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PARTOGRAPHIC COMPARATIVE STUDY BETWEEN PROGRAMMED LABOUR AND SPONTANEOUS LABOUR

Obstetrics & Gynecology

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ABSTRACT

Programmed labour concept is based on incorporation of labour analgesia for pain relief, active management of labour, monitoring of labour events by partogram and daytime deliveries. The aim of present study is to compare the programmed labour with spontaneous labour and plot the effectiveness of one method over the other, which make the process of delivery safe for women. 100 low risk term singleton pregnancies cephalic presentation were enrolled in the labour room of Department of Obstetrics and Gynaecology of Rajendra Institute of Medical Sciences, Ranchi in the year September 2017 to September 2018. This is a prospective study . Observations were expressed as Mean ± standard deviation. P value < 0.05 was considered statistically significant.Data was compiled into Microsoft excel spreadsheet and then analyzed with the help of MedCalc Software. Programmed labour protocol reduces the total duration of labour.Patients experienced considerable relief of pain with the drugs used .Third stage blood loss was considerably reduced with no third stage complications

KEYWORDS

Introduction

Normal labour is defined as one in which a foetus presents by vertex, starts spontaneously and terminates naturally without artificial aids and complication.[1] Prolonged labour is one of the commonest problem in our country which results in maternal and perinatal mortality and morbidity. This problem can be managed to some extent by adopting the concept of PROGRAMMED LABOUR.

Programmed labour concept is based on incorporation of labour analgesia for pain relief, active management of labour, monitoring of labour events by partogram and daytime deliveries. Synergistic application of analgesics and antispasmodics during the active phase of labour curtails prolonged labour, provide a more comfortable and relatively pain free labour experience for the mother. The aim of present study is to compare the programmed labour with spontaneous labour and plot the effectiveness of one method over the other, which make the process of delivery safe for women.

Material And Methods :The study **"partographic comparative study of programmed labour and spontaneous labour"** was carried out in the labour room of Department of Obstetrics and Gynaecology of Rajendra Institute of Medical Sciences, Ranchi in the year September 2017 to September 2018. 100 low risk term singleton pregnancies cephalic presentation were enrolled in the study for analysis of results.

Selection Criteria

1. Age between 21-30 years.
2. Hemoglobin level not less than 9 gm%
3. Gestational age between 37-42 completed weeks.
4. No clinical evidence of cephalo-pelvic disproportion or other contraindication to vaginal deliveries.
5. Patients desirous of pain relief during labour.
6. No evidence of any obstetrical, surgical or medical disorders.
7. Favorable Bishop"s score.

Patients excluded from study are :-

Multiple pregnancies, malpresentation. placenta praevia or unexplained vaginal bleeding, any contraindication to receiving prostaglandin, previous caesarean section and evidence of any obstetrical, surgical or medical disorders.

Thus avoiding majority of causes contributing to fetal distress.
Selected cases were kept in two groups. Group I – 50 cases of normal spontaneous labour(I A –Primigravida – 30 cases and I B –second gravida – 20 cases).Group II – 50 cases of programmed labour(A – Primigravida – 36 cases B –secondgravida – 14 cases)
Partographic monitoring was started when „Active Phase" of labour started i.e.,the cervical dilatation is about 3-4 cms or more, and cervix is well effaced (>than 70%).The fetal head is well engaged in primi, and there is no obvious CPD in multi. Partogram commenced in all cases.

Method Of Study: Detailed history was taken and an elaborate general and obstetrical examination was done. Special investigations" including sonography was advised when required. An informed consent was taken from all patients. A full case history of patients was obtained in each case. Physical examination was done including vital signs. The chest was auscultated and abdominal examination done for size of uterus, presentation, fetal heart sound. Cervical assessment was done by Bishop"s score.

