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CHILD BIRTH;
COMPARISON OF COMPLICATIONS BETWEEN LITHOTOMY POSITION AND SQUATTING POSITION DURING

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ABSTRACT… Objectives: The purpose of the study was to compare the complications of delivery in squatting and lithotomy position of mother. **Study Design:** Randomized controlled trial. **Setting:** Gynecology/Obstetrics Unit-II, Sandeman Provincial Teaching Hospital, Quetta. **Period:** 6 months (05 Oct, 2011 to 05 April, 2012) **Methods:** Hundred and fifty one patients with lithotomy position in delivery were compared with hundred and fifty one patients with squatting position in delivery regarding risks of perineal tears, periurethral tear, extended episiotomy, instrumental delivery, caesarean section and primary postpartum hemorrhage. Data was recorded on a specially designed Performa and was analyzed by using SPSS.V. 10. Results were compared using Chi-square test by keeping the p-value of < 0.05 as significant. **Results:** 151 patients in lithotomy position and 151 patients in squatting position were compared and studied for complications during delivery. Extension of the episiotomy was observed in (7%) of non-squatting groups. There were no extensions of episiotomy in squatting group. There were no second degree, or third degree perineal tears in squatting group which were encountered in (9%) patients in the lithotomy position group ($P<0.05$). Forceps application was also less in squatting position group 11% patients, whereas 24% patients were delivered by forceps in lithotomy group, ($P<0.05$). One patient in the lithotomy position had to have a caesarean section due to persistent occipito-posterior position. There was no case of retained placenta or postpartum hemorrhage in squatting group whereas there were 4% cases of retained placenta and 1 case of postpartum hemorrhage due to atony of the uterus in lithotomy position group. **Conclusions:** It appears that the routine use of lithotomy position may have some disadvantages in terms of more instrumental deliveries and episiotomies. Moreover women experience significant pain in this position. It is suggested that more trials should be conducted and the position at the moment of birth should be registered to measure its influence on birth outcome.

Key words: Squatting position, Lithotomy position, Child birth.

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INTRODUCTION

Position of mother at delivery are divided into supine, semi-recumbent, lithotomy, lateral and upright position i.e. standing, sitting, squatting and kneeling.[1] Squating position during labour and delivery have clinical advantages including satisfactory maternal and neonatal outcome. Improved perineal integrity, less vulvar edema and less blood loss are profound effects of upright position.[2] Shorter duration of delivery, reduced need of labor augmentation, lower use of analgesics and women's acceptance of these methods of delivery are advantages of alternative methods, with the same level of maternal and neonatal safety as in classic delivery.[3]

The upright posture improves the quality of uterine contractions. The squatting position results in shorter and more comfortable labour than other positions.[4]The obstetrical complications in both squatting and lithotomy positions observed in patients are extension of episiotomies in squatting position (0%), lithotomy position (7%). Para-urethral tears in squatting position 7 (5%), lithotomy position 14 (9%). Second and and third degree perineal tears in squatting position (0%), lithotomy position (9%). Forceps application in squatting position 17 (11%), lithotomy position 36 (24%). Retained placenta in squatting position is (0%), in lithotomy position 4%, whereas postpartum hemorrhage in squatting position is

(0%), and in lithotomy position is 1%.[5]

Physiological advantages of squatting versus lithotomy position includes use of gravitational force to assist patient effort to bear down, productive uterine contractions and less aortocaval, intrauterine fetal cord compression and good perineal access.[6]

Upright position in labor is not associated with significant reduction in the risk of both assisted vaginal delivery, caesarean section and a significant reduction in labor duration.[7]
Squatting women require significantly less labor stimulation by oxytocin during second stage and they have fewer instrumental deliveries, fewer perineal lacerations and lesser need for episiotomies.[8]

Various positions were used for child birth in the past but supine position become popular in 17th century with the advent of forceps[9] .In 18th century, a French physician Francois Mauriseau, introduced supine position to facilitate the care of women and to enhance obstetric maneuvers.[10]

The objective of this study was to compare the risks of delivery in squatting and lithotomy position as in past no study is done on this obstetrical aspect at our setup. In lithotomy position, mother lies on her back with flexed hips, has become the standard position in hospitals. Due to easy access to baby for the health professionals, it is considered ideal position for delivery. But for the mother however it may not be so ideal. This study was being conducted to compare the risks of complications of lithotomy and squatting positions in active labor. The position with less number of risks will be considered suitable for the women in second stage of labor. The results of the study will be shared with other health professionals of the department so that the maternal position during delivery which results in less number of complications will be adopted in routine.

MATERIAL AND METHODS

A randomized controlled trial was conducted at department of Obstetrics & Gynecology unit-II SPH (BMC) Quetta on 302 pregnant women, 151 in each group during 6 months (05 Oct, 2011 to 05 April, 2012). The inclusion criteria were all the patients including booked/unbooked with term pregnancy of gestation greater than 37 and less then 40 weeks, presenting in active labor and with only cephalic presentation. The exclusion criteria were mal presentation, multiple gestation,antepartum heamorrhage, previous surgery (caesarean, myomectomy), and antenatally diagnosed fetal anamolies, to control confounding variables because these pregnancies are already at increased risk of operative interventions and complications like postpartum hemorrhage.

All the primigravida and multigravida above 37 weeks of gestation in labor, attending the Obstetrics and Gynecology outdoor patient department and labor room of SPH (BMC) were carefully assessed for inclusion criteria. The Patients were randomly divided into two groups, Group A (Squatting position) and Group B (Lithotomy position) for study purpose. Detailed history was taken and complete examination was performed.

