ผลของการปฏิบัติมณีเวชท่าผีเสื้อต่อการลดระยะเวลาช่วงปากมดลูกเปิดเร็ว สตรีตั้งครรภ์ที่คลอดบุตรครั้งแรกในโรงพยาบาลสรรพสิทธิประสงค์ : การศึกษาทดลองแบบสุ่มมีกลุ่มเปรียบเทียบ

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บทคัดย่อ

วัตถุประสงค์: เพื่อศึกษาผลของการปฏิบัติมณีเวชท่าผีเสื้อต่อการลดระยะเวลาการคลอดระยะที่หนึ่งในสตรีตั้งครรภ์คลอดบุตรครั้งแรก

วัสดุและวิธีการ: การทดลองแบบสุ่มในสตรีตั้งครรภ์เดี่ยวอายุระหว่าง 15-34 ปีที่คลอดบุตรครั้งแรก ซึ่งมาด้วยอาการเจ็บครรภ์คลอดและได้รับไว้ดูแลในห้องคลอดโรงพยาบาลสรรพสิทธิประสงค์ อายุครรภ์ระหว่าง 37-41 สัปดาห์ เมื่อปากมดลูกเปิดอยู่ระหว่าง 3-6 เซนติเมตร และยังไม่มีภาวะถุงน้ำคร่ำแตก สตรีตั้งครรภ์จะได้รับการสุ่มออกเป็น 2 กลุ่ม ได้แก่ 1.กลุ่มที่ได้รับการสอนให้ปฏิบัติมณีเวชท่าผีเสื้อ หรือ 2.กลุ่มควบคุมที่ได้รับการดูแลตามมาตรฐานขณะรอคลอด ผลลัพธ์หลักคือระยะเวลาช่วงปากมดลูกเปิดเร็ว เปรียบเทียบโดยใช้ student t-test ผลการศึกษารองที่ทำการเก็บข้อมูลได้แก่ ผลลัพธ์ทางมารดาเกี่ยวกับคะแนนความเจ็บปวด ความถี่ของการหดรัดตัวของมดลูกขณะปากมดลูกเปิดหมด การสูญเสียเลือดหลังคลอด และภาวะแทรกซ้อนต่อทารก

ผลการศึกษา: ผู้เข้าร่วมการศึกษาจำนวน 102 รายไม่มีความแตกต่างของลักษณะพื้นฐาน ไม่พบความแตกต่างของระยะเวลาช่วงปากมดลูกเปิดเร็ว รวมถึงภาวะแทรกซ้อนทางมารดาและทารกระหว่าง 2 กลุ่มอย่างมีนัยสำคัญทางสถิติ แต่พบว่ากลุ่มมณีเวชมีการเปลี่ยนแปลงคะแนนความเจ็บปวดซึ่งประเมินโดยใช้ตัวเลขบอกระดับความรุนแรงของอาการปวดเมื่อแรกรับจนถึงระยะปากมดลูกเปิดหมดน้อยกว่ากลุ่มควบคุมอย่างมีนัยสำคัญ (มัธยฐานที่เปลี่ยนแปลง 1.0 ในกลุ่มมณีเวชเมื่อเทียบกับ 3.0 ในกลุ่มควบคุม, P<0.005) นอกจากนี้กลุ่มมณีเวชยังพบระยะห่างของการหดรัดตัวของมดลูกเมื่อปากมดลูกเปิดหมดสั้นกว่ากลุ่มควบคุมอย่างมีนัยสำคัญ (มัธยฐาน 120.0 วินาทีในกลุ่มมณีเวช เมื่อเทียบกับ 130.0 วินาทีในกลุ่มควบคุม, P=0.017)

สรุป: แม้การปฏิบัติมณีเวชท่าผีเสื้อในช่วงปากมดลูกเปิดรวดเร็วจะไม่สามารถลดระยะเวลาการรอคลอดคลอดระยะที่หนึ่ง แต่มีส่วนช่วยในการลดความเจ็บปวดขณะรอคลอด อีกทั้งช่วยเรื่องความถี่การหดรัดตัวของมดลูกในขณะปากมดลูกเปิดหมด โดยไม่เกิดภาวะแทรกซ้อนของมารดาและทารกในครรภ์

