

## The Use of Modified WHO Partogram in Assessing the Outcome of Labour in a Tertiary Care Centre of Karnataka

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### Abstract

*Background:* Labour has been termed the most dangerous journey a human ever under takes Any failure to recognize such, would result in prolonged labour which may result in morbidity or mortality of both the mother & fetus [2].

*Objective:* To assess the progress of labour and to identify if intervention is needed using modified WHO Partograph.

*Methodology:* This is a cross sectional study which was conducted in a VIMS (Vijayanagar Institute of Medical Sciences) Bellary, over a period of 12 months. All primigravida with full term pregnancy with vertex presentation without any risk factors and those suitable for vaginal delivery on initial examination were included in the study.

*Results:* Out of the 200 patients who were admitted in labour room 124 (62%) belonged to group A, 47 (23.5%) to group B and 29 (14.5%) to group C. Of the patients who belonged to Group A majority had a vaginal delivery 118 (95.1%) and the rest 6 (4.9%) underwent LSCS. None had any assisted (forceps or vacuum) delivery. Those in group B most of them had vaginal delivery 33 (70.2%) followed by LSCS 10 (21.2%). The rest 4 patients had assisted delivery with 3 (6.3%) vacuum and 1 (2.1%) forceps assisted delivery. Of the patients in Group C majority underwent LSCS 25 (86.2%) followed by vaginal delivery 2 (6.8%). Only 2 had assisted delivery with 1 (3.4%) vacuum and 1 (3.4%) forceps assisted delivery.

**Keywords:** Partograph; WHO; labour; LSCS.

### Introduction

Labour has been termed the most dangerous journey a human ever under takes [1]. Labour is a dynamic phenomenon which is characterized by progressive increase in the frequency, intensity and duration of uterine contractions with progressive dilatation and effacement of the cervix along with the descent of the fetus through the birth canal. Though a physiological process, at times it may lead to a pathological one. Any failure to recognize such, would result in prolonged labour which may result in morbidity or mortality of both the mother & fetus [2].

Mortality results from a wide range of complications in pregnancy, childbirth or during postpartum period. The four major killers are: severe bleeding (mostly postpartum), infections (also mostly soon after delivery), hypertensive disorders in pregnancy (eclampsia) and obstructed labour [2].

Any labour that lasts for more than 24 hours is to be termed as pathological. A saying goes "The sun should not set twice upon the same labour" [2]. Obstetric caregiver should be able to

avoid unnecessary intervention in this natural physiological process as long as the labour is progressing well, but at the same time to identify problems when things start going amiss.

The partograph (or partogram) is a simple tool that is used for this purpose.

A partograph is a composite graphical record of progress of labour and salient condition of mother and foetus, first reported by Friedman in 1954. Philpott subsequently added alert line which is a modification of the mean rate of cervical dilatation of the slowest 10% of primigravidae. Action line introduced later 4hrs to the right of alert line. WHO in 1994 as part of Safe Motherhood produced and promoted partogram to improve labour management and to reduce maternal and foetal mortality and morbidity [3]. WHO recommends the use of this partogram in the management of labour in all patients.

### *Modified Partograph*

The modified WHO partograph for use in hospitals was published in 2000. The latent phase was excluded in this partograph. The active phase commences at 4 cm dilatation. The other features are the same as the composite WHO partograph. The reason for excluding the latent phase were that interventions are more likely if the latent phase is included and because staff reported difficulties in transferring from latent to active phase. The choice of 4 cm was made to reduce the risk of interventions in multiparous women with patulous cervixes (less than 4 cm) who were not yet in labour. However, a labour management protocol for the latent phase should be instituted with clear guidelines on the frequency of observations, as women with less than 4 cm cervical dilatation on first examination in labour are more likely to experience complicated deliveries.

Plotting cervical dilatation and descent of the presenting part against time gives graphic documentation of the progress of labour and simplifies the clinical interpretation of the dynamic changes that occur during labour. Any deviation from the normal curve alerts the attendant to possibility of a labour disorder in advance [4]. It helps not only in recognition but also in characterization and management of dysfunctional labour. Hence, prevention of prolonged labour is an important intervention towards reducing maternal and perinatal mortality and morbidity.

The issue of timing of obstetric intervention during spontaneous labour thus needs to be

addressed. This study was therefore conducted to use partograph to monitor labour, fetal descent, avoid fetal distress and provide timely surgical intervention where required.

The Objectives of the current study were,

- To assess the progress of labour, to identify any intervention if needed.
- To assess the outcome of labour in terms of its mode of delivery using modified WHO partograph.

### **Material and Methods**

This study was conducted in a VIMS (Vijayanagar Institute of Medical Sciences) Bellary, over a period of 12 months i.e., from January 2013 to December 2013, following approval from the institutional ethical committee.

