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Usage of who modified partogram for term primigravidae

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Abstract
A partograph is a composite graphical record, of progress of labour and silent condition of mother and foetus the partograph was not created for the convenience of doctors; infact it was created as a tool for all health professionals including midwives and traditional birth attendants. It serves as an early warning system and assists in early decision on transfer, augmentation and termination of labour.
In under resourced setting, prolonged labour and delay in decision-making and late referrals are important causes of adverse obstetric outcome owing to resource constraints in such settings, it is usually not possible to monitor each woman continuously throughout the duration of the labour. In such setting, the partograph serves a simple and inexpensive tool to monitor labour in a cost- effective way.
Thus labour a simple natural process which can take a turn making it lethal for any patient. The role of obstetric caregiver is to avoid unnecessary intervention in this natural physiological process but at the same time to identify problems when things start going amiss. so the early recognition of any deviation from normal progression of labour will help to prevent or reduce undesirous maternal and fetal outcome, which brings in the importance of partogram

Aim
1) To recognise abnormal labour at an early stage using WHO partogram in relation to the alert line and action line.
2) To evaluate the role of partogram in preventing prolonged labour
3) Toasses the maternal and perinatal morbidity and mortality.

Materials and Methods
Study design: comparative prospective clinical study
No of cases: 200 cases each at term in labour
Sampling technique: Random selection of subjects meeting the inclusion and exclusion criteria. The WHO modified partogram is attached to the mothers case record when the patient is admitted in the labour room. Labour in 200 patients (control group) is monitored without using partogram. Outcomes are stratified in terms of duration of labour, mode of delivery, maternal and neonatal outcome.

Results
- The mean duration of first stage labour –9.6 hours
- The mean duration of second stage of labour –21.77 minutes
- The mean total duration of labour –10.2 hours
- Lscs -60% in control, 40% in test group.

Conclusion
1. Abnormal labour patterns can be identified earlier by partogram.
2. The difference in outcomes like mode of delivery, augmentation of labour and neonatal outcome was significant and can be predicted by partogram.
3. Maternal and perinatal outcomes can be predicted with use of partogram.

Keywords: Partograph, Maternal outcome & Foetal outcome

Introduction
"Of the entire journey through our life we make, the most dangerous one remains the first that we take through the birth canal."[1].
The care a woman receives during labour should not only help her to cope with stress and pain of labour but also minimize dangers involved.
Prolonged labour is associated with several adverse outcomes. It can lead to maternal exhaustion, maternal sepsis, obstructed labour, rupture uterus, postpartum hemorrhage, perinatal asphyxia, neonatal sepsis, disability and can lead to stillbirth, neonatal death and even maternal death. [2-4].
Obstructed and prolonged labour, hemorrhage, infection features among the five major causes of maternal mortality. Postpartum hemorrhage and postpartum sepsis (infection) are very common

when the labour gets prolonged beyond 18-24 hours [3]. Maternal mortality ratio continues to be the major index of the widening discrepancy in the level of care and the outcome of reproductive health between the advanced and developing countries. It is estimated that for each death of a mother there are 15 who escaped near death by chance. Maternal mortality ratio in India at present is 190 per 100000 live births (2013) [5].

According to the registrar general of India, the millennium development goals of the United nations has set the target of achieving 200 maternal deaths per one lakh live births by 2007 and 109 by 2015. Maternal mortality in INDIA (2007 – 2009) is 212 [9]. The current WHO initiative is to reduce maternal mortality to 75% of the 1990 by 2015[10].

Late referrals of intra partum cases from rural health centers is an important factor resulting in a significant number of avoidable perinatal deaths and maternal morbidity. It is well known that prolonged labour contributes to increased perinatal mortality and morbidity which can be prevented by early recognition of dystocia. This can be accomplished effectively by maintaining a partogram during labour.

