

# Does Admission in Labour Room During Latent Phase of Labour Versus Active Phase Really Matters in Low Risk Women Presenting at Term? A Cross-Sectional Observational Study.

Raksha Sharma<sup>1</sup>, Poonam Bhojwani<sup>2</sup>, Pragati Meena<sup>3</sup>, Sadhana Mathur<sup>4</sup>

<sup>1</sup>Third year Resident, Department of Obstetrics and Gynaecology, NIMS Medical College and Hospital, Jaipur

<sup>2,3</sup>Assistant Professor, Department of Obstetrics and Gynaecology, NIMS Medical College and Hospital, Jaipur

<sup>4</sup>Professor, Department of Obstetrics and Gynaecology, NIMS Medical College and Hospital, Jaipur.

Received: October 2016

Accepted: October 2016

**Copyright:** © the author(s), publisher. It is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

## ABSTRACT

**Background:** The management of labour and its complication is an issue of great importance worldwide. Still it is unclear from available information that when to admit a Women in labour in order to achieve maximum maternal and fetal benefit. The present study was an attempt to assess how the outcome of woman changed with timing of admission either in active or latent phase of spontaneous labour in a tertiary care hospital. Aim: 1) To determine and compare the rate of intervention among low risk women admitted in latent and active phase of labour. 2) To determine and compare the rate of complications among them. 3) To determine and compare the foetal APGAR Scores and admission to NICU. **Methods:** It's a cross-sectional observational study, conducted at NIMS Hospital, Jaipur from a period between October 2015 to July 2016 with Sample Size of 180 low risk term women presenting during latent or active phase of labour. **Result:** Out of 180 patients, 96 patients (53.3%) were admitted during latent phase (group I) and 84 patients (46.7%) during active phase of labour (group II). Duration of labour was significantly greater in-group I compared to group II (mean± SD 17.0 ± 2.1 vs 12.7 ± 3.2). Caesarean was more in group I compared to group II (62.5% vs 28.5%) which was significant. Most common indication of caesarean was dystocia followed by fetal distress. Augmentation with oxytocin was required in 66 cases (68.75%) in group I and 42 cases (50.0%) in group II and the difference was not significant. Although PPH, cervical and perineal tear, fetal distress was more in group I but the difference was insignificant.

**Keywords:** Active phase, labour, latent phase, Partograph.

## INTRODUCTION

The management of labour and its complication is an issue of great importance worldwide. There should be a careful and methodological approach to the management of labour and its abnormalities for maximum benefit to the individual mother and her baby. It needs to be justified whether presenting in hospital with latent phase of labour is a risk factor for prolonged labour, increased rate of augmentation with oxytocin or increased caesarean delivery rate. On the contrary, it is said that, admission at a later stage increases the rate of spontaneous vaginal delivery.

### Name & Address of Corresponding Author

Dr. Raksha Sharma  
Third year Resident,  
Dept of Obstetrics and Gynaecology,  
NIMS Medical College and Hospital, Jaipur.

The latent phase is the time when the cervix starts to efface and dilate up to 3 cm. While the active phase

begins when the rate of cervical dilatation accelerates, which occurs at 4 cm to 10 cm.<sup>[1]</sup> Evidence demonstrates that management of early labor has an impact on maternal and neonatal outcomes, in which women who are admitted in the active phase of labor at 4cms or more cervical dilatation experience less interventions and complications than those admitted in the latent phase of labor with 3cms cervical dilatation or less.<sup>[2]</sup> Some professional guidelines even argue that because intrapartum actions can sometimes arise quickly and without warning, the hospital provides the safest setting for labour, delivery, and the immediate postpartum period.<sup>[3]</sup> But on the other hand the hospital environment is thought to be responsible for an increase in obstetrical interventions and the medication of labour and delivery in healthy low risk women due to a set of cumulative factors such as separation of family members, rigid application of procedures, the lack of choice, e.g. for position for labour, and the routine implementation of continuous electronic fetal

monitoring<sup>[3]</sup>. Even in low risk cases which is associated with a rather high false positive rates for fetal distress etc. Apart from the hospital environment interrelated aspect of obstetric care e.g. Personal and emotional factors are very likely to also play an important role with respect to the course of labour<sup>[4]</sup>.

