

PATTERN OF LABOUR IN PRIMIGRAVIDAE MONITORED BY PARTOGRAPH

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Summary

This is a cross sectional observational study was done on 100 full term primigravidae admitted in Gyane & Obstetrics department of Bangabandhu Sheikh Mujib Medical University and Dhaka Medical College Hospital. The study was carried out during the period from 1st August 2004 to 30th January 2005. Their labour was assessed by modified World Health Organisation (WHO) partograph. The main objective of the study was to assess the importance of partographic contral of labour in preventing prolong labour and its consequences. 74% of these labour had spontaneous vaginal delivery, 4% required forceps delivery and 6% needed ventouse delivery, Caesarean section was done in 16% cases. It has found that 86% of the patients were delivered within 7 hrs and all patients were delivered within 12 hours from active phase of labour. There was no maternal and neonatal mortality because of close intranatal care. There was no perinatal mortality in this series. If any deviation from normal, intervention was done immediately. Because of use of partograph unnecessary intervention were also reduced. Patient with non engaged head in labour required more intervention. Majority of patients within alert line delivered vaginally but 100% of the patient crossing the action line required interference. Each and every labouring woman should be supervised by a partograph. But its use in our country still limited to medical college hospital and some district hospitals only. As the poor developing country where Maternal Mortality Rate (MMR) is so high, the use of partograph is essentials and must be used by paramedics/midwives/ nurses, which will guide them for referral in proper time.

Key words: Partograph; Alert line; Action line; APGAR score.

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Introduction

The past century witnessed a revolution in health care, yet millions of women still endure the risks of pregnancy and childbirth. Tragically millions of stillbirths and newborn death result come from many of the same preventable causes [1]. Maternal mortality remains one of the major problems in public health today especially in developing countries where maternal mortality is estimated to be 1.9/1000 live births [2].

Both maternal and infant mortality are high in Bangladesh even compared to many other developing countries. Since the safe motherhood initiative in Kenya in 1987 and International Conference on Population and Development (ICPD) in 1994 Cairo, much attention has been given to reduce maternal mortality and morbidity and many programs have also been taken. Some improvement has also occurred in Bangladesh and the maternal death has come down from 8/1000 live births to 1.9/1000 live births. Perinatal rate in Bangladesh came down from 75/1000 live birth to 28.9/1000 live birth.

Perinatal asphyxia is a commonest consequence of complicated labour and the major cause of neonatal mortality in our country [4]. A significant number of baby suffering from Perinatal Asphyxia undergo a wide range of complications comprising Hypoxic-Ischemic Encephalopathy (HIE) followed by cerebral palsy, Mental Retardation, Epilepsy, and Learning disability etc. at the extreme end [3,5].

“Primigravidae” is the woman who is going to give birth for the first time. The study of primigravidae in labour is a vast and complicated subject. In Bangladesh, according to the recent statistics of medical college hospitals, primigravida are still the majority who contribute to high maternal mortalities. Labour runs an unpredictable course, especially in primigravidae. A prolonged labour, of over 18 hours, can lead to maternal exhaustion and death.

In modern obstetric practice, it is essential to ensure that the infant is born alive and healthy and also to insure the safety of pregnancy labour and puerperium. Labour should be monitored with a partogram, so that abnormal cervical dilation can be

detected early and the patient can be transferred to hospital [6]. Use of World Health Organisation (WHO) partograph in 8 hospitals in Indonesia, Thailand and Malaysia reduced postpartum infections (by 59%) the number of stillbirths, the number of oxytocin augmentation, and unnecessary Caesarean sections. Thus, the WHO partograph was able to differentiate labors requiring intervention from those not requiring intervention [7].

“The graphic analysis of labour” (Friedman 1954) was the first of a series of classical contributions whereby the science of partography has been established, to become the cornerstone of clinical evaluation of progress of labour [8]. The partogram has been used in a number of countries since 1970 but used extensively in a few.

The partograph serves as an “early warning system” and assists in every decision on transfer, augmentation and termination of labour and aid early recognition of problems [9].

Introduction of the partograph with an agreed labour-management protocol reduced both prolonged labour (from 6.4% to 3.4% of labours) and the proportion of labour requiring augmentation (from 20.7 to 9.1%). Emergency caesarean sections fell from 9.9% to 8.3%, and intrapartum still births from 0.5% to 0.3% [10].

