

A Study on Use of Partogram in Management of Labour in Patients with Previous LSCSSulekha Kumari¹, Sangita Jain², Rashmita³¹Assistant Professor, Department of Obstetrics and Gynecology, Shri Ramkrishna Institute of Medical Sciences and Sanaka Hospital, Durgapur, West Bengal, India²Assistant professor, Department of Obstetrics and Gynecology, Icare Institute Of Medical Sciences & Research & Dr B C Roy Hospital, Haldia, West Bengal, India³Assistant Professor, Department of Obstetrics and Gynecology, Shri Ramkrishna Institute of Medical Sciences and Sanaka Hospital, Durgapur, West Bengal, India

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Abstract**Aim:** To study the progress of labor in all ANCs with previous LSCS consenting for vaginal delivery using partogram and to note the fetomaternal outcome.**Methods:** A retrospective observational study was conducted at Department of Obstetrics and Gynecology, Shri Ramkrishna Institute of Medical Sciences and Sanaka Hospital, Durgapur, West Bengal, India for a duration of 1 year with previous LSCS for trial of labor who fulfilled the inclusion criteria. Detailed history regarding age, parity, duration of pregnancy and labour pain was taken from every patient. Examination was done including general physical examination, abdominal examination for fundal height, lie, presentation, engagement, amount of liquor, palpable uterine contraction and fetal heart rate. Pelvic examination was done for pelvic assessment and Bishop score. All the data were entered in a predesigned proforma. The course of labour in all the patients were recorded on WHO modified partograph. Statistical analysis was done using SPSS software.**Result:** Out of 60 women who participated in the study 36 (60%) were primigravida and 24 (40%) were multipara. The mean age of the participants was 25.36 years and the mean duration gestation was 281.9 days. The mean duration for delivery after Alert ETD was 4.3 hours. In our study, out of 60 participants, labor was induced only in 13% of the cases. The mean duration for delivery after Alert ETD was 4.7 ± 1.9 hours in the primigravida and 3.7 ± 1.8 hours in multipara, but these differences were not statistically significant.**Conclusion:** The partogram reduced fetomaternal problems and assisted in the early detection of deviations from normal labor, allowing for prompt management. The participants who passed the partogram alert line were taken for LSCS, showing that the partogram was more effective. Maternal difficulties in patients who have had past LSCS, such as obstructed labor, protracted labor, scar dehiscence and scar rupture, as well as additional complications such as PPH, cervical tears/vaginal lacerations, can be avoided with the use of a partogram.**Keywords:** Partogram, obstructed labor, intrapartum monitoring minutes, the APGAR score was less than 7 in 6 infants and greater than 7 in 54 neonates.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

The partogram has been heralded as one of the most important advances in modern obstetric care. However, some healthcare practitioners, especially in high-income countries, have questioned its effectiveness. The purpose of this study is to evaluate prospectively the use of a paperless partogram as a bedside tool in the management of labor. A picture is worth a thousand words,' as the saying goes. Partograph is a Latin/Greek hybrid word that refers to a pictorial representation of parturition. On a single sheet of paper, a partograph is a composite pictorial record of essential data (maternal and fetal) during labor, entered against

time [1]. Partograph is a basic, low-cost prediction technique that is labor-intensive but underutilized due to a lack of understanding. The World Health Organization designed and marketed a partograph as part of the Safe Motherhood program, which was initiated in 1987 with the goal of improving labor management and reducing mother and foetal morbidity and mortality [2,3]. A partogram is a valuable tool for tracking the progress of labor. Partogram can aid with intrapartum monitoring and identifying any atypical labor patterns in individuals who are having a trial of labor after a cesarean surgery. As a result, it can assure a

