

REDEFINING ACTIVE PHASE LABOUR: A RANDOMIZED CONTROLLED STUDY OF NULLIPARAE AT TERM

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ABSTRACT

BACKGROUND

After decades of clinical practice and research, much is now known about labour. Hitherto, active phase labour has been defined from 4cm of cervical os dilatation. Recently, this 4cm landmark has been criticized, with suggestion that active phase labour should be diagnosed from 6cm instead.

AIM

To determine whether or not 6 cm is a better cervical dilatation threshold for the onset of active phase labour compared to 4 cm in a low risk nulliparous population of parturients in spontaneous labour at term.

METHODS

In this randomized controlled study, 88 nulliparous parturients with low risk pregnancy in spontaneous labour at term with 4 cm of cervical dilatation were randomized into two groups. Those in the control group (A) had active management of labour (AML) instituted at admission according to departmental protocol while those in the study group (B) were considered to be in latent phase labour and had 1-2 hourly vaginal examination until 6cm of cervical dilatation was achieved at which point active phase labour was diagnosed and AML instituted. All data were entered into a Proforma and analysis was done using the IBM SPSS for Windows version 20.

RESULTS: Four of the 88 women recruited for the study were later stepped down from the study. The mean age of parturents and the mean gestational age were 27.77±4.689 years and 38.98±0.931 weeks respectively. 97.5% of women in the study group and 75% of those in the control group had spontaneous vaginal delivery (RR=6.50; 95% CI=0.983-42.962; p=0.003). Twenty-five percent of the controls had caesarean delivery. There was no Caesarean delivery in the study group (p=0.001). The mean cervical dilatation rate for the study group was 1.06±0.232 cm/hour compared to 0.80±0.457 cm/hour for the control group (p=0.002). 65% of the study group had an average cervical dilatation rate of ≥1 cm/hour compared to 29.5% in the control group (p=0.001). 70.5% of controls had their labour augmented compared to 29.5% of the study group, and all the Caesarean sections were done in women who had labour augmentation (p=0.001). Ninety-five percent of the study group had babies with good APGAR scores compared to 72.7% of controls (p=0.006). Four (9%) of the controls had primary postpartum haemorrhage. There was none in the study group.

CONCLUSION: This study has established the whole idea of redefining active phase labour, vis a vis changing the cervical dilatation threshold for onset of active phase labour from 4cm to 6cm, as plausible. However, a larger number of low risk nulliparous women in spontaneous labour should be studied possibly in a multicentre randomized controlled trial to come to a more robust conclusion about the whole issue of a redefinition of active phase labour in terms of threshold cervical dilatation.

INTRODUCTION

Labour in modern times is easy to discuss because so much is now known about the physiology and course of labour unlike several decades ago when there were several myths surrounding labour and very little knowledge about the physiology of labour¹. Labour now is easily defined as the act of expulsion of the foetus and placenta to the outside world through the vagina². Based on current knowledge, labour is characterized by the onset of regular painful and palpable uterine contractions of progressively increasing frequency and intensity. This is associated with progressive cervical os dilatation and descent of the leading part till full dilatation and delivery of the foetus and placenta vaginally with minimal blood loss and other risks to the mother and baby^{2,3}.

Although labour is one continuous process, it is artificially divided into 1st, 2nd and 3rd stages of labour as a continuum². The first stage is the beginning of the labour process and refers to the dilatation of the cervical os from an imaginary zero to 10cm full cervical dilatation. The 2nd stage is the aspect from full cervical os dilatation to when the foetus is pushed through the dilated cervix and the vagina to the outside world. The 3rd stage is the stage from the delivery of the baby until when the placenta is fully expelled from the uterus through the vagina. The process from the 1st to the 3rd stage is a continuum without any break. The first stage of labour is the beginning and longest stage and to a large extent determines the outcome of the labour process because commonly, a normal first stage is followed by a normal 2nd and 3rd stages of labour^{2,4}. Hence in current clinical practice, the management of labour virtually equates to the management of the first stage.