The WHO partograph clearly differentiates normal from abnormal progress in labour and identify those women likely to require invention. It use in all labour ward is recommended.

The present study on primigravidae is expected to provide one important and useful information in the management of this group of patients.

Materials & methods

This was a cross sectional observational study on the clinical profile pattern and outcome of labour in primigravidae. The study conducted at the Gynae and Obstetrics. department of Bangabandhu Sheikh Mujib Medical University (BSMMU) and Dhaka Medical College Hospital during the period from 1st August 2004 to 30th January 2005. One hundred full term primigravidae admitted in the BSMMU and Dhaka Medical College Hospital was included in this study. The criteria of the patients who were included in the study were parturient of any age group, single tone pregnancy, only primigravidae, gestational age of 37 completed weeks to 42 weeks, vertex or cephalic presentation, cervical dilatation at least 3 to 4 cm i.e. at the beginning of the active stage of labour.

The exclusion criteria were the patient with patient of cervical dilatation more than 4cm, eclampsia, multiple pregnancies, preterm <37weeks, post term > 42weeks, Intra Uterine Death (IUD), Breech presentation, Ante Partum Hemorrhage (APH), Selected case for Lower Uterine Caesarine Section (LUCS).

Procedure followed were pregnant women coming to the hospital in labour or starting in the hospital after taking history with particular attention to aspect relevant to this study, clinical examination were carried out. A partograph was started on all women in labour, a detailed vaginal examination was done on admission. Cervical dilatation, effacement and fetal head descent were evaluated. The findings were recorded on the WHO recommended partograph. When the progress of labour was not satisfactory as reflected by partograph then labour was managed according to the standard practice. Length of the labour was carefully noted with mode of delivery and condition of baby determined by Appearance, Pulse, grimace, Activity Respiration (APGAR) score. All the cases were studied in relation to alert and action line and their due importance were verified. After completion of data collection all were comprehended, processed and edited by using Statistical Package for Social Sciences (SPSS) 17. Finally data were analyzed, interpreted using appropriate figure, table, chart and description. Continuous data were expressed as mean SD. Categorical data were expressed as number and percentage. Chi-square test was done to see the association of maternal and neonatal outcome in relation to alert and action line. P-value <0.05 was considered significant.

Limitation of the study

- 1) Various maternal and foetal parameters had to be mentioned only clinically due to lack of sophisticated instrument.
- 2) Due to some unavoidable situation the modified WHO partograph that We started to follow, sometimes We have to depend on duty doctor of the ward to carry on follow-up in our absence.

Results

During the period of study 100 full term primigravidae were selected. Selected primigravidae were then monitored according to modified WHO partograph until delivery. Age distribution of the pregnant mother shown in table-I.

Majority of patients age belongs to age group 21-25 years. Mean age of the patient was 23.55, SD= ± 3.69, gestational age of maximum mother 38 – 40 weeks. Within 100 primigravidae 97 of patient had vertex presentation, 91 of them had occipito-anterior position, others are malposition and malpresentation, augmentation needed 53 of the patient in the form Artificial Rupture of the Membrane (ARM), oxytocin or combination. 47 patient not needed any augmentation.

In first stage of labour, 44 had engaged head, 54 patient had non-engaged head. In second stage of labour, total 87 patient had engaged head and 10 patient had non-engaged had (Fig-1).

More than half of the cases falling within alert line, only 10 % cross the action line (Fig-2).

Those cases falling within the alert line that is 55 patient, APGAR score of all neonates is good i.e >6. This findings were statistically significant. (P= 0.011) (Fig-3).

Those cases falling within the alert line, most of the patient i.e. 55 out of 100 patient had normal vaginal delivery. Most of the cases which crosses the action line needs cesarean section and instrumental delivery. This findings also were statistically significant. (P= 0.000) (Fig-4).

