The effectiveness of supported sitting position versus the conventional lithotomy position on the outcome of labour among primigravidae.

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ABSTRACT

There has long been a controversy regarding which maternal position is more appropriate during the second stage of labour. Although this problem has been examined often, the optimal alternative birthing position recommendation remains unclear. From the psychological standpoint, the supine/lithotomy position has been observed to be associated with the compression of major abdominal vessels, weaker uterine contractions, poor bearing down efforts, increased instrumental, operative deliveries, increased perception of labour pain, prolonged duration of labour, irregular fetal heart rate pattern and intrauterine hypoxia. Throughout history and across human cultures, women have preferred to give birth naturally in different upright postures-standing, sitting, squatting, with their legs spread grasping a branch of a tree or wooden poles that is laid horizontally between the two trees or knotted piece of cloth tied on to the tree or poles to enhance their leverage during pushing and they generally avoided lying on their back. Postures. Since the advent of forceps, the use of supine-lithotomic position for labour has become more common, which is no longer relevant for normal low risk child birth, but we continue to use from familiarity and habits. Today’s standards of confining women to “stranded beetle”-supine-lithotomy position, is questionable. Lithotomy position is presumably not based on evidence and it comes with multitude of poor factors.

Pregnancy and childbirth are normal, healthy part of the woman’s life and that’s been around since the beginning of humanity. As any other task the body is created to perform when we support normal functioning, we have the best chance of success. Labour and childbirth are functions of an autonomic nervous system and an explosive functions of the body and therefore out of conscience control. To have a bowel movement human’s sit upright on a toilet or squat and it never occurs to them to lie down and if some one suggested to lie, down, she/he would not be taken seriously. This unfolds the truth of nature, about the infeasibility of giving birth in a lying flat on the back supine-lithotomy birthing position which hampers the normal physiological process by going against the force of gravity making birth needlessly complicated, expensive, turning a natural process into a medical event and into a medical event and thus possibly converting the labouring woman to a body on the delivery table to be relieved of their contents. No other species adopt such a
disadvantageous position at such a critical and crucial time. In spite of increasing of conventional lithotomy (supine-lithotomy) position remain common and even considered as inevitable without any due considerations of its valued to labouring women and their newborn. Using birthing position based on subjective decision of the woman can effectively reduce or even eliminate the need for most common interventions of complications in labour and childbirth.

Therefore the identification of an optimal birthing position for women during labour and childbirth needs to be empirical. A simple elevation of the back of the labouring women with the easily available resources of backrest is presumed to be to maximize the important benefits of the gravity. A good understanding of mothers pelvic structure and the physiological process of labour and allowing the mother to assume comfortable position during childbirth, providing support and suggestion, can result in positive and dramatic improvement in maternal and fetal well being. The most important aspect of the art of the midwifery is to protect the mother to be against anything that might increase her risk for injuries and complications, ensure and maintain the safety and sanctity of the natural birth process mainly through the practice of noninvasive procedures. The objective of this study was thus to assess the effects of supported sitting maternal birthing position versus the conventional lithotomy birthing position on selected obstetrical and perinatal outcomes among the normal low risk term primigravidae during the second and their stages of labour.

Objectives:

1. To assess the maternal, fetal, neonatal physiological parameters and maternal birthing experiences among the primigravidae in the supported sitting versus conventional lithotomy birthing position during the second and third stages of labour.
2. To determine the effectiveness of supported sitting versus the conventional lithotomy maternal birthing position on the outcome of maternal, fetal and neonatal physiological parameters among the primigravidae.
3. To find out the association between the selected variables and the outcome of labour among the primigravidae in the supported sitting and conventional lithotomy birthing position groups.

Methods:

