uterine contractions is not adequate, labour is augmented with Oxytocin infusion 5 units in 500ml of I/V fluid in escalating doses till at least 3 contractions in 10 minutes lasting 35-45 seconds is achieved. To prevent maternal exhaustion and ketosis: IV infusion line using Ringer Lactate solution. Along with Tramadol Injection Drotaverine 40 mg is administered I/V. Injection Drotaverine can be repeated every 2 hours, if required, for a maximum of three doses. The combined drug effect provides excellent pain relief and cervical dilatation. During the Third stage is managed by active management of labour Partogram is to be plotted for the progress of labour. Pain Relief Score in these women is to be noted postpartum after they were fully awake. Level of analgesia assessed using following scale.

0-No pain relief, 1-mild pain relief, 2-moderate pain relief, 3-excellent pain relief.

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All the parameters are compared with Primigravida with no risk factors admitted during the study period taken as controls. Appropriate statistical analysis is to be done.
Descriptive statistics were used to describe the study variables of the subjects. To compare the categorical qualitative data variables among the two study groups, Chi-square test and Fisher exact test was used and to compare the continuous quantitative data variables 't' test was used. The P-values were corrected by the Bonferroni method and a P-value <0.05 was regarded as statistically significant.

Results

All pregnant women admitted in the labour room, meeting the inclusion criteria and willing to participate in study are categorized into group A and group B. Programmed labour group A (84) and expectant group B (84). Mean age of distribution among the case and controls is 23.43±2.77 years. mean gestational age is 38.32±1.38 weeks among the cases and 38.13±1.10 weeks in controls. With in 4 hours 92% of the study group completed their first stage. All the cases in control group took more than 5 hours to complete first stage of labour. P Value is 0.001 this is statistically significant. In study group 88.1% of the cases completed there 2nd stage with in 30min. 56% of control group completed their 2nd stage in 30-60 min. this is statistically significant (p=0.001).
The duration of 3rd stage of delivery lasting for 6 to 10 min in both the groups. In our study mean cervical dilatation among the cases is 2cm/hour. Compared to control mean cervical dilatation is 1.0±0.4cm/hour with p value of 0.001 which is significant.
Mean duration of labour among cases is 3.28±0.49hours. Compared to control 6.77±0.58 hours which is statistically significant (p value is 0.002). In study group 53.6% of the cases had moderate pain relief, 32.1% of the cases in study group had complete pain relief,4.8% of the cases had no pain relief p value is 0.001 which is statistically significant. In our study 88.1% of the cases had vaginal delivery. In control group 84.5% of the cases had vaginal delivery, 11.9% of the study group underwent LSCS, 15.5% of the control group underwent LSCS. Comparison between the mode of delivery, Fishers exact test was done and the two tailed p value is 0.462 and statistically not significant. In our study 50% of the cases underwent LSCS due to fetal distress. In control group 69.2% underwent LSCS due to fetal distress. P value is 0.175 which is statistically not significant.
In the study group, APGAR scores of all the neonates were 7-10. without being much affected by the analgesics used, The APGAR scores of 4 neonates in the control group was 4-7 who were taken up for emergency LSCS for fetal distress. The neonates required NICU admission for 1 day for observation after which they showed good prognosis. (P = 0.005)

Age wise distribution of cases and control

Table 1: Comparison of age wise distribution among the two groups

Age group	Cases		Controls		P value
	Frequency	Percent	Frequency	Percent	
21 - 25 yrs	67	79.8	73	86.9	
26 - 30 yrs	14	16.7	8	9.5	
31 - 35 yrs	3	3.6	3	3.5	
Total	84	100.0	84	100.0	
Mean ± SD	23.43 ± 2.77		23.13 ± 2.81		0.497

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Table 2: Comparison of gestational age among the two groups

Gestation	Cases		Controls		P value
	Frequency	Percent	Frequency	Percent	
37 weeks	23	27.4	22	26.2	
38 weeks	38	45.2	42	50.0	
39 weeks	10	11.9	11	13.0	
40 weeks	5	6.0	4	4.7	
41 weeks	2	2.4	4	4.7	
42 weeks	6	7.1	1	1.1	
Total	84	100.0	84	100.0	
Mean ± SD	38.32 ± 1.38		38.13 ± 1.10		0.336

- In our study group 45.2% of the cases belongs to 38weeks.
- In control group 50% of the cases belongs to 38weeks of gestation.