- Early detection of abnormal progress of labour and prevention of prolonged labour would significantly reduce the risk of postpartum hemorrhage and sepsis and eliminate the obstructive labour, uterine rupture and sequelae. Thus the partogram significantly reduces the maternal and perinatal Complications.
- The purpose to monitor labour is to recognize incipient problems which may be prevented. Best way to monitor labour is with partogram.
- ” A picture is worth a thousand words.” „Partograph“ is a Latin/Greek hybrid word, synonymous with Parturition recorded in a graphic form. The partogram includes different variables like fetal heart rate, cervical dilatation, uterine contractions, pulse rate and BP of mother on a pre-printed paper. It allows objective graphic documentation of progress of labour and simplifies clinical interpretation of dynamic changes that occur during labour. Therefore it is a simple tool that is easy to learn and use which saves cost and at the same time helps to improve outcome for the mother and the baby [2, 3, 6].

Dr Friedman in 1954 plotted women’s labour on a graph and defined that all normal labour have a characteristic sigmoid shaped curve and defined various stages of labour and abnormal patterns of labour [7]. Philpott in 1972 devised a composite labour picture and introduced the alert and action lines to the partogram [6]. Then WHO in 1994 endorsed the partogram and later modified in 2000 and removed latent phase and defined active phase at 4 centimeters instead of previously used 3 centimeters. WHO advocated its use as a necessary tool in management of labour and recommended its universal use during labour [8].

The WHO recommends using the partogram to follow labour, with the objective to improve health care, reduce maternal &fetal morbidity &mortality [11].

It serves as an early warning system and assists in early decision making on intervention of labour [12]. Prolonged labour augmented labour, caesarian section rate and intra partum fetal deaths are reduced with the use of partograph. Thus the use of this inexpensive and effective tool in labour can make enormous change in fetal & maternal morbidity and mortality [13].

A partograph is a composite graphical record, of progress of labour and silent condition of mother and foetus. The partograph was not created for the convenience of doctors; infact it was created as a tool for all health professionals including midwives and traditional birth attendants. It serves as an early warning system and assists in early decision on transfer, augmentation and termination of labour.

In under resourced setting, prolonged labour and delay in decision-making and late referrals are important causes of adverse obstetric outcome. Owing to resource constraints in such settings, it is usually not possible to monitor each woman continuously throughout the duration of the labour. In such setting, the partograph serves a simple and inexpensive tool to monitor labour in a cost- effective way.

Thus labour a simple natural process which can take a turn making it lethal for any patient. The role of obstetric caregiver is to avoid unnecessary intervention in this natural physiological process but at the same time to identify problems when things start going amiss. So the early recognition of any deviation from normal progression of labour will help to prevent or reduce undesirous maternal and fetal outcome, which brings in the importance of partogram.

Aims and Objectives

1) To recognise abnormal labour at an early stage using WHO partogram in relation to the alert line and action line.

2) To evaluate the role of partogram in preventing prolonged labour

3) Toasses the maternal and perinatal morbidity and mortality.

Materials and Methods

Study design: comparative prospective clinical study

No of cases: 200 cases each at term in labour

Duration of study: March 2013 to march 2014

Sampling technique: Random selection of subjects meeting the inclusion and exclusion criteria.

Inclusion criteria

- Pregnant women in spontaneous onset or induced labour.
- First stage labour with cervical dilatation of 4cm.
- Singleton pregnancy more than 37 weeks gestation.
- Vertex presentation.
- Primigravidae.

Exclusion criteria

- Ante partum Hemorrhage.
- Non vertex Presentation
- Multiple Pregnancy
- Medical/Obstetric problems.

Procedure of Study

The patients are selected according to the inclusion criteria randomly and are studied by using a WHO modified partogram.

Patients presenting by vertex who come early in the first stage of labour or patients in whom labour is induced electively at term are in included in the study.

On admission to the hospital a detailed history to know the exact time of onset of labour pains, or leaking membranes is elicited. Next a detailed menstrual and obstetric history is taken. Family history, past history, personal histories are elicited as in the proforma.

