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Research Article

LABOUR MONITORED PARTOGRAPHICALLY WITH OR WITHOUT PELVIC ASSESSMENT – A COMPARATIVE STUDY

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ABSTRACT
A labour which is unduly prolonged is likely to given rise to one or more type of distress namely maternal and fetal distress. The present study aims to assess the usefulness of the pelvic assessment in partrographically monitored labour and in detecting labour disorder. This present study reveals that the timing of delivery can be estimated through partogram.

Keywords: *Labour, Partogram, Pelvic*

INTRODUCTION
The partogram (or partograph) is a simple, inexpensive tool to provide a continous pictorial overview of labour in one page. The partogram is a pre-printed form, usually in paper version, on which midwives and obstetricians record labour observations.
Most partograms have three distinct sections where observations are entered on maternal condition, fetal condition and labour progress; this last section assists in the detection of prolonged labour. Prolonged labour is important as both postpartum haemorrhage and infection are more common in women with long labour as mentioned by Neilson *et al.,* (2003).
Calkin *et al.,* (1933) described variation in length of the stages of labour, to demonstrate effect on labour of factors like maternal age, height, weight, parity, length of gestation, size of pelvis and fetal weight. Shortening of duration of labour with increasing parity was encountered. In multipara, only fetal presentation seemed to affect the length of first or second stage of labour.
Friedman *et al.,* (1954) first noted that "except for cervical dilatation and fetal descent, none of the clinical features of parturient patient appears to be useful in assessing the labour progress". On the basis of statistically analysis, he developed a cervical dilatation time curve that makes possible to follow labor critically as it progresses.
Hendricks *et al.,* (197) stressed the notion that as the attendant first sees the patient on admission, this point of "admission in labour" should be the commencement of the cervimetric curve and that this will necessarily vary according to degree of cervical dilatation on admission. Hendricks *et al.,* demonstrated that there was no deceleration phase at the end of first stage of labour.
The first composite labour picture was devised by Philpott (1972). It was designed in Zimbabse for considering the problem of labour in that community. It gained increasing popularity especially in the under developed countries where existing bleak outcome during the labour is further compounded by inadequate medical resources and poor transport facilities over great distances. Further it was modified by Philpott and Castle (1972).
The graph proposed measured 25cm x 40cm which was attached to the patient's maternity record.
John and Duigm (1972) recommended the first stage from admission to full dilatation termed as "Observed 1st stage".

MATERIALS AND METHODS
It is a prospective study involving booked and unbooked deliveries in a General Hospital.

Inclusion Criteria
All registered and unregistered primigravidae with term pregnancy who came in active phase of labour (cervical dilatation >=4 cm) with vertex presentation and singleton pregnancy and intact membranes.

Exclusion Criteria

1. Premature labour
2. Postdatism
3. Multiple pregnancy
4. Premature rupture of membranes
5. Preeclampsia / eclampsia
6. Severe degree of cephalopelvic disproportion
7. Abnormal presentation
8. Ante partum hemorrhage
9. Intrauterine growth restriction (IUGR)
10. Severe anemia, heart disease of any other medical disorder. These were excluded from the study.

Method Employed

Partographic monitoring of all cases with or without pelvic assessment.

Methodology

A total of 200 cases were randomly selected for this study. Partograph was recorded for all 200 cases from the time of active phase. They were divided into 2 groups.

Group A: Partographic monitoring done without pelvic assessment.

Group B: Partographic monitoring done with pelvic assessment.

Following admission to the labour ward, the preliminary particulars of the patients were taken down. A detailed history including the time of onset of labour pains, leaking per vaginum (if present) passage of blood stained mucoid discharge (show) per vaginum was noted. Menstrual and obstetric history of the patient was recorded.

All patients were classified according to Kuppuswamy's socio-economic classification. It is based on Education, Occupation and Income of family.

RESULTS AND DISCUSSION

Table 1: Age Wise Comparison

Age in Years	Study Group		Control Group	
	No.	%	No.	%
18-20	41	41%	53	53%
21-23	40	40%	32	32%
24-26	18	18%	11	11%
≥27	01	01%	04	04%
Total	**100**	**100%**	**100**	**100%**

Table 1 show the age wise comparison between two groups between 18 to 27 years.

Table 2: Socioeconomic class wise Comparison

Socioeconomic Economic Class	Study Group No. of Cases	%	Control Group No. of Cases	%
I	00	0.0	0	0.0
II	01	1.0	3	3.0
III	09	9.0	7	7.0
IV	59	59.0	62	62.0
V	31	31.0	28	28.0
Total	**100**	**100%**	**100**	**100%**

$X^2 = 0.22$, $p>0.05$

Socioeconomic status of women is not statistically significant among study and control groups. Maximum women in both the groups belong to class IV and class V as mentioned on Table 2.

Table 3: Comparison according to duration married life

Years	Study Group		Control Group	
	No.	%	No.	%
≤1	52	52.0	63.	63.0
1 to 2	36	36.0	28	28.0
2 to 3	07	07.0	05	05.0
≥3	05	05.0	04	04.0
Total	**100**	**100%**	**100**	**100%**

$X^2 = 0.88$, $p>0.05$

Maximum women are married since 1 year or less in both the groups, and there is no statistical significance observed, as shown in Table 3.

