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Gynecology

PROGRAMMED LABOUR FOR OPTIMISING LABOUR AND DELIVERY - A CASE CONTROL STUDY

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KEYWORDS :

INTRODUCTION Labour is a physiological but painful event. Pain during labour is normal and its management is influenced by an interaction between a woman's mental and emotional state and the physiological changes that occur during labour. Pain relief during labour reduces maternal stress and results in shorter labour and improved maternal outcome. Epidural analgesia has proved to be beneficial and has contributed significant pain relief and improved the obstetric outcome. After long researches, a protocol was developed to optimise the labour outcome i.e. pain relief, short labour, less blood loss and no adverse effects on the neonate. This "optimising labour protocol" or "programmed labour" refers to ensuring smooth progress of labour resulting in the delivery of a healthy baby by vaginal route of a healthy mother, through judicious use of labour inducers, appropriate obstetric analgesic regimen and partographic monitoring. Programmed labour protocol is based on incorporation of labour analgesia, active management of labour and monitoring events of labour by a partogram.

AIM

To analyse the outcome of Programmed labour protocol with respect to Mean rate of cervical dilatation, Mean duration of active phase of first stage of labour, Mean duration of second stage of labour, Mean duration of third stage of labour, Average blood loss, Pain relief of labour, Mode of delivery and APGAR score of the neonate.

LABOUR ANALGESIA

"The delivery of the infant into the arms of a conscious and pain free mother is one of the most exciting and rewarding moments in medicine" Moir

NON PHARMACOLOGICAL	PHARMACOLOGICAL
Psychoprophylaxis Breathing exercise Hypnosis TENS Acupuncture and Acupressure Hydrotheraphy Miscellaneous Yoga, Music therapy	Inhalational analgesia N2O: O2, Ether, Trilene, Halogenated compounds like Enflurane, Isoflurane, Sevoflurane. Parenteral analgesia like Opioids-pethidine, pentazocine, fentanyl, Remifentanyl and sufentanil. Non-opioids like Tramadol, Sedative and tranquiliser: diazepam, midazolam. Ketamine. Regional analgesia Like lumbar, caudal, spinal combined spinal-epidural and walking epidural. Pudendal nerve block Paracervical block

MATERIALS AND METHODS

The present study was open, parallel group, monocentric, comparative matching trial undertaken in the Department of Obstetrics and Gynaecology of K.A.P.V. Government Medical College, Trichy, between September 2011 and January 2012. All the consecutive antenatal mothers both Primi and Multi gravida between 20 and 29 years of age who fulfilled the inclusion and exclusion criteria were enrolled for the study.

INCLUSION CRITERIA

Primi and Second gravida
Gestational Age between 37 and 41 completed weeks
Hemoglobin more than 9 gm%

EXCLUSION CRITERIA

Obstetric complications like GHT, GDM,
Medical complications like Diabetes and Jaundice
Previous cesearean pregnancy
Multiple pregnancy
Malpresentations
Cephalopelvic disproportion
Preexisting Fetal distress, IUGR

CASES(100): Are the subjects who received programmed labour protocol
CONTROLS(100): Are the subjects who did not receive it

PROGRAMMED LABOUR PROTOCOL

All cases were started on IV fluid 500ml of Ringer Lactate. A Solution containing 10ml of normal saline with one ampoule of Diazepam(10mg) and one ampoule of Pentazocine(30mg) was prepared out of which 2ml was given containing 6mg of Pentazocine and 2mg of Diazepam. This was given intravenously as bolus when the cervix is at 4cm dilatation and with minimum of three good uterine contractions per minute. All these women then received Inj. Tramadol 50mg and Inj. Buscopan intramuscularly and this is repeated at the end of four hours if needed. Inj. Drotaverine was repeated every 2 hours, if required, for a maximum of three doses.

Pain score of the patient was noted as perceived by the women at the beginning of the protocol. Partogram was plotted along the "Standard Nomogram", for the progress of labour, which served as the control baseline reference for all further evaluations of treatment regimens.

Intra umbilical vein injection of Oxytocin.
Duration of all the three stages of labour was noted. Average blood loss was noted after the delivery. Neonatal condition i.e. Apgar scores at 1 min and 5 min were noted. Maternal and neonatal morbidity and mortality were noted.

Visual analog scale - Pain Relief Score in these women was noted postpartum after they were fully awake. Scores were recorded as (i)Score 0 – no relief (ii) Score 1 - (Mild) some relief but not as much as required (iii) Score 2 – (Moderate) substantial relief (iv) Score 3 – (excellent) almost complete relief.

