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CHANGING TRENDS IN RATE OF CERVICAL DILATION IN FIRST STAGE OF LABOUR: PROSPECTIVE LONGITUDINAL STUDY

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Abstract

Background: This study was conducted to evaluate the changing trend in the rate of cervical dilatation in the first stage of labour.

Methods: This was a hospital-based prospective longitudinal observational study conducted among 300 female patients attending labour room of the Department of Obstetrics and Gynecology of SCB Medical College and Hospital, Cuttack, from 1st April 2021 to 31st March 2022 after obtaining clearance from the institutional ethics committee and written informed consent from the study participants.

Results: The mean average rate of cervical dilatation between 4-6 cm was 1.79±1.42 cm/hr and between 6-10 cm was 3.24±1.68 cm/hr. Upon conducting an independent t-test, the mean average rate of cervical dilatation was significantly higher between 6 and 10 cm than between 4 and 6 cm. The average dilatation in the case of spontaneous type of labour between 4-6 cm was 1.79±1.12 cm/hr and between 6-10 cm was 3.39±1.89 cm/hr. Upon conducting an independent t-test, there was no significant difference in the average rate of cervix dilatation in the case of spontaneous labour between 4-6 cm and 6–10 cm. In the case of induced type of labour, between 4-6 cm 1.63±1.59 cm/hr and between 6-10 cm it was found to be 2.63±1.09 cm/hr. Upon conducting an independent t-test, the average cervix dilatation in cases of induced labour was significantly higher between 6 and 10 cm of dilatation than between 4 and 6 cm of dilatation. There was a significant association between the average rate of cervical dilatation between 4-6 cm/hr among the two groups of patients, which were primigravida and multigravida. There was no significant association between the average rate

of cervical dilatation between 6 and 10 cm/hr among the two groups of patients, which were primigravida and multigravida.

Conclusion: There is a substantial difference in the rates of cervical dilation during induced labour and spontaneous labour after 6 cm of cervical dilatation, indicating that the active stage of labour lasts longer with the induced method. Patients whose cervical dilatation rate is 0.6 cm or less per hour are safe candidates for vaginal delivery.

Keywords: Cervical Dilation, Labour.

INTRODUCTION

Labour management is still influenced by Emmanuel Friedman's seminal research on normal and abnormal labour development from the 1950s and 1960s.[1-5] The defined relationship between cervical dilatation and the length of the first stage of labour, as well as the definitions of labour protraction and arrest that have guided obstetric practice for more than 60 years, may not be appropriate, according to growing evidence since the early 2000s.[6,7] In real life, it might be difficult to recognise when labour is advancing abnormally and when medical intervention is necessary. As a result, the poorly defined but widely recognised phrase "failure of labour to progress" has emerged as a key indicator for primary CS (Caesarean Sections) and oxytocin augmentation. The sharp rise in labour augmentation and caesarean sections worldwide over the past 20 years can be attributed to the necessity of medically accelerating childbirth on the pretext of delayed labour.[8]

A woman's innate ability to give birth is likely to be interfered with by this interventionist approach, which includes the "active management of labour" paradigm of care, and it may also have a detrimental effect on the woman's delivery experience and health outcomes.[9] A deeper comprehension of the normal development of labour has become more relevant in light of the push for women-centered strategies to minimise labour and delivery interventions, especially primary continuity care.[10,11]

Given the differences in the features of pregnant women today and the women in his study when Friedman performed his research, this has become even more important.[12] Studies demonstrating that labour can really be slower than the previously established limitations have put significant attention on one of Friedman's key derivatives: the partograph's "1-cm/hour" alert line.[6,7,13]

A few international groups have revised their labour management guidelines to accept a cervical dilatation rate slower than 1 cm/hour as the typical threshold in response to studies on "natural" labour progression that have been published in the previous ten years.[11,14] Despite these advancements, the minimum dilatation threshold that should be anticipated in all women remains 1 cm/hour, according to a number of obstetric textbooks and international recommendations.[15,16]
The absence of worldwide agreement necessitates a methodical examination of the existing research to support a reassessment of global guidelines for labour progression assessment. This prospective longitudinal study set out to assess the trend of changing cervical dilatation rates throughout the first stage of labour.

