

Study of Significance of Partogram in Active Management of Labour in Primigravidae

Akriti Prasad¹, Puja Verma², Mamta Singh³¹Senior Resident, Department of Obs & Gynae, NMCH, Patna²Senior Resident, Department of Obs & Gynae, NMCH, Patna³Professor, Department of Obs & Gynae, NMCH, Patna

Received: 18-11-2023 / Revised: 11-12-2023 / Accepted: 19-01-2024

Corresponding Author: Puja Verma

Conflict of interest: Nil

Abstract:

Background and Objectives: The key to early diagnosis is the detection of disorders in labour progression specifically by following the evolution of characteristic patterns of cervical dilatation and fetal descent using the partogram. Although labour is a natural physiological process characterized by progressive increase in the frequency, intensity and duration of uterine contractions, resulting in effacement and dilation of the cervix with descent of the fetus through the birth canal. To recognize at an early stage abnormal labour in primigravidae, To assess perinatal morbidity, To assess maternal morbidity.

Methods: This is Prospective study of Carried out total 400 patients conducted in the Department of Obstetrics and Gynaecology. Nalanda medical college and Hospital Patna. All the patients were primigravidae with term gestation, cephalic presentation without any complications who presented with both spontaneous and induced labour. WHO partogram was used for all patients.

Conclusion: Use of partogram is a simple, safe, inexpensive and highly effective means of monitoring progress of labour. Hence it identifies the abnormality early and deliver them safely in time by active management of labour.

Keywords : Partogram, Labour, Primigravidae.

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

Although labour is a natural physiological process characterized by progressive increase in the frequency, intensity and duration of uterine contractions, resulting in effacement and dilation of the cervix with descent of the fetus through the birth canal. [1-3] This physiological process many a time many lead to pathological one and failure to recognize this would result in prolonged labour with the resultant increase in the intensity in the morbidity and mortality of both fetus and the mother. Most authorities believe that the best way to monitor labour is with the help of a partogram, which is a record of the progress of labour and the maternal and fetal condition during labour against a time scale. Plotting cervical dilation and descent of the presenting part against time allows objective graphic documentation of the progress of the labour and simplifies the clinical interpretation of the dynamic changes that occur during labour. [4,5] Any deviation from the normal curve alerts the attendant to the possibility of a labour disorder in advance. It helps not only in recognition but also in characterization and management of dysfunctional labour. Once labour has started it is possible to regulate its

duration and progress with almost complete success. This requires a systemic approach with careful diagnosis of the onset of labour, regular assessment and decisive action. [6,7] Prolonged labour was known to be associated with maternal infection, obstructed labour, PPH, uterine rupture, which increase the maternal and perinatal morbidity and may end with mortality. It has been a common axiom "Not to allow sun to set twice on a labouring woman", in order to prevent such tragic events. [8,9]

Of all the Journey's ever we make the most dangerous one is the very first one, we take through the birth canal, obstetrician as well as women in labour would prefer the delivery to be accomplished in shortest possible time, compatible with safety of mother and fetus. Hence, the hopeful expectancy replaced by an active management of labour. Partogram can be used as an effective aid for this purpose. [10-16]

Objectives

To recognize at an early-stage abnormal labour in primigravidae, To assess perinatal morbidity, To

assess maternal morbidity.

Material and Methods

This is prospective Study Carried out of 400 patients admitted at Nalanda Medical college and Hospital Patna, Bihar. Study duration of two years. The total number of deliveries within this period were 1280. Term primigravidae patients were chosen for the study after confirming that they fulfilled the relevant criteria.

Inclusion Criteria: Primigravida patients, Term gestation (37 – 42 weeks) as determined by history and clinical examination, Confirmatory objective evidence of labour judged by cervical dilatation, station of the head and uterine activity, Cephalic presentation, vertex as the presenting part.

Exclusion Criteria: Suspicion of cephalopelvic disproportion, High risk pregnancy or bad obstetric history, Medical disorders in pregnancy like heart disease and pregnancy induced hypertension.

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 a contraction at all times. The same applies for fetal station. While this may prove same what more uncomfortable for the patient, the benefits in useful

information may make it acceptable especially in those cases in which problems in labour progression occurs.

Individuals tend to err rather consistently that is, a given individual will often overestimate or underestimate cervical dilatation or fetal station by a constant amount in a predictable manner. This consistently makes it possible for an individual to create a perfectly acceptable labour pattern provided he or she alone makes all the examinations. 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, wherein, examinations were done much more frequently.

All the relevant findings were charted serially on a partogram and a continuous partogram was obtained.

In the absence of significant cephalopelvic disproportion, fetal distress or ideal contractions oxytocin drip was started to obtain the ideal frequency, duration and intensity of uterine contractions. Following oxytocin stimulation, further progress in cervical dilatation was looked for.

