Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 6, 2021, Pages. 3254 - 3258
Received 25 April 2021; Accepted 08 May 2021.

# Across Sectional Study on Utility of Partogram in Management of Active Labour

**[1]Dr Zinsi Thakur, [2]Dr Sharad Dohare, [3]Dr Nidhi Choudhary, [4]Dr Narendra Singh Patel, [5]Dr. Shilpi Parihar, [6]Dr. Ashmika Chauhan**

[1]MBBS, MS, DNB (Obc&Gynec), Assistant Professor, People Medical College, Bhopal
[2]MBBS, DCH (Pediatrics), Demonstrator (Forensic Medicine), ABVGMC Vidisha MP
[3]MBBS, MD (Dermatology), Assistant Professor, RKDF Medical College, Bhopal
[4]MBBS, MD (Forensic Medicine), Assistant Professor, Forensic Medicine, ABVGMC Vidisha MP
[5]DNB, ENT (Mumbai)
[6]MS, Obstetrics and Gynaecology (Mumbai)
**Corresponding Author:** Dr Narendra Singh Patel (drnspatel30@gmail.com)

**Abstract**

**Introduction:**
Prolonged labour is associated with obstructed labour, infections, PPH, uterine rupture andincreasedmaternalandperinatal morbidityandmayendinmortality.Thisstudywasplannedwith the objective to assess utility of partogram in detection of abnormal progress of labourandprevention of prolongedlabour.

**MaterialsandMethods:**
This study involved a detailed prospective workup of 200 patients admitted at Department ofObstetrics and Gynaecology, G.R. Medical College, Gwalior within a total span of 1 year i.e.July 2012 to Sept. 2013.Primigravid women, aged 19-29 years, who had crossed 37 weeks ofgestation were included in the study. WHO partogram was used. A semi-structuredquestionnaire with demographic details, history of present illness, relevant past history,relevant family history, general examination, obstetric examination, vital signs, laboratoryinvestigations and partogram, wasused to collectdata.

**Results:**
Casesweredividedinthreegroups onthebaseofpartogram.IngroupI,IIandIII,therewere120 (60%), 41 (20.5%) and 39 (19.5%) cases. Most (118, 98.3%) of the cases in group I weredelivered normal vaginally and only 2 (1.6%) cases underwent LSCS. In group II, most (34,82.9%) delivered as normal vaginally, 3 of them were delivered by ventouse (7.3%) and 4were delivered by LSCS (9.7%). In group III, among 36 cases 24 were delivered normalvaginal(61.5%), 3 wereby ventouse(7.6%) and 12wereby LSCS(30.7%).

**Conclusion:**The key to early diagnosis and detection of disorders in labour progression specifically byfollowingtheevolutionofcharacteristicspatternofcervicaldilatationandfoetaldescent,usingthe partogram has also helped in achieving the policy of active management of labour iceensuringthedelivery ofthepatients within twelvehours.
**Keyword:**partogram,utility, labour

## Introduction

Labour is a natural physiological process characterized by progressive increase in frequency,intensityanddurationofuterinecontractions,resultingineffacementanddilatationofcervix,with descent of the foetus through the birth canal. This physiologic process many a time maylead to prolonged labour with the resultant increase in the morbidity and mortality of bothfoetus and themother.[1]

Most authorities believe that the best way to monitor labour is with the help of a partogram,whichisarecordoftheprogressoflabourandthematernalandfoetalconditionduringlabouragainstati mescale.[2]Plottingcervicaldilationanddescentofthepresentingpartagainsttimeallows objective graphic

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 6, 2021, Pages. 3254 - 3258
Received 25 April 2021; Accepted 08 May 2021.

documentation of the progress of labour and simplifies the clinicalinterpretationofthedynamicchangesthatoccurduringlabour.Anydeviationfromthenormalcurvealerts theattendanttothepossibilityofalabourdisorderinadvance.Ithelpsnotonlyinrecognitionbutalsoincharacterization andmanagementofdysfunctionallabour.[3]

Labour depends upon uterine contraction, cervical dilation and effacement. It also dependsuponpelvisandfoetalweight.Thelasttwocannotbealteredinanycase.Whatwecanmonitorandcanchan gearetheuterinecontractionsanddilationofcervix.Oncelabourhasstarteditispossible to regulate its duration and progress with almost complete success. This requires asystemic approach with careful diagnosis of onset of labour, regular assessment and decisiveaction.[4]

Prolongedlabourisassociatedwithobstructedlabour,infections,PPH,uterinerupture andincreased maternal and perinatal morbidity and may end in mortality. [5-7] Therefore, it isimperativetoassessutilityof partograminmanagementofactivelabour.