Still it is unclear from available information that when to admit a Women in labour in order to avoid subsequent adverse outcome. The present study was an attempt to assess how the outcome of woman changed with timing of admission either in active or latent phase of spontaneous labour in a tertiary care hospital.

### Aims and Objectives

1) To determine and compare the rate of intervention among low risk women admitted in latent and active phase of labour. 2) To determine and compare the rate of complications among them. 3) To determine and compare the foetal APGAR Scores and admission to NICU.

## MATERIALS AND METHODS

It's a cross-sectional observational study, conducted at NIMS Medical College and Hospital, Jaipur from a period between October 2015 to July 2016 with Sample Size of 180 women. Patients with cervical dilatation at less than 4cm were categorized as latent phase and allocated in-group I and those with cervical dilatation of 4cm or more were categorized in active phase and allocated in group-II.

Inclusion criteria were-singleton pregnancy, cephalic presentation, gestational age between 37-42 weeks, spontaneous onset of labour, intact membrane at admission. Exclusion criteria were - multiple pregnancy and non-cephalic presentation, women with prior caesarean delivery, any medical or obstetric condition complicating pregnancy, diagnosed fetal anomalies or death, induction of labour, rupture membrane at presentation.

All the case were observed from the date of admission to the date of discharge. Detailed history was taken followed by thorough clinical examination investigations. Each patient allocated to groups based on the cervical dilatation at the time of admission. The progress of labour was charted on a partograph. Use of partograph improves the quality and regularity of all observations made on the mother and the foetus in labour and aids early recognition of problems in either. It helps in early detection of abnormal progress of a labour, prevention of prolonged labour. Assist in early decision on transfer, augmentation, or termination of labour. The partograph's critical function is to give early warning if labour is likely to be prolonged and to indicate that the woman should be transferred to hospital (Alert Line Function). In hospital settings,

moving to the right of alert line serves as a warning for extra vigilance, but the action line is the critical point at which specific management decisions must be made.

If progress of labour was not satisfactory due to weak inefficient uterine contractions, acceleration of labour was done by oxytocin augmentation. Course of labour was observed in terms of duration of labour, need for augmentation and interventions in each and every case. Mode of delivery and immediate foetal outcomes were assessed by taking foetal weight, Apgar Score at 1 minute and 5 minutes, need for neonatal resuscitation beyond warming and drying.

## RESULTS

**Table 1: Categorization of the study subjects on admission (n=180).**

Categorization	No. of patients (n=180)	Percentage (%)
Group I	96	53.3
Group II	84	46.7
Total	180	100

96 Patients admitted in latent phase of labour, with cervical dilatation less than 4cm were allocated in group I and 84 patients in active phase with cervical dilatation of 4cm or more were allocated in group-II. [Table 1]

**Table 2: Demographic characteristic of the study subjects (n=180)**

Characteristics	Group I(n=96)		Group II(n=84)	
	n	%	n	%
<b>Age (years)</b>				
≤20	0	0.0	6	7.1
21 - 25	48	50	39	46.4
26 – 30	30	31.2	27	32.1
31 – 35	18	18.75	9	10.7
≥ 35	0	0.0	3	3.5
<b>Gestational age (wks)</b>	<b>Group I (n=96)</b>		<b>Group II (n=84)</b>	
	n	%	n	%
37-38 wks	24	25	33	39.2
39-40 wks	57	59.3	51	60.71
41-42 wks	15	15.6	0	0.0
Mean ± SD	39.2 ± 1.1		38.8 ± 1.1	
<b>Parity</b>	<b>Group 1 (n=96)</b>		<b>Group 2 (n=84)</b>	
primigravida	63 (65.6%)		51 (60.7%)	
multigravida	33 (34.3%)		33 (39.2%)	

Total	96 (100%)	84 (100%)
-------	-----------	-----------

[Table 2] is showing demographic characteristic of the study subjects. 21-25 years age were predominant in both groups, which accounts to 50% in group I and 46.4% in group II, however the mean age was not statistically significant. Patients admitted at 39-40 weeks of gestation were predominant and accounts to 60% in both groups.

