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Labour outcome in primigravida: A partographic study

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Abstract
Background: The journey of pregnancy and labour is a re-birth to woman. Though it is physiological process, this journey can be fatal any moment for both mother and baby. The purpose to monitor labour is to recognize incipient problems which may be prevented with timely intervention. The partogram was recommended and modified by WHO to monitor the fetal and maternal wellbeing during active phase of labour. The aim of the study was to assess the role of partogram in the labour analysis of primigravida and study the maternal and fetal outcome and mode of delivery.
Methods: Study of 150 cases of primigravida with term pregnancy in spontaneous labour admitted to labour room was conducted. Labour progress was monitored using WHO partogram to detect any deviation from normal course. Based on partogram patients were divided into three groups. Patients who delivered before alert line – Group I, between alert and action line – Group II, delivered after crossing action line – Group III. Maternal and neonatal outcomes were assessed.
Results: Out of 150 cases analysed in this study 132 (88%) belonged to group I, whereas 18 (12%) were in group II and there were no cases in group III. A total of 123(82%) had spontaneous vaginal delivery, 8(5.33%) had assisted vaccum delivery and 19(12.66%) had caesarean section.
Conclusion: This study concludes that partograph serves as early warning system and assist in early decision of augmentation and termination of labour. It has shown to be effective in preventing prolonged labour and in reducing operative interference.

Keywords: Primigravida, partogram, alert line, action line

Introduction
The journey of pregnancy and labour is a re-birth to woman. Though it is a physiological process, this journey can be fatal any moment for both mother and baby [1]. Hence timely intervention is required for early recognition of incipient complications occurring during labour. This can be achieved by continuous monitoring of labour by using partogram. Partogram (a greek word meaning - labour curve) is a graphical recording of progress of labour. The first graphical analysis of progress of labour was performed by Friedman [2] and much more improved by Philpott and Castle [3].
It has been used since then to detect labour that is not progressing normally. The partogram was recommended and modified by WHO to make it simple and easier to use, for monitoring the fetal and maternal wellbeing during active stage of labour. The WHO partograph clearly differentiates normal from abnormal progress in labour and identifies those women likely to require progress intervention [4]. WHO advocated its use as a necessary tool in management of labour and recommended its universal use during labour [5, 6].
If no proper monitoring and no timely interventions done, it can lead to prolonged labour with several adverse outcomes like maternal exhausation, sepsis, obstructed labour, rupture uterus, postpartum haemorrhage, perinatal asphyxia, neonatal sepsis, disability and can lead to still birth, neonatal death and even maternal death [7, 8].
The partogram serves early warning system and assist in early decision to transfer, augmentation and termination of labour. It increases the quality and regularity of observing mother and fetus in labour. It is effective in preventing prolonged labour, in reducing operative interference and in improving maternal and neonatal outcome [9]. In primigravidas, the events of first pregnancy and labour play a crucial role as it affects future pregnancy outcomes. The primigravidas are emotionally attached with the first pregnancy and its outcome and also the whole family is anxious about it. Hence its necessary to monitor and manage the labour properly in primigravidas, to prevent avoidable complications and do timely intervention. Hence this study was designed.

The aim of the study was to assess the role of partogram in the labour analysis of primigravida and to study the maternal and fetal outcome and mode of delivery.

Materials and Methods

A prospective study was done in department of obstetrics and gynaecology in KBN Teaching and General Hospital. This study was conducted over a period of one year from February 2018 to January 2019 after being approved by ethical committee of the institution.

Study of 150 cases of primigravida with term pregnancy in spontaneous labour admitted to labour room was conducted. Detailed history and examination was noted in proforma at the time of admission.

Inclusion criteria

- Primigravida
- Singleton pregnancy
- Term (after 37 completed weeks)
- Spontaneous labour
- Cephalic presentation

Exclusion criteria

- Severe PIH
- Severe anaemia
- Uncontrolled diabetes
- Major degrees of CPD
- Contracted pelvis
- Malpresentation
- Post caesarean pregnancy
- Multiple pregnancy
- Antepartum haemorrhage
- Intrauterine death.

The progress of labour was plotted on the WHO partogram, fetal and maternal parameters were noted on a proforma along with it. Partogram used in this study was modified WHO partogram.

General protocol followed in our study was:

1) Plotting on partograph started at the time of admission in the labour room, on the extreme left of the graph and marked at zero time.
2) If admitted in active phase, plotting was done on the alert line.
3) Four hourly per vaginum examination was recommended.
4) Augmentation of labour was done by - amniotomy or oxytocin or both. Augmentation protocol of hospital was followed. 5 units oxytocin in 500ml ringer lactate was started at 8 drops/min and titrated every 30mins till adequate contractions were achieved.

All patients were classified into three labour groups:

1) Women delivered before reaching alert line - Group I
2) Women delivered between alert and action line - Group II
3) Women delivered after crossing the action line - Group III

Results

In the present study, out of 150 patients who were selected for the study majority of them 84 (56%) belong to the age group of 21-25years. 24(16%) were in the age of <20years whereas 9(6%) belongs to >30years age group. (Table.1)

Table 1: Distribution of cases according to Demographic variable.