คำสำคัญ: ระยะเวลาช่วงปากมดลูกเปิดเร็ว, มณีเวชท่าผีเสื้อ, การลดความเจ็บปวด, การหดรัดตัวของมดลูก

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Introduction

Although, vaginal birth is the safest route of delivery, the nulliparous parturient who had no experience, might worry about pain during the time of delivery. There are many affecting factors involving in successful vaginal birth such as power, passages, passengers, position, physical condition and psychological condition [1,2,3,4]. Unbalancing of these factors can lead to prolong delivery, more labor pain, increase assisted operative vaginal delivery, more neonatal and maternal complications. The unsuccessful vaginal birth leads to the increasing rate of Cesarean delivery and its related morbidity. According to the rising of unnecessary Cesarean section in developing countries, World Health Organization (WHO) recommended that Cesarean rate should not exceed 15% [5]. In Thailand, rate of Cesarean is increased from 17.4% in 2000-2008 to 32.7% in 2015-2016 [6] which is higher than other Asian countries. There are medical and non-medical methods used to alleviate pain and promote progression of vaginal delivery. The medical pain relief is effective and able to quickly reduce pain, but it also has adverse effects on the pregnant women and fetuses. There are many reported non-medical methods [7], such as reflexology, hot compression, breathing exercise, abdominal massage and maternal positioning [8].

The maternal positioning such as walking, sitting, lying down, or lateral decubitus is safe and allowed to use during first stage of labor in low-risk parturient [9,10,11]. Moreover, there is evidence that walking and upright positions in the first stage of labor reduce the length of labor [12,13]. Maneevade is the combination of Chinese, Indian and Thai traditional medicine invented by Arjan Prasit Maneejiraprakarn. Maneevade about balancing body posture can reduce time of labor and help in progression of labor [2,3,4,14]. This original Maneevade composed of exercise in 7 positions (hand to hand, dough milling, take off the shirt, rowing, release energy, stand and walk) in latent phase of labor and one butterfly position in active phase of labor which performed until fully dilatation of cervix. There are very few trials reported efficacy and complications of this complex exercise. Therefore, this study aimed to evaluate the efficacy of "butterfly" positioning Maneevade during active phase compares with standard care to reduce the duration of active phase. The secondary outcomes were effects on pain relief and delivery outcomes.

Materials and Methods

This 2-arm parallel-group randomized controlled trial was conducted in the labor room at Sunpasitthiprasong Hospital, Ubon Ratchathani, Thailand from June 8th, 2020 to August 15th, 2020. The nulliparous singleton pregnant women, aged 15-34 years, 37-41 weeks of gestation, cephalic presentation, who were in labor with cervical dilatation of 3-6 cm and intact membranes were invited to participate in this trial. The women who received induction of labor, had a history of hypertension or diabetes mellitus, had the height less than 140 cm (short stature), had emergent condition requiring Cesarean section, had fetal anomaly or dead fetus were excluded. This study was registered at http://www.thaiclinicaltrials.gov (TCTR20200712003) and was approved by the Sunpasitthiprasong Hospital Ethics Committee (Ref. no: 034/2563).

After giving written informed consent, baseline sociodemographic data, such as age, occupation, and education were recorded. Data on clinical and obstetric characteristics including gravidity, gestational age, history of abortion, history of curettage, body mass index (BMI), estimated fetal weight, cervical dilatation, interval of uterine contraction, pain score at enrollment and at fully-dilated cervical dilatation were obtained.

