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Universal Acceptance of Partogram

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Abstract

WHO partogram is an inexpensive, accessible tool which has been introduced by WHO for monitoring of labour. Universal acceptance of partogram is beneficial to monitor the progress of labour, reduce the prolonged labour and maternal, fetal mortality rate and operative interference.

INTRODUCTION

labour has been termed as the most dangerous journey a woman ever undertakes. Though it is a physiological phenomenon leading to childbirth, complications can occur anytime during its course (iffat javed *et al*., 2007). Each year, 5,36,000 women die from complications of pregnancy and childbirth, 99% in the developing world and another 10-20 million women have severe health problems, including obstetric fistula. In 2005 woman's lifetime risk of maternal death is 1 in 7300 in developed countries versus 1 in 75 in developing countries (WHO, unicef, unfpa and world bank. Maternal mortality in 2005: estimates developed by WHO, unicef, october 2007). Tools and techniques to monitor labour thus play an important role in saving women's lives. The partogram or partograph is an inexpensive tool to provide a continuous pictorial overview of labour and is essential to monitor and manage labour. It is a single sheet of paper where all information related to labour is obtained. It is a practical device in a busy labor room with many cases but limited personnel to screen the abnormal labour. With its use, there is no need to record labour-events repeatedly. It predicts deviation from normal progress of labor and proper intervention can be done in time. It facilitates handover and responsibility and accountability of the person conducting labour (safe mother, 1994). Utilization of partograph acts as a simple instrument for early recognition of abnormalities during labour. This prevents prolonged and obstructed labour and provides a favourable maternal and fetal outcome. Freidman introduced the concept of partograph in 1954 by graphically continuous mapping the cervical dilation during labour (friedman, 1954; wayne r, *et al.,* 978). In 1972, Philpott and castle modified the concept by the addition of 'action line' and 'alert line' in the graph (Philpott RH *et al*., 1972).

Material and Methods –

It is a prospective and observational study which was carried out in Pannadhay Mahila Chikitsalaya, R.N.T. Medical College, Udaipur. 1000 women in labour were included in this study.

The study was evaluating the role of partogram in:

1. Prediction of deviation from normal progress of labour.
2. Improvement in maternal morbidity and perinatal morbidity and mortality.

The following parameters were studied for mother-

1. Normal course of labour. 2. Prolonged 1st stage labour. 3. Prolonged 2nd stage labour. 4. Need for oxytocin augmentation. 5. Fetal distress. 6. Need for lower section caesarean section and indication.

The following parameters were studied for child-

1. Apgar >7 at 5 minute. 2. Apgar <7 at 5 minute. 3. Respiratory distress at birth. 4. Incidence of meconium staining. 5. Need for admission in NICU.

Aims –

To prospectively evaluate the progress of labour in nulliparous and multiparous using WHO modified partogram. .
1. To promote further research into its use and benefits, particularly as a referral tool.
2 To determine the effect of use of partogram on the frequency of prolonged labour, augmented labour, operative deliveries and whether appropriate interventions based on partogram will reduce perinatal and maternal morbidity and mortality.
3. Monitoring the progress of labour and wellbeing of mother and foetus.
4. Recognizing the need for action at the appropriate time.

Discussion –

The partogram or partograph is an inexpensive tool to provide a continuous pictorial overview of labour and is essential to monitor and manage labour. It is a single sheet of paper where all information related to labour is obtained. It is a practical device in a busy labor room with many cases but limited personnel to screen the abnormal labour. With its use, there is no need to record labour-events repeatedly. It predicts deviation from normal progress of labor and proper intervention can be done in time. It facilitates handover and responsibility and accountability of the person conducting labor (safe mother, 1994). The first obstetrician to describe the progress of labour graphically was Friedman (Friedman 1954) following his study of the cervical dilatation of 100 African primigravidae at term. The women were given frequent rectal examinations and their progress was recorded in centimeters of dilatation per hour, producing a slope resembling a sigmoid curve ('S' shaped). This became known as the
Cervicograph. In an attempt to utilize midwives efficiently in a hospital and clinic service in Zimbabwe (then Rhodesia), where doctors were in short supply, Philpott RH 1972(6) developed a partogram from this original cervicograph. This provided a practical tool for recording all intrapartum details, not just cervical dilatation. An 'alert line' was added following the results of a prospective study of 624 women (Philpott RH 1972; 7). The alert line was straight not
Curved and was a modification of the mean rate of cervical dilatation of the slowest 10% of primigravid women who were in the active phase of labour. This line represented a progress rate of 1 cm per hour. Should a woman's cervical dilatation progress more slowly, it would cross this alert line and arrangements were made to transfer her from a peripheral unit to a central unit where prolonged labour could be managed. The next stage of partogram development was the introduction of an action line, four hours to the right of the alert line (Philpott RH 1972; 8). This line was developed to identify primary inefficient uterine activity to prompt appropriate management. Correction of primary inefficient uterine activity would usually be with an intervention such as amniotomy or oxytocin infusion, or both.

REVIEW OF LITERATURE

D de Groof *et al.* had done a study on the impact of a partogram on maternal and perinatal mortality in all maternity wards in Niger. 1299 women in labour, primi and multiparous participated in two groups; one prior to and second after introduction of partogram. Results showed introduction of partogram reduces the labour to delivery time, results in timely decision and improves follow up care. Hence partogram has considerable impact in reduction of maternal & neonatal mortality.

Gibb MF *et al.* had taken up a study on 847 multigravida patients admitted in spontaneous labour. Labour was monitored with partogram. The mean observed first stage was 3.4 hrs. & caesarean section rate 1.4%. Normal labour occurred in 88.5% with vaginal delivery rate of 99.5% stimulation indicated in 11.6% with augmentation improving rate of progress in 86%. Outcome was assessed by APGAR scores, intubation and NICU admission. There was no significant difference in neonatal condition between normal & abnormal labour if vaginal delivery occurred.