**Table 3: Mode of delivery of the patients (n=180)**

Mode of Delivery	Group 1 (n=96)		Group 2 (n=84)		P Value
	N	%	N	%	
Normal vaginal delivery	36	37.5	60	71.4	0.007 (S)
Caesarean section(LSCS)	60	62.5	24	28.5	
<b>Need of Augmentation</b>					

Normal vaginal delivery	27	40.4	30	70.1	0.073 (NS)
Caesarean section(LSCS)	39	59.6	12	29.9	
Total	66	68.75	42	50.0	

**Table 4: Indication of caesarean section of both groups**

Indication	Group 1(n=96)		Group 2(n=84)	
	N	%	N	%
Dystocia*	42	70	9	37.5
Obstructed Labour	3	5	-	-
Fetal Distress	15	25	15	62.5
Total LSCS	60	100	24	100

(Dystocia\* - Failure to progress, malposition, cephalopelvic disproportion)

The difference in indications of caesarean section were not statistically significant ( $p > 0.05$ ) between two groups.

**Table 5: Various parameters in both groups**

Parameter	Group 1(n=96)		Group 2(n=84)		'P' value
	n	%	n	%	
Duration of labour < 12 Hrs	3	3.1	15	17.8	
12 - 18 Hrs	57	59.3	66	78.5	
>18 Hrs	36	37.5	3	3.5	0.001 (S)
Mean $\pm$ SD	17.0 $\pm$ 2.1		12.7 $\pm$ 3.2		0.001 (S)
APGAR at 5 min $\leq$ 7	6	5.9	3	4	
Mean APGAR $\pm$ SD	9.3 $\pm$ 1.1		9.7 $\pm$ 0.9		0.309 (NS)
weight(kg) Mean $\pm$ SD	3 $\pm$ 0.2		2.9 $\pm$ 0.3		0.368 (NS)
PPH	6	6.2	--	--	
Perineal injury- 1st Degree	6	6.2	3	3.50%	
2nd Degree	--	--	--	--	
Cervical Tear	3	3.1	--	--	
Morbidity	15	15.6	--	--	0.059 (NS)
Postpartum hospital stay in days, Mean $\pm$ SD	3 $\pm$ 1.8		1.8 $\pm$ 1.4		0.004 (S)

## DISCUSSION

Total 180 patients met the eligibility criteria in this study population and the two groups were comparable. Mean age ( $25.7 \pm 4.6$  vs  $24.9 \pm 2.3$ ) and gestational age ( $39.2 \pm 1.1$  vs  $38.8 \pm 1.1$ ) of the study population were almost similar in both groups. Maximum patients in both study groups were nulliparous.

This study examined the total length of labour and length of time from labour onset to first vaginal examination between the groups of women. The women presenting early did have significantly longer labour compared to late ( $17.0 \pm 2.1$  vs  $12.7 \pm 3.2$ ) and prolonged labour (labour > 18 hours) also significantly more in early admission group ( $p < 0.05$ ). This is consistent with findings done by Parvin<sup>[5]</sup> and Rahman<sup>[6]</sup>, where they also found duration of labour > 18 hours were more in early admitted group than late admitted group (63.1% vs 20.5% and 44.4% vs 15.2% respectively).

The present study shows a higher percentage of women needed oxytocin for augmentation both in group I and group II but difference did not reach statistical significance.

Our study found that women who were admitted in their latent phase of labor have increased obstetric interventions compared to those in active phase of labor, the findings which are similar to the previous studies done by Cheyne H. et al<sup>[7]</sup> and Bailit JL et al<sup>[8]</sup>.

Holmes et al<sup>[9]</sup> found greater frequencies of use of oxytocin and epidural analgesia by women presenting earlier in labour compared to women in active labour. Jennifer et al<sup>[10]</sup> supported it and concluded that early admitted group is associated with increased rate of augmentation with oxytocin. However our results were not consistent with the studies done by Albassam AN (58.3% vs 41.5%  $p < 0.05$ )<sup>[11]</sup> and Jessica Burns SN (80.4% vs 48.9%,  $p < 0.05$ )<sup>[12]</sup>.

Regarding mode of delivery, our study found that normal vaginal delivery was statistically significantly higher in active phase of labor than in latent phase of labor which was similar to the study done by Janna et al.<sup>[13]</sup> Caesarean section was more in latent phase compared to active phase of labor group in this study which is similar to study by Bailit J et al<sup>[8]</sup>.