After enrollment, the participants were randomly allocated into 2 groups: 1) intervention group performed butterfly positioning Maneevade for 20 minutes every hour until fully dilatation of cervix or 2) control group received standard obstetric care. Randomization numbers were generated by Microsoft Excel version 2010 used random function into two groups. The randomization identification was packed in sealed opaque envelops which were picked in order. The participants, research assistant nurses who taught the intervention, and outcome assessor (principal investigator) were not blinded due to the nature of the intervention.

Intervention

The standard care is observing progression of labor, continuous fetal monitoring, pain controlling when pain score > 7 and cervical progression < 5 cm, teaching breathing exercise and psychological support. The intervention included getting the practice butterfly positioning teaching by nurses (research assistants) who passed the training of Maneevade program. The participants in intervention group start performing butterfly positioning since the time of enrollment that cervical dilated 3-6 cm. The participants would practice this butterfly positioning every hour for 20-minutes each session under supervision of nurses (research assistants) to check the correct position. The butterfly positioning Maneevade is performed in sitting upright position with cross-legged and splicing soles, then lean forward about 15 degrees along with press both knees against the ground while counting 1 to 20 (20 seconds) and rest for 40 seconds, then continuously repeatedly performed for 20 rounds (20 minutes). The participants in both groups underwent augmentation with oxytocin and/or artificial ruptured of membrane and analgesia as indicated. The pain score and uterine contraction were evaluated again at the time of cervical fully dilatation.

Outcome ascertainment

Primary outcome is the duration of active phase which means the time from an enrollment to fully dilatation of cervix. Secondary outcomes such as pain scores, interval of uterine contraction at fully-dilated cervix, duration of second stage of labor, total labor time, route of delivery, maternal and neonatal outcomes such birthweight, postpartum hemorrhage were recorded. Total labor time means the duration from enrollment to delivery (active phase plus second stage). The factors that may affect outcomes such as augmentation methods, augmentation time, membrane ruptured time were also obtained.

Pain scores were assessed by the participants using numerical rating scale. The participants reported the number that is best describing their pain dimension, the intensity of pain range from 0 being “no pain” and 10 being “the worst pain imaginable”. The pain

scores were collected every hour in both groups by nurses along with regular vital signs measurement, and labor progression observation. Postpartum hemorrhage was defined as blood loss in 24 hours postpartum of at least 1000 ml for Cesarean delivery or at least 500 ml for vaginal delivery.

Statistical analysis

Sample size calculation based on data from the previous study by Uthairat P and Saejiaw A [(2)], which showed that performing Maneevade could reduce duration of first stage (mean ±standard deviation(SD) 261.17 ±95.59 in control group VS 194.60 ±89.56 in intervention group, P=0.007). At 99% confidence level (α = 0.01), 80% power (β = 0.2) and 10% missing data and loss of follow-up assumed, 51 participants were required in each group.

Statistical analysis was performed using SPSS version 25.0 (SPSS Inc. Chicago, IL, USA). The participants characteristics are presented as number (%), mean (SD) and median (interquartile range; IQR) for categorical, normally and non-normally distributed continuous variables respectively. Continuous data was tested for their distribution using Komolokov-Smirnov test. The comparison between intervention and control groups were performed using Chi-square test, independent t-test and Mann-Whitney-U test for categorical, normally and non-normally distributed continuous variables respectively. An intention-to-treat analysis was used. A P-value of < 0.05 was considered statistically significant.

Results

Figure 1 shows flow of participants recruitment, randomization, application of intervention and outcomes ascertainment in this trial. A total of 191 nulliparous singleton pregnant women who were in labor were presented at Sanpasittiprasong Hospital's Department of Obstetrics and Gynecology during the study period. There were 48 cases who refused to participate in this study, 17 cases who had received labor induction, 16 cases who had gestational diabetes mellitus and/or hypertension, one case who had fetal anomaly, 4 cases of placenta previa and 3 cases of fetal distress which required emergency Cesarean delivery. A total of 102 participants were recruited to the study and allocated into 51 participants in each treatment groups**.** There were 7 participants in control group and 8 participants in intervention group who underwent Cesarean section before fully-dilated cervix and were unable to assess the actual active phase duration.