Results

Table 1: Age group distributions

Age in years	Number of cases	Percentage
15-20	192	48
21-25	165	41.3
26-30	41	10.3
31-35	2	0.5
Total	400	100

Chi-square – 257.740; P < 0.000 (HS)

Table 2: Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	400	15	34	21.49	3.08

The age group in the present study was between 15 – 35 years. Statistically significant difference was observed between different frequencies of different age groups. In the age group 15 – 20 yrs, maximum number of patients and as age increased the number of cases decreased serially.

Table 3: Outcome in labour in the study group

Mode of delivery	No. of cases	Percentage
FTND	288	72.0
Outlet Forceps	73	18.3
Vacuum	9	2.3
LSCS	30	7.5
Total	400	100

Chi-Square = 492.540; P < 0.000 (HS)

In the study group of 400 patients, maximum number of patients i.e. 288(72%) had full term vaginal delivery and least number of patients 30 and 9 i.e. 7.5% and 2.3% underwent LSCS and vacuum respectively, highly statistically significant difference was found.

It is observed that between the cervical dilatation at admission and outcome of labour, statistically non-significant association was observed indicating maximum number of FTND i.e. 100 percent were observed with cervical dilatation > 5 cm and

followed by 4 – 5 cm dilatation i.e. 76.3%. Comparatively more number of LSCS i.e. 9% was obtained in the group of patients with cervical

dilatation 2 -3 cm and none of LSCS in group of patients with > 5 cm dilatation.

Table 4: Perinatal outcome

Neonatal complications	No. of cases	Percentage
Nil	342	85.5
Birth asphyxia	25	6.3
Septicemia	11	2.8
Neonatal jaundice	9	2.3
SGA	9	2.3
Others	4	1.0
Total	400	100.0

Chi-square = 1368.320; P < 0.000 (HS)

Maximum number of babies i.e. 85.5% delivered had no complications. Birth asphyxia was found in 6.3% of babies, septicemia was seen in 2.8%. Neonatal jaundice was observed in 2.3% of babies and other complications were cephalohemotoma was seen in 1% of cases. Statistically significant association was found.

Table 5: Maternal complications in relation to partogram pattern

Maternal complications	Partogram			
	A	B	C	Total
Nil	185(47.7%)	171(44.1%)	32(8.2%)	388(100%)
UTI	1(16.7%)	5(83.3%)		6(100%)
Retained placenta	1(50%)	1(50%)		2 (100%)
Fever		3(100%)		3(100%)
3 rd degree Perineal tear		1(100%)		1(100%)
Total	187(46.8%)	181(45.3%)	32(8.0%)	400(100%)

CC = 0.147; P < 0.360 (NS)

From the above table, non significant association was observed between maternal complications and partogram pattern. However, comparatively more percentage of complications were observed in Group B patients and nil in Group C patients.

statistically non significant association was found between neonatal complications and partogram pattern. However, comparatively more percentage of neonatal complications were observed in Group B patients and least in Group C patients.

Discussion

Study all the patients at admission were of cervical dilatation between 2 to 5 cms. In Paul Holmes study there were 63% of FTND's with 2-3 cm dilatation, 26.6% had outlet forceps / vacuum and 10.6% underwent LSCS. In the present study at 2-3 cms cervical dilatation, 70.9% were FTND's, 18% had outlet / vacuum and 9% underwent LSCS. In Paul Holmes study at 4-5 cms cervical dilatation,

there was 70% FTND 25% outlet forceps / vacuum application and 4.2% underwent LSCS. In the present study at 4-5 cms cervical dilatation there was 76.3% FTNDs, 19.7% outlet forceps / vacuum and 1.3% underwent LSCS. There was one patient with cervical dilatation > 5 cm. it was delivered vaginally. In the Phipott and Castle series study, 78.85% had FTND, 15.55% had outlet forceps or vacuum delivery and 2.6% had LSCS.⁶ In Daftary and Mhatre series, 68% had FTND, while 14% required outlet forceps / vacuum and 7.5% underwent LSCS. In the WHO study 78.3% had FTND, while 4.2% required outlet forceps, 10.5% had vacuum application and 6.9% underwent LSCS. In Laurence Impey et al study 75.4% had FTND while 19.2% required outlet forceps / vacuum and 5.4% underwent LSCS.

In the present study, 72% had FTND 18% required outlet force.