AIMS AND OBJECTIVES

- To investigate the following in primigravide and multigravida with cephalic presentation delivered vaginally, spontaneously, and induced labour.
- To measure the cervical dilation rate in the first stage of labour, which should be between 4-6 and 6-10 cm.
- To determine when fast cervical dilatation starts in both spontaneous and induced labour during the first stage of labour.
- To assess the difference in cervical dilatation rates between primigravida and multgravida women.

MATERIALS & METHODS

This was a hospital-based prospective longitudinal observational study conducted among 300 female patients attending the labour room of the Department of Obstetrics and Gynecology of SCB Medical College and Hospital, Cuttack, from 1st April 2021 to 31st March 2022 after obtaining clearance from the institutional ethics committee and written informed consent from the study participants.

Inclusion Criteria

The study group enrolled all registered patients admitted to the labour room of S.C.B. Medical College, Cuttack, with spontaneous and induced labour and a singleton pregnancy who delivered vaginally.

Exclusion Criteria

- Patients delivered via caesarean section for a range of maternal and foetal markers during the course of labour.
- Premature birth. Maturity: <34 full weeks of gestation.
- Pregnancy often presents with non-cephalic presentations.
- This study did not evaluate the duration of the second stage of labour.
- Individuals hospitalised with advanced spontaneous labour, whether or not their membranes had ruptured (patients with a cervical dilatation greater than 4 cm at admission).

Statistical Methods

Data was entered in MS Excel and analysed using SPSS software. The results were presented as tables.

RESULTS

	Count	Mean	Std. Deviation	Minimum	Maximum
Age	300	28.5	3.5	19	41

Age of the study population

Age	Frequency	Percentage
≤25 years	60	20%
26-30	92	30.67%
31-35	132	44%
≥36 years	16	5.33%
Total	300	100%

Age Group of the Study Population

Table 1

In this study, 300 female patients were selected based on the eligibility criteria. The mean age of the patients was 28.5±3.5 years. The minimum age was found to be 19 years and the maximum age was found to be 41 years.

In this study, it was observed that most of the patients were between 31 and 35 years of age, followed by 92 patients who belonged to the age group between 26 and 30 years. 60 patients were below the age of 25 years and 16 patients were above the age of 36 years.

		Count	Mean	Std. Deviation	Minimum	Maximum	P-Value	T-Test
Average rate of cervical dilatation	4-6cm	300	1.79	1.42	0.3	5.5	<0.001	11.95
	6-10cm	300	3.24	1.68	1.9	8		

Table 2: Average Rate of Cervical Dilatation (cm/hr)

In this study, it was observed that the mean average rate of cervical dilatation between 4-6 cm was 1.79±1.42 cm/hr and between 6-10 cm was 3.24±1.68 cm/hr. Upon conducting an

independent t-test, the mean average rate of cervical dilatation was significantly higher between 6 and 10 cm than between 4 and 6 cm. (*p* value < 0.001).

Average Rate of Dilatation of Cervix in Primigravida and Multigravida (cm/hr)	Between 4 and 6 cm Dilatation	Between 6 and 10 cm Dilatation
Spontaneous	1.79±1.12	3.39±1.89
Induced	1.63±1.59	2.63±1.09
	p value=0.68	p value<0.001
	t-test= -0.352	t-test=-5.81

Table 3: Average Rate of Dilatation of Cervix in Primigravida and Multigravida in Case of the Spontaneous and Induced Method of Labour

In this study, it was observed that the average of dilatation in cases of spontaneous type of labour between 4 and 6 cm was 1.79±1.12 cm/hr and between 6 and 10 cm was 3.39±1.89 cm/hr. Upon conducting an independent t-test, there was no significant difference in the average rate of cervix dilatation in cases of spontaneous type of labour between 4-6 cm and 6-10 cm. (*p*-value = 0.68).

In the case of induced type of labour, between 4-6 cm 1.63±1.59 cm/hr and between 6-10 cm it was found to be 2.63±1.09 cm/hr. Upon conducting an independent t-test, the average cervix dilatation in cases of induced labour was significantly higher between 6 and 10 cm of dilatation than between 4 and 6 cm of dilatation. (*p* value<0.001).