After an initial preparation of the patient, examination of the patient is carried out with reference to maternal conditions like anaemia, height, stature, weight are noted. All the vital signs are noted, a detailed systematic evaluation had been done. By Per abdomen examination details about fetal lie, presentation, position and know whether the head is floating, fixed or

engaged. The rate, regularity and position of the fetal heart are noted. Pelvic examination under aseptic precautions to know the position consistency, effacement and dilatation of the cervix. The state of the membrane whether intact or ruptured.
The WHO modified partogram is attached to the mothers case record when the patient is admitted in the labour room. Labour in 200 patients (control group) is monitored without using partogram. Outcomes are stratified in terms of duration of labour, mode of delivery, maternal and neonatal outcome.

Observation and Results

Table 1: Age distribution in test group

Age group	N	%
<20	25	12.5
20-25	130	65.0
26-30	43	21.5
>30	2	1.0
Total	200	100.0

This shows that, 130(65%) subjects belonged to 20 to 25 yr age group followed by 43(21.5%) belonged to 26 to 30 yr age group.

Table 2: Type of labour in test group

I/S	N	%
Induced labour	63	31.5
Induced PROM	2	1.0
Spontaneous labour	135	67.5
Total	200	100.0

This shows that, 135(67.5%) subjects had spontaneous labour, followed by 63(31.5%) had induced labour.

Table 3: Need of augmentation in test group

Augmentation	N	%
NO	68	34.0
YES	132	66.0
Total	200	100.0

This table shows that, 132(66%) subjects had augmentation.

Table 4: First stage of labour

First stage(minutes)	N	%
Normal duration (<720)	149	74.5
Prolonged first stage (>/=720)	51	25.5
Total	200	100.0

Among the test group, 51(25.5%) had prolonged first stage of labour

Table 5: Second stage of labour

2nd stage (minutes)	N	%
Normal duration (<120)	200	100
Prolonged second stage (>/=120)	0	0
Total	200	100.0

Among the test group, all 200 (100%) had normal second stage of labour.

Table 6: Third stage of labour: in test group

3rd stage duration (min)	N	%
5	1	.6
10	174	96.7
12	2	1.1
15	3	1.7
Total	180	100.0

There is no prolonged third stage.

Table 7: Total duration of labour

Total duration (minutes)	N	%
Normal duration (</=1080)	190	95.0
Abnormal duration (>1080)	10	5.0
Total	200	100.0

Among the test group, 10(5%) had abnormal total duration of labour LSCS.

Table 8: Indications for lscs in test group

Indication	N	%
Arrest of dilatation	1	.5
CTG-NR	1	.5
DTA	1	.5
F Descent	1	.5
Fetal distress	16	7.5
Total	20	9.5

Most common indication is fetal distress.

Table 9: Maternal morbidity

Maternal Morbidity	N	%
Anaemia	1	.5
III perineal tear	2	1.0
PPH	2	1.0
PSYCHOSIS	1	.5
Total	6	3

Total 6 (3%) mothers had morbidity.

Table 10: Birth weight in test group

Birth weight kg	N	%
<2.5	23	11.5
>/=2.5	177	88.5
Total	200	100.0

This shows that, 23(11.5%) were low birth weight babies

Table 11: Apgar scores

Apgar score	N	%
3-5	2	1.0
5-7	14	7.0
>7	184	92.0
Total	200	100.0

This table shows that, 2(1%) were with APGAR score as low as 3 to 5.

Table 12: Neonatal outcome

NICU	N	%
ADMIT/MBA	2	1.0
ADMIT/MSL	3	1.5
ADMIT/RD	2	1.0
ADMIT/SBA	2	1.0
OBS/LBW	2	1.0
OBS/MSL	19	9.5
OBS/RD	11	5.5

This table shows that, maximum 19(9.5%) NICU indication was for Observation/MSL followed by 11(5.5%) Observation/RD. No neonatal mortality. NICU admissions are less in test group.