The first stage labour is now known to exist in two phases which are the latent and active phases. The latent phase refers to the clinical events around the earliest part of first stage while the active phase refers to the clinical events in the later part of first stage, ending with the full cervical os dilatation. The features and characteristics of latent and active phases have been issues of contentions for several decades¹. At the beginning, it was the pioneering work of Friedman in 1954³ on the course of labour that classified first stage labour into latent phase in which cervical os is zero to 2cm and active phase with cervical os from 3cm to full 10cm dilatation, marked with a dilatation rate of 1.2cm/hour in primigravidae and 1.5cm/hour in multiparae. The maximum duration of normal latent phase was 20 hours and 14 hours in the primigravidae and multiparae respectively^{3,5}. The course of labour by Friedman was a sigmoid curve, exhibiting a latent phase, an acceleration phase of rapid cervical dilatation and a deceleration phase. This description of the course of labour was essentially theoretical as it did not bring about labour care approach that could change the passive attitude to labour management.

The issue however, became controversial when other workers⁶ failed to demonstrate the deceleration curve while confirming latent and active phases with differences in latent phase duration and cervical os dilation rate in the active phase. Given these varying claims as to the diagnosis and features of latent and active phase labour, the care in labour remained the same attitude of passive watchful expectancy usually by the midwife who monitored vital signs and only informed doctor when problems arose. As a consequence, the common outcome was labour with duration often over 30 hours with severe morbidity and mortality^{2,7}. Labour was essentially regarded as physiological with not much that could be done for assistance except pain relief for the usually prolonged labour. In almost all parts of the world, prolonged labour was the commonest problem of labour with high morbidity and mortality.

This was the situation when O'Driscoll and his associates in 1969⁸⁻¹⁰ enunciated the programme of structured labour care called active management of labour (AML) as the strategy to prevent prolonged labour and its consequences. O'Driscoll did not believe in latent phase as being of any clinical relevance in labour care and advocated that women in latent phase be not admitted into labour ward for any management until they achieved active phase labour. The active phase labour was not associated with any specific cervical os dilatation according to him, but women in labour at term who in serial vaginal examinations (VE) were found to be dilating at the rate of 1cm/hour were confirmed as being in active phase^{1,11}. Thus, in the AML principle cervical os dilatation at the rate of 1cm/hour was the most specific and particulate parameter of active phase labour irrespective of the initial cervical os dilatation. Women at term with contractions who had a bloody show, spontaneous rupture of membrane and liquor drainage were admitted into the labour ward and examined vaginally every hour to assess the cervical dilatation rate. Only those dilating at 1cm/hour or more were regarded as normal active phase labour progress. Women contracting less than 1cm/hour were diagnosed as slow labour progress and treated with instant oxytocin augmentation^{11,12}.

By this approach, O'Driscoll published data in 1000 primigravidae in which prolonged labour was about 1% from the prevailing rate of over 35%, a caesarean section rate of 5% and babies of good Apgar score within an active phase labour duration of 12 hours^{2,8-10}. However, the oxytocin augmentation rate was 55%, VE was done every hour by experienced obstetric staff. This was a revolution in labour management, and worldwide, AML was regarded as the standard approach to labour management to prevent prolonged labour and its consequences¹. With this contribution from O'Driscoll, the actual diagnostic features of latent phase, the characteristics and length of latent phase were still undefined¹.

The World Health Organization (WHO) resolved the issue with a confirmation that the latent phase was from zero to 2cm in all parities and a normal duration of 8 hours^{1,13}. The active phase was a straight line curve without a deceleration curve in all parities from 3cm to 10cm and cervical os dilatation in the active phase was 1cm per hour in all parities¹³. Even with this WHO recommendation, some studies suggested that at 3cm dilatation several women had not fully established in active phase with the consequence of wrong intervention for failure to progress¹⁴. The WHO eventually carried out a multicentre study in 1994¹⁵, the findings of which confirmed a high rate of operative intervention in the latent phase of labour and several parturients especially primigravidae were not dilating at the rate of 1cm/hour as they had not fully established in active phase. The WHO in 2000¹⁶, therefore, recommended that the active phase was a cervical dilatation of 4cm and above while latent phase was zero to 3cm in all parities without reference to effacement. Thus, the clinical practice routine was a latent phase of zero to 3cm, active phase of 4cm and above in all women and the cervical os dilatation rate in active phase of 1cm/hour in all parities till delivery.

