

Effect of Early Initiation of Breastfeeding on the Uterine Consistency and the Amount of Vaginal Blood Loss during Early Postpartum Period

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ABSTRACT

Introduction: In growing countries, women's death is contributed to a wide array of complications in pregnancy, childbirth or the postpartum period. These complications existed because of their pregnancy status and some because pregnancy, severed their existing diseases. Among developing countries, postpartum hemorrhage is the most common cause of maternal morbidity and mortality. As recommended by the Baby Friendly Hospital Initiative (BFHI), infants must be in skin to skin contact with their mother immediately after birth, and mothers must be assisted for initiating breastfeeding within the first half hour of initiating birth. There are lesser studies on breastfeeding advantages for mothers compare to those of infants, but satisfactory evidences show that women who breastfeed have improved health in the short term and has lower risk for developing future diseases.

Aim of the Study: This study aims to examine the effect of early initiation and frequency of breast-feeding on the uterine consistency and the amount of vaginal blood loss during early post-partum period.

Methods: A quasi experimental research design was carried out. Study was conducted in delivery room and postpartum units at King Fahd Hospital of the university in Al-Khobar, and Qatif Central Hospital in Qatif and Maternity and Children Hospital in Dammam. Convenient sample was used over a period of three months. The sample size was (100 women) whom divided into two groups. The researchers assessed the uterine consistency, fundal level and the amount of vaginal blood loss for women in both groups immediately following placenta separation and every 30 minutes for the first 2 hours in relation to breastfeeding.

Results: In relation to uterine consistency after placental delivery the experimental and control groups showed no statistically significant differences between them. As regards to the amount of vaginal blood loss in the experimental and control groups, it was observed that the mean of vaginal blood loss among the control group was higher compared with the experimental group, this difference was statistically significant.

Conclusion: Early initiation and frequency of breastfeeding immediately following labor decrease the amount of vaginal blood loss and improve uterine involution.

Keywords

Early initiation of breast-feeding, Vaginal blood loss, Early postpartum.

Introduction

In growing countries, women's death is contributed to a wide array of complications in pregnancy, childbirth or the postpartum period. These complications existed because of their pregnancy status and some because pregnancy, severed their existing diseases [1].

Among developing countries, postpartum hemorrhage is the most common cause of maternal morbidity and mortality. Approximately 800 women die per day due to pregnancy and childbirth cases that are mostly preventable and 99% of these deaths occurred among these countries [2].

In spite of the Obstetric Care done to decrease blood loss, postpartum hemorrhage PPH remains to be the leading cause of mortality around the world, with an estimated 6% prevalence rate [3].

The increase in mortality is attributed to uncontrollable loss of blood and rapid onset of PPH. Mild to moderate PPH refers to a vaginal bleeding in excess of 500ml. On the other hand, a vaginal bleeding in excess of 1000 ml during the first 24 hours is called severe PPH. PPH is related to long term morbidity conditions such as anemia, blood transfusion, renal failure, coagulation deficiencies and hysterectomy. Late complications of PPH may include some surgical procedures involving reduction of blood flow to the uterus and subsequent consequence of infertility [4].

Worldwide statistics show that 150, 000 women die of postpartum hemorrhage in every 1-4 minutes yearly and more than half of it were maternal deaths within 24 hours of giving birth as a result of excessive bleeding [5].

Studies reveal that breastfeeding protects the mother from short- and long-term problems, and that breastfeeding exclusively for longer periods can result to an optimum maternal health [6].

As recommended by the Baby Friendly Hospital Initiative (BFHI), infants must be in skin to skin contact with their mother immediately after birth, and mothers must be assisted for initiating breastfeeding within the first half hour of initiating birth [7]. The movement of the infant's hand over the mother's breast during skin to skin contact stimulates the release of oxytocin, resulting to increased breast milk secretion [8].

Common slogans such "Breastfeeding saves lives" and "Breast is best" are advocated by health care providers and women [9]. It has been an established fact that breastfeeding benefits both mothers and infants [10].

There are lesser studies on breastfeeding advantages for mothers compare to those of infants, but satisfactory evidences show that women who breastfeed have improved health in the short term and has lower risk for developing future diseases [11].

Exclusive breastfeeding during the first six month and breastfeeding for children, two years and beyond with complementary foods for achieving optimal growth among infant is highly suggested by the World Health Organization [12]. Furthermore, other than supplying necessary nutrients, breast milk is also attributed to decrease conditions such as sudden infant death syndrome, respiratory-gastrointestinal tract infections, and allergic diseases. Breastfeeding is also related in decreasing risk of developing obesity, cardiovascular disease, diabetes, and hematologic malignancies in future life [13,14].