All primigravida with full term pregnancy with vertex presentation without any risk factors and those suitable for vaginal delivery on initial examination were included in the study.

#### *Inclusion Criteria*

- Pregnant women in spontaneous labour
- In first stage of labour with cervical dilatation not more than 7 cms.
- Singleton pregnancy.
- 37 weeks, < 42 weeks period of gestation-+
- Cephalic presentation

#### *Exclusion Criteria*

- High risk pregnancy
- Gestational age < 37 weeks
- Post term
- Associated fetal malformations
- Premature rupture of membranes
- Contracted pelvis
- Abruptio placenta
- Uterine scar due to previous LSCS, myomectomy, hysterotomy.

All examinations to determine the cervical dilatation and fetal station were carried out during a contraction. Since the true estimate of cervical dilatation is difficult to achieve with a flaccid cervix, it is probably best to measure dilatation during a height of uterine contraction at all times.

### Partograph

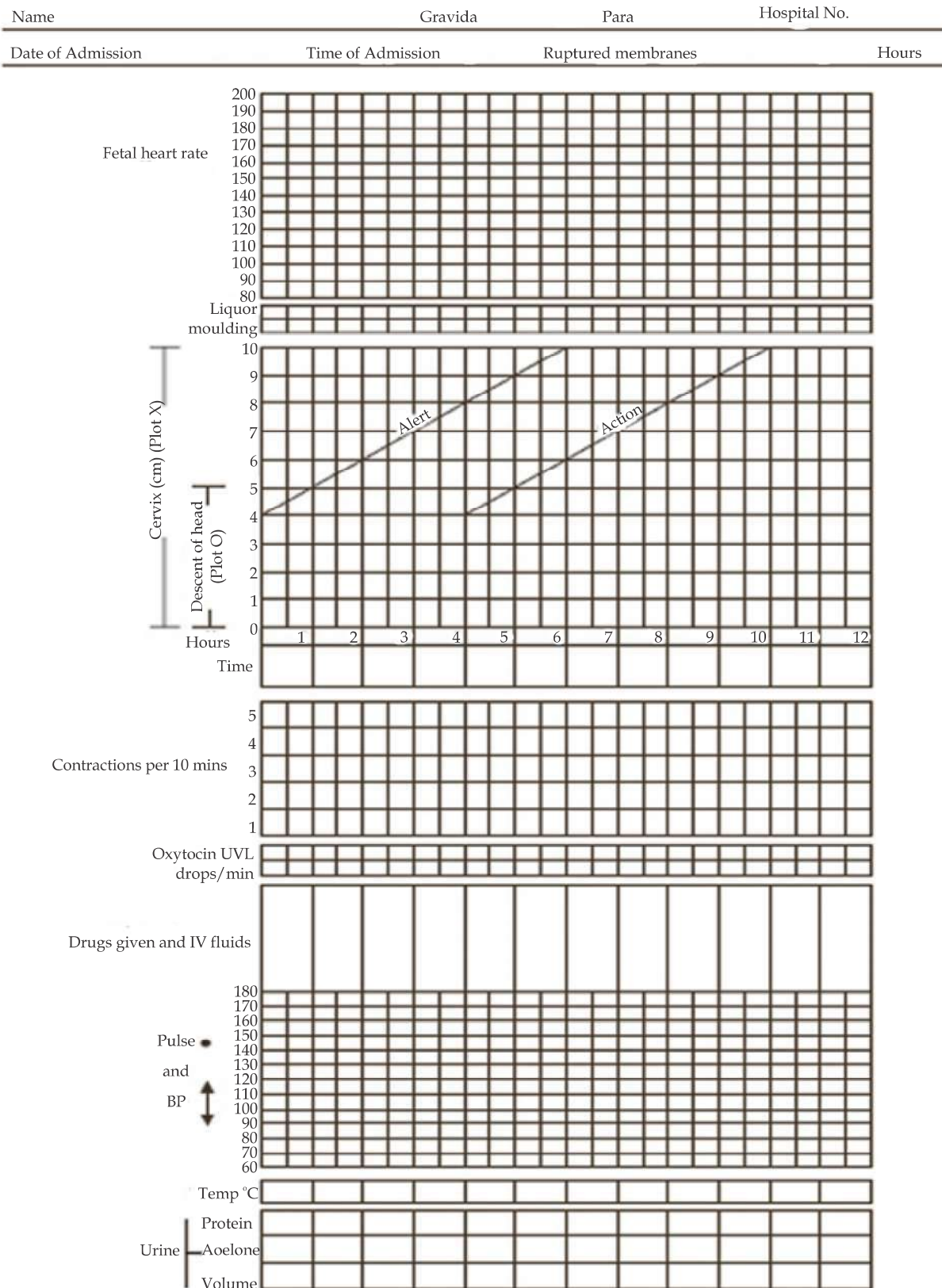


Fig. 8: Modified WHO Partograph

To nullify inter observer variations all the examinations to determine dilatation and station were done by the attending doctor on duty. Examinations were carried out four hourly throughout the duration of labour. However, modifications were made to account the rapidly progressing labour, especially during the maximum slope of dilatation, where in, examinations were done much more frequently. All the relevant findings were charted serially on WHO partogram and a continuous partogram was obtained.