A randomized two groups post interventional study was carried out in the labour room of the municipal maternity corporation hospital, Yediur, Bangalore, Karnataka from April 2008 to September 2009. Ethical clearance and clinical permission were obtained from the concerned authorities of Bruhat Bangalore Mahanagarae Palike (BBMP) municipal Maternity corporation hospital (MMCHs) Bangalore (south) and the medical superintendent/Medical officer of the study center-Yediur- (MMCH) prior to the study. A priori power calculation determined that a sample size of at least 200 subjects, 100 in interventional group and 100 in control group would be
able to detect a 25% difference in the outcome of labour with 80% power and an alpha level of 0.05 (two tailed). Hence totally 200 normal low risk term primigravidae between 38-42 weeks of gestation with single vertex fetus in anterior position, adequate pelvis, presenting in active phase of labour, without any obstetrical or medical risk factors and complications were selected. Primigravidae with rupture of membranes without contractions, induction of labour, malpresentation and malpositions of the fetus were excluded. Informed consent was obtained and women were randomly assigned by coin toss method, head to experimental group the upright supported sitting maternal birthing position (n-100) and tail to control group routine supine lithotomy birthing position (n-100). In the experimental group, during the second stage of labour, the woman’s back was elevated to 60 degree angle from the horizontal to assume upright supported sitting birthing position by the simple backrest attached standard delivery cot. While in the control group, the woman assumed the routine lying flat on the back supine/lithotomy birthing position. Intensive monitoring of their progress and constant physical and emotional support were given by the researcher. Fetal heart rate was monitored by Doppler fetal heart rate monitoring device. Once the birth was imminent, right medio lateral episiotomy was given the delivery was conducted in their allotted position. Third stage of labour was also conducted in their assigned position. After the delivery of the placental and membranes, the backrest was lowered to horizontal position and the women were placed in the supine position for the repair of the episiotomy. The main outcome variables measured were the quality of uterine contractions (duration, frequency and intensity), bearing down efforts, blood pressure, duration of second and third stage of labour, method of vaginal delivery and the blood loss by the observational rating scale and the intensity of the labour pain perceived by the primigravidae by the visual analogue pain scale.100mm (VAS-100mm) the quality of fetal heart rate pattern by Doppler fetal heart rate monitoring device, apgar scores of the newborns at 1 7 5 minutes of birth by APGAR scoring index and maternal birthing experiences by woman’s postpartum opinionnaire. Data were analyzed by SPSS version-15 and relevant descriptive, inferential statistics were computer for data presentation. A parametric students ‘t’ test was used to find out the significant difference between the two groups and nonparametric –chi-square (X2) and fishers exact probability tests were used to find out the association between the selected variables and the outcome of labour.

Results:
The two groups were homogenous with regard to all demographic and obstetrical variables as analyzed by Chi-square (x2) and fishers exact probability test, which indicated that the random assignment was valid and the selection bias could not have influenced and outcome variables. The student “t” test was used to compare the mean differences between the two groups on the maternal, fetal and neonatal physiological parameters. A statistically significant differences were observed between the two groups on the quality of uterine contractions 92 Vs 66 (92% Vs 66%) t=21.052, spontaneous bearing down efforts 92 Vs 66 (92% Vs 66%) t=18.714, absences of supine hypotension 0 Vs 17 (0% Vs 17%) fewer reports of excruciating
intrapartal labour pain 15 Vs 58 (15% Vs 58%) “t”=10.390 minimal use of oxytocin 8 Vs 27 (8 % vs 27%) analgesics 15 Vs 58 (15% vs 58%) shorter duration second stage of labour (56 Vs 67 minutes) “t”=14.403 third stages of labour, (12 Vs 22 minutes ) “t”=23.872 a fewer instrumental deliveries 8 Vs 42 (8% vs 42%) “t=4.255, insignificant amount of blood loss (340 Vs 330ml) “t”=1.649, a fewer irregular fetal heart rate pattern 7 vs 13 (7% Vs 13%) “t′=4.320, higher Apgar scores 9 at 1 minute 74 vs 51 (74% vs 51%) “t’=3.450 and 10 at 5 minutes of birth 87 Vs 71 (87% Vs 71%) “t”=3.240 and the overall outcome of labour “t”=17.544 at p<0.001 level. The chi square and fisher’s exact probability test, revealed no significant association between the outcome of labour and the maternal weight, newborn weight, maternal haemoglobin, use of oxytocin and analgesics in both the groups. Regarding the maternal birthing experiences, majority of the participants in the supported sitting birthing position reported more favourable birthing experiences in terms of comfort, more ease in pushing, active involvement in labour process, shorter second stage of labour, more perceived feelings of being safe and higher preference of their assigned position for their next child birth.

Interpretations:
Supported sitting maternal birthing position compared with the conventional lithotomy birthing position during the second and third stages of labour was generally associated with shorter duration of second, their stages of labour, efficient uterine contractions, spontaneous bearing down efforts, absence of supine hypotension, fewer reports of excruciating intrapartal labour pain, greater level of maternal comfort, increased perception of maternal active participation during pushing, more perceived feelings of being safe, fewer irregular FHR pattern, highest Apgar scores of the newborns, fewer instrumental deliveries, minimal use of oxytocin, analgesics and in insignificant amount of blood loss.

Conclusion:
In healthy normal low risk, term primigravidae, supported sitting maternal birthing position was associated with a beneficial maternal, fetal, neonatal, physiological parameters and favourable maternal birthing experiences as compared with the conventional lithotomy position. There were no adverse maternal and fetal outcomes with either position. In women with a low obstetric risk, supported sitting maternal birthing position may be encourages as a safe alternative maternal position for labour.

Key words:
Maternal birthing position  supported sitting, conventional lithotomy position, primigravidae, maternal, fetal and neonatal physiological parameter, maternal birthing experiences and outcome of labour.