BISHOP SCORE

	Score			
	0	1	2	3
Parameters				
Cervix;	Closed	1-2	3-4	5+
Dilatation (cms)				
Cervical length (cms)	3	2	1	0
Consistency	Firm	Medium	Soft	-
Position	Posterior	Midline	Anterior	-
Head:	-3	-2	-1,0	+1, +2
Station				
Total score	13			
Favorable score	6-13			
Unfavorable score	0-5			

Total score - 13
Favorable score - 6-13
Unfavorable score - 0-5

Induction of labour is successful with a score of 6 or more and is less successful with lower scores.In-group II patients with programmed labour were counselled properly:-

- The procedure was explained to the patient including any decision of induction or acceleration of labour planned for her.
- Nature of the drugs being used and there possible side effects were explained. Patients were explained that these drugs have been evaluated and found to be safe for both the mother and the infant.
- The patient were advised to be on "Nil per oral" to obviate the risk of vomiting, should anesthesia become necessary.

Procedure: Cervical ripening was done with intracervical cerviprime gel in patients with unfavorable cervix.In active phase of labour an

intravenous infusion line was started with 5% glucose at about 10-15 drops/min.2.5 units of oxytocin was added to the drip if pains were less than 3-4 sustained pains/minutes.Artificial rupture of membrane was done and meconium staining of liquor excluded.Partogram monitoring of patients was done.Routine intermittent auscultation at every 30 minutes to monitor fetal condition was done .An ampoule of 30mg. Pentazocine and an ampoule of 10mg. Diazepam with normal saline were diluted to make it 10ml. solution and 2ml ($1/5^{th}$ of each drug i.e. 6.0mg of pentazocine and 2.0mg of diazepam) of solution was administered slowly in bolus through the tubing of infusion line.Injection Tramadol in the dose of 1 mg/kg body weight intramuscularly along with injection Drotavarine 40 mg given intramuscularly to provide long term pain relief was given.During advanced labour, 7-8 cm of cervical dilation when patient complaining of severe pain or bearing dwon sensation, injection Ketamine 0.5mg/kg body weight was given as a bolus dose over a period of few minutes. This was followed up with the initial dose every half hour as maintenance dose.After delivery injection Oxytocin 10U im was given for active management of third stage of labour.

Observation Recorded: Partogram was done in all cases .Side effects of drugs were observed.Duration of labour – first stage, second stage was observed.Duration of active phase of labour from time of entry until delivery was evaluated.Duration of third stage of labour was evaluated.Estimation of amount of blood loss in third stage was done.Neonatal outcome, APGAR scores, Perinatal outcome were assessed.

Statistical analysis: This was a prospective study in 100 low risk term pregnancy patients. Observations were expressed as Mean ± standard deviation. P value < 0.05 was considered statistically significant.Data was compiled into Microsoft excel spreadsheet and then analyzed with the help of MedCalc Software.

Results: The study was carried out in the labour room of Department of Obstetrics and Gynaecology of Rajendra Institute of Medical Sciences, Ranchi. 100 low risk pregnant women of singleton pregnancy with cephalic presentation and otherwise uncomplicated pregnancy between 37 to 42 week of gestation were enrolled in the study. Primigravida and secondgravida were included and kept in two groups. In one group labour was allowed to progress spontaneously (control group) and in other group programming of labour done (study group) as advocated by **Daftary et al (1992)** and the study was done to asses and compare the safety and efficacy of programmed labour.

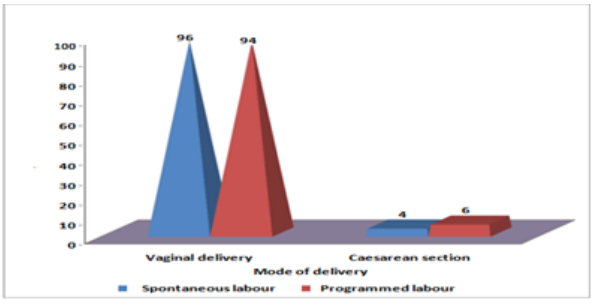

Fig 1 Showing mode of delivery in spontaneous and programmed labour. The above graph shows no statistical difference.

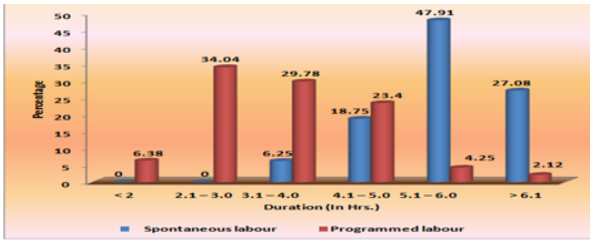

Fig 2 Showing the duration of active phase of labour .