151 patients delivery conducted on regular delivery tables in lithotomy position, while the other 151 patient deliveries conducted on regular delivery tables in squatting position. The aim and importance of the study were explained to the patients by the researcher and informed consent of patients was taken to record data and information on specially designed Performa. Frequency of each risk i.e. perineal tears, periurethral tears, extended episiotomy, instrumental delivery, caesarean section, primary postpartum hemorrhage were noted than on Performa.

Data was analyzed on computer by using the software SPSS v-10. Frequency and percentages of all the variables i.e. perineal tears, periurethral tears, extended episiotomy, instrumental delivery, caesarean section, primary postpartum hemorrhage were calculated for both groups to compare the frequency and distribution of

each variable among each group. The statistical significance of study outcomes and variables were determined by chi-square test, keeping the level of significance less than 0.05.

RESULTS

A total of 302 patients were included in this study over a period of six month. The patients were divided into Group –A (Squatting position) and Group –B (Lithotomy position). 151 patients delivery was conducted on regular delivery table in lithotomy position, while the other 151 patient's delivery was conducted on normal delivery table in squatting position, as special birthing chair used for squatting position were not available in our labor room. The average age of the women was 36.45±8.45 years.

Episiotomy extension occured in 11(7.3%) in group B while no episiotomy extension in group A. Peri-uretheral tears observed in 7 patients (4.6%) in group A, who were not given an episiotomy incision and 14(9%) encountered in group –B (P= 0.11). Perineal tear was observed in 30.5% cases in squatting group and 25.2% in lithotomy group (P= 0.30).

Forceps application in group-A17 (11%) patients, whereas 36 (24%) patients in group-B (p= 0.004). Cesarean section was observed in 12 (7.9%) in group-A and 2.6% in group B (P= 0.23) as presented in table II.

Duration of third stage of labor was also reduced with blood loss of less than 500 ml and there was no retained placenta for postpartum hemorrhage in group-A.

Factors	Group-A (n=151)	Group-B (n=151)	P Value
Perineal tear	46(30.5%)	38 (25.2%)	0.30
Periurethral tear	7 (4.6%)	14 (9.3%)	0.11
Extended episiotomy	0	11 (7.3%0	0.001
Instrumental delivery	17 (11.3%)	36 (24%)	0.004
Caesarean section	12 (7.9%)	4 (2.6%)	0.04
Primary postpartum hemorrhage	4 (2.6%)	8 (5.3%)	0.23

Table-I. Comparison of factors between groups during the stage of labor

Indications	Group-A (n=151)	Group- B (n=151)
Malpresentation	4 (8.0%)	2 (4%)
Failure to progress	3 (6%)	1 (2%)
Postdate Pregnancy	2 (4%)	0
Obstructed labour	1 (2%)	1 (2%)
Severe pre- eclampsia	2 (4%)	0
Total	12 (24%)	4(8%)

Table-II. Indications of Cesarean section

DISCUSSION

In our study delivery was conducted on regular delivery tables as no special chairs were available. Although the squatting position is difficult to maintain during labor and child birth, it is also tiring or uncomfortable for women but once patient adopted the squatting position, they were uneasy to lie down on delivery table as it was much easier for patient to push in this posture due to effect of gravity. The selection of delivery position is always under debate. Most previous studies conducted on comparing upright verses dorsal positions to assess maternal condition. Although an upright delivery position has been associated with increased postpartum hemorrhage, but apparent advantages are less severe labor pains, regular uterine contractions, reduced need for augmentation, shortened second stage, increased pelvic dimensions, less risk of aortocaval and fetal cord compression, maternal hypotension and fetal distress.

In our study there was a clinical reduction of forceps deliveries in group A. 17(11%) patients had a forceps delivery in squatting group as compared to 36 (24%) in lithotomy group, which was similar to the study by De Jonge et al.[11]

Patients who delivered in group A had less perineal tears and shortened second stages of labor with less need of surgical intervention which was in comparison to the study by Shorten, Allison etal.[12]

Supine position is an unfavorable one because women have to push against gravity and excessive pressure is exerted on the posterior vaginal wall while pressure distribution is even to vaginal circumference from head of baby in squatting posture. Squatting opens the pelvic diameters by

as much as 2 centimeters and stretches perineum naturally and requires less bearing down effort. Use of gravity helps to bring the baby's head down and encourages rapid descent due to an increased urge to push.[13] Shortened labor helps to reduce maternal fatigue. The squatting position also keeps the gravid uterus away from aorta and thus excellent fetal circulation. Fetal distress is observed in several babies when the mother is lying in supine. It is also no more required to keep woman supine or lateral to monitor fetal heart sound.

Manufactures can make such beds that positions can be changed according to need during second stage. However, till such facilities become available in a our country, it would be better to say that squatting position yield better results than lithotomy as women feel more comfort. It also prevents postpartum hemorrhage, aortocaval compression, allows good fetal circulation and increases the diameter of pelvis to 20-30%, encourages rapid descent and allows excellent perineal access

CONCLUSIONS

This study concluded that allowing women to assume squatting position during labor and delivery do not increase feto-maternal risk. In fact non- supine positions can be used safely to reduce perineal trauma and other complications. It may be wise to choose squatting position in order to achieve the clinical benefits like shortened second stage of labor, less severe perineal lacerations, vulvar edema, blood loss and caesarean section. Routine use of supine position should be discouraged.

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"Life is worth leaving with courage."

Shuja Tahir

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Zaibunnisa	Designed, statistical analysis, editing of manuscript & writing	
2	Dr. Firdos Ara	Data provision, profarma filling	
3	Dr. Bilqees Ara	Manuscript writing, followup of cases, investigation	
4	Dr. Palwasha Kaker	Data provision, record, maintainance	
5	Dr. Mahrang Aslam	Manuscript writing.	