Research Paper

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Comparative Analytical Study of Role of Partograph in Primigravida Versus Multigravida

MEDICAL SCIENCE

KEYWORDS : Partogram, Primigravida, Multigravida,Amniotomy,Oxytocin, Caesarean section

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ABSTRACT

Background and Objectives: Partogram is a concise method of conveying information and recognizing and predicting abnormality in labor patterns at a glance. Partogram serves as an early warning system, allowing for the early detection of abnormal evolution in labor. The purpose of this analytical study is to compare progress of labor in primigravida and multigravida and to evaluate the role of partograph in early intervention of active management of labor. Materials and Methods: 150 Primigravida and 150 multigravida were selected in random, labor was monitored with partogram and a comparative study of labor patterns was done.45% of the study group belonged to the age group of 21 to 25 years. Results: Average duration of active phase in primigravida was 4.1 hours and 2.9 hours in multigravida. Rate of cervical dilatation in primigravida was 1.1cm per hour and 1.5 cm per hour in multigravida. Active management with amniotomy and oxytocin reduces the duration of labor.62.6% of primigravida and 86.6% of multigravida had safe vaginal delivery. Caesarean section rate was 24.6% in primigravida and 8% in multigravida. The rate of the instrumental vaginal delivery in primigravida was 4.6% and 5.3% in multigravida. In this study 12% crossed alert line and 6% crossed action line. Conclusion: Partogram serves as an early warning system, allowing for the early detection of abnormal evolution in labor. If used with other appropriate measures has a considerable impact in the reduction of maternal and neonatal mortality.

Introduction

Partogram means 'labor curve' in greek.Partograph is a graphic composite representation of the events of labor. It allows the critical delineation and appreciation of normal and abnormal parturitional state and pinpoints the patients who could benefit from intervention. It is appropriate for all labor.

About half a million women lose their lives because of complications of pregnancy and labor.99% of these occurs in developing countries. In the developing world, 407 women die for every 1,00,000 live births. In Tamil Nadu,Maternal mortality rate is 90/1,00,000 live births.(1)

Recognizing the unexpectedly high maternal mortality and morbidity (Which is highly preventable) and the social consequences of the mother's death to her family and children, the "Safe Motherhood Initiative" conference held at Nairobi in February 1987.

The conference concluded with a "Call To Action" to reduce MMR by 50% by the year 2000.Among the action called for the most important one is, Monitoring the labor with partograph. To identify high risk cases and early referral to higher centers.

WHO multicenter trial demonstrated the use of partograph, reduced the LSCS rate, low APGAR scores, need for augmentation and perinatal mortality.It was useful in reducing prolonged labor incidence from 6.4 to 3.4% and hence it encourages the widespread use of partograph in institution and PHC's.(2)

Current modified WHO partograph starts with the entry of active stage of labor and stops once full dilatation is reached.(3) The purpose of this analytical study is to compare progress of labor in primigravida and multigravida and to observe the aberrant type of labor and their management, the mode of delivery to be decided on the value of partogram and to evaluate the role of partograph in early intervention of active management of labor.

Materials and Methods

Study population:300 Antenatal women in labor were selected randomly.

Group I - 150 primigravida

Group II – 150 Multigravida

Place of study : Chengalpattu Medical College Hospital

Period of study : November 2009 to November 2010

Inclusion criteria :

ı) Spontaneous onset of labor

ıı) Cephalic presentation

ııı) Term pregnancies between 37 to 42 completed weeks

Exclusion criteria:

ı) Major degree of Cephalo Pelvic Disproportion

ıı) Previous caesarian sections and malpresentation

ııı) Twin

After selecting the study group the following data were recorded. Patient name, age, parity, time and date of admission , complete obstetric and medical history. The vital signs of the patient such as pulse rate, blood pressure and temperature were recorded. Basic investigations like Hemoglobin, blood grouping and typing and urine examination for albumin, sugar and acetone were done.