Figure 1. Enrollment, randomization, and follow-up of the study participants

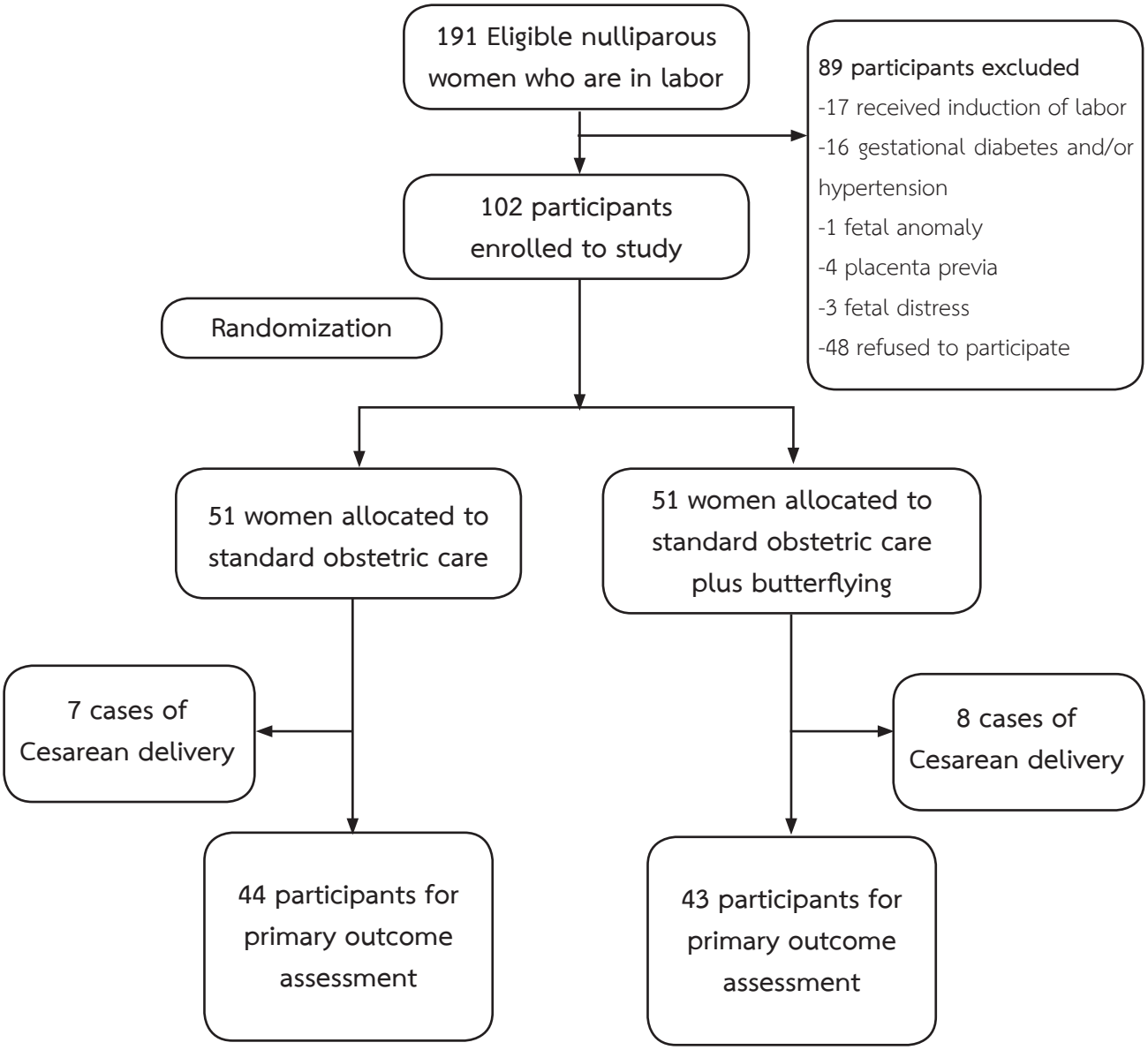

Table 1 shows socioeconomic, clinical and obstetric characteristics of participants. There was no difference between groups in age, gravidity, gestational age, estimated fetal weight, cervical dilatation, interval of uterine contraction and pain score at enrollment. After randomization, 23.5% of participants underwent artificial rupture of membrane (ARM), 11.8% received augmentation with intravenous oxytocin, and 29.4% received combined ARM and intravenous oxytocin. There was no difference in methods of augmentation, total augmentation time, and total ruptured membrane time between groups.

