Original Article

Comparison of Effectiveness Between Supported Sitting and Conventional Lithotomy Position

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Abstract

Objective: To compare supported sitting and conventional lithotomy birthing position in terms of frequency of pain, mean duration of second stage of labour and mode of delivery during active phase of labour.

Methodology: This randomized controlled trial was conducted at Gynae and Obstetric department of Benazir Bhutto Hospital from 29th July 2016 to 28th Jan 2017. A total 60 women presenting in active phase of labour were randomly assigned in equal numbers into two groups. In Group A (Experimental group), women`s back was supported with simple back rest attached to standard delivery table during second stage of labour. While in Group B (Control group) the women assume the standard lithotomy position. Routine delivery was conducted according to standard protocols. Outcome was assessed in terms of duration of second stage of labour, type of delivery and intensity of labour pain. All the data was collected via study proforma. Data analysis was done by using SPSS version 20.

Results: Mean age of women in Group-A was 30.0±2.11 years and in Group-B were 29.53±2.12 years. In group A, spontaneous vaginal deliveries were occurred in 25(83.3%) women, whereas in Group-B spontaneous vaginal deliveries were done in 14(46.7%) women (p=0.001). Severity of pain was significantly high in group B as compared to group A (p=0.004). Duration of second stage of labour was significantly shorter in Group-A women. i.e. 63.83 vs. 49.73, (p=0.000).

Conclusion: In the observation of this study the supported sitting posture maximizes maternal birthing position showed significant effectiveness in terms of less cesarean section rate, less pain and shorter duration of 2nd stage of labour.

Key Words: Birthing position, C-section, pain, supported sitting,

Cite this article as: Khan A, Tasleem S, Noreen H, sial SS, Sajid M, Gul H. Comparison of Effectiveness Between Supported Sitting and Conventional Lithotomy Position. J Soc Obstet Gynaecol Pak. 2021; 11(3):181-184.

Introduction

Pregnancy and birth are life-changing events that transform a woman into a mother, a couple into a family, and a beautiful kid into the world. The birthing process can be considered as a test of womanhood, a measure of personal capability, and a peak of experience for the motherhood. [1] The labour process starts with the onset of regular uterine activity associated with effacement and dilatation of cervix. Effective uterine contractions help the cervical dilation and descent of the baby.[1]

Discomfort is one of the biggest obstacles to labour and delivery. Therefore, women's demand for healthy labour with less discomfort.[1] Medical technical interventions are introduced in birth process to relieve discomfort, like epidural analgesia, synthetic oxytocin for augmentation of labour, continuous electronic fetal monitoring and horizontal position in second stage of labour.[2] Changing birthing positions augment pelvic dimensions and might therefore be obstetrically advantageous. Vertical positions like standing and sitting position may benefit from gravity effect and favour fetus alignment in birth canal and increase pelvic outlet diameter thus facilitate delivery.[3] In lithotomy position pelvic outlet becomes smaller placing birth canal in an uphill orientation forcing the mother to push upward against gravity, thus inhibiting the baby descent. There is a big controversy in

Authorship Contribution: [1,5]Substantial contributions to the conception or design of the work, acquisition, 3analysis, or interpretation of data for the work, design, [6]data collection and analysis of the work, [3] Active participation in active methodology,[4] Final approval of the study to be published

Funding Source: none
Conflict of Interest: none

Received: Mar 26, 2021
Accepted: Oct 07, 2021

effectiveness of maternal birthing position as which is more appropriate during the second stage of labour.