Dilatation	4-6 cm		6-10 cm	
	<1.5/hr	**>1.5/hr**	**<1.5/hr**	**>1.5/hr**
Primigravida	108 (67.08%)	53 (32.91%)	12 (7.45%)	149 (92.54%)
Multigravida	81 (58.27%)	58 (41.72%)	9 (6.47%)	130 (93.52%)
p value	0.02		0.54	

Table 4: Dilatation as Observed in the Primigravida and Multigravida Patients

In this study, it was observed that out of 161 primigravida patients, 67.08% achieved 4-6 cm of cervical dilatation in less than 1.5/hr, and the remaining 32.91% achieved the same in more than 1.5/hr. In the case of 139 multigravida patients, 58.27% of the patients achieved 4-6 cm of cervical dilatation in less than 1.5 hr, and the remaining 41.72% achieved the same in more than 1.5 hr. Upon carrying out a Chi-square test, there was a significant association between the average rate of cervical dilatation between 4-6 cm/hr among the two groups of patients, which were primigravida and multigravida.

Out of 161 primigravida patients, 7.45% achieved 6-10 cm of cervical dilatation in less than 1.5/hr and the remaining 92.54% achieved the same in more than 1.5/hr. In the case of 139 multigravida patients, 6.47% of the patients achieved 6–10 cm of cervical dilatation in less than 1.5/hr and the remaining 93.52% achieved the same in more than 1.5/hr. Upon carrying out a Chi-square test, there was no significant association between the average rate of cervical dilatation between 6 and 10 cm/hr among the two groups of patients, which were primigravida and multigravida.

DISCUSSION

We included 300 Indian pregnant women who were hospitalised after 34 weeks of pregnancy in our single-centered prospective research in order to ascertain the percentage of cervical dilation in the first stage of labour that results in a spontaneous, normal birth. The findings of our study were discussed under the following headings:

Socio-Demographic Profile

In our study, the mean age was 28.5±3.5 years (min. 19 years and max. 41 years). The majority of the women were 31–35 years old (44%), followed by 26–30 years old (30.67%). Most of the women belonged to upper-lower and lower-middle socio-economic status (~30%). Most of them were

primigravida (53.67%). 63% of women were in spontaneous labour. 61% of the women in our study had a BMI <26 kg/m^2.
When married women in India were first polled, they were around 21 years old. These women ranged in age from 25 to 49. The survey's findings indicated that women in urban regions gave birth to their first child more than a year later than their rural counterparts; however, this is impacted by a wide range of factors, including socioeconomic situations, education, and cultural influences.[17]
Data from Indian cohort research demonstrated a normal distribution of patients by reproductive age among the city's urban population. The proportion of first-time mothers (53.43%) to those who had already had children (46.56%) was about equal in the study population. While almost as many women in the research group gave birth naturally (57.96%), slightly more women had their labours induced (42.0%).[18]

Co-Morbidities
The most common comorbidity observed was pre-eclampsia (30%), followed by gestational diabetes (28%). 21% of women had faced anaemia during pregnancy. Shukla et al. showed associated medical conditions like PE, GDM, hypothyroidism, and anaemia among 17.81% of women in their study. Pati et al. conducted a study in Orisha to study the profile of comorbidity and multimorbidity among women attending antenatal clinics. The most common chronic problems were anaemia (52.6%), thyroid disorders (26.3%), acid-peptic diseases (26.3%), and hypertension (31.6%). A statistically significant correlation was discovered between multimorbidity and functional limitation, medication consumption, and medical consultation. The multimorbidity groups had much greater healthcare costs.[19]

Bishop Score
In this indexed study, the mean bishop score was 9.3±3.5. According to the research of Shukla et al. 8 out of 10 patients had a score of 6 to 13, while 20% of patients had a score of less than 6.

Latent Phase Duration
The latent phase duration was <8 hours among 57% of women in our study. Shukla et al. found that 56.25% of patients had a latent phase length of >8 hours. Induced labour patients had a long latent period, lasting up to 58 hours on average (8–16 hrs. in 35.46%, 16–28 hrs. in 8.28%) and up to 58 hours in 0.31%. This finding correlates with our study.

