

Partographic analysis of labour in Eclampsia

Dr. Manju Merina Bara¹, Dr Silbina Murmu²

¹(Assistant Professor, Department of Obstetrics and Gynaecology, MGM Medical College, Jamshedpur, Jharkhand, India.)

²(Assistant Professor, Department of Pathology, MGM Medical College, Jamshedpur, Jharkhand, India.)

Abstract

Objective: - To study the use of partogram in the analysis of labour in eclampsia with cephalic presentation.

Methodology: -Partographic analysis of labour was done in 50 patients of eclampsia in labour and 10 normotensive primigravidae and 10 normotensive multigravidae as control. Partographic variables are plotted and the rate of cervical dilatation was measured. Maternal and neonatal outcomes were studied in each patient.

Result:- Amongst the 50 eclampsia patients in labour analysed 37(74%) were primigravidae and rest 13 (26%) were multigravidae. Mean duration of active phase was 3.29 hrs. and 2.53 hrs. in primigravidae and multigravidae study group compared to 5.14 hrs and 4.27 hrs in control primigravidae and multigravidae respectively. Rate of cervical dilatation in active phase was 3.26 cm/ hrs, 4cm / hrs, 1.96cm/ hrs and 2.40cm /hrs in primigravidae eclampsia, multigravidae eclampsia, primigravidae normotensive and multigravidae normotensive respectively. Forceps delivery were 29 (58%) and normal vaginal delivery in 21 (42%) cases in eclampsia group.

Conclusion – Mean duration of active phase of labour was shorter in eclampsia patient and rate of cervical dilatation was more than normotensive patient in labour. Prematurity in eclampsia is high and therefore the perinatal mortality is also high in study group.

Key word – Active phase, cervical dilatation rate (CDR), eclampsia, labour, partogram.

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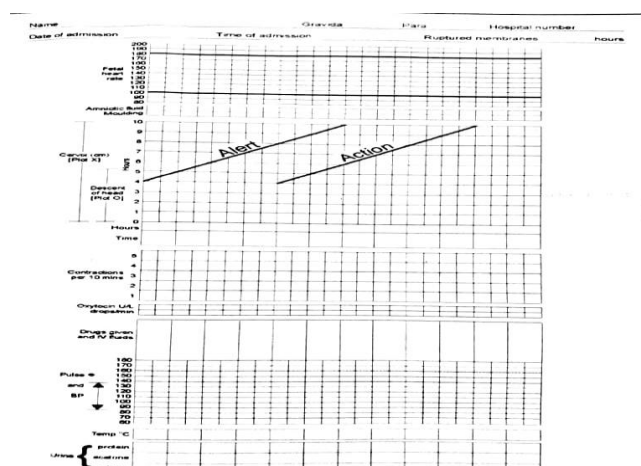
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I. INTRODUCTION

Partogram is a graphic record of progress of labour and maternal and foetal condition during labour in a single sheet of paper which is useful in detecting the labour is not progressing normally at an early stage and helpful in its management. The partograph graphically represents by events in labour and provide an early warning system. The World Health Organization partograph are the best known partograph in the low resources setting. Partograph when used with defined management protocols is an important tool which can effectively monitor labour and be helpful in reducing incidence of both maternal and foetal morbidity and mortality by reducing the number of operative interventions, prolonged labour, obstructed labour and caesarean sections. [1]

Most of the present understanding of labour and its abnormalities is based on the work of Emanuel A Friedman (1954). [2] Friedman found that it is possible to construct a graphic representation of labour by plotting cervical dilatation and descent of presenting part against the time. Later on this partogram modified with varying suitable complexity by Phillport (1972), O'Driscoll and Studd (1973). [3] The Modern partograph that is WHO modified partogram is an excellent tool for early recognition of any variation from the normal labour and helps in the early management. It has been found that total duration of labour in eclampsia is very short as observed by Sharda Jain by partographic study.[4]

In normal labour the uterine muscle contraction is controlled by Ca^{++} in surrounding cytoplasm. The cervical ripening is due to biochemical changes in the collagen and connective tissue of cervix. There is breakdown of the collagen tissue and alteration in relative amount of various glycosaminoglycans. Again increased amount of hyaluronic acid and water retention near term helps in the cervical ripening and cervical dilatation. All these process are accelerated in eclampsia reducing the total average duration of labour.