Table 1 Baseline characteristics of participants* (n = 102)

	Total (n=102)	Control (n=51)	Maneevade (n=51)	P-value
Age (years)	24.00 (19.00,27.25)	23.00 (19.00,27.00)	24.00(19.00,28.00)	0.599
Occupation				0.392
Housewife	35 (34.5%)	18 (35.3%)	17 (33.3%)	
Employee	22 (21.6%)	11 (21.6%)	11 (21.6%)	
Student	5 (4.9%)	3 (5.9%)	2 (3.9%)	
Farmers	4 (3.9%)	3 (5.9%)	1 (2.0%)	
Own business	13 (12.7%)	3 (5.9%)	10 (19.6%)	
Government officials	7 (6.9%)	5 (9.8%)	2 (3.9%)	
Workers	16 (15.7%)	8 (15.7%)	8 (15.7%)	
Education				0.827
None	1 (1.0%)	1 (2.0%)	0 (0)	
Primary school	4 (3.9%)	2 (3.9%)	2 (3.9%)	
Lower secondary **school**	23 (22.5%)	12 (23.5%)	11 (21.6%)	
Highschool	30 (29.4%)	14 (27.5%)	16 (31.4%)	
Vocational	13 (12.7%)	5 (9.8%)	8 (15.7%)	
Bachelor degree	31 (30.4%)	17 (33.3%)	14 (27.5%)	
Gravidity	1 (1,1)	1 (1,1)	1 (1,1)	0.728
Gestational age (weeks)	39.0 (38.0,40.0)	39.0 (38.0, 40.0)	39.0 (38.0, 40.0)	0.633
History of abortion	9 (8.82%)	5 (9.80%)	4 (7.84%)	1.000
History of curettage	1 (0.98%)	0 (0%)	1 (1.96%)	1.000
Body mass index (kg/m^2)	25.80 (23.43,27.47)	25.16 (24.00,27.18)	26.14 (22.86,27.81)	0.579
Estimated fetal weight (gm)	3000 (2700,3200)	3000 (2800,3200)	3000 (2700,3200)	0.628
Cervical dilatation at enrollment	3.0 (3.0,4.0)	3.0 (3.0,4.0)	3.0 (3.0,4.0)	0.457
Interval of uterine contraction at enrollment	210.0 (180.0,270.0)	215.0 (180.0,280.0)	190 (150.0,260.0)	0.093
Pain score at enrollment	6.37±2.09	6.01±2.06	6.72±2.07	0.086
Analgesia used (Pethidine)	2 (2.0%)	1 (2.0%)	1 (2.0%)	1.000
Augmentation				0.523
None	36 (35.3%)	17 (33.3%)	19 (37.3%)	
ARM	24 (23.5%)	10 (19.6%)	14 (27.5%)	
Oxytocin	12 (11.8%)	8 (15.7%)	4 (7.8%)	
Combine (ARM + oxytocin)	30 (29.4%)	16 (31.4%)	14 (27.5%)	
Total augmentation time (minutes)	177.1 ± 109.6	192.8 ± 120.7	160.5 ± 95.7	0.233
Total ruptured membrane time (minutes)	182.1 ± 117.4	190.9 ± 124.6	173.5 ± 110.4	0.456

ARM; artificial rupture of membrane

*Note: data in this table are presented as number (%), mean ± standard deviation and median (interquartile range) Chi-square test, independent t-test and Mann-Whitney U test for categorical, normally and non-normally distributed continuous variables respectively