However, with all these studies and recommendations of World Health Organization, rates for initiation and duration of breastfeeding are still lesser than expected worldwide. As per United Nation Children's Fund, Exclusive breastfeeding rates have not changed significantly and is only 36% [15].

Aim of the study

This study aims to examine the effect of early initiation and

frequency of breast-feeding on the uterine consistency and the amount of vaginal blood loss during early post partum period.

Methods

A quasi experimental research design was carried out.

Setting

Study was conducted in delivery room and postpartum units at King Fahd Hospital of the university in Al-Khobar, and Qatif Central Hospital in Qatif and Maternity and Children Hospital in Dammam, Eastern province. These hospitals were chosen because they are governmental hospitals with high admission rate.

Subjects

Convenient sample was used over a period of three months. Six days per week starting from the beginning of October till the end of December 2011. All primiparas admitted to the previously mentioned settings were included in the study. They were selected according to the following criteria: Primigravida, in spontaneous labor and assume lithotomy position, 37- 42 weeks of gestation, had single viable fetus in cephalic presentation with no congenital anomalies interfering with breast-feeding, age between 20-35 years old.

About 500 - 550 women get admitted to the "normal" delivery room every month and about 100 uncomplicated primi- parturient women deliver in the labour room every month. Around 15 to 20 deliveries are conducted in the labour room every day. based on this information from the hospitals, the sample size which collected in the morning shift for three months was (100 women) whom divided into two groups.

Tools

Assessment tool which include socio-demographic characteristics of the participants such as: age, level of education, occupation, place of residency, family income, information related to breast-feeding such as: time of initiation of breast feeding, and number of feeds within the first two hours after placental separation. The researchers assessed the uterine consistency, fundal level and the amount of vaginal blood loss for women in both groups immediately following placenta separation and every 30 minutes for the first 2 hours.

The researcher calculated the blood loss for each study subjects during the first 2 hours after delivery of placenta for both groups. The amount of blood loss was measured through weighing the perineal pad by the same sensitive weighing scale before and after its use. The difference between the two weights was calculated to give the amount of blood loss in grams. One gram of pad weight difference is estimated to be approximately equal to 1ml of blood.

Ethical permission of the study obtained from research ethical committee at University of Dammam. Permission from hospital administration and chairman of OB/Gyne department obtained. data regarding: uterine consistency, fundal level and the amount and content of vaginal blood loss.

Sociodemographic characters		Study Group (EBF) N (%)	Control group (LBF) N (%)	Test
Age in years	20-	33 (66.0)	27 (54.0)	
	25-	14 (28.0)	12 (24.0)	
	30 -34	3 (6.0)	11 (22.0)	
Min - Max		20 - 34	20 - 34	Z = 1.281
Mean ± SD		23.6 ± 3.2	25.1 ± 4.5	P = 0.2
Md (IQR)		23 (4)	24 (7)	
Level of education	Illiterate or just read and write	0 (0.0)	2 (4.0)	X ² = 2.3
	Basic (Primary and preparatory)	7 (14.0)	8 (16.0)	P = 0.5
	Secondary or diploma	25 (50.0)	22 (44.0)	
	University	18 (36.0)	18 (36.0)	
Occupation	Housewife	42 (84.0)	43 (86.0)	X ² = 0.08
	Working	8 (16.0)	7 (14.0)	P = 0.8
Residency	Rural	14 (28.0)	13 (26.0)	X ² = 0.05
	Urban	36 (72.0)	37 (74.0)	P = 0.8
Adequacy of monthly income	Not enough (Less than 3000SR)	5 (10.0)	3 (6.0)	X ² = 0.5
	Enough (3,000-10,000)	40 (80.0)	42 (84.0)	P = 0.8
	More than enough (more than 10,000)	5 (10.0)	5 (10.0)	

Table 1: Participants' socio-demographic characteristics.

*Significant, $p < 0.05$ (EBF) group = Early breast-feeding group, (LBF) group = Late breast-feeding group. X² = Chi square test, P = Probability of the chance, Z = Mann-Whitney test.

Socio-demographic characteristics of the study subjects

Table 1 shows distribution of experimental and control groups according to their socio-demographic characteristics. As regards age, it was observed that about two-thirds (66%) of the experimental group and more than half (54%) of control group ranged between 20 to less than 25 years old. The mean age of women in the experimental group was 23.6 ± 3.2 compared with 25.1 ± 4.5 in the control group. Considering the level of education, it was found that more than one third (36%) of the both groups had university education.