Table 4: Antenatal registration wise comparison

Registration status	Study Group		Control Group	
	No.	%	No.	%
Registered	95	95	97	97
Unregistered	05	05	03	03
Total	**100**	**100%**	**100**	**100%**

$X^2 = 0.52$, $p>0.05$

Distribution of cases according to antenatal registration is not significantly different. Only 3-5% women are not registered in both the groups, as show in Table 4.

Table 5: Height and weight wise comparison

Parameters	Study Group		Control Group		X^2 test and significance
	Mean	SD	Mean	SD	
Height	154.0	5.4	152	5.7	$X^2 = 1.36$, $p > 0.05$
Weight	53	5.9	53.6	5.4	$X^2 = 0.76$, $p > 0.05$

There is no statistically significant difference in height and weight among study and control group, as mentioned in Table 5.

Table 6: Comparison of fetal descent seen abdominally

Head felt	Study Group		Control Group	
	No.	%	No.	%
1/5	03	03.0	03	03.0
2/5	28	28.0	23	23.0
3/5	67	67.0	63	63.0
4/5	02	02.0	01	01.0
Total	**100**	**100%**	**100**	**100%**

$X^2 = 0.62$, $p>0.05$

There is no statistically significant difference among control and study group for fetal decent seen abdominally, as seen in Table 6.

Table 7: Expected birth weight (EBW) wise comparison

Parameters	Study Group Mean ± SD	Control Group Mean ± SD	X^2 test and significance
EBW (kg)	2.47 ± 0.25	2.57 ± 0.25	$X^2 = 0.28$, $p>0.05$

There was no statistically significant in EBW between study and control groups, as seen in Table.7

Table 8: Comparison according fetal Position

Position	Study Group		Control Group	
	No.	%	No.	%
LOA	74	74.0	74	74.0
ROA	05	05.0	06	06.0
LOT	18	18.0	18	18.0
ROT	03	03.0	02	02.0
Total	**100**	**100%**	**100**	**100%**

$X^2 = 0.145, p>0.05$

There is no statistically significant difference among study and control group in fetal position, as mentioned in Table 8.

Table 9: Comparison according fetal Position

Oxytocin augmentation	Study	Percentage	Control	Percentage	Total
Done	21	21	22	22	43
Not Done	79	79	78	78	157
Total	**100**	**100**	**100**	**100**	**200**

$X^2 = 0.003, p>0.05$

Distribution of cases according to oxytocin augmentation is not significantly different in both groups, as seen in Table 9.

Table 10: Comparison according cervical dilatation and effacement at admission

Cervix	Study Group Mean ± SD	Control Group Mean ± SD	X^2 test and significance
Dilatation (cm)	4.5 ± 1.09	4.65 ± 0.87	$X^2 = 1.16$, p>0.05
Effacement (%)	52.85 ± 0.6	53.65 ± 12.09	$X^2 = 2.76$, p>0.05

There was no statistical significance in cervical dilatation and effacement between study and control groups, as reveals in Table 10.

Table 11: Comparison according duration of labour

Duration	Study Group Mean ± SD	Control Group Mean ± SD	X^2 test and significance
First stage (hours) $active phase.	5.7 ± 1.92	6.0 ± 2.2	$X^2 = 1.02$, p>0.05
Second stage (minute)	51.44 ± 12.77	51.58 ± 12.97	$X^2 = 0.073$, p>0.05
Third stage (minute)	12.63 ± 3.08	12.81 ± 5.11	$X^2 = 0.28$, p>0.05

Latest phase in First stage of labour was excluded. Duration of labour observed in both the groups was not statistically different, as mentioned in Table 11.

Table 12: Comparison according to mode of delivery

Mode	Study Group n=100		Control Group n=100	
	No.	%	No.	%
Normal delivery	88	88.0	87	87.0
Forceps with episiotomy	5	5.0	5	5.0
Vacuum with episiotomy	3	3.0	2	2.0
Lower segment cesarean section	4	4.0	6	6.0

$X^2 = 0.04$, $p>0.05$

There was no statistically significant difference in mode of delivery between study and control group, as seen in Table 12.

Table 13: Comparison according birth weight and APGAR score

Parameters	Study Group Mean ± SD	Control Group Mean ± SD	X^2 test and significance
Birth weight	2.58 ± 0.25	2.62 ± 0.31	$X^2 = 1.08$, $p>0.05$
APGAR at 1 minute	7.5 ± 1.0	7.48 ± 1.05	$X^2 = 0.13$, $p>0.05$
APGAR at 1 (minute)	8.8 ± 0.6	8.77 ± 0.69	$X^2 = 0.32$, $p>0.05$

There was no statistically significant difference in birth weight, APGAR score at 1 minute and 5 minute between study and control groups, as presented in Table 13.

Table 14: Need of NICU admission

NICU	Study Group		Control Group	
	No.	%	No.	%
Required	3	3.0	4	4.0
Not required	97	97.0	96	96.0
Total	**100**	**100**	**100**	**100**

$X^2 = 0.145$, $p>0.05$

There was no statistically significant difference in rate of NICU admission among both groups, as mentioned in Table 14.