WHO Modified Partograph

The aim of this present work to evaluate the role of partogram in the progress of labour in eclampsia in relation to time and duration of labour. Eclampsia is defined as development of convulsions and or unexplained coma during pregnancy or postpartum period, preceded by pre-eclampsia. [5]

According to WHO estimation, eclampsia is the cause of 12% of all maternal death. Hypertensive disorders represents the most common medical complication of pregnancy with a reported incidence between 5 to 6%. [6]. Reports published from 1976 to 2015 (January – February) reveal that incidence of eclampsia in India ranges from 0.179 to 5%. [7]

It was observed by E. Cobo in 1964, that in eclampsia highly increase contractility of uterus in comparison with pattern of normal uterus. Hypercontractility leads to high incidence of premature delivery, precipitate labour a foetal distress and foetal death in utero in pre- eclampsia and eclampsia. [8] It could produce oedema of the cervix, a more favourable condition and easily dilatable during labour leading to short duration of labour.

Other component of partogram and the clinical evolution of maternal and foetal conditions are plotted graphically in a single sheet of paper and have the partogram helps in obstetrical management of eclampsia is discussed. The parameters are as mentions below.

1. Parameters used to assess progress of labour

- a. Cervical Dilatation
- b. Descent of head
- c. Uterine contraction

2. Parameter used to assess foetal condition

- a. Foetal heart rate
- b. Colour of liquor
- c. Moulding of foetal skull

3. Parameters used to assess maternal condition.

- a. Pulse rate.
- b. Blood pressure
- c. Temperature
- d. Urine for volume, protein and ketone bodies

II. METHODOLOGY

The study was conducted using the WHO modified partogram. The labour details were plotted when the woman enters into active phase of labour in 4cm of cervical dilation with good uterine contractions. The WHO modified partogram, using action lines (4h) after crossing alert line was used for plotting intrapartum details. This is a prospective observational study conducted on 50 eclampsia patients who delivered vaginally and 20 normotensive patients in labour after 28 weeks of gestation. This study was conducted at MGM Medical College Hospital, Jamshedpur and PMC Hospital, Dhanbad, Jharkhand during Jan 2015 to Jan 2018.

The Study group divided into two groups, primigravidae eclampsia and multigravidae eclampsia. Both study groups and control groups (10 normotensive primigravidae and 10 normotensive multigravidae) with cephalic presentation. Exclusion of criteria are multiple pregnancy, presentation other than cephalic, with other obstetrics risk factors. Normotensive patients delivered by forceps and into focus delivery and LSCS were excluded. The patients had a careful monitoring of progress of labour, BP, pulse and other maternal and foetal vital signs are monitored and recording in details on a composite graph paper. All the necessary instructions were carried out, adequate nourishment and hydration for all women, amniotomy after 4cm, oxytocin augmentation for good uterine contractions was done. Application for forceps done in eclampsia patient, where it was needed. Active management of third stage of labour done in all the groups. Resuscitation of baby and admission in NICU was done if needed.

III. RESULT

Out of 70 patients studied in labour with partographic analysis of labour, 50 (71.4%) belong to eclampsia and rest 20 patients (28.6%) belong to control group. Among eclampsia patients 46 (92%) are coming from rural area and 38 (76%) are of low socioeconomic group. 37 (74%) are primigravidae patients suffering from eclampsia and among them a majority of them were in the age group of 16-20 yrs, i.e. 28 (56%), followed by those aged (21-25 yrs) i.e. 14 (28%).

It has been found that incidence of forceps delivery is high in eclampsia group during labour that is 29 (58%). In present study shows that most of the patient delivered after 7 to 14 hrs of first eclamptic fit.

The mean duration of active phase of labour in eclampsia primigravidae, eclampsia multigravidae, normotensive primigravidae and normotensive multigravidae are 3.29 hrs, 2.53 hrs, 5.19 hrs and 4.27 hrs respectively. The mean duration of active phase of labour is the main factor that is prolonged as the curve falls in the left of alert and action line. The rate of cervical dilatation were 3.26cm/hr, 4cm/hr, 1.96cm/hr and 2.40cm/hr in primigravidae eclampsia, multigravidae eclampsia, primigravidae normotensive and multigravidae normotensive respectively.