Although this problem has been examined often, the optimal alternative birthing position recommendation remains unclear, as Janesh K Gupta and workers found the upright position was associated with reduction in second stage of labor (MD – 6.16 minutes, 95 % CI – 9.74 to -2.59 minutes; 19 trials; 5811 women; P= 0.0007; random effects).[4] Marta Berata et al. showed that using a flexible sacrum position can reduce the duration of second stage of labor by 21.12 min.[5] A study by Ganapathy Tin 2009 found supported sitting maternal birthing position associated with reduced pain, a shorter second stage of labour, reduced instrumental deliveries. [1] On other hand in another study demonstrated that squatting position during 2nd stage of labor is more effective in decreasing the labor pain.[6] After taking the controversial findings above, this study has been conducted to assess the effects of supported sitting maternal birthing position on selected obstetrical and perinatal outcomes during second stage of labour. This study proved that the identification of an optimal birthing position for women during labour and childbirth is usually empirical. However, by applying a supported sitting maternal birthing position, the rate of c-section can be decreased.

Methodology

This randomized control trial was conducted at Benazir Bhutto Hospital from 29th July 2016 to 28th Jan 2017 after approval from Hospital ethical review committee and taking written informed consent from all participants. Sample size was calculated online by using raosoft software and consecutive non probability sampling technique was used. Women aged between 25 to 35 years, primigravida and presenting in active phase of labour (cervical dilation >4cm) with single term pregnancy with alive fetus between 38 to 42 weeks of gestation were included. Women with any evidence of fetal distress, with pre- labour rupture of membrane, during induction of labour, patients with malpresentation or malposition or previous history of lower segment cesarean section, fetal demise/suspected fetal abnormality and medical disorders, poor obstetrical history and cephalopelvic disproportion were excluded.

Study population was equally divided in two groups by lottery method. Group A was experimental group in which supported sitting position (Lying in the bed with head of bed rose up or back elevated to 60 degree from horizontal) was used. In Group B, conventional lithotomy position (Back lying with feet up in or feet supported by care provider's hands) was used. Sample size was calculated keeping level of significance at 5% and power of study as 90. While monitoring progress of labour and continuous fetal heart rate monitoring by Cardiotocography (CTG), once birth was eminent, delivery was conducted and second and third stage managed according to unit protocol in assigned position by single researcher to exclude bias. The outcome like duration of second stage of labour (Time taken from full dilatation of cervix i.e 10cm on vaginal examination till delivery of baby), type of delivery (spontaneous/assisted, caesarean section) and intensity of labour pain measured by visual analogue scale was recorded on pre-designed proforma. Confidentiality of record was ensured. Data was entered and analyzed using SPSS version 17. Quantitative variables like age and duration of second stage of labour (were analyzed by calculating means and standard deviations. For qualitative variable like type of vaginal delivery and labour pain, frequency along with percentage was calculated. T-test and chi-square tests were applied and a p-value <0.05 was considered statistically significant.

Results

Total 60 women were assessed regarding effectiveness of birthing positions. Mean age of women in Group-A was 30.0±2.117 years and in Group-B were 29.53±2.129 years (p=832). Mean gestational age in group A was 39.23±1.35 weeks and in group B was 39.10±1.21 weeks. Although average of duration of 2nd stage of labour was 49.73±5.95 minutes was in group A

Table I: Descriptive statistics of age, gestational age and duration of 2nd stage of labour as per study groups (n=60)

Variables	Group-A (n=30)	Group-B (n=30)	P value
Age (Years)	30.00±2.117	29.53±*2.12*	**0.832**
Gestational Age (weeks)	39.23±*1.35*	39.10±*1.21*	**0.612**
Duration second stage of labour	49.73±*5.95*	63.83±*9.57*	**0.0001**

Group-A= Experimental (Supported sitting birthing position)
Group-B= Control (conventional lithotomy birthing position)