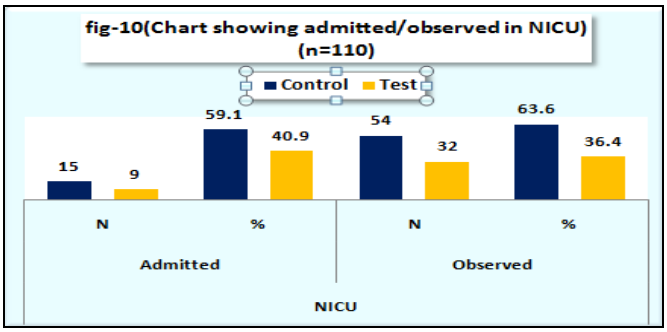

Fig 1: Neonatal outcome

Where, n – total number of babies, those admitted and observed in NICU (test +control groups)

Table 13: Descriptive statistics for test group

Descriptive Statistics[a]	Minimum(mn)	Maximum(mn)	Mean	Std. Deviation
1st stage duration (n=180)	240	1275	581.75	218.601
2nd stage duration (n=180)	15	60	21.77	9.843
3rd stage duration (n=180)	5	15	10.08	.773
Total duration (n=180)	272	1300	613.59	220.468
a. Group = Test.n= number. Mn=minutes.				

From above, we infer that total duration Mean is 613.59, of which Ist stage duration mean is 581.75, Second stage duration mean is 21.77 and 3rd stage duration mean is 10.08.

Table 14: Descriptive statistics for control group (Table-2)

Descriptive Statistics[a]	Minimum(mn)	Maximum(mn)	Mean	Std. Deviation
1st stage duration (n=169)	285	1820	733.16	295.038
2nd stage duration (n=169)	15	60	18.65	7.724
3rd stage duration (n=169)	7	15	10.07	.704
Total duration (n=169)	310	1846	761.88	295.465
a. Group = Control.n = number,mn = minutes				

From above, we infer that total duration Mean is 761.88, of which Ist stage duration mean is 733.16, Second stage duration mean is 7.724 and 3rd stage duration mean is 0.704.

Summary

Partograph is an inexpensive, accessible managerial tool which has been endorsed by WHO for monitoring of labour. Various types and designs of partographs are being used at various centers.

This study was conducted at Tertiary Hospital, included 200 nulliparas with uncomplicated pregnancy at term. Using WHO modified partogram, characteristics of nulliparous labour and neonatal outcome were evaluated.

Following are the results of the study.

- The mean duration of first stage labour –9.6 hours
- The mean duration of second stage of labour –21.77 minutes
- The mean total duration of labour –10.2 hours
- Lscs -60% in control, 40% in test group.
- Most common indication was fetal distress.
- There is no maternal and neonatal mortality.
- Patients crossing the alert line had longer duration of labour, all required labour augmentation and had more of operative deliveries.

Conclusion

The study helped us to come to the following conclusions

- 1. Abnormal labour patterns can be identified earlier by partogram.
- 2. The difference in outcomes like mode of delivery, augmentation of labour and neonatal outcome was significant and can be predicted by partogram.
- 3. Maternal and perinatal outcomes can be predicted with use of partogram.
- Hence partographic analysis of labour provides valuable information on the progress of labour and it permits early corrective therapy and also helps us in predicting outcomes during the labour and hence the partogram can be highly effective in reducing complications from prolonged labour for both the mother and the neonate and also improving neonatal outcome. It is useful in settings with poorer access to health care resources. Hence in our country where rural population is still predominant training the nurses, ANM and other staff in primary health centers would help in detecting labour abnormalities earlier and their early referral to tertiary centre as we are yet to achieve effective peripheral level emergency obstetric care to prevent complications and reduce neonatal and maternal morbidity and mortality. So reutilization of partogram can play an important role in helping to achieve the Millennium development goals.

The word obstetrics can be better interpreted as „obs stare"

meaning “I stand by” which indicates the role of the obstetrician which would not be complete without intelligent interpretation and methodical monitoring. Therefore it can be better addressed as watchful expectancy with the need to intervene when the circumstances necessitate. Thus we can say that partogram is a simple, economical, time saving and effective tool for the obstetrician to identify vagaries of labour at right time and prevent the consequences to take an obtuse turn. Routine use of partogram should be implemented in all institutions and all labour rooms in India where delivery care is being given and especially in areas where operative and new-born facilities are lacking to facilitate early referral.

Our study has shown that though the partogram is an old tool it still remains gold standard even for modern obstetric care.

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