Table I - Comparison of Av. CDR and total duration of labour in hrs.

		CDR cm/hr	Total duration of labour (in hrs)
Primigravidae	Eclampsia	3.26	3.29
	Normotensive	1.96	5.43
Multigravidae	Eclampsia	4.00	2.73
	Normotensive	2.40	4.38

In primigravidae eclampsia group total duration of labour is less but CDR is more than primigravidae normotensive group. It has been noted that CDR is more in multigravidae eclampsia group in comparison to multigravidae normotensive. Total duration of labour is also shorter in multigravidae eclampsia group.

Table II – Comparison of mean duration of Active Phase amongst the study and control group.

Duration of Active Phase (hrs)	Group	N	Mean	Minimum	Maximum
	Primi eclampsia	37	3.29	2.40	3.30
Multi eclampsia	13	2.53	2.10	3.20	
Primi normotensive	10	5.14	4.20	6.20	
Multi normotensive	10	4.27	3.35	4.55	

In present study, shows in study group that most of the cases of eclampsia in labour comes with gestational weeks less than 37 weeks. Maximum with 32 to 34 weeks of gestation which is 64%. Perinatal mortality is also high in present study because of prematurity, low birth weight and birth asphyxia.

IV. Discussion

Despite advance in medical, eclampsia has remained a leading cause of maternal mortality throughout the world. In present study, shows that incident of eclampsia is quite high in both institution because of referral hospital and cater cases from remote areas of rural population. It is observed that high incidents of eclampsia in primigravidae being (74%). S.S. Ratnam and Arulkumaran (1989) and other observed the same. Some immunological defects may play an important role in developing pre-eclampsia and eclampsia in primigravidae. Other associated factors are early age of marriage, illiteracy and lack of antenatal check up. The high incidence age group below 20 years explains the some immaturity in immunological system and foetus and placenta acts as a antigenic stimulus to maternal immune system.

The WHO modified partogram is used as an essential tools in the active management of labour. Use of partogram helps in early detection of any deviation from normal labour and its management. Use of partogram in eclampsia is a very useful tool to monitor the progress of labour. As the duration of labour is found shorter in present study in comparison to control normotensive group, timely induction of labour and achievement of vaginal delivery in eclampsia can reduce the maternal and perinatal mortality and morbidity. The fits delivery interval in eclampsia is directly proportional to the early onset of labour. In present study, maximum delivered in between 11-14 hrs of first eclamptic fit. [08] It has been an established fact that after every eclamptic fit there is increase label of catecholamine in system which has got oxytocic effect on myometrium causing labour. The associated factor may be small size of foetus and soft, easily dilatable cervix which plays a major role in short duration of labour. Smti Nanda et al observed 76% of patients were delivered within 18 hrs of first fit and Madhuri Chanda observed 91.9% of patient were delivered within 24 hrs.

The cervicographic data observed in present study of control group have almost similar labour with difference stage, when compare to the finding of other workers. [09] Duration of the active phase of labour in study eclampsia group and rate of cervical dilation was found shorter in comparison to control normotensive group. All these data are similar to those of the study conducted by Godbole and Sharda Jain et al and it was found that labour was short in pre-eclampsia and eclampsia. Zuspan and Talledo and Jain and Chandra have also shown that labour is significantly shorter in eclampsia. [10] [11]

The biochemical changes in uterus and cervix during labour are responsible for short during of labour. Uldbjerg et al showed that low concentration of chemical hydroxyl protein had a faster rate of cervical dilatation then those with high concentration. [12]

Our observations suggest that in eclampsia, labour is of short duration with all its component and there are many contributing factors present for this. There is high maternal and perinatal mortality in eclampsia.

V. Conclusion

Partographic analysis of labour in eclampsia provides valuable information on the progress of labour and helps us in predicting maternal and neonatal outcomes during the labour. Maximum patients of eclampsia were delivered within 7 to 14 hours of first eclamptic fit. It was noted that the course of eclampsia is shorter than the control group. So that average cervical dilatation rate is active phase in eclampsia was more as compared to control group. The study concluded that timely decision of management of eclampsia, as to early termination of pregnancy, monitoring of labour progress and maternal and neonatal parameters will certainly improve the maternal and perinatal outcome.

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