This study was planned with the objective to assess utility of partogram in detection ofabnormalprogressoflabour and preventionof prolonged labour.

## Materialsandmethods

This study involved a detailed prospective workup of 200 patients admitted at Department ofObstetrics and Gynaecology, G.R. Medical College, Gwalior within a total span of 1 year i.e.July2012 to Sept. 2013.

Primigravid women, aged 19-29 years, who had crossed 37 weeks of gestation were included inthe study. Other inclusion criteria were, pregnancy should be with single live foetus in vertexpresentation and it should be without any significant medical and obstetric complications. Allcases irrespective of either induced or spontaneous onset of labour were included in this study.Monitoring of progress of labour in the study were started from active phase of labour (4 cmmoreofcervicaldilatation).Caseswithmultiparamothers,teenagepregnancies,elderlyprimigravida,multip lepregnancies,malpresentation,post-caesareanpregnancy,posttermpregnancy,pretermlabourandsevereoligohydramnios wereexcludedfromthestudy.

Asemi-structuredquestionnairewithdemographicdetails,historyofpresent illness,relevantpast history, relevant family history, general examination, obstetric examination, vital signs,laboratoryinvestigationsand partogram,was used tocollectdata.

Onoverservingtheprogressoflabourandplottingitonpartogram,casesweredividedintothreegroups accordingto_____:[2,3]

GroupI(Lefttoalertline):[Definethis]
GroupII(Righttoalertline): [Definethis]
GroupIII(Righttoactionline):[Definethis]

Descriptive categorical data is presented as frequency tables. For all data analysis SPSSversion21 softwarewasused.

## Results

This study involved a detailed prospective workup of 200 patients admitted at Department ofObstetrics &Gynaecology, G.R. Medical College, Gwalior within a total span of 1 year i.e.July.2012 to Sept. 2013.

Theabovetableshowsthatamong200primigravidapatients112(56%)belongsto18-21yearsofagegroup.45i.e.22.5%belongto22-25yearsofagegroup.43i.e.21.5%belongsto26-29years of age group. The maximum number of patients belongs to 18-21 years of age group i.e.112 (56%).

Cases were divided in three groups on the base of partogram. In group I, II and III, there were120(60%),41(20.5%)and39(19.5%)cases.Outof120patientsingroupI,90patientsneededacceleration of labour while in group II and III, all patients (41 in group II, 39 in group III)neededacceleration of labour.[Table1]

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 6, 2021, Pages. 3254 - 3258
Received 25 April 2021; Accepted 08 May 2021.

**Table1:Distributionofcasesaccordingtoresultofaccelerationoflabour**

| | Group | | | | | |
|---|---|---|---|---|---|---|
| | Group I (90) | | Group II (41) | | Group III(39) | |
| | No. | % | No. | % | No. | % |
| ARM | 60 | 66.6 | 11 | 26.8 | 14 | 35.9 |
| ARM+Oxytocin | 19 | 21.1 | 14 | 34.1 | 6 | 15.3 |
| Misoprostol | 9 | 10 | 12 | 29.2 | 7 | 17.9 |
| Not Improved (by LSCS) | 2 | 2.2 | 4 | 9.7 | 12 | 30.7 |

GroupIamong90patients,whoneededaccelerationoflabour,itwasdonebyartificialruptureofmembranein60(66.7%)cases,ArtificialRuptureofMembranewithoxytocinin20patients(21.1%), misoprostol drug in 10 cases (10%). In group II, it was done with ARM, ARM withoxytocin and Misprostol 12 (29.2%), 11 (26.8) and 14 (34.1%) patients respectively. Amonggroup III, in most patients acceleration was done by ARM (35.9%) followed by misoprostolalone(17.9%) and ARMwith misoprostol(15.3%). [Table1]

**Table2:Distributionofcasesaccordingtomodeofdelivery**

| Groups | Modeofdelivery | | | | | | |
|---|---|---|---|---|---|---|---|
| | FTND | | FORCEP | | LSCS | | Total |
| | No. | % | No. | % | No. | % | |
| I | 118 | 98.3 | 0 | 0 | 2 | 1.6 | 120 |
| II | 34 | 82.9 | 3 | 7.3 | 4 | 9.7 | 41 |
| III | 24 | 61.5 | 3 | 7.6 | 12 | 30.7 | 39 |

Most (118, 98.3%) of the cases in group I were delivered normal vaginally and only 2 (1.6%)casesunderwentLSCS.IngroupII,most(34,82.9%)deliveredasnormalvaginally,3ofthemweredeliveredbyventouse(7.3%)and4weredeliveredbyLSCS(9.7%).IngroupIII,among36 cases 24 were delivered normal vaginal (61.5%), 3 were by ventouse (7.6%) and 12 werebyLSCS(30.7%).MaximumnumberofcasesweredeliverednormallyingroupIascomparedtogroupIIandIIIinwhichmaximumno.ofcasesunderwentLSCS.[Table2]Averagerateofcervical dilatation in group I was 1.6 cm/hr which is more than the group II (0.76 cm/hr) andIII(0.35 cm/hr).