Table 15: Duration of stay in hospital

Hospital stay	Study Group Mean ± SD	Control Group Mean ± SD	X^2 test and significance
Duration (days)	3.4 ± 1.3	3.39 ± 1.10	$X^2 = 0.056$, $p>0.05$

There was no statistically significant difference in duration of stay in hospital between study and control groups, as presented in Table 15.

Table 16: Labour Complications

Complications	Study Group		Control Group	
	No.	%	No.	%
Yes	5	5.0	4	4.0
No	95	95.0	96	96.0
Total	**100**	**100**	**100**	**100**

$X^2 = 0.116$, $p>0.05$

There is no statistically significant difference in labour complications like extension of episiotomy, urinary retention, post partum hemorrhage, after forceps application encountered among both groups, as show in Table 16.

200 cases of full term primigravidae, without any abstetrical or medical complications are randomly selected and divided into 2 groups 100 in each group.

Group A: Labour monitored partographically without pelvic assessment.

Group B: Labour monitored partographically with pelvic assessment.

In present study, booked patients were 95% in study group and 97% in control group.

81% in study group and 87% in control group were below 24 year of age group.

99% in both groups were above 145 cm of height. The mean height however was 154 cm in study group and 152.93 in control group (average Indian standard is 147.5 cm).

In present study 59% in study group and 62% in control group belong to class IV socioeconomic class.

In this present study, none of them had labour more than 18 hrs, while 21% in study group 22% control group received oxytocin for augmentation of labour.

In the present study average duration of labour in 1st stage was 5.7hrs in study group and 6hrs in control group. 2nd stage was 51.44 minutes in study group and 51.58 minutes in control group. 3rd stage was 12.63 minutes in study group and 12.81 in control group.

In our study, admission to delivery interval was within 12 hrs in 94% study group and 92% control group. It was more than 12hrs in 6% cases in study group and 8% in control group showing no statistical significance between both groups.

In the present study normal delivery with episiotomy occurred in 85% of study group and 86% of control group, normal delivery without episiotomy occurred in 2% of study and 1% of control group, forceps delivery with episiotomy in 6% of study group and 5% of control group, vacuum delivery with episiotomy in 3% study group 2% in control group, caesarean section in 4% of cases and 6% of control group.

No patient was in labour for more than 18hrs.

No case developed hypertonic uterine action. In present study fetal distress was the indication foe Caesarean section in 2% in study group 3% of control group; one case in study group had fetal distress with non progress of labour as and indication.

Two mean birth weight of babies born in study group is 2.58 kg and the mean birth weight of babies born in control group is 2.62 kg. so again in respect to birth weight, there was no statistical difference between both the groups.

In present study neonatal resuscitation was required in 5% of study group, and 6% of control group. While APGAR score less than or equal to 5 at 1 minute 5% in study group and 6% in control group. While APGAR score was more than 7 at 5 minutes in both the groups.

In the present study NICU admission occurred in 3% of study group and 4% of control group. In study group 1 baby was admitted for 2 days and was kept on bubble c-pap, and 2 babies were kept for 1 day for observation. In control group, 3 babies were kept for 1 day for observation and 1 baby was admitted for 2 days and was on bubble c-pap, IV antibiotics. Above data shows there was no statistical difference between both groups.

In present study there was no maternal mortality in both the groups. As per morbidity is concerned one patient in study group had retention of urine which was relived after catheterization for one day.

Neonatal morbidity was comparable in both the groups. In the study group one case had birth asphyxia and one case with jaundice. In control there were two cases of birth asphyxia.

There was no perinatal mortality in our study during hospital stay. Thus from above reports just mentioned it is concluded that person conducting delivery should be well trained in plotting of partograph if not in doing pelvic assessment.

The graphic record of labour progress make early recognition of slow progress possible through its visual presentation of important clinical information regarding labour.

Use of partogram helped in reducing the risk of prolonged labour. Careful augmentation of abnormal labour by oxytocin infusion after excluding any contraindication appears to be safer and effective measure to achieve vaginal delivery in significant proportion of patients; more studies are indicated for evolving guidelines for timing of initiation and discontinuation of oxytocin.

With the help of partogram, the timing of delivery could be estimated and if the progress was slow, an appropriate interference at the right time could be instituted before the labour became dangerously protracted.

Neonatal morbidity was found to be decreased with the help of partographic monitoring of labour. The alert line of the partogram separates efficient labour from inefficient labour and it detects earliest possible dystotic situation. The alert line on the partogram indicates a high risk for the fetus to develop respiratory distress. The action line on the partogram identifies an at risk group of patients requiring acceleration of labour, intensive monitoring and instrumental delivery.

Trained nursing personnel can help in partographic monitoring properly and timing the intervention in abnormal labour patterns. This can specially be helpful in rural set-ups where timely referral to higher centers can reduce obstetric complications.

Philpott's concepts of alert line can be recommended for the peripheral practitioners for timing the appropriate intrepartum referral. Still larger studies are required to prove the above fact.

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