Table II: Comparison of pain and type of delivery between groups (n=60)				
Variables		**Group-A (n=30)**	**Group-B (n=30)**	**P-value**
Mode of delivery	Spontaneous Vaginal Delivery	25(83.3%)	14(46.7%)	0.007
	Assisted Vaginal Delivery	2(6.7%)	11(36.7%)	
	Caesarean Section	3(10%)	5(16.7%)	
Pain	Mild	10(33.3%)	04(13.3%)	0.001
	Moderate	17(56.7%)	09(30.0%)	
	Severe	03(10.0%)	17(56.7%)	

and 63.83±9.57 minutes was in group B (p=0.001). Table I

Spontaneous vaginal deliveries rate was higher as 25(83.3%) in group A as compared to group B as 14(46.7%), followed by assisted vaginal deliveries were done in 6.7% cases of group A and 36.7% cases of group B, while caesarean sections were done in 10% women of group A and 13.3% women of group B, findings were statistically significant (p=0.007). Severity of pain was significantly high in study group A as compared to study group B (p=0.001). Table II

Discussion

The second stage of labour is the most stressful aspect of the birthing process, and maintaining the right maternal position during this time is critical for a woman's safe vaginal delivery.[7] In this study mean age of women in Group-A was 30.0±2.117 years and in Group-B were 29.53±2.129 years (p=832). On other hand in the study of Valiani M et al6 reported that the average in lithotomy group was 22.31+2.97 years and in sitting group was 23.75+3.90 years. However Zaibunnisa, Ara F et al[8] reported that mean age females was 36.45+8.45 years.

In this study average of duration of 2nd stage of labour was 49.73±5.95 minutes was in group A and 63.83±9.57 minutes was in group B (p=0.001). However Gupta JK et al[9] observed that upright posture among females without epidural anaesthesia, a very small decreases length of the 2nd stage of labour, decreases in the rate of episiotomy and the assisted deliveries. Further they demonstrated that there was an increased risk of the blood loss >500 mL and also a risk of tears during second stage of labor. Amelia Miquelutti M et al[10] concluded that the upright position may be encouraged, it was observed to be accepted by laboring women, and also safe for the fetus. Epidural T et al[11] reported that the significantly spontaneous vaginal deliveries done in females of the upright group in contrast to lying down group.

In this study, the spontaneous vaginal delivery rate in group A was higher at 25 (83.3%) than in group B at [14] (46.7%), followed by assisted vaginal deliveries in 6.7% of cases in group A and 36.7% of cases in group B, and caesarean sections in 10% of women in group A and 13.3% of women in group B. The findings were statistically significant (p = 0.007).Upright positions in childbirth have increasingly been the subject of studies in the obstetric area, as they constitute one of the best practices in the care provided during labor/delivery and childbirth, in turn contributing to the humanization of care and to the protagonism of women in labor and delivery.[12]

Justification for supporting the adoption of upright positions in childbirth is the gravitational action, which contributes to the descent of the fetus through the vaginal canal, in addition to modifying the angulation of the maternal pelvis. In the lithotomy position, the vaginal canal presents an upward curvature, making fetal descent difficult during the expulsive period.[12,13]

In this study severity of pain was significantly high in study group B as compared to study group A (p=0.001). In the study of Abbaspoor S et al[14] on 56 pregnant females, who were underwent sitting versus lithotomy positions during the first labor stage regarding severity of pain and they found there was no significant difference in the pain among both groups. A simple elevation of the labouring woman's back with the widely available, low-cost resources of a backrest that maximises the important benefits of gravity provides greater benefits to low-risk mothers in terms of enhanced comfort, shorter duration of the second and third stages of labour, minimal blood loss, and safe birthing experiences. Consistently Valiani M et al[6] reported that during the active phase of 2nd stage of labour sitting and squatting position both are effective in terms of spontaneous pushing with the helping gravity and not different from standing positions.

On other hand Khavandi Zadeh *et al.*[15] observed the severity of pain in several positions and reported that

around 59.2% expressed their pain in the optional position including standing, sitting, and cross-legged positions, as worst, and 77.4% of the rutien position cases found severity of pain in the active phase of first labor stage as worst as possible. Inconsistently Ragnar et al[15] compared sitting and kneeling positions and demonstrated that the pain severity was high in sitting position and may be due to the more mobility during kneeling position and they observed another reason as the direct pressure on pelvis muscles at the bottom of sitting which can cause the edema and severity of pain after delivery. [15]

Conclusion

In the observation of this study the supported sitting posture maximizes maternal birthing position showed significant effectiveness in terms of less cesarean section rate, less pain and shorter duration of 2nd stage of labour. As per literature findings there is still big sample size studies are required to explore the best position.

