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Assessment of Programmed Labour and its Outcome: A Clinical Study

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Abstract

Background: Programmed labour technique provides double advantage of pain relief during labour and also improving the obstetric outcome and hence reaching safe motherhood. The aim of the present study is to evaluate the efficacy of programmed labour protocol in providing shorter, safer and relatively pain free deliveries. *Materials and Methods*: The present prospective clinical study was conducted in the department of OBG, RIMS, Raichur during a period of 6 months (2017). The study included 100 uncomplicated Primigravida in active phase of labour. Detailed history, general physical examination and obstestric examination including vaginal examination were performed for all the patients. On entering of the patient into active phase, artificial rupturing of the membranes was done. Medications were given as per the programme. The results were arranged in a tabulated form and analysed using SPSS software. *Results:* In this study a total of 100 subjects were enrolled, 50 belonged to cases and 50 belonged to control. The mean age of females was 35.43±23 years. In case group the rate of cervical dilatation was 1.70 cm/hr and that amongst control group was 1.21 cm hr.There were 4% (n=2) cases with score 3 in case group. Score 2 was seen in 40% (n=20) cases and 4% (n=2) controls. There were 44% (n=22) cases and 26% (n=13) control with score of 1. *Conclusion*: Programmed labor can be considered as an effective method of providing safe and prolonged analgesia to patients such that their delivery becomes considerably painfree. In our study, majority of the females were between 26-30 years of age and cervical dilatation and duration of labor were considerably better in case group.

Keywords: Labour; Obstetric; Prospective.

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Introduction

A physiological and painful event in women's life is labour. During this period a women suffers a lot of agony and stress which cannot be described and imagined. Introduction of epidural anaesthesia has proved to be effective and provided significant pain relief and improved both maternal and foetal obstetric outcome. But in India, a vast majority of deliveries take place at small community hospitals which do not have adequate facilities to provide epidural anaesthesia. Therefore women in these areas still suffer from a lot of pain. To overcome this pain, Daftary et al, developed a technique to improve the outcome of labour and ensure smooth progress of labour through the use of labour augmentation and certain analgesia regimen and monitoring partography. This technique was extensively known as programmed labour technique. It provided double advantage of pain relief during labour and also improving the obstetric outcome and hence reaching safe motherhood [1]. The protocol followed in programmed labour includes- providing optimum pain relief by active management of labour using a combination of analgesics and antispasmodics and charting the events

on a predesigned partogram. Epidural anaesthesia is currently used as obstetric analgesia [2], tramadol is used in places where epidural analgesia is not available. Tramadol is a centrallt acting non opoid analgesic [3]. Ketamine which has the ability to provide dissociative anaesthesia is also gaining widespread popularity in pain relief and patient satisfaction [4]. Ketamine has the ability to induce theta activity and this activity coincides with the analgesic onset. However the duration of analgesia is not as long as theta activity. The aim of the present study is to evaluate the efficacy of programmed labour protocol in providing shorter, safer and relatively pain free deliveries.

Materials and Methods

The present prospective clinical study was conducted in the department of OBG, RIMS, Raichur during a period of 6 months(2017). The study included 100 uncomplicated Primigravida in active phase of labour. The study was approved by the Institute's ethical committee and all the subjects were informed about the study and a written consent was obtained in their vernacular language. The study included primigravida cases between 37 to 40 weeks of gestational age with single live intra uterine gestation with vertex presentation at the onset of active phase of labour. Any cases with clinical evidence of cephalopelvic disproportion or premature rupture of membranes were excluded from the study. Cases of hydromnios, IUGR and co existent medical illness were excluded from the study. Any cases of previous uterine and cervical surgeries were also excluded.

Procedure: Detailed history, general physical examination and obstestric examination including vaginal examination were performed for all the patients. On entering of the patient into active phase, artificial rupturing of the membranes was done. If liquor was clear then programmed labour protocol was initiated. As soon as the patients of the study group enter the programmed labour protocol, a partogram was initiated. Periodic recording of maternal vital parameters and fetal heart rate were done. Every 2 hours, per vaginal examination was carried out. An I.V infusion line with dextrose 5% ringer lactate was started. For sustaining optimal contractions of 3-4 sustained contractions/10 min, a 2.5 units oxytocin was added to the drip. 2mg Diazepam and 6mg of diluted pentazocine in 10ml of saline was continued as slow bolus for initiation of pain relief. Pain relief score were graded and a score 3 was regarded as good pain relief, score 2 as moderate pain relief and score 1 as mild pain relief. Inj Tramadol 1mg/kg body wieght with inj. Drotavrine hydrochloride 40mgs IV or IM given. After delivery Inj. Prostadin 125 mcg was given in for active management of the third stage of labour. Progress of labour monitored by partogram. In the control group routine hospital protocol was followed in which an IV infusion line with Ringer lactate / dextrose 5% vaginal examination was added as and when required. Partogram was maintained in this group too and oxytocin drip was started only if required but the dose was less 1 mU /min. Neonatal assessment is done with APGAR score at 1 minute & 5 minutes.

All the data was arranged in a tabulated form and analysed using SPSS software. Chi-square test and one way ANOVA were used for the assessment of level of significance. Probability value of less than 0.05 was considered significant.

Results

In this study a total of 100 subjects were enrolled, 50 belonged to cases and 50 belonged to control. The mean age of females was 35.43±23 years.