Recently, there was a study that criticized the classification of active phase labour from 4cm with clinical data to show that the dilatation of 1cm/hour occurred from 6cm dilatation and not from 4cm as is assumed in the current clinical practice and therefore suggested that active phase should be diagnosed from 6cm as against the present concept of diagnosis of active phase at 4cm¹⁷. The study showed that there were several primary c/s performed in the series for lack of progress in women managed as active phase from 4cm because at 4cm several of the women were not yet dilating at the rate of 1cm/hour which is the cervical os dilatation rate characteristic of active phase labour. The writers, therefore, proposed a redefinition of active phase from 6cm instead of 4cm as the strategy to reduce the prevalence of failure to

progress as indication for c/s which is a common feature of the current rising rate of caesarean delivery worldwide. This was supported by other studies^{18,19}, which similarly found failure to progress as a common indication for primary caesarean delivery.

A critical review of the study showed that it grouped together all types of labour cases – spontaneous, induced and stimulated labour. While it is only spontaneous active phase labour that is known to characteristically dilate at the rate of 1cm/hour^{2,8,20}, it is not clearly established that induced and stimulated labour (which are labour with interventions for some specific indications) dilate at the rate of 1cm/hour uniformly from the onset. Moreover, the study was neither a case controlled nor a randomized controlled study. However, because of the far-reaching implication of the suggestion and the prospect of potential for reduction in the rising caesarean delivery rate, the whole issue of testing a redefinition of active phase labour deserves some attention in a population of women in spontaneous labour. This study, therefore, was designed to assess if cervical os dilatation of 1cm/hour was more prevalent in women who were 6cm dilated compared with 4cm dilatation in a randomized controlled study of women in spontaneous labour at term.

METHODOLOGY

STUDY SITE

The study was conducted at the Obstetrics and Gynaecology Department of the University of Benin Teaching Hospital, Benin City. The University of Benin Teaching Hospital serves as a major referral centre for Edo, Delta, Kogi and Ondo states with an annual birth rate of 3500. Patients are usually referred from General Hospitals, Government owned health centres, private hospitals and from other departments in the hospital. The patients are usually from different socioeconomic settings and the majority is educated.

STUDY DESIGN

It was an open randomized controlled trial among low risk nulliparous patients in spontaneous active phase labour with a single fetus at term in cephalic presentation.

A research team was constituted with the researcher as leader and research assistants were Registrars in the Department of Obstetrics and Gynaecology. There was a period of pre-study training on the use of the study materials and methodology. Patient selection and clinical monitoring was done either by the researcher, or a dedicated member of the team assigned to be on duty each day during the period of the study. Randomization was achieved using a computer-generated random number table permuted in blocks of 4 with a 1:1 ratio of control to study subjects.

ETHICAL CONSIDERATION

Ethical approval for the study was obtained from the Research and Ethics Committee of the University of Benin Teaching Hospital. The study was carefully explained to the patients and informed consent obtained before being recruited into the study.

DATA ANALYSIS

The analysis of data was done using SPSS version 20. Categorical variables were expressed as absolute numbers and percentages and the differences in proportion were analyzed using the Chi square test or Fisher exact test where appropriate, while continuous variables were presented as means with standard deviations and the differences analyzed with the *t* test. The level of significance was set at $p < 0.05$.

RESULTS

Eighty-eight parturients who met the inclusion criteria were randomized to either 4cm or 6cm as the cervical dilatation threshold for active phase of labour (groups A and B respectively). Of the 44 parturients randomized to 6cm cervical dilatation, three had spontaneous rupture of membranes and one developed severe pre-eclampsia, before achieving the 6cm threshold and had to be stepped down. The overall mean age of parturients was 27.77 ± 4.689 years (28.48 ± 4.061 in the control versus 27.00 ± 5.238 in the study group, $P=0.150$). The mean gestational age was 38.98 ± 0.931 weeks (38.80 ± 1.153 in the control versus 39.18 ± 0.549 in the study group, $P=0.06$).

Table 1 shows the age distribution of parturients. Nearly 50% of parturients was above 30 years.