positive fetomaternal outcome [4]. The WHO-modified partogram, according to the program, is a great tool for reducing obstructed labor and its implications. Despite the fact that the maternal mortality ratio (MMR) has decreased by about 45 percent in the previous two decades, roughly 300,000 women die each year owing to preventable pregnancy-related problems around the world [5]. Obstructed labor is a major cause of maternal and newborn death, particularly in underdeveloped nations. The purpose of this study was to give a labor trial utilizing WHO-recommended partograms in order to assess the efficacy of partograms in patients in labor with a previous LSCS, as well as the predictability of labor progress and outcome [6] It is estimated that 97% of the reported stillbirths and 98% of the reported neonatal deaths occur in less developed countries [7] In sub-Saharan Africa, women face a 1-in-22 chance of dying during childbirth, whereas, the corresponding risk in industrialized countries is one in 8000. [8] Continuous monitoring of labor and provision of rapid care to deal with problems are most crucial for preventing adverse obstetric outcomes related to childbirth. [9] In 1954, Friedman introduced the concept of a partogram by graphically depicting the dilation of the cervix during labor. [10-12] In 1972, Philpott and Castle developed Friedman's concept into a tool for monitoring labor by adding the so-called 'action' and 'alert' lines to the graph. [13] The current partogram is designed to monitor not only the progress of labor, but also the condition of the mother and the fetus during labor. The partogram includes different variables (fetal heart rate, dilation of the cervix, contractions, and pulse rate of the mother) plotted on pre-printed paper. The partogram has been heralded as one of the most important advances in modern obstetric care. The WHO advocates its use as a necessary tool in the management of labor and recommends its universal use during labor. [14] However, some healthcare practitioners, especially in high-income countries, have questioned its effectiveness. [15] Walraven has suggested that the use of the partogram can be an unnecessary interference in clinical work. [16] Also, Lavender and Malcolmson have argued that the partogram may restrict clinical practice, reducing midwives' autonomy and limiting their flexibility to treat each woman as an individual. [17] Lavender identified five randomized controlled trials involving 6187 women in spontaneous labor at term. Overall, there was no evidence from this review that using a partogram reduced or increased the Cesarean section rates or had any effect on the other aspects of care in labor. [18] Dr. Debdas argues that the WHO's partograph fails to meet the organization's own requirements for appropriate technology: The partograph has not been adapted to local needs, is not acceptable to

those who use it, and cannot be used given the available resources. [19] Dr. Debdas has proposed a new, low-skill method for preventing prolonged labor — the paperless partogram. The present study is carried out to find out the effectiveness of a paperless partogram in the management of labor in Indian conditions, especially in a low resource setting.

Materials and Methods

This study was conducted in Department of Obstetrics and Gynecology, Shri Ramkrishna Institute of Medical Sciences and Sanaka Hospital, Durgapur, West Bengal, India for one year. The purpose of this study was to evaluate, prospectively, the use of the paperless partogram as a bedside tool in the management of labor. On review of the hospital record it was found that approximately 900 deliveries took place every year in our hospital. Assuming a precision level of 10% and confidence level of 95%, a sample size of 91 was calculated. Women were invited to participate in the trial if they were at 36 to 42 weeks of gestation, and carrying a singleton pregnancy with a cephalic presentation. The exclusion criteria included non-cephalic presentation, known major fetal structural anomaly, previous uterine surgery, or an acute obstetric complication, such as, antepartum hemorrhage or severe hypertension. All the women who met the criteria and gave informed consent were included in study till the required sample size of 91 was completed. In the paperless partogram model, the clinicians calculated twice — an ALERT ETD (estimated time of delivery) and an ACTION ETD. The ALERT calculation used Friedman's widely accepted rule that the cervix dilates 1 cm per hour, while a woman is in active labor. [17] The clinician simply adds six hours to the time at which the woman becomes dilated to 4 cm to find the ALERT ETD (when cervical dilation is at 10 cm). The clinician adds four hours to the ALERT ETD to get the ACTION ETD. Both the ETDs were written in big letters on a woman's case management sheet, the ACTION ETD was circled in red. At the time of the ACTION ETD, if the woman had not yet delivered, a diagnosis of abnormal labor was made and arrangements were made for emergency obstetric care, and delivery was done by suitable medical treatment or surgical intervention. Usually the first step in augmentation was to rupture the amniotic membranes; if this was not followed by a speedy labor, prostaglandin E2 (PGE2) gel in the form of intracervical gel was applied locally with strict aseptic precautions. Careful clinical monitoring was done to ensure that the contractions did not exceed five in ten minutes or last longer than 60 or 90 seconds, or fetal hypoxia could result from restriction of the maternal afferent placental blood flow. When the progress of labor was so slow (despite local

application of Prostaglandin E2 (PGE2) gel) that the woman was becoming exhausted and the foetus was at risk of hypoxia, a Caesarean section was planned. The collected data was analysed using the Statistical Package for Social Science (version 10.0 for Windows, SPSS).