The outcome of programmed labour protocol was assessed with respect to

Mean rate of cervical dilatation, Mean duration of active phase of First stage of labour, Mean duration of second stage of labour, Mean duration of Third stage of labour, Average blood loss, Pain relief in labour, Mode of delivery and APGAR scores.

RESULT ANALYSIS

All the data were entered into statistical software SPSS 11. Appropriate statistical analysis was done using t-test.

The data collected were analysed under Demographic details, Delivery details and duration of labour, Maternal and neonatal details.

TABLE : 1 Age distribution among cases and controls

Age group (in years)	Cases (n=100)	Controls (n=100)
20-23	69	53
24-27	31	47

The mean age of the women in the case group was 23 + 1.9 years while in the control group it was 22.9 +2.1 years.

TABLE 2: Parity distribution in the population

Study population	Primi	Second gravida
Cases (n=100)	77	23
Controls (n=100)	81	19

Distribution of parity was even among both cases and controls.

TABLE 3: Age sub-group and parity distribution in the study population

Age group in years	Parity	Cases (n=100)	Controls (n=100)
20-23	Primi	61	56
	Second gravida	16	25
24-27	Primi	04	01
	Second gravida	21	16

TABLE 4: Gestational; Age at enrolment into the study

	Cases (n=100)		Controls (n=100)	
	Primi	Second gravida	Primi	Second gravida
Gestational Age in weeks	38.40	38.39	39.10	39.05

TABLE 5: Mode of delivery

Mode of delivery	Study population(n=200)		Primi		Second Gravida	
	Cases (n=100)	Controls (n=100)	Cases	Controls	Cases	Controls
Labour Natural	95	89	72	71	23	18
Instrumental delivery	04	07	04	07	00	00
Cesearean Delivery	01	04	01	03	00	01

GRAPH 1

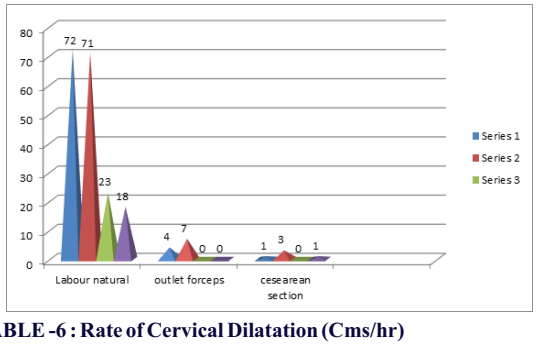


TABLE -6 : Rate of Cervical Dilatation (Cms/hr)

Parity	Rate of Cervical Dilatation	
	Cases	Controls
Primi	2.58 + 0.33	1.15 + 0.32
Second Gravida	2.79 + 0.29	1.76 + 0.30

GRAPH 2

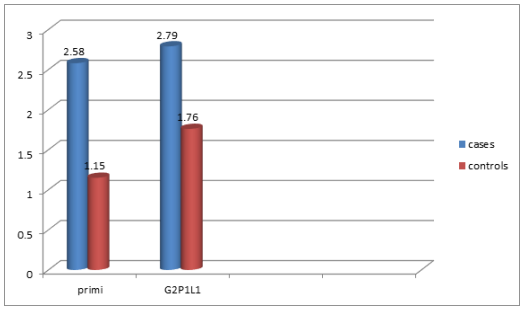
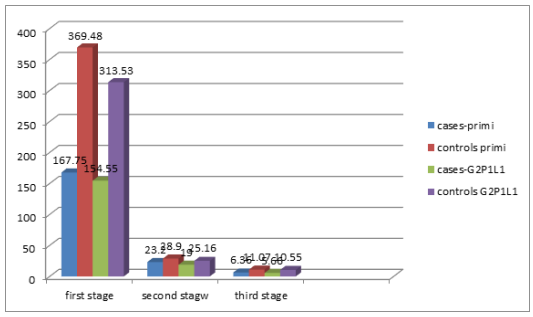


TABLE – 7 : Duration of Stages of Labor

: Duration of Stages of Labor	Primi		Second Gravida	
	Cases	Controls	Cases	Controls
Active Phase of First Stage	167.75 ± 17.88	369.48 ± 29.12	154.55 ± 15.04	313.53 ± 47.58
Second Stage	23.20 ± 7.0	28.9 ± 7.92	19.0 ± 2.31	25.16 ± 3.0
Third Stage	6.36 ± 0.7	11.07 ± 1.12	5.66 ± 0.58	10.55 ± 0.88