Table 1: Age Distribution of the Parturients

Variable	Group A		Group B	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Age (Yrs)				
15 – 19	0	0	0	0
20 – 24	8	18.2	9	22.5
25 – 29	14	31.8	12	27.3
30 – 34	18	40.9	13	29.6
35 – 39	4	9.1	6	13.6
≥ 40	0	0	0	0
Total	44	100.0	40	100.0

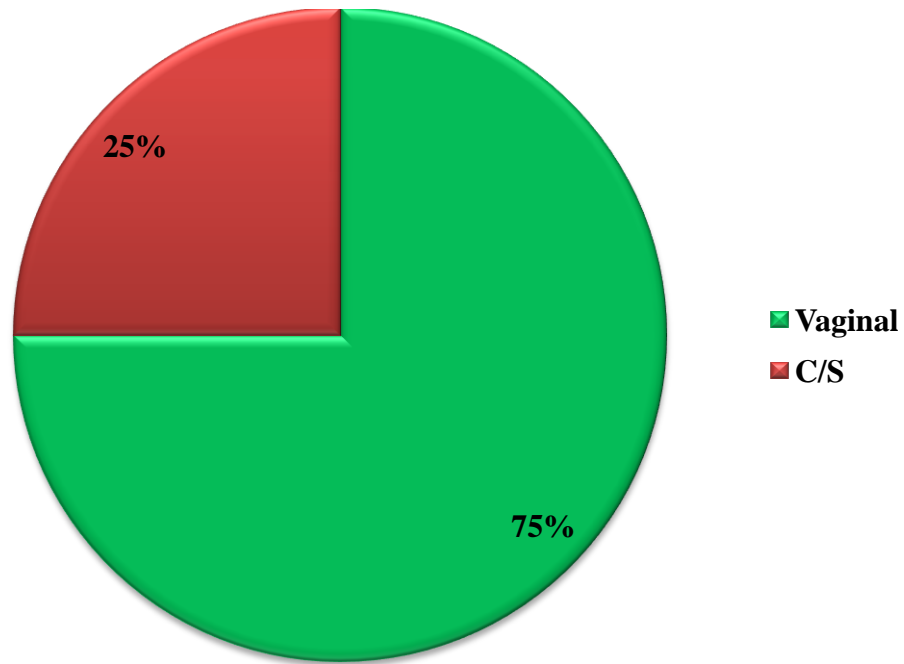
Table 2: Mean age of Parturients and Mean gestational age

	GROUP A	GROUP B	<i>p</i> value
Mean Age of parturients in years	28.48 ± 4.061	27.00 ± 5.238	0.150
Combined mean Age	27.77 ± 4.689		
Mean Gestational Age in weeks	38.80 ± 1.153	39.18 ± 0.549	0.062
Combined Mean Gestational Age	38.98 ± 0.931		

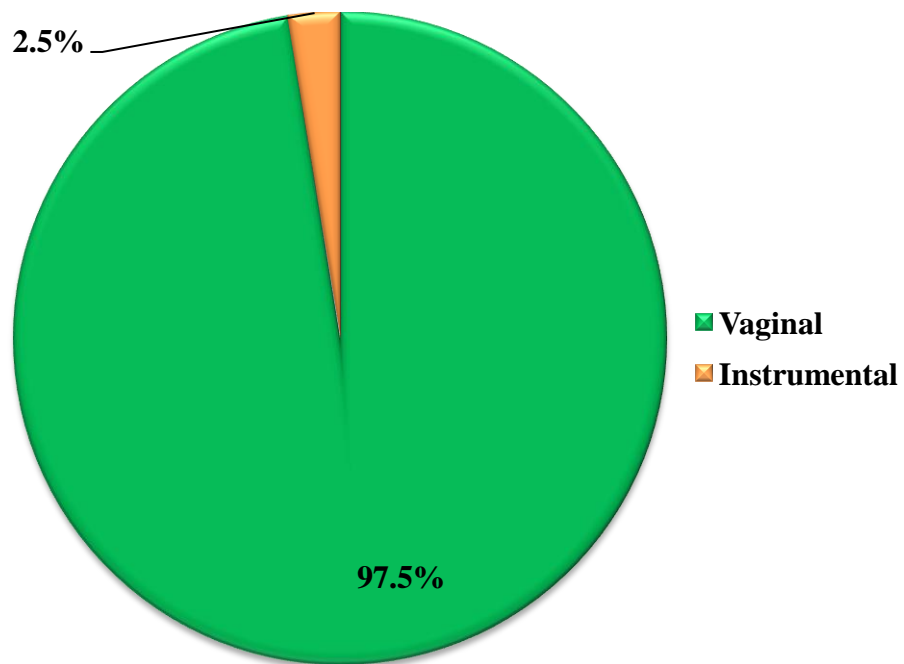
Table 2 compares the mean age of parturients and mean gestational age in the two groups. There was no statistically significant difference between the mean age of parturients and mean gestational age in the two groups.