Average Rate of Cervical Dilatation
It was observed that the mean average rate of cervical dilatation between 4-6 cm was 1.79±1.42 cm/hr and between 6-10 cm cervical dilatation was 3.24±1.68 cm/hr. The mean average rate of cervical dilatation was significantly higher at 6–10 cm than between 4 and 6 cm. (p value<0.001). Shukla et al. Indian cohort research revealed similar results. Between 4 and 6 cm (mean = 1.71, SD = 1.35) and 6–10 cm (mean = 3.14, SD = 1.64), there was a significant difference in the study group's mean rate of cervical dilation (P = 0.0001, 95% CI = 1.19 - 1.66).

Average Rate of Dilatation of Cervix in Primigravida and Multigravida (cm/hr.)
In this study, it was observed that the average of dilatation in cases of spontaneous type of labour between 4-6 cm was 1.79±1.12 cm/hr and between 6-10 cm was 3.39±1.89 cm/hr. There was no significant difference in the average rate of cervix dilatation in cases of spontaneous type of labour between 4-6 cm and 6-10 cm. (*p* value = 0.68)

In the case of induced type of labour, between 4-6 cm 1.63±1.59 cm/hr and between 6-10 cm it was found to be 2.63±1.09 cm/hr. The average cervix dilatation in cases of induced labour was significantly higher between 6 and 10 cm of dilatation than between 4 and 6 cm of dilatation. (p-value < 0.001)

According to Shukla et al., between 4 and 6 cm of cervical dilatation at 95% CI (−0.252 to 0.172), the average rate of cervical dilation was 1.72 cm (SD = 1.10) in spontaneous labour and 1.68 cm (SD = 1.63) in induced labour. P-value of 0.711 indicates that the difference was not statistically significant. Between 6 and 10 cm of cervical dilatation at 95% CI (−1.001 to −0.499), the average rate of cervical dilatation was 2.69 cm (SD = 1.18) in induced labour and 3.44 cm (SD = 1.84) in spontaneous labour. This difference was statistically significant ($P \leq 0.0001$).

When comparing the cervical dilation rate between 6 and 10 cm, the rates for 7.30% of primigravida and 6.04% of multigravida were less than 1.5 cm/hr, while the rates for 92.69% of primigravida and 83.44% of multigravida were more than 1.5 cm/hr. Between 6 and 10 cm of cervical dilation, we found no difference in the cervical dilation rate between primigravida and multigravida in this research. In the Shukla et al. investigation, the observed outcomes did not reach statistical significance ($P = 0.63$).
Our study found that among 161 primigravida patients, 67.08% achieved 4-6 cm of cervical dilatation in less than 1.5/hr and the remaining 32.91% achieved the same in more than 1.5/hr. In the case of 139 multigravida patients, 58.27% of the patients achieved 4-6 cm of cervical dilatation in less than 1.5/hr and the remaining 41.72% achieved the same in more than 1.5/hr. There was a significant association between the average rate of cervical dilatation between 4-6 cm/hr among the two groups of patients, which were primigravida and multigravida. And out of 139 multigravida patients, 7.45% achieved 6–10 cm of cervical dilatation in less than 1.5 hours, and the remaining 92.54% achieved the same in more than 1.5/hr. In the case of 139 multigravida patients, 6.47% of the patients achieved 6–10 cm of cervical dilatation in less than 1.5/hr and the remaining 93.52% achieved the same in more than 1.5/hr. There was no significant association between the average rate of cervical dilatation between 6 and 10 cm/hr among the two groups of patients, which were primigravida and multigravida.

The rules set forth by Friedman have been in use to regulate the active phase of work since the 1950s.[20] There is a significant amount of literature indicating that the cervix dilates more slowly in the first stages of labour. It was discovered that when Friedman's criterion of 1 or >1 cm/hr. of cervical dilatation in the active stage of labour was used, there was a danger of misdiagnosing dystocia and an overuse of labour accelerative measures. This raises the possibility of unneeded interventions for both mother and child. The research by Jeremy O. Neal found that the slowest typical linear cervical dilatation in nulliparous women experiencing spontaneous labour was around 0.5 cm/hour.[21] The current recommendations for normal labour state that a caesarean section is unnecessary during the latent period of labour, which may last up to 54 hours.