The graphs of the patient were analyzed and were placed in one of the three categories:

- *Group A:* Patients who delivered before the partogram touched the Alert line.
- *Group B:* Patients who delivered when partogram lied between Alert and Action line.
- *Group C:* Patients who delivered after the Action line was crossed.

After delivery, labour notes were written as follows:

- Date and time of delivery was noted.
- Mode of delivery.
- Whether spontaneous or induced labour.
- Cesarean section - indication.
- Duration of each stage of labour and total duration of labour.
- Note of third stage of labour made separately.
- Maternal complications if any.

**Results**

In this study 200 patients were selected who were admitted in labour room at or near term (>37 wks). Majority (96.5%) of them was aged less than 25 years less and 97% of them had gestational age of 38-41 weeks. (Table 1) The mean age was 20.84 yrs with the standard deviation of 2.18 yrs. Almost half (58.5%) were in active phase of labour and the rest in latent phase.

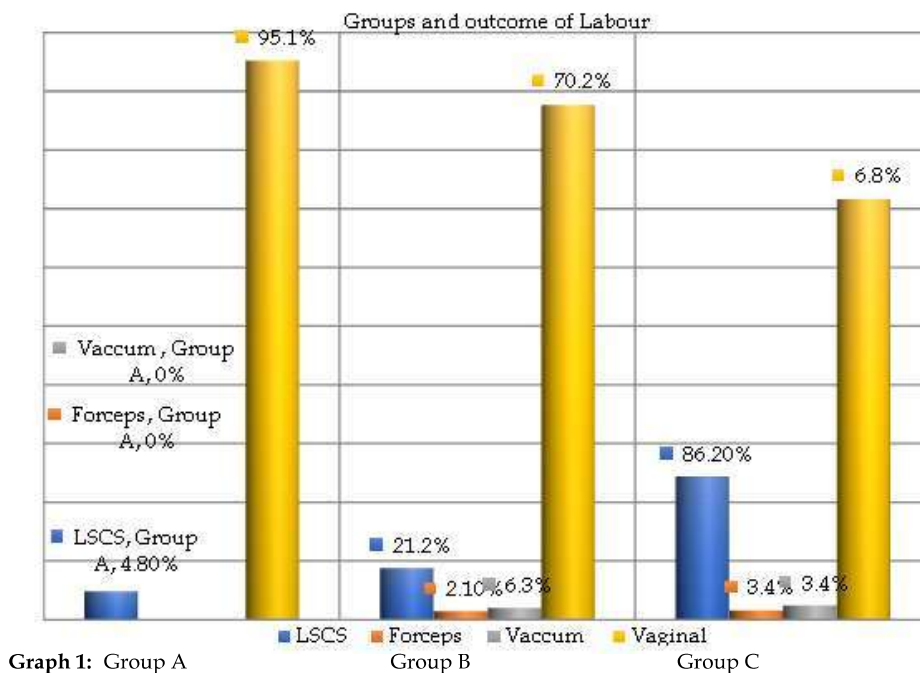
**Table 1:** Background characteristics of the subjects studied.

Variable	Groups	No. of patients (%)
Age group (years)	Up to 20	115 (57.5)
	21 - 25	79 (39.5)
	26 - 30	06 (3.0)
	37	6 (3.0)
Gestational age (weeks)	38	31 (15.5)
	39	95 (47.5)
	40	68 (34.0)
	41	6 (3.0)
Stage of labour	Active	117 (58.5)
	Latent	83 (41.5)

Meanage 20.84 ± 2.18 yrs

Out of the 200 patients who were admitted in labour room 124 (62%) belonged to group A, 47 (23.5%) to group B and 29 (14.5%) to group C.

Of the patients who belonged to Group A majority had a vaginal delivery 118 (95.1%) and the rest 6 (4.9%) underwent LSCS. None had any assisted (forceps or vacuum) delivery. Those in group B most of them had vaginal delivery 33(70.2%) followed by LSCS 10 (21.2%). The rest 4 patients had assisted delivery with 3 (6.3%)



vacuum and 1 (2.1%) forceps assisted delivery. Of the patients in Group C majority underwent LSCS 25 (86.2%) followed by vaginal delivery 2 (6.8%). Only 2 had assisted delivery with 1 (3.4%) vacuum and 1 (3.4%) forceps assisted delivery (Table 2 and Graph 1).