Table 6: Duration of labour in I and II stage (Comparative study)

Duration of labour (Hr)	John FR Barette	P.J. Steer et al	Present study
I stage	7.4	5.4 ± 2.53	7.57
II stage	32.4	46 ± 37	23.51

it is observed that in the present study the duration of first stage of labour was 7.57 hr as compared to 7.4 hours by John Fr. Barette, and 5.4 ± 2.53 hrs by Steer et al. In the present study the duration of second stage of labour was 23.51 hr as compared to 32.4 min by John Fr. Barette and 46 ± 37 min by P.J.

Steer et al. According to Phipott and Castle series which was done in 1972, 78% of the patients were in group A, 11% of patients were in group B and 11% were in group C. In the Daftary and Mhatre series, which was done in 1977, 66% of the patients were in group A, 25.5% of the patients were

in group B and 8.5% of patients were in group C. In the present study 46.8% of patients were in group A 45.3% percent of patients were in group B and 4% of patients were in group C. it can be observed that in the Philpott and castle series patients in Group A 89.76% had a FTND 9.8% required forceps / vacuum and 0.4% required LSCS. In the group B, 79.41% had FTND, 20.95 % required forceps or vacuum delivery and no LSCS was necessary. Thus a patient in group A had a good prognosis for spontaneous vaginal delivery [17]. All the patients in group B required intensive monitoring with Active management of labour, even group B patients had a high percentage of FTND and there were no LSCS. at 1 min 91.8% of babies had APGAR of 7-8 compared to 9-10 by Goyal et al. At 5 min, 92% of babies had APGAR of 9-10, compared to 94% by Beher et al and APAGR of 0-3 was observed in 0.5% compared to 1% by Beher et al. it is observed that in the present study 88.6% had no complications compared to 86.5% by RB Behere. Birth Asphyxia was found in 6.3% of babies compared to 6% by Behere while neonatal jaundice was 2.3% compared to 5.5% by Behere [18].

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 in for prolonged labour. Hence it is essential to identify the abnormality early and deliver them safely in time by active management of labour. From this study and previous studies, it is evident that the routine use of the partogram is helpful to detect abnormalities in the progress of labour and it permits early corrective therapy.

References

- O'Driscoll K, Jackson RJ, Gallagher JT. Prevention of prolonged labour. *BMJ*. 1969; 2:47-80.
- Pates JA, Satin AJ. Active Management of Labor. *Obstet Gynecol Clin N Am*. 2005; 32:221-230.
- Friedman E. The graphic analysis of labor. *Am J Obstet Gynecol*. 1954; 68:1568.
- Philpott RH. Graphic records in labour. *Br Med J*. 1972; 4: 163.
- Philpott RH, Castle WM. Cervicographs in the management of labour in primigravida. *Br J Obstet and Gynaecol* 1972; 72: 592.
- Philpott RH, Castle WM. Cervicographs in the management of labour in primigravida. *Br J Obstet and Gynaecol* 1972; 79: 599.
- Friedman EA. Partogram and Nomograms of cervical dilatation in management of primigravid labor. *Yearbook of Obstet and Gynaecol*, 1975; 135-136.
- Friedman EA. Cervimetry – An Objective method for study of cervical dilatation in labor. *Am J Obstet and Gynaecol* 1989; 71: 1956.
- Studd J. Partograms and normograms of cervical dilatation in management of primigravida labour. *Br Med J* 1973; 4: 451.
- Studd J, Clegg DR, Sanders RR, Hoghes AO. Identification of high risk labours by labour normograms. *Br Med J* 1975; 2: 545.
- Daftary S, Mhatre PN, Damania KR, Manju M. Partographic monitoring of labour using nomogram. *J of Obstet and Gynaecol of India* 1992; 41:611-615
- Daftary S, Mhatre P. Cervicographs in the management of labour in primigravidae. *J of Obstet and Gynaecol of India* 1977; 27:687-691
- WHO. Partograph in the management of labour. *Lancet* 1994; 343: 1399- 1403.
- Paul Holmes, Lawrence WO, Shi Wu Wen. The relationship between cervical dilatation at initial presentation in labour and subsequent intervention. *Br J of Obstet and Gynaecol* 2001; 108:1120-1124.
- Barrett JF, Savage J, Philips K. A randomized trial of amniotomy in labour versus intention to membrane intact until second stage. *Br J of Obstet and Gynaecol* 1992; 1: 5- 9.
- Goyal Latika, Kapoor M, Agarwal U, Agarwal AK. Partographic study of active management of labour in relation of foetal outcome. *J of Obstet and Gynaecol* 1990; 41: 174-181.
- Behera RB, Shivastava AK. Active management of labour in primigravida – A prospective study. *J of Obstet and Gynaecol of India*. 1995; 59: 704-710.
- Use and abuse of Apgar score. Committee on Fetus and Newborn Infant. American Academy of Paediatrics and Committee on Obstetric Practice. American