Table 2 showed the comparison of delivery outcomes of the 102 participants. There were 87 participants (85.3%) had successfully vaginal delivery (44 vs 43 cases control and intervention group). Of the 87 participants who had vaginal delivery were able to assess active phase duration, second stage of labor duration, total labor time, interval of uterine contraction and pain score at fully-dilated cervix and change in pain score. There were comparable outcomes of duration of labor (active phase duration, second stage of labor duration, and total labor time). There was significant shorter interval of uterine contraction at fully-dilated cervix in treatment group (median of 120.0 VS 130.0 in intervention and control group, P=0.017). Although pain score at fully-dilated cervix was not different between group, the change in pain score from the time of enrollment to full-dilated cervix showed less change in intervention group (median change of 1.0 VS 3.0 in intervention and control group, P<0.001). There were only two participants (one in control group and one in intervention group) required pethidine as analgesia.

Table 2 Comparison of delivery outcomes between intervention and control groups*

	Total (n=87)	Control (n=44)	Maneevade (n=43)	P-value
Active phase duration (minutes)	246.18 ±119.74	244.73 ±129.24	218.44 ±95.66 (130.0,275	0.283
Second stage of labor duration (minutes)	14.00(9.00,20.00)	13.00(9.00,19.50)	14.00(10.00,24.00)	0.565
Total labor time (minutes)	238.0 (161.0,307.0)	236.0 (168.0,360.0)	238 (156,283)	0.497
Uterine contraction interval at fully dilatation (seconds)	130.0 (120.0,150.0)	130.0 (120.0,160.0)	120.0 (120.0,135.0)	0.017
Pain score at fully dilatation	8.0 (8.0,10.0)	8.0 (8.0,10.0)	8.0 (8.0,10.0)	0.178
Change in pain score	2.0(0,3.0)	3.0 (2.0,4.0)	1.0 (0,2.0)	<0.001

*Note: data in this table are presented as number (%), mean ± standard deviation and median (interquartile range) independent t-test and Mann-Whitney U test for normally and non-normally distributed continuous variables respectively

Table 3 showed the comparison of maternal and neonatal outcomes of the 102 participants. There were 15 (14.7%) participants underwent Cesarean delivery and 10 (9.8%) participants had postpartum hemorrhage. The postpartum hemorrhage and route of delivery were comparable between groups. Mean birthweight was 3000 gm. There was no significant difference in birthweight, Apgar score, respiratory support, NICU admission. The neonatal complication such as respiratory complications, neonatal jaundice, subgaleal hematoma, caput succedaneum, polycythemia, and sepsis were not significantly different between groups. There was significantly more neonatal cephalhematoma in intervention group (7.8% VS 0% in intervention and controlled group, P=0.041). There was one case of neonatal sepsis in intervention group.

Table 3 Comparison of maternal and neonatal outcomes between intervention and control groups* (n=102)