GRAPH 3



TABLE– 8 : Amount of Blood Loss During Third stage of Labor

	Primi		Second Gravida	
	Cases	Controls	Cases	Controls
Blood Loss (ml)	144.94 ± 102.14	235.04 ± 76.60	114.35 ± 12.37	291.05 ± 144.18

Graph 4

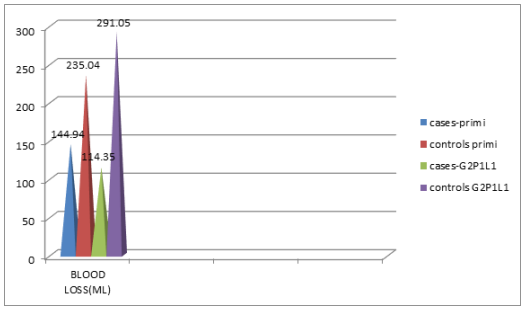


TABLE – 9 : Quality of Pain Relief

Quality of Pain Relief	No. Of Cases (n = 100)
Excellent	51
Moderate	26
Mild	19
Nil	04

GRAPH 5

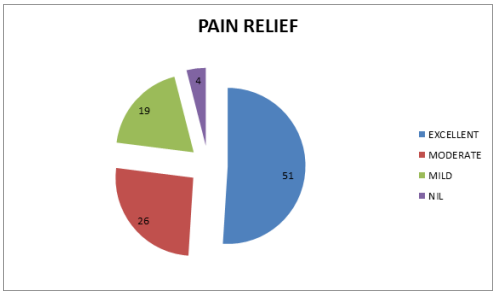


TABLE-10 : Apgar Score at 1 min and 5 Min

Apgar Score	Primi		Second Gravida	
	Cases	Controls	Cases	Controls
At one Minute	7.03 ± 0.49	7.11 ± 0.47	7.04 ± 0.21	7.21 ± 0.54
At Five Minute	8.39 ± 0.61	8.22 ± 0.65	8.74 ± 0.44	8.21 ± 0.79

GRAPH 6

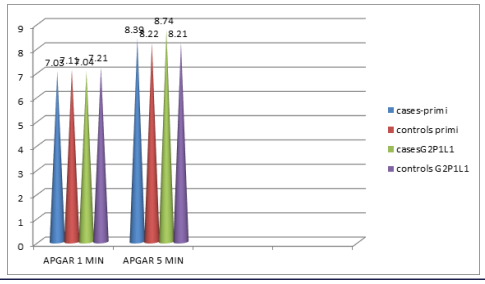


TABLE – 11 : Maternal Morbidity & Side effects

Maternal Morbidity & Side effects	Cases (n = 100)
Tachycardia	14
Nausea / Vomiting	11
Drowsy	03
Nil	72

DISCUSSION

SUMMARY

The rate of cervical dilatation was 2.58 + 0.33 and 2.79 + 0.29 cm/hr respectively as compared to 1.15 +o.32 and 1.76 + 0.30 cm/hr in primi controls and second gravida controls respectively.

Mean duration of active phase of 1st stage of labour was 167.75 minutes and 154.55 minutes in primi cases and multi cases respectively, that of 2nd stage was 23.20 and 19.0 minutes in primi cases and multi cases respectively and for third stage 6.36 and 5.66 minutes in primi cases and second gravid cases.

95 cases delivered by natural delivery , of which 72 were primi and 23 were second gravida , delivery was assisted byboutlet forceps in 4 cases, cesearean section was done in one case.

72 cases did not have any adverse effects for the programmed labour protocol. 14 had tachycardia which was transient and there was no alteration in other vital parameters. The other side effects were nausea / vomiting noticed by 11 cases and drowsiness observed by three cases. However these side effects were not significant and did not require any specific therapy.

The blood loss was about 145 ml in primi and 115 ml in second gravida mothers who received programmed labour protocol.

51 mothers had an excellent pain relief however four mothers had no pain relief. Moderate and mild pain relief was observed by 26 and 19 mothers respectively.

There was no neonatal morbidity / mortality in the study population.

CONCLUSION

Programmed labour protocol has resulted in

- Reduction in the mean duration of active phase of first stage of labour by around 50%
- Faster rate of cervical dilatation (1.5 times more)
- Significant reduction in the mean duration of second stage of labour.
- Significantly less blood loss and comparatively shorter duration of third stage of labour.
- No adverse neonatal outcome as evidenced by 1 min and 5 min Apgar.
- Good quality of pain relief with 51% of the subjects having excellent pain relief.
- Minimal and insignificant maternal side effects.
- Programmed labour protocol is a good, safe and effective way to have labour analgesia, short labour with no adverse effects on foetus.

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