## Discussion

In current study, randomly selected 200 patients who were admitted for term labour indepartmentofObstetricsandGynaecology,KamlaRajaHospital,Gwaliorfrom1July2012to30Sept. 2013aftermatching fortheinclusion andexclusion criteria.

Out of 200 patients, maximum number of patients were in 18-21 yrs of age group. In presentstudypatientsweredividedinthreegroupsinrelationtoalertandactionlineof WHOmodifiedpartogram.

In this study, 41 patients out of 200 were crossed alert line (20.5%). These results are inaccordance with other studies. In Philipott study (1972) [8], 22% of patients crossed the alertline.

In WHO (1994) [9] study, 34.5% patients crossed the alert line. In Pattinson's study (2003) [10]outof344patients165(48%)crossedthealertline.IntheDaftaryandMhatre[11]series,whichwas done in 1977 66% of the patients were in group A, 25.5 of the patients were in group Band 8.5% patients were in group C. In our study number of patients crossed the alert line iscomparableto Philpottstudy[8].

Inourstudy39outof200patientscrossedtheactionline(19.5%)inWHOstudy(1994)[9]9.9%patients crossed the action line.In Philpotts study[8], 11% crossed the action line. Levendar etal [12], in her study reveal that 51.3% women were crossed the action line. In our study fewerpatients were crossed the action line (19.5%) as compared to Levendar et al [12]study (51.3%).WHOstudy[9](9.9%)and Philpott[6](11%)aresomewhatcomparableto our study.

Inourstudyaccelerationoflabourwasdonebyartificialruptureofmembrane,artificialruptureofmembrane+oxytocin,misoprostol.Inpresentstudyaugmentationoflabourwasdonein 90cases of 120 patients (75%) before

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 6, 2021, Pages. 3254 - 3258
Received 25 April 2021; Accepted 08 May 2021.

alert line with ARM 60 patients, ARM + oxytocin 19patients,misoprostol9patients.Frigolettoetal[13]studyaugmentationneededin77%ofcases.
In a study by William Ledger and Willim Witting [14]it was found that in group I incidenceacceleration of labour was 27% were as a group II & III incidence of acceleration of labourwas72%.Outof41ARMdonein11patients,ARMwithoxytocin14patientsandmisoprostolin 12 patients. Caesarean section was done in 4 cases after alert line was crossed. Only 2 CSdone before alert line due to fetal distress. Out of 39 ARM done in 14, ARM with oxytocin in6,and misoprostolin 5.Total12patientswerenotimproved andunderwentLSCS.
In our study 118 (59%) patients delivered by normal vaginal delivery before alert line and 64(32%)deliveredbynormalvaginaldeliveryafteralertline.ThestudybyFrigolettoetal(1995) [13]78.3%vaginaldelivery,and9.2%patientsdeliveredbyCS.InthePhilpottandCastle[8] study, 78.85% had FTND, 15.55% required Vacuum/Forceps and 2.6% underwent LSCS. Inthe Daftary and Mhatre[11]study, 68% patients had FTND. 14% required vacuum/forceps and7.5%underwentLSCS.
In present study 18 out of 200 patients undergone LSCS (9%). Lopez Zeno et al (1992)[15]71.6%weredeliveredand10.5%werebyCS.InonerandomizedtrialconductedinPakistan80%ofpatientsdeliverednormally,4%byinstrumentaland16%byLSCS.InpresentstudyitwasfoundthatgroupII&IIIthere5.5%ofwomen'swhoarresttherateofcervicaldilationanddescent.
Philoptts and Castle [8]in their study also found higher incidence of CPD (>50 incidence ofCPD) among women secondary arrest of descent and dilatation. In the study by A.N. Shirotri(1991) [16]it was found to have a higher incidence of CPD prolong II stage of labour. Dutta &Pal (1978) in their study found 6.3% incidence of secondary arrest of progression of obstetriclabour.Thisstudy iscomparabletoour study.
In this present study rate of cervical dilatation in group I is 1.6cm/hr, in group II is 0.76cm/hrandgroupIII0.35cm/hr.Melmed&Evansstudy(1979)[17]studiedthevalueofcervicaldilatation rate one found the rate of cervical dilatation measured in active phase. In 93% ofwomen the initial rate of cervical dilatation was 1cm/hr and in 7% was it was less than 1 cmand later required assisted delivery. In present study 60% patient having rate of cervicaldilatation >1cm & 40% having <1cm/hr. This is not comparable to our study. A study byShinde et al [18]rate of cervical dilatation in 73% of patients was 1.3cm/hr comparable to ourstudy.

