Labour Outcome in “Programmed Labour” and “Expectant Management of Labour”: A Comparative Study

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ABSTRACT

Background: Programmed labour targets at curtailing the duration of labour, pain during labour and frequency of cesarean section and ameliorate the maternal and neonatal outcome. Till now, the approach to pain during labour has been passively managed, but with the help of programmed labour protocol, obstetricians try to alleviate the misery and the complications of obstructed labour, sepsis, prolonged labour along with dehydration, acidosis, exhaustion and post-partum haemorrhage have been reduced.

Objectives: This study focuses on, to conduct the active management of all stages of labour and analgesia or pain relief during labour. The present study is a prospective case-control study, conducted in our hospital in 2 years.

Methods: The sample size includes 1000 women and of them, the women who are low-risk primigravida in the active phase of labour and keen to participate are included in the study group and those who are not ready to participate are included in the control group.

Result: The study group is subjected to the programmed labour protocol, in form of Active management of the first stage of labour, analgesics, smooth muscle relaxants, sedatives with photographic monitoring of labour.

Conclusion: All the patients who are included in both, the study group and the control group are evaluated based on the duration of labour, pain relief, mode of delivery, APGAR score at birth, maternal and foetal outcome.

Key Words: Programmed Labour, Expectant Labour, Induction of Labour, Analgesics, Antispasmodics

INTRODUCTION

Childbirth is one of the most wonderful and anticipated moments in a woman's life. But the excruciating pain associated with labour can make it quite an unpleasant experience. Excruciating pain during labour also causes autonomic overstimulation in the mother thereby causing disturbances in circulation and respiration, which may, in turn, lead to compromised foetal oxygenation. Till now, the approach to pain during labour has been passively managed, but with the help of programmed labour protocol, obstetricians try to alleviate the misery and the complications of obstructed labour, sepsis, prolonged labour along with dehydration, acidosis, exhaustion and post-partum haemorrhage have been reduced.¹

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Epidural analgesia has certified to be valuable and has contributed fundamentally to give relief from discomfort and improve the obstetric result. However, in India where the dominant part of ladies are thought about in small network emergency clinics and private maternity homes, offices for giving epidural analgesia keeps on staying an inaccessible dream.² Therefore, in recent times a more active approach to labour has been adopted comprising of prostaglandins, analgesics and antispasmodics along with the induction of labour

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to assess the effectiveness of programmed labour protocol in giving shorter, more secure and moderately pain-free deliveries.

In this era, when almost everything is planned, why not a planned delivery? It is beneficial to utilize active management of programmed labour which was first presented by Daftary et al to ensure the safety of the mother and the fetus.³ This study deals exclusively with the comparison of normal labour, induction of labour with Prostaglandin, augmentation by intracervical insertion of Prostaglandin E2 (PGE2) tablets, amniotomy and smooth muscle relaxant. Advantages and disadvantages of each of the above methods will be compared with expectant management of labour.^{4,5}

The protocol incorporates three basic principles. Active management of labour by doing amniotomy and by using oxytocin to augment labour. Synergistic applications of analgesics and antispasmodics during an active phase which favours cervical dilatation and reduced duration of labour and plotting the patients' partograph as introduced by Friedmann (1995) helps to pick up dysfunctional labour at the earliest (figure 1).^{6,7}

The objective of this study is to study, is it a worthwhile option when the benefits to either mother or foetus outweigh those of expectant management. To attain this we will assess the effect of programmed labour on the duration of labour, the effectiveness of analgesics in reducing the degree of labour pains and foetal outcome in both groups.

MATERIALS AND METHODS

Study design: Prospective case-control study

Setting: Department of Obstetrics and Gynaecology, AVBRH, Sawangi (Meghe), Wardha. Maharashtra for 2 years.

Subjects: Low-risk primiparous women aged 18-30 years, coming to Obstetrics and Gynaecology OPD who are willing to deliver in AVBRH, Sawangi (M), Wardha after fulfilling the inclusion criteria. Total 1000 low-risk primiparous women in the active phase of labour who are booked with our institute who are fulfilling the inclusion criteria will be included in the study. Out of which randomly 500 patients with who will be willing to participate will be subjected in the study group and those who will not participate will be included in the control group.

Study Endpoint

- 1) Total duration of labour in all the stages of labour in Hours and minutes.
- 2) Rate of cervical dilation achieved.
- 3) Obstetrical intervention if any.
- 4) Assessment of visual blood loss as mild, moderate or severe.

- 5) Pain score at the initiation of analgesia
- 6) Pain Relief Score at the end of the procedure (Verbal, Pain rating scale)
- 7) APGAR score at 1 and 5 minutes and NICU admission.
- 8) Maternal and foetal outcome.
- 9) Side effects of drugs to the mother and child.

All the above-mentioned variables will be plotted on the partograph as mentioned by WHO (Figure 1).

Figure 1: Plotting the patients' partograph as introduced by Friedmann.