Table 1 shows the age distribution of the group. Majority of the subjects both in cases and controls were between the age group of 26-30 years. There were 35 cases and 32 controls that belonged to this age group. There was no female amongst the cases and controls who were more than 30 years. There were 15 cases and 18 controls that were between 21- 25 years of age. on applying the test of significance, there was no significant difference in age between both the groups.

Table 2 illustrates the rate of cervical dilatation and duration of labour amongst both the groups. In case group the rate of cervical dilatation was 1.70 cm/hr and that amongst control group was 1.21 cm hr. On applying chi square test there was a significant difference in both the groups. The active phase of labour was 3.48 hours in cases and 4.21 in control group. The phase II of labour lasted for 26.34 hours and 34.78 hours in case and control group respectively. The duration of stag e3 of labour was 4.52 hours in cases and 4.63 hours in controls. There was a significant difference in 2nd stage of labour amongst both the groups ($p<0.05$).

Table 1: Age distribution of Study group

Age	Cases	Controls	P Value
21-25	15	18	>0.05
26-30	35	32	
>30	0	0	

Table 2: Rate of cervical dilatation and duration of labour

Variable		Cases	Control	P Value
Rate of cervical dilatation (cm/hr)		1.70	1.21	<0.05
Stages of labour (hours)	Active phase	3.48	4.21	>0.05
	2nd phase	26.34	34.78	<0.05
	3rd phase	4.52	4.63	>0.05

Table 3: Pain relief score

Pain Relief Score	Cases (N/%)	Controls (N/%)
3	2 (4%)	0 (0)
2	20 (40%)	2 (4%)
1	22 (44%)	13 (26%)
0	6 (12%)	35 (70%)

Table 4: Comparison of APGAR score

APGAR score	Cases	Controls
At 1 minute (4-5)	5	4
At 1 minute (6- 7)	45	46
At 5 minutes (6- 7)	2	4
At 5 minutes (8- 9)	48	46

Table 3 shows the pain relief score in the study. There were 4% (n=2) cases with score 3 in case group. Score 2 was seen in 40% (n=20) cases and 4% (n=2) controls. There were 44% (n=22) cases and 26% (n=13) control with score of 1. Score of 0 was seen in 70% controls and 12% cases. Better scoring was seen in case group as compared to control group.

Discussion

By using the technique of programmed labour protocol, shorter, safer and painless vaginal deliveries can be carried out making it a satisfactory event for a mother. In our study, In case group the rate of cervical dilatation was 1.70 cm/hr and that amongst control group was 1.21 cm hr. On applying chi square test there was a significant difference in both the groups. The active phase of labour was 3.48 hours in cases and 4.21 in control group. The phase II of labour lasted for 26.34 hours and 34.78 hours in case and control group respectively. The duration of stag e3 of labour was 4.52 hours in cases and 4.63 hours in controls. There was a significant difference in 2nd stage of labour amongst both the groups. ($p<0.05$). As per the studies by Mishra et al. [5] and Singh et al. [5], it was due to the effect of drotaverine. According to a study by Veronica et al. [7] the rate of cervical dilatation was double (2.3 cm/hour) amongst subjects of case group as compared to (1.2 cm/hour) the controls. In a study by Dr. Chauhan et al [8]. the duration of first stage of labor was found to be 3.4 hours. In a study by Dr. Daftary et al. [9] the active phase duration was 3.5 hours in cases and duration of II stage of labor was 26 minutes. A study by Lin Y et al. to evaluate the differences between continuous epidural infusion and programmed intermittent epidural bolus analgesia amongst Chinese parturients who underwent undergoing spontaneous delivery and to approach their safety to parturients and neonates. A total of 200 subjects were enrolled. They concluded that there was no difference in the duration of first and second stages, delivery methods, sensory block, fetal Apgar scores, and the maternal outcomes between the groups but significant difference was found in VAS scores and epidural ropivacaine total consumption between the two groups [10].

A study conducted by Capogna et al to compare the incidence of motor block and labor outcome in women who received PIEB or CEI for maintenance of labor analgesia. The primary outcome and secondary outcome of both the groups were compared. A total of 145 subjects were enrolled in the study. Motor block was seen in 37% in the CEI group and in 2.7% in the PIEB group, there was a significant difference in motor block in both the groups. The incidence of instrumental delivery was 20% for the CEI group and 7% for the PIEB group. Total anaesthetic consumption, number of patients requiring additional PCEA boluses, and mean number of PCEA boluses per patient were significantly lower in the PIEB group with p value less than 0.005. There were no differences in pain scores and duration of labor analgesia between the groups.[11] In our study, there were 4% (n=2) cases with score 3 in case group. Score 2 was seen in 40% (n=20) cases and 4% (n=2) controls. There were

44% (n=22) cases and 26% (n=13) control with score of 1. Score of 0 was seen in 70% controls and 12% cases. Better scoring was seen in case group as compared to control group. In a study conducted by Meena Jyoti et al [12]. There were 54% patients who achieved good and 32% achieved moderate pain relief. In a study by Veronica et al. [7] there was total pain relief in 70% cases. Sample size of our study was small which could be considered as the limitation of our study.

Conclusion

Programmed labor can be considered as an effective method of providing safe and prolonged analgesia to patients such that their delivery becomes considerably painfree. In our study, majority of the females were between 26-30 years of age and cervical dilatation and duration of labor were considerably better in case group. The neonatal outcome was good in our study.

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