Fetal heart rate was recorded by pinard's fetoscope and in cases with variability or decelerations, cardiotocograpghy was used for monitoring fetal heart rate .State of membranes and colour of liquor noted if membranes ruptured. Descent of fetal head was observed by Crichton's method and cervical dilatation is assessed by vaginal examination once in four hours or more frequently if necessary.

Strength and frequency of contractions are marked every thirty minutes. Drugs and intravenous fluids administered. Maternal temperature every 4 hrs or more frequently if abnormal noted. Maternal pulse rate recorded every 30 minutes. Active management of labor done in this study was Artificial rupture of membranes done at 3cm cervical dilatation and Augmentation of labor with oxytocin infusion.

Results

In this study group incidence of teenage pregnancy was 15% in primigravida and 3% in multigravida, most of the primi(66%) belonged to the age group of 21-25 years, 65% of the multigravida belonged to the age group 26-30 years.**(Table-1)**

Table : 1 Number of patients according to age

Gravida	16-20 years	21-25 years	26-30 years	31-35 years
Primigravida	22 (15 %)	99 (66%)	19(13%)	10(7%)
Multigravida	4 (3%)	37(25%)	97(65%)	12 (8%)

In this study group, 87% of the multigravida are second gravida. In 74% of primigravida, duration of active phase was less than 6 hours. In 88% of the multigravida, duration of active phase was less than four hours.**(Table-2)**

Table : 2 Duration of active phase

Gravida	0-2 hours	2-4 hours	4-6 hours	6-8 hours	>8 hours
Primigravida	19(12.7%)	52(34.6%)	40(26%)	19(13%)	20(13%)
Multigravida	47(31.3%)	85 (57%)	10(7%)	5(3%)	3(2%)

In this study group, average duration of active phase in primigravida was 4.1hrs and in multigravida was 2.9hrs.The average rate of cervical dilatation in primigravida was 1cm/hour and in multigravida 1.5 cm/ hour. In this present study, among primigravida, 25% had ARM only and 64% had ARM and oxytocin infusion as intervention. Among multigravida 44% had ARM only and 31% had ARM and oxytocin infusion.**(Table-3)**

Table : 3 Type of intervention

Gravida	**ARM**	**ARM and oxytocin**	**None**
Primigravida	38(25%)	96(64%)	16(11%)
Multigravida	66(44%)	47(31%)	37(25%)

In the present study, there is shortening of active phase with amniotomy and oxytocin. Average shortening of active phase was one hour with active management. Caesarean section rate was 25% in primigravida and 8% in multigravida. Of these nearly one third of the caesarean section was done for labor crossing alert and action line and the rest was done for indication like fetal distress. 62% of the primigravida and 86% of multigravida had normal vaginal delivery.

The incidence of instrumental vaginal delivery was 12.6% in primigravida and 5.3% in multigravida. Outlet forceps was used. Failure of secondary powers and fetal distress were the common indications.**(Table-4)**

Table: 4 Mode of Delivery

Gravida	**SVD**	**IVD**	**CD**
Primigravida	94(63%)	19(13%)	37(25%)
Multigravida	131(87%)	8(5%)	11(7%)

In this present study, 36% cases crossed alert line, out of which 7 underwent caesarean section, 8 had instrumental vaginal delivery and the remaining 21 had safe vaginal delivery. In this present study, 18 cases crossed action line, out of which 7 had caesarean section, 3 had instrumental vaginal delivery and 8 had safe vaginal delivery.

Incidence of caesarean section in labors crossing alert line was 20% and that of action line was 38%.Incidence of instrumental vaginal delivery in labors crossing alert line was 22% and for labor crossing action line was 16%.