Of the forty parturients randomized to 6cm, thirty-nine (97.5%) had spontaneous vaginal delivery while one (2.5%) had instrumental delivery. No Caesarean section was done in this group. Seventy-five percent (33) of the 44 parturients randomized to 4cm had spontaneous vaginal delivery while eleven (25%) had Caesarean section.

Figure 1 (i and ii) illustrates the relationship between admitting cervical dilatation and mode of delivery.



(i) 4cm



(ii) 6 cm

Figure 1: Admitting cervical dilatation and mode of delivery

Table 3 shows the relationship between admitting cervical dilatation and mode of delivery. 97.5% of the study group had spontaneous vaginal delivery compared to 75% in the control group (RR=6.50; 95% CI= 0.983-42.962). This is statistically significant (p=0.003). Twenty-five percent of the control group had Caesarean delivery while none had Caesarean section in the study group. This is also statistically significant (p=0.001). Although 2.5% of parturients admitted at 6cm threshold (study group) had instrumental delivery, this does not appear to relate to the admitting cervical dilatation, hence it is not statistically significant (p=0.962).

Table 3: Mode of Delivery of parturients

Mode of Delivery	GROUP A			GROUP B			p value
	Frequency (%)	RR	CI	Frequency (%)	RR	CI (95%)	
Vaginal delivery	33 (75.0)	0.50	0.369-0.677	39 (97.5)	6.50	0.983-42.962	0.003
Instrumental delivery	–	–	–	1 (2.5)	2.12	1.693-2.675	0.962
Caesarean section	11 (25.0)	2.21	1.718-2.848	–	–	–	0.001

RR = Relative risk; CI = 95% Confidence interval

Table 4 shows the cervical dilatation rate according to the group of parturients. Overall, the study group, had a mean cervical dilatation rate of 1.06 ± 0.232 cm/hour compared to the control group which had a mean cervical dilatation rate of 0.8 ± 0.457 cm/hour ($p=0.002$). Thus, sixty-five percent of parturients in the study group had an average cervical dilatation rate of 1cm/hour or greater compared to 29.5% in the control group. This too is statistically significant ($p=0.001$). Also, Over seventy percent of parturients in Group A (control group) dilated at a rate less than 1cm/hour compared to 35% in Group B (study group) ($p=0.000$). Thus, for every parturient in Group A dilating at a rate of 1cm/hour or greater, there are two in Group B dilating at similar rates.

Figure 2 illustrates the relationship between admitting cervical dilation and mean cervical dilatation rate.

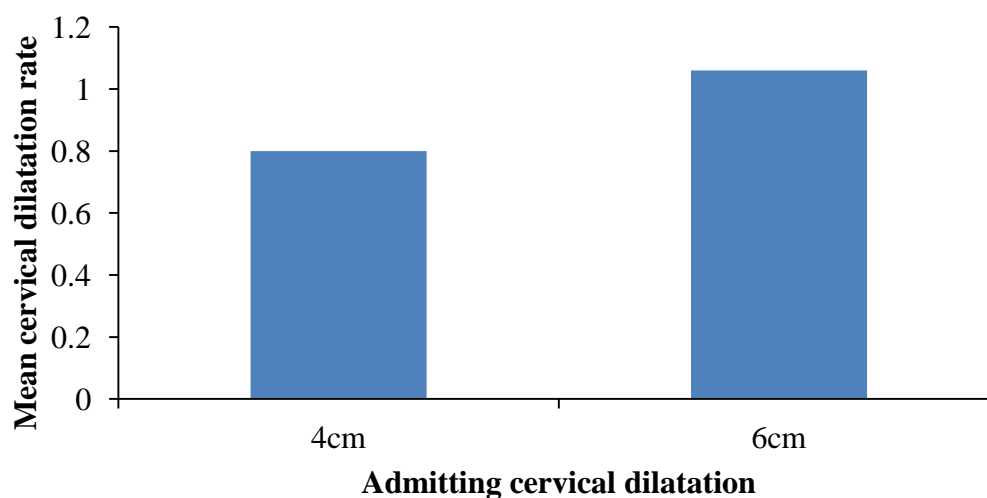


Figure 2: Relationship between admitting cervical dilation and mean cervical dilatation rate