The above graph shows that 25% in spontaneous labour group, the active phase of labour lasted upto 5 hours, whereas in programmed labour group, in approx 94% of patients the active phase of labour lasted upto 5 hours. Mean duration of active phase in spontaneous labour was 5.31 hour SD ±0.76 and mean duration of active phase in programmed labour was 3.12 hour SD ±1.01.

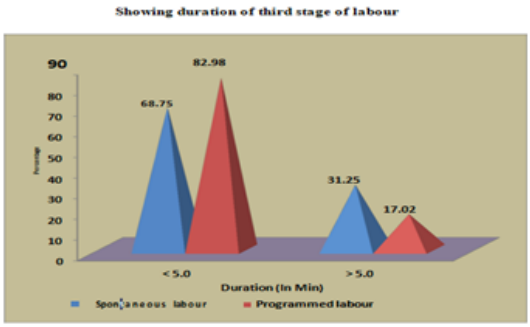

Fig 3. The above graph shows in spontaneous labour group, third stage of labour lasted for less than 5 min in 68.75% of cases, where as in programmed labour group, third stage lasted for less than 5 min in 82.98% of cases. Mean duration of third stage in spontaneous labour was 5.72 min. SD ± 2.89 and in programmed labour was 4.74 min. SD ± 1.66

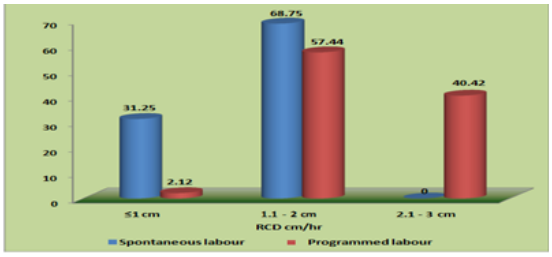

Fig 4 Rate of Cervical Dilatation in Active Phase of labour in cm/hr.40.42% of patients in programmed labour had rate of cervical dilatation of 2.1 to 3 cm/hr 57.44% had cervical dilatation 1.1 to 2 cm/hr and 2.12% of patients had cervical dilatation <1cm/hr. 68.75% of patients in spontaneous labour had rate of cervical dilatation of 1.1 to 2 cm /hr and 31.25% had rate of cervical dilatation of ≤1 cm./hr. Mean rate of cervical dilatation in active phase in spontaneous labour was 1.15±0.19 cm/hr. and in programmed labour it was 2.10±0.60cm/hr.

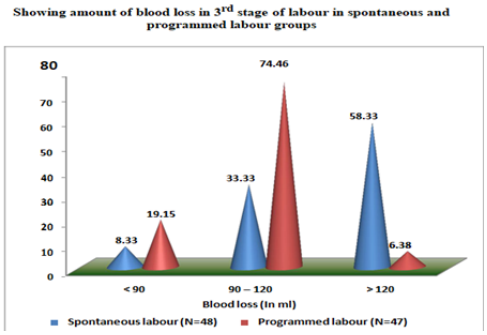

Fig 5

The above graph clearly shows that over approximately 94% of patients in programmed labour group had blood loss less then 120 ml in comparison to spontaneous labour group where only approximately 42% had blood loss less than 120ml. Mean blood loss in spontaneous labour group was 145.20ml SD±56.60 and in programmed labour group was 114.3mlSD±61.13.

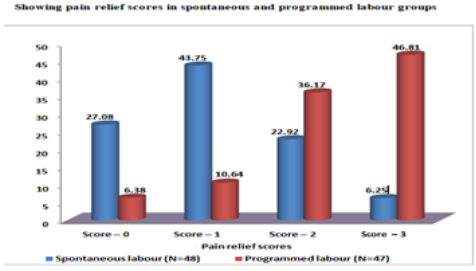

Fig 6 The above graph shows 83% in programmed labour group had excellent pain relief in comparison to spontaneous labour where only 29% had relief from pain.