Leitch and Waker<sup>[14]</sup> demonstrated failure to progress remain the major indication underlying the decision to perform caesarean section followed by fetal indication. The present study and other two studies by Parvin<sup>[5]</sup> and Rahman<sup>[6]</sup> also reflects the same. Here major indication of caesarean section was dystocia which included failure to progress followed by fetal distress.

On assessment of maternal complications, our study showed that more women had perineal tear (6.2%) and PPH (6.2%) in group 1, similar to this, Bailit JL et al<sup>[8]</sup> observed more cases of PPH (5.7%) in latent phase group and none was found in active phase group whereas Janna JR<sup>[13]</sup> observed no differences in PPH in the two groups.

As compared to other studies, there was no difference between the birth weights but difference in outcome regarding asphyxia might have influenced by the strict exclusion criteria of the present study, which enrolled only low risk term pregnancy.

## CONCLUSION

The current study has shown that women admitted in latent phase of labour are more likely to have prolonged labour, and subsequently increased incidence of intervention, more chances of PPH and prolonged postpartum hospital stay compared to women admitted in active phase of labour.

However, a clear consensus cannot be reached whether, the increased rates of interventions & complications are due to inherent labour abnormalities or due to early admission. Therefore, before recommending that this group of women is at higher rate of interventions, a larger good-quality, randomized, prospective trial will be necessary to attain the power needed for a definitive statement on this regard.

## REFERENCES

1. Patterson DA, Winslow M, Matus CD. Spontaneous vaginal delivery. *Am Fam Physician*. 2008; 78(3): 336–341.
2. Rahnema P, Ziaei S, Faghihzadeh S. Impact of early admission in labor on method of delivery. *Int J Gynecol Obstet*. 2006; 92: 217–220.
3. Cunningham GH, Gant NF, Leveno KJ. Inadequate labour in Cunningham FG, Williams JW, eds. *Williams Obstetrics*. 21th ed. New York, NY: McGraw-Hill: 2001;432-43
4. Bohra U, Donnelly J, Oconnell MP, Geary MP, Macquillan K, Keane DP. Active management of labour revisited: the first (1000) primiparous labours. *Obstet Gynecol*. 2003; 23:118-20.
5. Dr. Zakia Parvin. Cervical dilatation of initial presentation in labour and subsequent outcome- a prospective study. [dissertation] BCPS. 2003.
6. Tamanna Rahman. A prospective study on the relationship between cervical dilatation at initial presentation in labour and subsequent outcome. [dissertation] BCPS. 2007
7. Cheyne H. et al. Effects of algorithm for diagnosis of active labour: cluster randomized trial. *BMJ*. 2008; 337:a2396.
8. Bailit JL. et al. Outcomes of women presenting in active versus latent phase of spontaneous labor. *Obstet Gynecol*. 2005; 105(1):77–79.
9. Paul Holmes, Lawrence W. Oppenheimer, Shi wu wev. The Relationship between cervical dilatation at initial presentation in labour and subsequent intervention. *British Journal of obstetrics and Gynecology*. 2001; 108:1120- 1124.
10. Jennifer L Bailit, MD, MPH, Le Roy Dierker, MD, May Hsieh Blanchard, MD, Brian M Mercer MD. Outcomes of women presenting in active versus latent phase of spontaneous labour. *Obstetrics & Gynecology*. 2005;105:77- 79.
11. Albassam AN. The outcome of latent phase vs Active phase admission to labour room of low risk nulliparous women in labour. *J Fac Med Baghdad*. 2010; 52(2):147–151.
12. Jessica Bruns SN. Differences in inflammation, interventions rates, and birth outcomes in active and pre active labor admission groups. 2011. [dissertation].
13. Janna, J.R. Impact of Timing of Admission in Labour on Subsequent Outcome. *Bangla JOL*. 2013.
14. Leitch CR, Walker JJ. The rise in caesarean section rate: the same indications but a lower threshold. *British Journal of Obstetrics and Gynaecology*. 1998;105: 621-626.

**How to cite this article:** Sharma R, Bhojwani P, Meena P, Mathur S. Does Admission in Labour Room During Latent Phase of Labour Versus Active Phase Really Matters in Low Risk Women Presenting at Term? A Cross-Sectional Observational Study. *Ann. Int. Med. Den. Res*. 2017; 3(1):OG01-OG04.

**Source of Support:** Nil, **Conflict of Interest:** None declared