Table 4: Cervical os Dilatation Rate of Parturients

Cervical Dilatation Rate (cm/hr)	Group A		Group B		<i>p value</i>
	Frequency (%)	Mean Cervical Dilatation Rate (cm/hr)	Frequency (%)	Mean Cervical Dilatation Rate	
<1cm/hr	31 (70.5%)	0.54±0.235	14 (35.0%)	0.83±0.102	0.000
≥1cm/hr	13 (29.5%)	1.41±0.173	26 (65.0%)	1.18±0.188	0.001
Total	44 (100%)	0.8±0.457	40 (100%)	1.06±0.232	0.002

Table 5 shows the relationship between cervical dilatation rate and mode of delivery. In Group A, while all the parturients dilating at 1cm /hour or greater (13) had spontaneous vaginal delivery, only 65% of those dilating at less than 1cm/hour delivered vaginally ($p=0.036$). However, in Group B all the parturients delivered vaginally with only one (7%) of those dilating at less than 1cm/hour having instrumental delivery ($p=0.101$). While 35% of parturients in Group A dilating at less than 1cm/hour had Caesarean delivery, there was no Caesarean delivery recorded among those in the same group dilating at 1cm/hour or greater ($p=0.036$). There was no Caesarean delivery in Group B. Of the eleven Caesarean sections done in this study, ten (91%) were done for Cephalopelvic disproportion while one (9%) was for fetal distress.

Of the 40 parturients randomized to 6cm threshold, thirty-one (77.5%) transformed from 4cm to 6cm cervical dilatation at the 4th hour, seven (17.5%) at the 2nd hour and only five percent (2) after one hour. Among the 4 parturents who were dropped from this group for various reasons, three achieved vaginal delivery while one had Caesarean delivery for cephalopelvic disproportion. The longest labour in the 4cm arm lasted 13 hours while the shortest lasted 3 hours. In the 6cm arm, the longest labour lasted 8 hours 15min while the shortest lasted 2 hours 45 minutes. Overall, the mean duration of labour was 5.8107 ± 2.7452 hours (approximaqtely 5 hours 50 minutes).

Thirty-one (70.5%) of the 44 women in the 4cm group had augmentation of labour as against thirteen (29.5%) of the 40 women in the 6cm group. This is statistically significant ($p=0.001$). All eleven Caesarean section done were in women who had augmentation of labour. This too is statistically significant.

Table 5: Cervical Dilatation Rate and Mode of Delivery

Cervical Dilatation Rate	Mode of Delivery					
	Vaginal		Instrumental		Caesarean Section	
	Frequency (%)	<i>p value</i>	Frequency (%)	<i>p value</i>	Frequency (%)	<i>p value</i>
Group A						
<1cm/hr	20 (65.0%)	0.036	-	-	11 (35.0%)	0.036
≥1cm/hr	13 (100%)		-		-	
Group B						
<1cm/hr	13 (93.0%)	0.101	1 (7.0%)	0.101	-	-
≥1cm/hr	26 (100%)		-		-	

Table 6 shows the first minute APGAR score according to group of parturients. Most babies (95%) delivered to mothers in Group B have good first minute APGAR scores compared to those of Group A (72.7%) { $p=0.006$ }. Also, babies delivered to mothers in Group B were less likely to have low first minute APGAR score (5%) compared to their counterparts in Group A (22.7%) { $p=0.020$ }. The fact that about 5% of babies delivered to mothers in Group A had moderate birth asphyxia (first minute APGAR score of 4-5) compared to none in Group B failed to achieve statistical significance ($p=0.517$).