Age (yrs)	Number of cases (n)	Percentage (%)
<20	24	16%
21-25	84	56%
26-30	33	22%
>30	9	6%
Booked cases	122	81.3%
Unbooked	28	18.7%

Most of the patients were booked cases 122(81.3%) and 28(18.7%) were unbooked cases (Table.1)

It was observed that in majority of the cases 107(71.3%) gestational age was 39-40 weeks. 28(18.7%) cases belongs to 37-38 weeks of gestation and 15(10%) cases were >40weeks gestational age. (Table. 2)

Table 2: Distribution according to Gestational age.

Gestational age	Number of cases (n)	Percentage (%)
37 – 38 wks	28	18.7%
39 – 40 wks	107	71.3%
>40 wks	15	10%
Total	150	100%

Among 150 primigravida in spontaneous labour who were analysed using partograph 132 (88%) belons to group I, 18 (12%) to group II and there were no cases in group III. (Table. 3)

Table 3: Distribution according to partogram pattern.

	Number of cases(n)	Percentage (%)
Group I	132	88%
Group II	18	12%
Group III	0	0
Total	150	100%

Oxytocin augmentation was done in 107(71.3%) cases whereas 43(28.7%) cases delivered following amniotomy and did not require the need of oxytocin augmentation. (Table.4)

Table 4: Augmentation of labour.

Augmentation	Number of cases (n)	Percentage (%)
Yes	107	71.3%
No	43	28.7%
Total	150	100%

Out of 132 cases belonging to group I, majority of cases 112(84.8%) had spontaneous vaginal delivery, 6(4.54%) had vaccum assisted delivery and 14(10.6%) had caesarean section. Whereas in group II, 11(61.1%), 2(11.1%) and 5(27.8%) had spontaneous vaginal delivery, vaccum assisted delivery and caesarean delivery respectively. The proportion of caesarean section was higher in group II than in group I (Table.5)

Table 5: Mode of Delivery

	Group I (n=132)	Group II (n=18)	Total (n=150)
Spontaneous vaginal delivery	112(84.85%)	11(61.1%)	123(82%)
Instrumental delivery	6(4.54%)	2(11.1%)	8(5.3%)
C-section	14(10.61%)	5(27.8%)	19(12.7%)

Discussion

In the prospective study conducted at KBN Teaching and General Hospital, 150 primigravidae with spontaneous labour were analysed by modified WHO partogram and its effects on maternal and neonatal outcome were studied. In our study majority of them 84(56%) belonged to 21-25yrs age group. 81.3% cases were booked for routine antenatal check up while 18.7% cases are referred or direct cases. 107(71.3%) cases gestational age was 39-40weeks.

In the present study out of 150 cases 132(88%) were in group I, 18(12%) in group II and none were beyond action line, which is comparable with Philpott and Castle *et al*. [3] (78%,11%) and Sanyal *et al*. [10] (80.8%,15.2%).

Out of 132 cases belonging to group I, 112(84.85%) had spontaneous vaginal delivery, 6(4.54%) had vaccum assisted delivery and 14(10.61%) had caesarean section. Whereas in group II, 11(61.1%), 2(11.1%) and 5(27.8%) had spontaneous vaginal delivery, vaccum assisted delivery and caesarean delivery respectively which is comparable with Iffat J *et al*. [1].

The commonest indication for instrumental delivery was failure of secondary forces for which vacuum was applied. 3 cases with poor maternal efforts in the second stage of labour, fetal distress in 3 cases. The similar results were obtained by Lakshmidevi *et al*. [11] and Iffat J *et al*. [1] However we did not have any patients belonging to group III.

In group I 14 patients underwent caesarean section, fetal distress in 9 cases, 2 cases failure to progress, 1 case of CPD and 2 cases of elderly primipara with history of infertility treatment. In group II the commonest indication was fetal distress in 4 cases and 1 case of non progress of labour underwent caesarean section. This was comparable with the studies done by Lakshmidevi *et al*. [11] and Kavya Mahesh *et al*. [12].

107 patients were started on oxytocin, among which 19 had hypotonic contractions, and in the rest it was started to accelerate labour and there by avoid undue complications.

In this study none of the new-borns required NICU care or ventilator support.

All the above interventions were made with respect to the Partogram plotting, which helped us to recognize undue prolongation in labour, meconium stained liquor, fetal distress, and non-descent early and thereby reduce maternal and neonatal morbidity.

Conclusion

To conclude, this study shows Partogram is useful tool. Helps in making an early decision in for timing the necessary intervention or for transfer to higher centre. Since the 1970s, efforts have been made in many countries to reduce rising rates of CS. In addition to peer review committees and support for vaginal birth after caesarean section (VBAC), interventions to reduce primary caesarean section for dystocia have also been studied. In primigravidas, the events of first pregnancy and labour play a crucial role as it affects future pregnancy outcomes. The primigravidas are emotionally attached with the first pregnancy and its outcome and also the whole family is anxious about it. Hence its necessary to monitor and manage the labour properly in primigravidas, to prevent avoidable complications and do timely intervention.

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Declarations

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