References

1. Mathew A N, Vandana K. A comparative study on effect of ambulation and birthing ball on maternal and newborn outcome among primigravida mothers in selected hospitals in mangalore. NUJHS 2012;2(2):2-5.
2. Thies-Lagergren L, Kvist LJ, Christensson K, Hildingsson I. Striving for scientific stringency: a re-analysis of a randomised controlled trial considering first-time mothers' obstetric outcomes in relation to birth position. BMC pregnancy and childbirth. 2012;12(1):135.
3. Gizzo S, Di Gangi S, Noventa M, Bacile V, Zambon A, Nardelli GB. Women's choice of positions during labour: return to the past or a modern way to give birth? A cohort study in Italy. BioMed research international. 2014;2014.
4. Gupta JK, Sood A, Hofmeyr GJ, Vogel JP. Position in the second stage of labour for women without epidural anaesthesia. Cochrane database of systematic reviews. 2017(5).
5. Berta M, Lindgren H, Christensson K, Mekonnen S, Adefris M. Effect of maternal birth positions on duration of second stage of labor: systematic review and meta-analysis. BMC Pregnancy and Childbirth. 2019 Dec;19(1):1-8.
6. Valiani M, Rezaie M, Shahshahan Z. Comparative study on the influence of three delivery positions on pain intensity during the second stage of labor. Iranian journal of nursing and midwifery research. 2016 Jul;21(4):372..
7. Huang J, Zang Y, Ren LH, Li FJ, Lu H. A review and comparison of common maternal positions during the second-stage of labor. International journal of nursing sciences. 2019 Oct 10;6(4):460-7.
8. Zaibunnisa, Ara F, Ara B, Kaker P, Aslam M, Child birth; comparison of complications between lithotomy position and squatting position during. Professional Med J 2015;22(4):390-394.
9. Gupta JK, Sood A, Hofmeyr GJ, Vogel JP. Position in the second stage of labour for women without epidural anaesthesia. Cochrane database of systematic reviews. 2017(5).10. Amelia Miquelutti M, Guilherme Cecatti J, Yolanda Makuch M. Upright position during the first stage of labor: a randomised controlled trial. Acta obstetricia et gynecologica Scandinavica. 2007 Jan 1;86(5):553-8.
10. Epidural T, Group PT. Upright versus lying down position in second stage of labour in nulliparous women with low dose epidural: BUMPES randomised controlled trial. The BMJ. 2017;359.
11. Rocha BD, Zamberlan C, Pivetta HM, Santos BZ, Antunes BS. Upright positions in childbirth and the prevention of perineal lacerations: a systematic review and meta-analysis. Revista da Escola de Enfermagem da USP. 2020 Sep 14;54:e03610-.
12. Racinet C. Positions maternelles pour l'accouchement. Gynecol Obstet Fertil. 2005;33:533-38.
13. Abbaspoor S, Farhadyfar A. Evaluation of the effect of maternal position on delivery pain intensity during the first stage of labor. Horizon Science, Faculty of Medical Sciences and Health Services Gonabad. 2007;12:16–20
14. Hodnett ED, Downe S, Edwards N, Walsh D. Home-like versus conventional institutional settings for birth. Cochrane Database Syst Rev. 2005:CD000012.
15. Ragnar I, Altman D, Tyden T, Olsson SE. Comparison of the maternal experience and duration of labour in two upright delivery positions—a randomised controlled trial. BJOG: An International Journal of Obstetrics & Gynaecology. 2006 Feb;113(2):165-70.