Table 6: First Minute APGAR Scores of Delivered Babies

APGAR Scores	Group A			Group B			p value
	Frequency (N) Percentage (%)	RR	CI (95%)	Frequency (N) Percentage (%)	RR	CI (95%)	
7 – 10	32 (72.7%)	0.50	0.38-0.74	38 (95%)	3.82	1.03-13.95	0.006
6	10 (22.7%)	1.76	1.24-2.50	2 (5%)	0.31	0.08-1.14	0.020
4 – 5	2 (4.6%)	1.95	1.58-2.41	–	–	–	0.517
0 – 3	–	–	–	–	–	–	–

RR = Relative risk; CI = 95% Confidence interval

Four (9%) of the mothers in Group A (3 Caesareans and 1 vaginal delivery) had primary postpartum haemorrhage while one mother each in Group B had postpartum severe pre-eclampsia and perineal laceration. Otherwise there were no other observed maternal complications.

DISCUSSION

There is a growing concern over the continued use of 4cm cervical dilatation as the landmark for the diagnosis of active phase labour especially in the nulliparae¹⁷⁻¹⁹, with 6cm being suggested as a better landmark for active phase labour. Emerging evidence^{17,21} suggests that at 5 cm cervical dilatation most nulliparous women in spontaneous labour still exhibit latent phase labour characteristics, failing to manifest typical active phase labour characteristic of cervical dilatation rate of at least 1cm/hour. Furthermore, it was argued that due to 'premature' admission of nulliparous parturients in spontaneous labour into active phase at threshold cervical dilatation of 4cm, many primary Caesarean deliveries were done for labour dystocia even before the parturients attained the suggested 6cm threshold, thereby increasing Caesarean delivery rates and its attendant consequences^{17,21,22}. However, some of the studies challenging the 4cm threshold have methodological flaws and emanated from the same parts of the world. Also, no randomized controlled study has compared 6cm and 4cm as the threshold cervical dilatation for onset of active phase labour in nulliparae.

In this randomized controlled study comparing 4cm and 6cm as the landmark cervical dilatation for the diagnosis of active phase labour in low risk nulliparous parturients in spontaneous labour, we found 6cm cervical dilatation a better threshold for active phase labour onset both in terms of superior prevalence of cervical dilatation rate of ≥ 1 cm/hour and improved vaginal delivery rate in the absence of adverse maternal-neonatal outcome.

The study population made up of mainly young women in the prime of their reproductive lives may partly explain the reduced incidence of complications seen in these patients. A few older nulliparae noted in the study also reflects the increasing biosocial gap prevalent in the general population. The mean gestational age of 38.98 ± 0.931 weeks may have played a role in the reduced perinatal morbidity recorded in the study.

All (forty) of the parturients randomized to the experimental cervical dilatation threshold of 6cm had vaginal delivery. This was not the case with those randomized to 4cm where eleven (25%) of the 44 parturients had Caesarean delivery. Thus, one-quarter of parturients beginning active phase labour at 4cm delivers via Caesarean section. This was statistically significant and is similar to what was found by other researchers^{17,21,22}. Nguyen *et al*²² similarly observed that Caesarean section rates were higher in both multiparae and nulliparae when active phase was defined at 4cm compared to 6cm. Among nulliparous women, they observed a Caesarean section rate of 44.5% when active phase was defined at 4cm compared to 7.6% when defined at 6cm. In this study, it was 25% and 0% for 4cm and 6cm respectively. The absence of Caesarean section cases in the study group may be due to the relatively small sample size used in this study.

We observed in this study that sixty-five percent of parturients exhibited the typical active phase behaviour of cervical dilatation rate of 1 cm/hour or greater in the 6cm group compared to 29.5% in the 4cm group. The proportion of the parturients conforming to active phase behaviour in both arms was smaller compared to earlier studies. In the work by Peisner and Rosen²³, 60% of nulliparous parturients entered active phase at 4cm, 74% by 5cm and 89% by 6cm. This appears to support the notion that labour is slower nowadays than previously thought and hence the argument that parturients, especially nulliparae should be allowed more time in the first stage labour to increase vaginal delivery rate and reduce Caesarean delivery rate.

This study also found a mean cervical cervical dilatation rate of 1.06 cm/hour typical of active phase labour in the experimental (6cm) group compared to the mean rate of 0.8 cm/hour found in the control (4cm) group. This was also statistically significant. This is supported by the work of Zhang *et al*¹⁷ who found that majority of women did not manifest active phase behaviour until after 6cm. This study lends credence to the call to redefine active phase labour with 6cm set as the cervical dilatation threshold. Other studies^{18,19,21,22} also support this finding.