A comprehensive study by O. T. Odalap found that between 5 and 6 cm of cervical dilatation, labour speeds up (i.e., greater than 1 cm/hour) in both nulliparous and parous women.[22] Half of the non-pregnant women evaluated had a substantially slower cervical dilatation rate of 0.5 cm/hour when their cervical dilatation was between 3 and 4 cm, compared to the established minimum threshold. At 10 cm of cervical dilation, the dilation rate increased to 2.04 cm/hour.
According to Yusuke Inde's research on Japanese women, the fastest cervical changes occurred at 6 cm during the active stage of labour for primigravida and 5 cm for multigravida. He came to the conclusion that the onset of active labour is characterised by a slower rate of cervix dilation than had previously been documented and that active labour may not begin at 5 cm of cervical dilatation. These findings have the potential to aid in lowering the rate at which obstetric interventions are required as labour progresses.[23]

Based on a randomized controlled trial, Alexis C. of Thomas Jefferson University Hospital found that when nulliparous women with singleton pregnancies received epidural anesthesia and experienced a prolonged second stage of labour, the rate of cesarean deliveries dropped to about half the rate recommended by standard guidelines.[24]

A caesarean section performed because of labour arrest at or >6 cm dilatation was not associated with an increased risk of bleeding or newborn depression, according to a research by Emily F. Hamilton.[25] The active phase of labour was shorter in nulliparas who went into labour on their own compared to those who had their labours induced, according to a Norwegian observational cohort study conducted by Tilde B. Ostorg. On the other hand, the active phase of labour in induced instances of parous women was rather brief before 6 hours of labour and quite lengthy after 6 hours of labour. In the grand scheme of things, this variation among pregnant women was not noteworthy.[26] The continued use of Friedman's criteria for non-progressive labour and arrest disorders in labour has led to an increase in the frequency of caesarean sections performed prior to 5 cm of cervical dilation, which is cause for worry. Large population studies of cervical dilatation rates during the first stage of labour indicate that the term "nonprogression and arrest disorder of labour" needs to be revised. This highlights the fact that, contrary to what Friedman said in 1954, the active phase of labour is not regarded until 6 cm dilation has occurred.

There is sufficient data to suggest that the pace of cervical dilation increases gradually throughout the first stage of labour, and that a fast rate of dilation is achieved only at greater cervical dilation. Women may take their time giving birth without risking the health of themselves or their babies.[27] In the current research, the rate of cervical dilation did not suddenly rise or decrease throughout the first stage of labour; rather, it increased and then increased again gradually.

CONCLUSION

Most patients enter the active phase of labour (characterized by fast cervical dilatation at a rate of more than 1.5 cm per hour) at about 6 cm of dilation. The cervix of a multigravida dilats more quickly up to 6 cm, but then slows down to the same pace as that of a primigravida after 6 cm. There is a substantial difference in the rates of cervical dilation during induced labour and spontaneous labour after 6 cm of cervical dilatation, indicating that the active stage of labour lasts longer with the induced method. Patients whose cervical dilatation rate is 0.6 cm or less per hour are safe candidates for vaginal delivery.

REFERENCES

1. Friedman E. The graphic analysis of labour. Am J Obstet Gynecol 1954;68(6):1568-75.
2. Friedman EA, Sachtleben MR. Dysfunctional labour. I. Prolonged latent phase in the nullipara. Obstet Gynecol 1961; 17:135-48.
3. Friedman EA, Sachtleben MR. Dysfunctional labour. II. Protracted active- phase dilatation in the nullipara. Obstet Gynecol 1961; 17:566-78.
4. Friedman EA. Primigravid labour; a graphicostatistical analysis. Obstet Gynecol 1955;6(6):567-89.
5. Friedman EA. Labour in multiparas; a graphic statistical analysis. Obstet Gynecol 1956;8(6):691-703.
6. Zhang J, Troendle J, Mikolajczyk R, Sundaram R, Beaver J, Fraser W. The natural history of the normal first stage of labour. Obstet Gynecol 2010;115(4):705-10.
7. Zhang J, Troendle JF, Yancey MK. Reassessing the labour curve in nulliparous women. Am J Obstet Gynecol 2002;187(4):824-8.
8. Betran AP, Ye J, Moller AB, Zhang J, Gulmezoglu AM, Torloni MR. The increasing trend in caesarean section rates: global, regional and national estimates: 1990-2014. PLoS One 2016;11(2):e0148343.
9. World Health Organization. WHO recommendations for augmentation of labour. Geneva, Switzerland: World Health Organization 2014.
10. Committee on Obstetric Practice. Committee opinion no. 687: approaches to limit intervention during labour and birth. Obstet Gynecol 2017;129(2):e20–8.
11. American College of Obstetricians and Gynecologists, Society for Maternal-Fetal Medicine, Caughey AB, Cahill AG, Guise JM, Rouse DJ. Safe prevention of the primary cesarean delivery.