In this present study, 12% crossed alert line and 6% crossed action line. In this present study, 68.6% of the patients delivered normally, 15.6% had instrumental vaginal delivery and the rest 15.8% underwent caesarean section. Incidence of protracted active phase was 8%.58 % had safe vaginal delivery and 21 % had caesarean section 21% had instrumental vaginal delivery. **(Table-5)**

Table : 5 Functional disorders of labor

	Protracted Active Phase			
Gravida	**Total No**	**SVD**	**IVD**	**CD**
Primigravida	17	9(53%)	4(23.5%)	4(23.5%)
Multigravida	7	5(71.4%)	1(14.3%)	1(14.3%)
	Secondary arrest of dilatation			
Gravida	**Total No**	**SVD**	**IVD**	**CD**
Primigravida	4	1(25%)	0	3(75%)
Multigravida	1	1(100%)	0	0

Discussion

The partogram is a simple, inexpensive tool to provide a continuous pictorial overview of labor. Observations on the fetus and mother which aids in early recognition of problems with either when used in peripheral centre, helps in timely decision and consequently a prompt referral to a specialized centre. In the present study,150 Primigravida and 150 multigravida were selected in random, labor was monitored with partogram and a comparative study of labor patterns was done.45% of our study group belonged to the age group of 21 to 25 years.

In the current study, incidence of teenage pregnancy was 15% in primigravida and 3% in multigravida. Average duration of active phase in primigravida was 4.1 hours and 2.9 hours in multigravida. Rate of cervical dilatation in primigravida was 1.1cm per hour and 1.5 cm per hour in multigravida. Friedman reported, rate of cervical dilatation from his study was 1.2 cm/hour in primigragvida and 1.5 cm/hour in multigravida.(4)

Active management was devised in an effort to assist a woman in labor and for the early recognition and correction of inefficient myometrial activity. Philpott in Africa and O' Driscoll et al. popularized the concept of active management of labor. The policy of active management practiced in National Maternity Hospital, Dublin has shown reduction in the incidence of prolonged labor, fetal and maternal infection, operative deliveries and poor maternal and fetal outcome. This approach advocated by O' Driscoll and others is now referred to as active management of labor.(5-7)

In this present study, among primigravida, 25% had ARM only and 64% had ARM and oxytocin infusion as intervention. Among multigravida 44% had ARM only and 31% had ARM and oxytocin infusion. Ledger et al used oxytocin in patient with abnormal labor graphs and found it to be effective. Friedman limited the primary use of oxytocin to patients with arrest of active phase without evidence of disproportion.(4,8)

In this present study, 12% crossed alert line and 6% crossed action line. In a study conducted by Dujardin et al 9.8% crossed alert line and 3.4% crossed action line.(9) In this present study, 68.6% of the patients delivered normally, 15.6% had instrumental vaginal delivery and the rest 15.8% underwent caesarean section.

In this study, incidence of protracted active phase was 8%.58 % had safe vaginal delivery and 21 % had caesarean section 21% had instrumental vaginal delivery. As per Friedman's study the incidence of protracted active phase was 2-4%. He reported that 42% require caesarean section, 20% have forceps delivery.(4)

The incidence of secondary arrest of dilatation was 1.6% in the present study. Sokol et al reported this dilatation in 6.8 % of nullipara and 3.5% of multipara.Most of them had cephalo pelvic disproportion and some of them have inadequate uterine contractions and can be corrected by oxytocin.(10)

29 patients had meconium stained liquor out of them 65% had ceaserean section and 11% had instrumental vaginal delivery. For all the patients with thick meconium stained liquor, amnio infusion was done. Dye et al reported that the risk of meconium aspiration syndrome decreased from 14% to 2% with amnioinfusion.(11)Almost all babies were admitted in neonatal unit for observation and antibiotics. There was no perinatal mortality. The cesarean delivery rate was also lower in amnioinfusion group.

Conclusion

The partogram is a simple, inexpensive tool to provide a contin-

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uous pictorial overview of labor.Partogram is a concise method of conveying information and recognizing and predicting abnormality in labor patterns at a glance. Partogram serves as an early warning system, allowing for the early detection of abnormal evolution in labor. If used with other appropriate measures has a considerable impact in the reduction of maternal and neonatal mortality. It is time saving, reducing lengthy note taking, thus enabling the care providers to use their time more effectively. Partogram is also important for records and statistical purposes, as well as medico legal point of view.

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