Table 1 : Distribution of socio-demographic and obstetric variables among the patients (n = 100)

	Variables	Number of patients	Percentage (%)
Age Groups (Years)	16 – 20	19	19.0
	21 – 25	54	54.0
	26 – 30	24	24.0
	31 – 35	3	3.0
Gestational Age (Weeks)	37 – 38	14	14.0
	38 – 40	56	56.0
	40 – 42	30	30.0
Presentation	Vertex	97	97.0
	Face	2	2.0
	Brow	1	1.0
Augmentation	Needed	53	53.0
	Not Needed	47	47.0

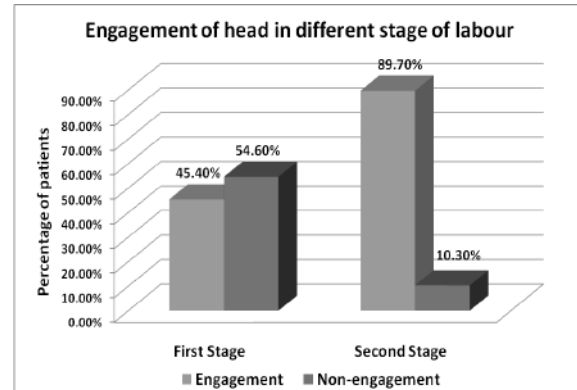


Fig 1 : Distribution of primigravidae with cephalic presentation by engagement of head in different stages of labour (n = 97)

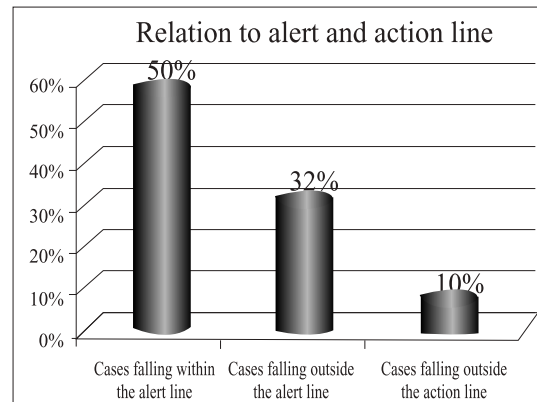


Fig 2 : Distribution of cases in relation to alert and action line (n = 100)

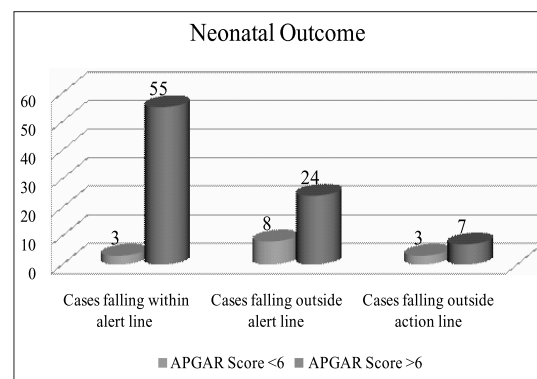


Fig 3 : Neonatal outcome related to alert and action line

[χ^2 test significance : $\chi^2 = 9.096$, df = 2; P = 0.011; Significant (P < 0.05)]

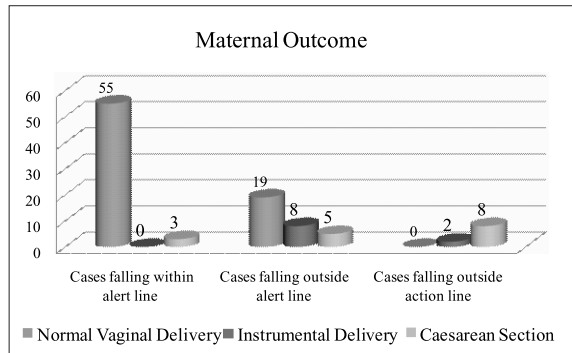


Fig 4 : Maternal outcome related to alert and action line

[χ^2 test significance : $\chi^2 = 55.578$, $df = 4$, $P = 0.000$, Highly Significant ($P < 0.001$)]

Discussion

Making motherhood safer is crucial to save newborns. Every pregnancy is a medical emergency. Research shows that a significant number of stillbirths and neonatal deaths could be prevented if all women were adequately nourished and received good quality care during pregnancy, delivery and postpartum period.

Perinatal and infant mortality are important parameter for assessing the standard of health of a nation and also reflect the quality of maternal child health care delivery system in a community.

In this study 100 primigravidae age ranged from 16 to 35 years (mean 23.55) are included. Highest number (54%) of patients belonged to 21-25 years age group. Bangladesh demographic and health survey 2009 report shows median age of first delivery as 25.2 years.