Table 3: Duration of active stage of labour

Duration of labour in hours	Cases	Control	P value
< 1	0	0	0.001
1-2.9	2(2.4%)	0	
3-4.9	78(92.8%)	0	
>5	4(4.8%)	84(100%)	
Total	84	84	

Table 4: Duration of second stage of labour

Duration of II Stage	Cases	Control	P value
<30 min	74(88.1%)	37(44%)	0.001
30-60 Min	10(11.9%)	47(56%)	
Total	84(100%)	84(100%)	

Table 5: Duration of 3RD stage of labour

3rd stage of labour in minutus	Cases	Control	p value
<5min	11(13.1%)	16(19.0%)	0.119
6-10min	73(86.9%)	68(81.0%)	
Total	84(100%)	84(100%)	

Table 6: Comparison of outcome variables among the two groups

Outcome variables	Cases (n=84) Mean ± SD	Controls (n=84) Mean ± SD	P value
Cervical dilatation in cm/hour	2.0 ± 0.00	1.00 ± 0.49	<0.001
Duration of first stage of labour in hours	3.12 ± 0.52	6.33 ± 0.55	<0.001
Duration of second stage in minutes	24.85 ± 7.89	31.79 ± 16.47	0.001
Duration of third stage in minutes	6.13 ± 2.07	6.59 ± 1.63	0.119
Pain relief score	2.13 ± 0.77	1.02 ± 0.22	<0.001

In our study mean cervical dilatation among the cases is 2cm/hour. Compared to control mean cervical dilatation is 1.0±0.4cm/hour with p value of 0.001 which is significant.
Mean duration of labour among cases is 3.28±0.49 hours Compared to control 6.77±0.58 hours which is statistically significant (p value is 0.002).

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Pain relief scoring

Table 7

Pain score	Frequency	Percent (%)	P value
No pain	4	4.8	0.001
Mild pain relief	8	9.5	
Moderate pain relief	45	53.6	
Complete pain relief	27	32.1	
Total	84	100.0	

Table 8: Mode of delivery among the cases and control groups

Mode	Cases		Controls		P value
	Frequency	Percent	Frequency	Percent	
Vaginal delivery	74	88.1	71	84.5	0.462
LSCS	10	11.9	13	15.5	
Total	84	100	84	100	

Table 9: Type of instrumental delivery among the cases and control groups

Type	Cases		Controls		P value
	Frequency	Percent	Frequency	Percent	
Normal vaginal delivery	58	78.4	41	57.7	
Instrumental vaginal delivery	8	10.8	14	19.3	
Forceps vaginal delivery	1	1.4	3	3.6	0.364
Vacuum vaginal delivery	7	9.4	11	15.4	
Total	74	100.0	71	100.0	

- In our study instrumental delivery among the cases is 10.8% compared to control is 19.3%, P value is 0.364 which is statistically not significant.

Table 10: Indications of LSCS among the cases and control groups

Indication	Cases		Controls		P value
	Frequency	Percent	Frequency	Percent	
Fetal distress	5	50.0	9	69.2	0.175
2nd stage arrest	3	30.0	0	0.0	
Arrest of dilatation	1	10.0	0	0.0	
NST non-reactive	1	10.0	0	0.0	
Arrest of decent	0	0.0	2	15.4	
Failure of dilatation	0	0.0	1	7.7	
DTA	0	0.0	1	7.7	
Total	10	100.0	13	100.0	

Table 11: Comparison of APGAR scores after birth among the two groups

APGAR score	Cases		Controls		P value
	Frequency	Percent	Frequency	Percent	
APGAR score at 1 minute					
≥ 7 score	56	66.7	72	85.7	0.005
< 7 score	28	33.3	12	14.2	
Total	84	100.0	84	100.0	
APGAR score at 5 minutes					
≥ 7 score	83	98.8	80	95.2	1.00
< 7 score	1	1.2	4	4.8	
Total	84	100.0	84	100.0	

APGAR score ≥7 in study group at 1 minute and 5 minute is 66.7% and 98.8% respectively. APGAR score ≥7 in control group at 1 minute and 5 minute 85.7% and 95.5% respectively.