Procedure

One thousand low-risk primiparous women between 37 to 40 weeks of gestational age with vertex presentation after performing satisfactory admission test for 20 minutes, with cervical dilatation of 3 cm or more and >50% effacement, who wish to deliver in AVBRH, Sawangi, Wardha hospital, after fulfilling the inclusion and exclusion criteria will be included in the study. After the valid informed consent and counselling about the drugs to be used, they will be randomly allocated to two groups – study group and control group. The patients who are willing to participate will be included in the study group consisting of 500 women who will receive programmed labour protocol while the control group of 500 pregnant women will be managed expectantly.

General examination, systemic examination and obstetric examination including vaginal examination will be performed in all the patients. Informed consent for inclusion in the study will be obtained. The study will be done in collaboration with a paediatrician and anesthesiologist.

Actual monitoring will start in the active first stage of labour at 4cm of dilatation of the cervix and an amniotomy will be performed to confirm clear liquor and satisfactory foetal heart pattern in both the groups. The study group after fulfilling the inclusion criteria, the protocol of programmed labour will be implemented on them as developed.³ In women who will not have adequate uterine contractions, labour will be augmented either with a 25 µg tablet of misoprostol or 2 units of oxytocin in 500 mL of 5% glucose drip at 20 drops/ minute i.e. 5mIU/minute which will be gradually increased up to a maximum of 11 mIU/minute until at least 3 contractions every 10 minutes lasting for 35-45 seconds will be established.

A low portion of 2mL of sedative and analgesic consisting of 2.0 mg of diazepam and 6.0 mg of Pentazocine or Fortwin after diluting 1 ampule of each with 7 mL of normal saline will be administered slowly intravenously. Simultaneously infusion tramadol 1 mg/kg body weight will be injected intramuscularly and infusion drotaverine hydrochloride (anti-spasmodic) 40 mg will be injected intravenously. Drotaverine will be repeated after every 2 hours. Inj. Ketamine 0.2 to 0.3mg/kg body weight dilute the drug in 10ml of saline and administer slowly, over a few minutes. Pain relief score will be noted. Top up doses of Inj. Ketamine was given at 20-30 min intervals half the initial dose wherever required. The last top up dose of injection Ketamine will be given after the birth of the baby. This drug will be used only if required, i.e. if there is no relief in the pain after using the above-mentioned analgesics with due consent of the patients of the study group.

After delivery 125 mg carboprost IM/ 10 units Injection Oxytocin intravenously in 500ml Ringer Lactate will be given for active management of the third stage of labour. Complete labour will be monitored by plotting the partograph as recommended by WHO and continuous (Cardiotocography) CTG monitoring will be done and pain relief score will be noted. The time of onset of analgesia will be recorded. Boyle's apparatus will be kept for the emergency usage and safety of the patient. After birth APGAR score will be noted at 11 minutes and 5 minutes. After the completion of labour, all maternal parameters will be recorded and pain relief scores will be noted in the study and the control groups.

Quantitative Endpoints

Degree of pain relief score is used which is verbal in nature and called as Pain rating scale. The magnitude of change in the intensity of pain after treatment will be measured by this scale (Table 1).

Table 1: Pain Rating Scale

Score	Degree of pain relief
0	No pain relief
1	Mild pain relief
2	Moderate pain relief
3	Good relief

Another endpoint is duration of labour by partographic charting for all stages of labour.

EXPECTED RESULTS

Following factors will be looked for in the study group

1. Duration of labour
2. Rate of cervical dilatation
3. Effect of drugs from the protocol on pain relief
4. Any operative intervention required
5. Mode of delivery
6. Maternal and neonatal outcome
7. The foetal heart rates and APGAR scores after birth
8. Side effects of the drug on mother and foetus

Following factors will be looked for in the control group

1. The total duration of labour
2. Any complication during labour
3. Maternal and foetal outcome

Programmed labour is a straight forward, simple and effective way to achieve labour analgesia and it shortens the duration of all stages of labour without adverse reaction to the mother n foetus as well.

DISCUSSION

In recent years, the systematic attempt has been made by many workers to study the duration of labour, to ensure about this advancement of labour that every woman should be delivered within 10 to 12 hours. This can be accomplished, given that the obstetrician assumes direct accountability and forsakes the role of passive observer for that of active director, controlling the course of labour instead of holding up with the expectation that it may conclude within a sensible time.⁴ Programmed labour protocol was intended for shorter, more secure and moderately painless vaginal delivery, making it a reasonable, happy incident. Drotavarine gives the effect for an adequate rate of cervical dilatation.⁵ The rate of cervical dilatation goes nearly double in subjects than that in control.²

Duration of the first stage of labour to be 3.4 hours ⁸ In the active phase, the duration to be 3.5 hours and that in II stage of labour to be 26 minutes.³ 54% achieved good and 32% achieved moderate pain relief in the study group while in the control group, only 22% had pain relief.⁶

Tachycardia (80%) was the most common side effect along with nausea and vomiting (10%).⁷ Some related studies reported on the impact of K-Taping on sacroiliac joint pain in women after full-term normal delivery.⁹⁻¹² Study of Mifepristone vs Misoprostol as pre-induction cervical ripening agent in term pregnancy is also reported.¹³

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