Results:

Out of 60 women who participated in the study 36 (60%) were primigravida and 24 (40%) were

multipara. The mean age of the participants was 25.36 years and the mean duration of gestation was 281.9 days. The mean weight of the participants was 55.62 kg. The mean BMI of the participants was 22.8. The mean systolic BP of the participants was 124 mm of Hg. The mean diastolic BP of the participants was 73 mm of Hg. The mean weight of the new born child was 2.9 kg. The mean duration for delivery after Alert ETD was 4.3 hours.

Table 1: Demography

Age	No	%
18-24	36	56
25-29	18	36
30-35	6	8
Total	60	100

Discussion:

The partogram is a tool that enables midwives and obstetricians to record maternal and fetal observations simply and pictorially. Different designs of the partogram exist and Cartmill and Thornton [20] hypothesized that the way a partogram is presented may affect a midwife's or obstetrician's perception of the labor progress, and thus, influence the decision-making. This hypothesis has received some support from others (Lavender *et al.* [21] ; Tay and Yong [22]). Although the WHO [23] recommended universal application of the partogram, the evidence to support this recommendation is limited. Even after the WHO simplified the partograph model to make it more user-friendly in 2000, the partograph is still rarely used in low-resource areas, and when actually used, it is rarely interpreted correctly. Debdas [24] believes that the partograph is simply too time-consuming for overburdened clinicians and too complicated for many skilled birth attendants — many of whom have not received higher education. The paperless partogram proposed by Dr. Debdas is a low-skill method for preventing abnormal labor. In our study, which used the paperless partogram for the management of labor, out of 60 participants, labor was induced only in 13% of the cases, which is lower than in a study of an uncomplicated primigravida population, which used the WHO partogram, [25] in which 51.3% of women were diagnosed as being in 'prolonged' labor (ranging from 57.3% in the two-hour arm to 45.3% in the four-hour arm). The mean duration for delivery after Alert ETD was 4.7 ± 1.9 hours in primigravida and 3.7 ± 1.8 hours in multipara, however, these differences were not statistically significant. The Cesarean delivery rate was 1% in our study. The mean duration for delivery after Alert ETD was 4.3 hours in our study, which was similar to the WHO recommendation for partograms with a four-hour

action line instead of a two-hour action line, denoting the timing of intervention for prolonged labor. Once the labor curve moves to the right of the warning line, newborn morbidity rises, and it rises dramatically as the labour curve crosses the action line. As a result, the partograph's alert line indicates a high risk of respiratory distress in the fetus. The use of partograph decreases the number of fresh stillbirths and perinatal deaths [10]. Thus, effective vaginal delivery was achieved after a thorough selection of instances for trial of labor in patients with past LSCS. Furthermore, with improved infrastructure and prenatal and postnatal treatment for these patients, maternal and perinatal morbidity and death can be successfully minimized [11,12].

Conclusion

In summary, the paperless partogram suggested by Dr. Debdas[21,27] was found convenient and effective in the management of labor. The paperless partogram was found to be an effective hand-over tool, when clinicians changed shifts; ensuring that the women continued to be monitored for prolonged labor. The paperless partogram illustrates the potential for about 20 seconds and two time stamps, to help save the lives of mothers and babies. This method can be implemented at the Primary Health Centers/Community Health Centers (PHC/CHC), as they will help in reducing maternal mortality, without any additional cost. The partogram reduced fetomaternal problems and assisted in the early detection of deviations from normal labor, allowing for prompt management. The participants who passed the partogram alert line were taken for LSCS, showing that the partogram was more effective. Maternal difficulties in patients who have had past LSCS, such as obstructed labor, protracted labor, scar dehiscence and scar rupture, as well as additional complications such as PPH, cervical tears/vaginal

lacerations, can be avoided with the use of a partogram.

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