Discussion

In our study maximum number of cases and control are distributed in the age group of 21-25 years 79.8% and 86.9% respectively. Mean age of distribution among the study group 23.43±2.77 years. This is comparable to Meena *et al*. [6] (2006) 67.3% of the women are in the age group of 21-25 years [101]. Mean age of the women in both the groups are comparable. Mean age of the women in the study group was 22.91 ± 2.35 years. In our study mean gestational age is 38.32±1.38 weeks among the cases.38.13±1.10 weeks in controls. In our study mean gestational age is 38.32±1.38 weeks among the cases.38.13±1.10 weeks in controls. This is similar to that observed in Meena *et al*. [63] (38.3±1.2 weeks) and Shahida Mir *et al*. [7] studies (38.1±1.1). In our study 92 % of study group completed their active stage within 5hrs &100% of control took > 5hrs in study group active phase of labour 3.12±0.52 hours when compared with the control group 6.33±0.55hours using student t test this difference was found to be significant statistically (P value 0.001). In Meena *et al*.'s (2006) study, the mean duration of active phase of 1st stage of labour is 2.75 hours [93]. When compared with the Daftary *et al*. study [8] (4 hours) we have almost half the duration [123]. Duration of the active phase of first stage of labour is much lesser when compared with Meena *et al*. (2006) [6] and Veronica *et al*. (2008) [10] and Daftary *et al*. (2009) [8] studies. In our study 88.1% of study group completed their 2^{ND} stage within 30min &56% of control took > 30minDuration of second stage of labour in the study and the control group is 24.85 ± 7.89 min and 31.79 ± 16.47 min respectively. It is significant statistically when analyzed with student "t" test. (P value 0.001). In Daftary *et al*. [8] and veronica *et al*. [5] studies, the duration of second stage of labour were 26min and 25 min respectively. This value is comparable to that observed in my study. In Meena *et al*. [6] study, the duration of second stage is 17.46 minutes, this value is lower than that observed in my study. The mean duration of third stage of labour in my study is 6.13±2.07 min in the study group and6.59±1.63 min in the control group. This difference in statistically insignificant on using student "t" test. (> 0.005) This is similar to that observed in Meena *et al*. [6] (4.94min) and Shahida Mir *et al*. [7] (4.8min) studies. In Daftary *et al*. [8] (2009) study, the duration of 3rd stage is still lower 3.5 min. In our study duration of all three stages of labour were shortened when compared with the control. But the difference is statistically significant in first and second stage of labour when studied with student "t" test. There is no statistically significant difference in the duration of third stage of labour. Meena *et al*. [6] study showed reduction is the duration of all 3 stages of labour.

The study group had faster rate of cervical dilatation (2cm per hour) compared to the control group (1.0±0.4cm per hour). This difference was statistically significant when using student "t" test (p value < 0.005). In Daftary *et al*. (2009) [8] study, the mean rate of cervical dilatation was 2.5cm per hour while veronica *et al*. (2008) [10] reported as 2.3cm per hour. The rate of cervical dilatation observed in my study is similar when compared with Daftary *et al*. (2009) [8] and Veronica *et al*. (2008) [5] studies. Pain relief score of 2 or more is seen in 53.3% of the patients in the study group. Excellent pain relief is observed in 32.1% of the patients in the study group and none in the control group. When using chi-square test, there was statistically significant difference among the two groups. Meena Jyothi *et al*. (2008) [6] observed excellent pain relief in 54% of the study group, moderate pain relief in 32% and mild pain relief in 14% Shirish N Daftary *et al*. (2009) [7] observed excellent pain relief in labour in 26% and Prasertsawat *et al*. [9] (1986) in 24%, which is consistent with our study. 88.1% of the women in the study group and 84.5% of the women in the control group progressed smoothly and had vaginal delivery without any interventions. 11% of the study group and 15.5% of the control

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group had caesarean section. On analyzing the difference among them using chi-square test, they were not statistically significant. Our results are similar to that of Veronica *et al*. (2008) [5] study. In Daftary *et al*. (2009) [9] study only 65.5% of the women had vaginal delivery, while in Meena Jyothi *et al*. (2008) [6] 98% of the women had vaginal delivery. When compared with Daftary *et al*. (2009) [8] study, our study had higher assisted delivery (10.8%). But in Meena *et al*. study (2008) [6] 2% had assisted delivery with no caesarean section.

Conclusion

Programmed labour is an easier, safer means for ensuring less painful delivery. It reduces the duration of the labour without serious maternal and neonatal side effects, Pain relief is effective with minimal maternal side effects due to the drugs used. Labour and childbirth are cherished by the mother and her family. It can be adapted safely in all Maternity hospitals in low risk gravid woman.

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