Am J Obstet Gynecol 2014;210(3):179-93.
12. Laughon SK, Branch DW, Beaver J, Zhang J. Changes in labour patterns over 50 years. Am J Obstet Gynecol 2012;206(5):419e1-9.
13. Neal JL, Lowe NK, Patrick TE, Cabbage LA, Corwin EJ. What is the slowest-yet-normal cervical dilation rate among nulliparous women with spontaneous labour onset? J Obstet Gynecol Neonatal Nurs 2010;39(4):361-9.
14. National Institute for Health and Clinical Excellence. Intrapartum care for healthy women and babies. 2014 [www.nice.org.uk/guidance/cg190]. Accessed 25 Nov. 2022.
15. Cunningham FG, Levono KJ, Bloom SL, Spong CY, Dashe JS, Hoffman BL, et al. editors. Williams's obstetrics. 24th edn. New York, NY: McGraw-Hill Education 2014.
16. Cronjé HS, Cilliers JBF, Pretorius MS. Clinical obstetrics: a South African perspective, 3rd edn. Pretoria: Van Schaik Publishers 2011.
17. India - median age at first pregnancy by age groups 2016 [Internet]. Statista. [Cited 2023 Jan 20]. Available from: https://www.statista. com/statistics/680256/median-age-at-first-pregnancy-by-age-groups- India/
18. Shukla DV, Shukla SD, Patel S, Shah A. Changing Trends in Rate of Cervical Dilation in First Stage of Labour: Prospective Longitudinal Study. Open J Obstet Gynecol 2020;10(9):1176-86.
19. Pati S, Puri P, Sinha R, Panda M, Pati S. Profile of comorbidity and multimorbidity among women attending antenatal clinics: An exploratory cross-sectional study from Odisha, India. J Fam Med Prim Care 2022;11(5):1980-8.
20. Friedman EA. Primigravid Labour: a graphicostatistical analysis. Obstet Gynecol 1955;6(6):567.
21. Neal JL, Lowe NK, Patrick TE, Cabbage LA, Corwin EJ. What is the Slowest-Yet-normal cervical dilation rate among nulliparous women with spontaneous labour onset? J Obstet Gynecol Neonatal Nurs 2010;39(4):361-9.
22. Oladapo O, Diaz V, Bonet M, Abalos E, Thwin S, Souza H, et al. Cervical dilatation patterns of 'low-risk' women with spontaneous labour and normal perinatal outcomes: a systematic review. BJOG Int J Obstet Gynaecol 2018;125(8):944–54.
23. Inde Y, Nakai A, Sekiguchi A, Hayashi M, Takeshita T. Cervical Dilatation Curves of Spontaneous Deliveries in Pregnant Japanese Females. Int J Med Sci 2018;15(6):549-56.
24. Gimovsky AC, Berghella V. Randomized controlled trial of prolonged second stage: extending the time limit vs usual guidelines. Am J Obstet Gynecol 2016;214(3):361.e1-6.
25. Hamilton EF, Warrick PA, Collins K, Smith S, Garite TJ. Assessing first- stage labour progression and its relationship to complications. Am J Obstet Gynecol 2016;214(3):358e1-8.
26. Østborg TB, Romundstad PR, Eggebø TM. Duration of the active phase of labour in spontaneous and induced labours. Acta Obstet Gynecol Scand 2017;96(1):120-7.
27. Abalos E, Oladapo OT, Chamillard M, Díaz V, Pasquale J, Bonet M, et al. Duration of spontaneous labour in 'low- risk' women with 'normal' perinatal outcomes: a systematic review. Eur J Obstet Gynecol Reprod Biol 2018; 223:123-32.