	Total (n=102)	Control (n=51)	Maneevade (n=51)	P-value
Route of delivery				0.780
Vaginal delivery	87(85.3%)	44 (86.3%)	43 (84.3%)	
Cesarean section	15 (14.7%)	7 (13.7%)	8 (15.7%)	
Postpartum hemorrhage	10 (9.8%)	3 (5.9%)	7 (13.7%)	0.183
Causes of postpartum hemorrhage				0.228
Uterine atony	7 (9.6%)	2 (3.9%)	5 (9.8%)	
Retained placenta	1 (1.0%)	0	1 (2.0%)	
Episiotomy tear	2 (2.0%)	2 (3.9%)	0	
Birth weight (gram)	3000.0 ± 385.2	3002.5 ± 424.5	2997.3 ± 345.7	0.946
APGAR score				
At 1 minute	9.0 (9.0,9.0)	9.0 (9.0,9.0)	9.0 (9.0,9.0)	0.718
At 5 minutes	10.0 (10.0,10.0)	10.0 (10.0,10.0)	10.0 (10.0,10.0)	0.575
Respiratory support				0.791
Endotracheal intubation	5 (4.9%)	2 (3.9%)	3 (5.9%)	
External respiratory support[a]	30 (29.4%)	14 (27.5%)	16 (31.4%)	
NICU admission	10 (9.8%)	4 (7.8%)	6 (11.8%)	0.505
Respiratory complications[b]	24 (23.5%)	12 (23.5%)	12 (23.5%)	1.000
Neonatal jaundice	14 (13.7%)	6 (11.8%)	8 (15.7%)	0.565
Subgaleal hematoma	2 (3.9%)	2 (2.0%)	0	0.153
Cephal hematoma	4 (3.9%)	0	4 (7.8%)	0.041
Caput succedaneum	2 (2.0%)	1 (2.0%)	1 (2.0%)	1.000
Polycythemia	2 (2.0%)	1 (2.0%)	1 (2.0%)	1.000
Sepsis	1 (1.0%)	0	1 (2.0%)	0.315

NICU; Neonatal intensive care unit

*Note: data in this table are presented as number (%), mean ± standard deviation and median (interquartile range) Chi-square test, independent t-test and Mann-Whitney U test for categorical, normally and non-normally distributed continuous variables respectively

[a]External respiratory support means using of any respiratory support other than endotracheal intubation such as nasal continuous positive airway pressure (CPAP), oxygen box or oxygen tubing

[b]Respiratory complications means any respiratory difficulty such as transient tachypnea of the newborn (TTNB), delay adaptation or nasal blockage

Discussion

In this randomized control trial, butterfly positioning Maneevade significantly improved uterine contraction interval at fully-dilated cervix and potentially showed efficacy in pain relief without serious maternal and neonatal complications. There was no significant difference in analgesia required, Cesarean delivery, postpartum hemorrhage and neonatal complications between the two groups.

Among the modalities which involving in maternal positioning and mobility during first stage of labor, upright position may benefit in reducing duration of labor when compare with lie down position [8,10]. However, recent systematic review [11,12] showed no effect on duration of first or second stage of labor. In this trial, butterfly positioning Maneevade could not affect active phase duration, second stage of labor duration and total labor duration. This result was differed from previous studies [1,2,3,14] which demonstrated shorter duration of active phase of labor. This may result from the heterogeneity of population in previous studies and the different style practicing and duration of performing butterfly positioning Maneevade. Moreover, by physiologically, this butterfly positioning may not create enough effect of gravitational forces to assist fetal descent and resulted in faster delivery.

The effect of butterfly positioning Maneevade to reduce interval of uterine contraction at fully-dilated cervix is similar with the previous studies [13]. The short uterine interval might be explained that, at the time of fully-dilated cervix, the fetus descent down and created the stretching force to stimulate impulse to posterior pituitary gland, resulted in oxytocin releasing and improved uterine contractility. This stretching force occur in both groups, but more intense in butterfly positioning Maneevade because of the upright position. However, the statistically significant decreased interval of uterine contraction for 10 seconds might not have clinically significant. The good uterine contraction is just one factor to promote successful of vaginal delivery but the other factor such as pelvimetry, estimated fetal weight, fetal lie, power and etc. must be considered as well.

There are many non-pharmacological pain-relieving methods using during labor [7] such as hypnosis, psychoanalgesia, transcutaneous electrical nerve stimulation (TENS), aromatherapy, massage, and maternal positioning. Previous studies showed that maternal positioning demonstrated the efficacy in reducing pain [8,12], especially Maneevade positioning [2,4,14]. These findings support the result of this study which could demonstrate the efficacy in reducing pain after practicing butterfly positioning Maneevade during first stage of labor. This might be explained by Butterfly positioning

like upright positioning, make sacral bone move backward and increase pelvic outlet diameter which resulted in decreased compression of sacral plexus and reduce pain. This study could not demonstrate the effect of intervention on intrapartum analgesia used because there were only 2 cases required pethidine.