## Conclusion

Althoughlabourisanaturalphenomenonleadingtochildbirthandnormallymajorityoflabourdooccurspontaneouslyafewtendtobecomedystociaandgoinforprolongedlabour.Hence,identification abnormality is essential from this study and previous studies, it is evident thattheroutineuseofpartogramishelpfulindetectingabnormalitiesintheprogressoflabourearlycorrectivetherapy.
The key to early diagnosis and detection of disorders in labour progression specifically byfollowingtheevolutionofcharacteristicspatternofcervicaldilatationandfoetaldescent,usingthe partogram has also helped in achieving the policy of active management of labour iceensuringthedelivery ofthepatients within twelvehours.

## References

1. Steer P, Flint C. ABC of labour care: physiology and management of normal labour. BMJ(Clinicalresearched).1999;318(7186):793-6.
2. Lavender T, Bernitz S. Use of the partograph - Current thinking. Best practice & researchClinicalobstetrics&gynaecology. 2020.
3. DalalAR,PurandareAC.ThePartographinChildbirth:AnAbsoluteEssentialityoraMereExercise?Journalofobstetricsandgynaecologyof India.2018;68(1):3-14.
4. Liao JB, Buhimschi CS, Norwitz ER. Normal labor: mechanism and duration. Obstetrics andgynecologyclinicsofNorthAmerica.2005;32(2):145-64,vii.
5. Altman MR, Lydon-Rochelle MT. Prolonged second stage of labor and risk of

adversematernalandperinataloutcomes:asystematicreview.Birth(Berkeley,Calif).2006;33(4):315-22.
6. Nystedt A, Hildingsson I. Diverse definitions of prolonged labour and its consequences withsometimessubsequentinappropriatetreatment.BMC pregnancyandchildbirth.2014;14:233.
7. Nystedt A, Högberg U, Lundman B. The negative birth experience of prolonged labour: acase-referent study. Journalofclinicalnursing.2005;14(5):579-86.
8. PhilpottRH,CastleWM.Cervicographsinthemanagementoflabourinprimigravidae.I.Thealert line for detecting abnormal labour. The Journal of obstetrics and gynaecology of the BritishCommonwealth.1972;79(7):592-8.
9. WHO. World Health Organization partograph in management of labour. World HealthOrganization Maternal Health and Safe Motherhood Programme. Lancet (London, England).1994;343(8910):1399-404.
10. Pattinson RC, Howarth GR, Mdluli W, Macdonald AP, Makin JD, Funk M. Aggressive orexpectant management of labour: a randomised clinical trial. BJOG : an international journal ofobstetricsandgynaecology. 2003;110(5):457-61.
11. Daftery SN, Mhatre PN. Cervicographi in the management of labour in primigavidae. J ofObstet andGynaecol ofIndia.1977;27:687-91.
12. Lavender T, Hart A, Smyth RM. Effect of partogram use on outcomes for women inspontaneouslabouratterm.TheCochranedatabaseofsystematicreviews.2008(4):Cd005461.
13. FrigolettoFD,Jr.,LiebermanE,Lang JM,CohenA,BarssV,RingerS,et al.Aclinicaltrialofactivemanagementoflabor.TheNewEnglandjournalofmedicine.1995;333(12):745-50.
14. Fraser W, Vendittelli F, Krauss I, Bréart G. Effects of early augmentation of labour withamniotomy and oxytocin in nulliparous women: a meta-analysis. British journal of obstetrics andgynaecology.1998;105(2):189-94.
15. López-Zeno JA, Peaceman AM, Adashek JA, Socol ML. A controlled trial of a program for theactivemanagementoflabor.TheNewEnglandjournal ofmedicine.1992;326(7):450-4.
16. Shirotri A, Ray JJ. Influence of fetal station on cervimetric progress in primigravida. J ObsetetGynecolIndia.1994;44:388-90.
17. MelmedH,EvansM.Predictivevalueofcervicaldilatationrates.I.Primiparalabor.Obstetricsandgynecology. 1976;47(5):511-5.
18. Shinde KK, Bangal VB, Singh RK. Study of course of labour by using modified WHOPartograph.InternationalJournalofBiomedicalandAdvanceResearch.2012;3(5):291-6.