This study demonstrates that cervical dilatation rate in nulliparous women in spontaneous labour could be a good predictor of mode of delivery when active phase labour is defined at 4cm. Thirty-five percent of women in whom active phase was defined at 4cm who dilated at <1cm/hour had Caesarean delivery mostly (91%) for labour dystocia, whereas all the women in the same group who dilated at ≥ 1 cm/hour delivered vaginally. Cervical dilatation rate did not appear to predict mode of delivery in the study group as all the women in whom active phase was defined at 6cm delivered vaginally irrespective of cervical dilatation rate.

Zhang *et al*¹⁷ reported that it could take 6 hours to progress from 4cm to 5cm and 3 hours from 5cm to 6cm. In this study, almost 80% of women randomized to 6cm took 4 hours to progress from 4cm to 6cm. Infact, over 20% took 2 hours or less to do so. This underpins the methodological flaws inherent in Zhang and colleagues' work. Theirs was a retrospective observational study of labour data (including induced and spontaneous, in all parities) pooled across several facilities across several districts in the United States over a 7-year period.

Although the argument in favour of the 6cm threshold for active phase included the need to allow women especially nulliparae more time in first stage labour (since labour appears to progress slower than previously thought) to enhance vaginal delivery rate and reduce Caesarean section rate; we found that when active phase was defined at 6cm, women did not eventually spend more time in the first stage as expected. In our study, the maximum duration of labour in the 6cm arm was 8 hours 15 minutes. Considering that the most time spent in progressing from 4cm to 6cm in this study was 4 hours, it then means that maximum duration of first stage labour in this study was 12 hours 15 minutes. Just 15 minutes more than the recommended maximum (12 hours) for normal active phase labour²⁴. On the other hand, the maximum duration in the 4cm arm was 13 hours. Thus, the duration of labour in both arms is comparable. It does appear that the time spent in progressing from 4cm to 6cm is made up for by the phase of rapid cervical dilatation that occurs after 6cm. It also appears that the interventions instituted in starting active phase at 4cm impede labour progress, amounting to the so-called over-medicalization of labour. These interventions as shown by this study are unnecessary. For instance, over 70% of women in the 4cm group had augmentation of labour while less than 30% of women in the 6cm group required augmentation. Also all the women delivered via Caesarean section in this study had their labour augmented.

We also observed in this study that women admitted in active phase at 6cm had better neonatal outcomes than their counterparts admitted at 4cm. This was statistically significant. The poorer neonatal outcomes in the 4cm group may not be unconnected with the earlier and prolonged period of oxytocin augmentation of labour associated with that group. Also of note is the fact that 4 women in the 4cm group had primary postpartum haemorrhage. All four of them were augmented in labour. Again, this is likely a result of early and prolonged oxytocin exposure. One woman in the 6cm group had postpartum severe pre-eclampsia that required antihypertensive treatment and magnesium sulphate seizure prophylaxis. This can be explained by the fact that nulliparity is a known risk factor for pre-eclampsia. Besides, the woman may have other risk factors for pre-eclampsia which was not identified by this study, as that was not the focus of the study. Although, pre-eclampsia is an exclusion criterion of this study, this case occurred postpartum.

This study has established the whole idea of redefining active phase labour, vis-à-vis changing the cervical dilatation threshold for onset of active phase labour from 4cm to 6cm, as plausible. However, a larger number of low risk nulliparous women in spontaneous labour should be studied possibly in a multicentre randomized controlled trial to come to a more robust conclusion about the whole issue of a redefinition of active phase labour in terms of threshold cervical dilatation.

CONCLUSION/RECOMMENDATION

Unnecessary and premature interventions have become commonplace in the contemporary management of labour. The result is now the obstetricians' headache: increasing Caesarean delivery rate, un-abating perinatal and maternal morbidity and mortality. Emerging evidence suggests that allowing women more time in the first stage labour will increase vaginal delivery rates and reduce Caesarean section rates without adversely affecting maternal-neonatal outcomes. It has been suggested that 6cm is a better threshold for active phase labour onset than the present 4cm. This study has not only established these facts but also went further to demonstrate a superior maternal-neonatal outcome in the 6cm group.

This idea of considering 6cm rather than 4cm as the landmark for the start of active phase labour is plausible. However, further research (possibly large multicentre studies) is required to make more generalizable conclusions.

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