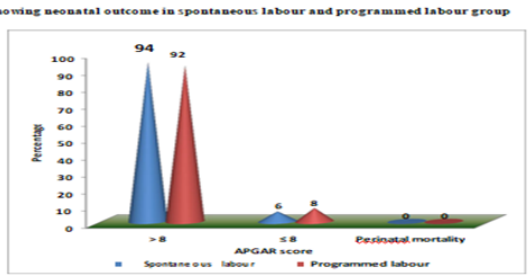

Fig 7Above graph shows healthy neonatal outcome and no perinatal mortality in both the groups

Discusion :

This study was a prospective study to compare maternal and fetal outcome in programmed labour and spontaneous labour with the means of partograph. 100 low risk term pregnancies admitted in Obstetrics and Gynaecology department of Rajendra Institute of Medical Sciences, Ranchi were included in this study and divided in two groups, each of 50. This included both booked and unbooked cases. The patients were entered in the study after explaining about the study and taking an informed consent. The period of study was from September 2017 – September 2018. Figure 1 showing, in this study 96% of patients in spontaneous labour group and 94% of patients in programmed labour group had normal vaginal delivery. 4% of spontaneous labour group and 6% of programmed labour group had ceasarian section. The indication was non reassuring fetus with meconium stained liquor.

Figure 2 showing mean duration of active phase in programmed labour group was 3.12hr. ± 1.01hr. and in spontaneous labour group was 5.31hr. ± 0.76 hr in this study.Mean duration of second stage of labour in this study was 22.25±7.57 minutes in programmed labour group and 1.21± 0.35hr. in spontaneous labour group. So this study had encouraging results with considerable shortening of second stage of labour in programmed labour group in comparison to spontaneous labour group with out any mortality or significant morbidity in mother or fetus.

Figure 3 showing duration of third stage in both groups. In this study active management of third stage of labour was done. In this study mean duration of third stage in programmed labour group was 4.74 ± 1.66 minutes and in spontaneous labour group was 5.72±2.69 min.

Figure 4 showing rate of cervical dilatation in programmed and spontaneous labour groups. In this study, mean rate of cervical dilatation of programmed labour group was 2.10±0.60 cm/hr and in spontaneous labour group it was 1.15±0.19cm/hr .

Figure 5 showing estimated Mean blood loss in this study was 114.36± 61.13ml in programmed labour group and it was 145.20±56.60ml in spontaneous labour group. Active management of third stage was practiced in this study. Only one participant in programmed labour group had atonic PPH which was managed medically.

Figure 6 showing pain relief scores. In spontaneous labour group only 29% had pain relief, where as in programmed labour group 83% of cases had excellent pain relief. The role of smooth muscle relaxants and antispasmodics in facilitating cervical dilatation has been widely studied and documented .It was successful in this study too, for providing pain relief and for shortening the duration of labour.

Figure 7 showing neonatal outcome. Babies born were healthy in both the groups having Apgar score more than 8 in 94% in spontaneous labour group and 92% in programmed labour group. No any perinatal mortality and immediate post-partum complications were observed in both groups.

CONCLUSION

This study was done to assess the maternal and fetal outcome in Programmed Labour Protocol in comparison of spontaneous labour. 100 low risk term pregnancies who had consented for the study were included in this study and patient were allocated in two groups. 50 patients were managed with Programmed labour protocol and 50 were managed expectantly. The participants of this study was low risk term singleton pregnancy with cephalic presentation. . After applying statistical analysis to the data, the following inferences were drawn from this study.

Programmed labour protocol reduces the total duration of labour. Partients experienced considerable relief of pain with the drugs used .Third stage blood loss was considerably reduced with no third stage complications.Majority of women had spontaneous unassisted vaginal delivery.There was no perinatal mortality and neonatal outcome was satisfactory.Presence of a Pediatrician and strict vigilance on patients vital parameters are required.More studies using same protocol are required for further substantiation.Pain relief during labour spells a humane approach to delivery. Although Epidural Analgesia offers the best method of providing pain relief, we should accept the fact that such services are not universally available, and beyond the reach of a large section of our population. Hence, the adoption of a Labour protocol like this, which can be easily followed by the attending obstetrician has much to do for a vast majority of the population in our country.

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