Among the 100 primigravidae, 97% fetuses presented by vertex (91% occipitoanterior/ lateral and 6% occipitoposterior) and 2% of face and 1% was brow presentation. The longer duration of the patients were not prenatally prepared about bearing down during the second stage and to relax in between.

Friedman found that in occipitoposterior position, there was prolongation of first phase of labour, by causing more dystocia than other vertex position. It causes prolonged labour and an increased chance of intervention. This statement is quite consistent with the finding in this series.

Influence of engagement of head in labour on mode of delivery in the present series was found to be positive one. Outcome was relatively better in engaged head.

In this series it also showed that majority of the cases fell within the alert line(5%) and some of the cases fell outside the alert line (32%), only a few (10%)was outside the action line. So this study is almost consistent with Mahfuza's study [12].

Active phase of labour might be expected to last between 2-6 hours depending on factor i.e. spontaneous or induced labour. In Friedman's series, the mean active phase in primigravidae was 3.4 hours. In this series the duration of active phase of labour extent from <4hours up to 10 hours in primigravidae patients with mean duration 4.60, SD 2.52 hours. In majority of primigravidae (74%) duration of active phase of labour extent 4.01 to 7 hours. Some cases (12%) it did not extent beyond 4 hours. Some cases (14%) falls within the highest range of hours (7.1- 10 hours). The active phase of labour in Baby's study varied from 3 to 7 hours and the mean duration was 5.13 and in Nargis's study it was 3.72 [11].

In this series shows that 74 % women had normal vaginal deliveries, 4% had forceps deliveries, 6% needs ventouse, i.e. 84% women were delivered vaginally and only 16% needed caesarean section. Friedman described that 40% of the primigravid labour was normal. In the Baby's study 70% of primigravidae had normal vaginal delivery and 30% had difficult labour including 18% caesarean section and 12% needs forceps and ventouse. In Mahfuza's study 69% had spontaneous vaginal delivery, rest had difficult labour and required intervention in the form of forcep, ventouse and Lower Segment of Caesarean Section (LSCS) [12]. In Nargis's study, 77.17% of primigravidae had normal vaginal delivery and 22.83% had difficult labour including caesarean section, forceps and ventouse. So this study found consistent with previous researcher. It also indicated that use of partograph can help to reduce caesarean section rate [11].

If poor uterine action is suspected steps should be taken to improve it. If cervix fully effaced and 3 cm dilated ARM should be done, followed by oxytocin drip. In this series augmentation of labour was done by injecting oxytocin or Artificial Rupture of the Membrane (ARM) or both. No induction was needed in case of 47% patients. ARM was done in 26% patients and 12% needed both. Augmentation was done in 53% patients and most of them done by ARM (49.06%). Augmentation was done in Mahfuza's

69.49% primi patients and most of them done by ARM (38.98%) [12]. Oxytocin used in 24% of cases among them. In Nargis's series augmentation was done in 45.21% of primi [11]. Among the patients, who were actively managed only 11.11% needed resuscitation. On the other hand, same number of cases without any augmentation was asphyxiated. With APGAR score <6, only 21.43% cases augmented by oxytocin. This series shown the affect of induction of labour on APGAR score at 5minutes after delivery. Oxytocin used 15 cases, 13.33% of them developed moderate to severe asphyxia. Among the patients who are actively managed only 16.98% cases needed resuscitation. On the other hand 10.64% of cases without any augmentation were asphyxiated. In this study augmentation is associated with a slight increase rate of asphyxia but it found on significant difference in neonatal condition between normal and actively managed labour if vaginal delivery occurred.

The frequency of neonatal resuscitation was higher for the group that crossed alert line (20.58%) than the group within alert line (8.48%) in Mahfuza's study [12]. In this series most of the healthy babies (91.52%) born in cases falling within the alert line while only 20.58% and 28.57% cases falling outside the alert and action line needed resuscitation.

Conclusion

Maternal mortality in Bangladesh is higher in relation to many of the developing countries. Appropriate supervision of labour can be done by using WHO partograph, which also prevent almost all complication of labour and thereby can reduce the maternal and perinatal mortality and morbidity and also reduce the operative intervention.

Disclosure

All the authors declared no competing interest.

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