In previous studies [8,12], maternal positioning could reduce instrumental vaginal birth, decrease Cesarean delivery rate, and promote vaginal birth, but this effect could not be demonstrated in this study because of the small sample size. The previous study [4] showed that Maneevade positioning decreased risk of postpartum hemorrhage. Butterfly positioning Maneevade during intrapartum period in this study, also showed no significantly increase postpartum hemorrhage or amount of bleeding. This finding convinced the safety of using this maternal positioning during labor

In the aspect of neonatal complications, the previous study [12] did not show the adverse neonatal outcomes of maternal positioning during labor. Besides, the vertical positions may benefit from gravity effect, reduce aortocaval compression, make uterine contractions effective, and reduce fetal distress**.** These findings were similar with results in this study that showed no significant difference in Apgar score, NICU admission, and certain neonatal complications. However, there is statistically significant difference cephalhematoma in the intervention group (7.8% VS 0% in intervention and control group, P=0.041). All infants with cephalhematoma were delivered by vacuum extraction. This might imply the risk of neonatal injury from operative vaginal delivery. The NICU admission rate is 9.8% because the babies had respiratory complications which required respiratory support such as nasal continuous positive airway pressure, or endotracheal intubation and those who closed monitoring.

This study is the well-designed randomized controlled trial proved efficacy of butterfly positioning Maneevade in reducing pain and improve uterine contractility without serious maternal and neonatal complications. This maternal positioning may be additionally use in pregnant women in first stage of labor. However, there is limitation of double blinding due to nature of intervention and the limitation of interpersonal variation in assessing uterine contraction. Moreover, the practicing butterflying positioning is individually varied because of many factors such as body habitus, size of fetus, flexibility of pregnant women, intention and attempt to perform. To prove other outcomes, the full-programmed Maneevade and the greater population size may be required.

Conclusions

The practice of butterfly positioning during intrapartum period may be helpful in reducing pain and improve uterine contraction. But there is still no benefit in reducing labor duration. However, no serious complications were observed in pregnant women and infants. Butterfly positioning Maneevade is safe and can be additionally applied to standard caring for pregnant women while waiting for delivery.

Conflicts of interest

The authors declare no conflicts of interest.

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Effect of the butterfly positioning Maneevade in reducing active phase duration in nulliparous women at Sunpasitthiprasong Hospital : A parallel group randomized controlled trial

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Abstract

Objective: To evaluate efficacy of the butterfly-positioning Maneevade in reducing first stage of labor in nulliparous women

Materials and methods: A randomized controlled trial was conducted in nulliparous singleton women aged 15-34 years, gestational age 37-41 weeks, who were in labor and admitted into labor room at Sunpasitthiprasong hospital. The participants with cervical dilatation of 3-6 cm and intact membranes were randomly assigned into two groups: 1) intervention group: performed butterfly-positioning Maneevade or 2) control group: received standard obstetric care. The primary outcome was duration of active phase compared using student t-test. Secondary outcomes included pain score (PS), interval of uterine contraction (UC) at fully-dilated cervix, maternal blood loss and neonatal outcomes were also recorded.

Results: The total of 102 participants had comparable baseline characteristics. There was no significant difference in active phase duration, maternal blood loss and neonatal complications between groups. However, there was significant change in PS assessed by numerical rating scale between groups from the enrollment to fully-dilated cervix (median change of 1.0 VS 3.0 in intervention group and control group, P<0.005) and significant difference in interval of UC at fully-dilated cervix (median of 120.0 VS 130.0 seconds in intervention group and controlled group, P=0.017).

Conclusion: Although Butterfly-positioning in active phase of labor cannot decrease first stage of labor duration, but it is effective in pain relief and improving UC at fully-dilated cervix, without significant maternal and neonatal complications.

Keywords: Active phase duration, butterfly-positioning Maneevade, pain relief, uterine contraction

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