Ganesh Dangal used partogram to assess the progress of labour and to identify when intervention is necessary. Studies have shown that using partogram can be highly effective in reducing complications from prolonged labour for the mother and for the newborn. Prolonged labour, augmented labor, caesarean sections/operative interventions, neonatal morbidity and intrapartum fetal deaths were reduced with use of partogram.

Iffat javed *et al.* had taken up study to determine the effect of partogram on the frequency of prolonged labour, augmented labour, operative deliveries and whether appropriate interventions based on partogram will

reduce maternal and perinatal complications. A case controlled, prospective and interventional study on 1000 women in labour was carried out before and after introduction of partogram. Results showed significant impact on duration and mode of delivery in primi. Also showed significant reduction in duration of labour in multigravida. Hence maternal and perinatal morbidity & mortality were reduced.

John Studd constructed a nomogram to show the normal progressive dilatation of the cervix for primigravida admitted at different stages of cervical dilatation. Retrospective evaluation of the nomogram showed that it can separate normal labour from labour destined to result in an abnormal outcome, such as longer first and second stages, a greater incidence of instrumental delivery, and babies with low APGAR scores.

Result –

Following are the results of the study:

1. The mean duration of first stage (active phase) labour was 2.48 ± 1.02 hours.
2. The mean duration of second stage of labour was 25.18 ± 11.43 minutes.
3. The total duration of labour (active phase of labour to completion of third stage) was 3.29 ± 0.605 hours.
4. Mean rate of cervical dilatation in our subjects was 2.49 cm/hr.
5. 98.3% of our participants had spontaneous normal vaginal delivery. 1.3% had caesarean section while 0.2% had forceps delivery.
6. There was no perinatal mortality found.
7. Patients crossing the alert line had longer duration of labour, mostly all required labour augmentation.
8. Baby's condition was satisfactory at birth.
9. 97.6% of neonates had an APGAR score of 9-10 at 1 and 5 minutes. 2.4% of neonates had APGAR score of <7 at birth.
10. There was 2.1% neonates admitted in NICU and no perinatal mortality. Condition of mother and child at discharge was satisfactory.

Table - 1. Mode of delivery

Mode of delivery	**No. of patients**	**%**
Normal vaginal delivery	983	98.3
LSCS	13	1.3
Forceps delivery	2	0.2
Face to pubis delivery	2	0.2

983 (98.3%) patients were delivered normally while 13 (1.3%) patients had caesarean section, 2 (0.2%) patients were required instrumental delivery in form of forceps and 2 (0.2%) patients were delivered face to pubis.

Table - 2. Onset of labour

Onset of labour	**No. of patients**	**%**
Spontaneous	929	92.9
Induced:		
- Postdatism	39	3.9
- Prolonged latent phase	11	1.1
- PROM	21	2.1

In this study, 92.9% patients were having spontaneous onset of labour while 7.1% patients were required induction of labour. Induction was done in 3.9% patients due to postdatism, in 1.1% patients due to prolonged latent phase and in 2.1% patients due to (PROM) premature rupture of membrane.

Table - 3. Alert line and action line relation with number of patients

Groups	**No. of patients**	**%**
I - Left to alert line	953	95.3
II - Between alert and action line	45	4.5
III - Right to action line	2	0.2

Table - 4. Comparison between groups

Parameters (mean)	**Group I (n=953)**	**Group II (n=45)**	**Group III (n=2)**	**P value**
Mean age	24.29±2.73	23.40±2.81	20.00±0.00	0.009
Mean gestational age	38.15±1.05	38.29±1.04	37.00±0.00	0.205
Induced labour	68	3	0	0.000**
Augmentation required	756	42	2	0.000**
Duration of 1st stage labour (hrs)	2.33±0.85	4.91±1.01	7.00	0.000**
Duration of 2nd stage labour (min)	24.24±11.62	26.22±14.19	40.00	0.235
LSCS	8	4	1	0.056
Forceps	2	0	0	0.133
NICU admission	17	4	1	0.000**
Birth weight	2.78±0.39	3.69±0.33	3.00±0.42	0.259

** Indicate significant P-value

Table - 5. Neonatal outcome

Neonatal outcome	**No. of patients**
Apgar <7 at birth	24
NICU admission (n=22):	
A) Meconium aspiration	12

B) Respiratory distress	7
C) Birth asphyxia	3

There were 24 babies have APGAR score less than seven, among which 22 were sifted to NICU for reasons of meconium aspiration 12, respiratory distress 7 and birth asphyxia 3. Otherwise remaining babies were discharge with satisfactory results.

CONCLUSION:

The partogram is an inexpensive and accessible tool that can effectively monitor the progress of labour. The other benefits of partogram include:

1. Unlike other interventions in maternal health, use of partogram does not require expensive technology.
2. A partogram reviews (if well recorded) provides rapid, comprehensive information about progress in labour when compared with a review of detailed hand written case notes.
3. Doctors and midwives find the partogram to have practical benefits in terms of ease of use, time resourcefulness, continuity of care and educational assistance and these positive aspects may contribute to imparting maternal and fetal outcomes.
4. From our study we can conclude that partogram is a very useful tool for monitoring the progress of labour.
5. We also realized the significance of alert line. The alert line reflects the progress of labour at a rate of 1 cm of cervical dilatation per hour. Movement of the cervical dilatation to the right of the alert line is considered abnormal, and if this occurs, referral to a higher institution with facilities for oxytocin augmentation and caesarean section is recommended.

Thus, universal acceptance of partogram is beneficial to monitor the progress of labour, reduce the prolonged labour and maternal, fetal mortality rate and operative interference.

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