**Table 2:** Outcome of Labour in Relation to Partogram

Groups	Mode of delivery				Total
	LSCS N (%)	Forceps N (%)	Vacuum N (%)	Vaginal N (%)	
Group A	06 (4.9%)	00	00	118 (95.1%)	124 (100%)
Group B	10 (21.2%)	01 (2.1%)	03 (6.3%)	33 (70.2%)	47 (100%)
Group C	25 (86.2%)	01 (3.4%)	01 (3.4%)	02 (6.8%)	29 (100%)

## Discussion

A study aimed to assess the effectiveness of modified WHO partograph by midwives conducting childbirth in maternity homes in Medan, Indonesia. This cluster, randomized trial included 20 midwives who regularly conducted births were trained to use partograph. There were 304 parturient women in the intervention group and 322 in the control group. Referral rate in the partograph group increased (adjusted OR 4.2; 95% confidence interval (CI) 2.1–8.7) and there were decreases in vaginal examinations performed (adjusted OR 0.24; 95% CI 0.12–0.48), augmented (adjusted OR 0.21; 95% CI 0.12–0.36) and obstructed labour (adjusted OR 0.38; 95% CI 0.15–0.96). There were fewer caesarean births in the partograph group but the differences were not statistically significant [5].

Role of partogram in preventing prolonged labour; a case controlled, prospective and interventional study on 1000 women was carried out in the obstetric unit of Jinnah Post graduate medical centre, Karachi. Five hundred women were studied before and after the introduction of partogram. By using partogram, frequency of prolonged labour, augmented labour, postpartum hemorrhage, rupture uterus, puerperal sepsis and perinatal morbidity and mortality was reduced [1].

Another study by J.E. Mathews, A. Rajaratnam, A. George, M. Mathai, CMC Vellore, India, compared two WHO partograph (composite and simplified). It showed that simplified WHO partograph was more user friendly, was more likely to be completed than composite partograph and was associated with better labour outcome [6].

Study was done by Orji E, Obafemi Awolowo University, Ile-Ife, Nigeria (2008), to evaluate the progress of labour in nulliparas and multiparas

using the modified WHO partograph. This was a prospectively study, where 259 nulliparas and 204 multiparas were compared. In both the groups progression of labour and duration were found similar when monitored on modified WHO partograph and delay in labour increased the need for operative intervention and adversely affected foetal outcome [7].

A study by Barbara E. Kwast, Pia Poovan, Edita Vera, Elaine Kohls in St. Luke's Catholic Hospital in Wolisso, Southwest Shoa Zone, Oromia Regional State, Ethiopia (2008). It was a descriptive, retrospective design where admission phase of labour and mode of delivery were studied. Analysis showed that women admitted in latent phase had more operative deliveries as labour progressed to the right of the alert line in the active phase on modified WHO partograph compared to those admitted in active labour [8].

The results of the present study are comparable with the above studies. The routine use of the partogram is helpful in detecting abnormalities in the progress of labour and permits early corrective therapy. The graphical representation of the course of labour gives a clearer picture of labour. Using the partogram also helps in achieving the policy of active management of labour i.e., ensuring the delivery of the patient within twelve hours.

It facilitates anticipation with reasonable certainty of labour problems and indicates the need for clinical re-evaluation. It also identifies the cases, which may require intensive intrapartum monitoring and possible intervention either operative or non-operative.

Besides this the following advantages of the partogram have been noted:

1. It is an inexpensive and simple bedside clinical method.
2. It is efficient and time saving.
3. The entire data of the course of labour can be recorded on a single sheet of paper.
4. It can be useful in the handover of a patient to another doctor as the entire labour process can be made out in a glance.
5. It is a simple and efficient teaching tool, can be used to teach house surgeons, medical students, staff nurses and other paramedical workers.

From the above study it's evident that the impact of use of Modified WHO Partograph helps in early detection of labour abnormalities especially on labour patients before touching the alert line and

prevents unnecessary operative interference by following the characteristic patterns of cervical dilatation and fetal descent.

### Conclusion

Although labour is a natural phenomenon leading to child birth and normally majority of labours do occur spontaneously, a few tend to become dystocic and go into prolonged labour. Hence identifying the abnormality is essential.

A continuous partogram is invaluable in the diagnosis of abnormal uterine action. And, while clinical judgment may decide the necessity for intervention, the partogram clearly defines the time to act.

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