Regarding women's occupation, it was obvious that the majority (84% & 86%) of the experimental and control groups respectively were housewives. In relation to place of residency, it was noticed that more than one – quarter (28%) and (26%) of the experimental and control group respectively were from rural areas. Adequacy of monthly income, was found to be not enough among only (10%) of the experimental group and (6%) of control group, while it was enough among (80% & 84 %) of the experimental and control groups respectively. The table also shows that there was no statistically significant different between the experimental and the control groups regarding age ($P=0.2$), level of education ($P=0.5$), occupation ($P=0.8$), place of residency ($P=0.8$), adequacy of monthly income ($P=0.8$).

		Fundul level After delivery of placenta				
		Immediately	30 min after	1hr after	1½ hr	2hr after
		N (%)	N (%)	N (%)	N (%)	N (%)
Study Group (EBF)	Above umbilicus	3 (6.0)	2 (4.0)	1 (2.0)	0 (0.0)	0 (0.0)
	At umbilicus	9 (18.0)	6 (12.0)	4 (8.0)	3 (6.0)	3 (6.0)
	Below umbilicus	38 (76.0)	42 (84.0)	45 (90.0)	47 (94.0)	47 (94.0)
Control Group (LBF)	Above umbilicus	6 (12.0)	6 (12.0)	6 (12.0)	5 (10.0)	5 (10.0)
	At umbilicus	15 (30.0)	15 (30.0)	15 (30.0)	15 (30.0)	14 (28.0)
	Below umbilicus	29 (58.0)	29 (58.0)	29 (58.0)	30 (60.0)	31 (62.0)
Test FET P		0.5	0.3	0.1	0.056	0.056

Table 2: Participants fundal level immediately after placental delivery.

* Significant, $p < 0.05$, FET P = Fisher – exact test.

Table 2 shows distribution of the experimental and control groups according to their fundal level after placental delivery. It was observed that the fundus was above the umbilicus among (6%) of the mothers who have started breast feeding early compared with (12%) of those who have nursed their babies late. The table also shows that there was no statistically significant different between the experimental and the control groups where ($P=0.056$).

Group	Fundal level		Total	
	Above umbilicus	At or Below umbilicus		
- Experimental Group (EBF)	0 (0.0)	50 (100.0)	50 (100.0)	AR = 10%
- Control Group (LBF)	5 (10.0)	45 (90.0)	50 (100.0)	NNT = 10

Table 3: Distribution of the participants according to their fundal level at 2hours after placental delivery.

AR = Attributable risk, NNT = Number needed to treat.

Table 3 shows distribution of the experimental and control groups according to their fundal level at 2hours after placental delivery, it was observed that the fundus was above the umbilicus among (10%) of the mothers who have started late breast feeding compared with none of those who have nursed their babies early, while it was found at or below the umbilicus among (90%) of the mothers who have started late breast feeding compared with (100%) of those who have nursed their babies early.

In addition, the table also shows that 10 cases whose fundal levels were above the umbilicus were attributed to delayed initiation of breast feeding (AR=10). It may be concluded that about 10 cases were required to initiate breast feeding early to avoid the existence of fundal level above the umbilicus (NNT=10).

Table 4 illustrates distribution of the experimental and control groups according to their uterine consistency after placental delivery. It was observed that the firm uterus existed in (94%) of

mothers who have initiated breast feeding early compared with (88%) of those who have followed late breast feeding, while it was lax in (6%) of mothers who have initiated breast feeding early compared with (12%) of those who have followed late breast feeding after placental delivery. This difference was not statistically significant where (P=0.5).

		Uterine consistency after delivery of the placenta				
		Immediately	30 min	1hr	1 1/2hr	2hr
		N (%)	N (%)	N (%)	N (%)	N (%)
Experimental Group (EBF)	Soft/boggy	3 (6.0)	2 (4.0)	1 (2.0)	0 (0.0)	0 (0.0)
	Firm	47 (94.0)	48 (96.0)	49 (98.0)	50 (100.0)	50 (100.0)
Control Group (LBF)	Lax	6 (12.0)	6 (12.0)	6 (12.0)	6 (12.0)	6 (12.0)
	Firm	44 (88.0)	44 (88.0)	44 (88.0)	44 (88.0)	44 (88.0)
Test FET P		0.5	0.3	0.1	0.056	0.056

Table 4: Distribution of the participants according to their uterine consistency after placental delivery.

* Significant, $p < 0.05$, FET P = Fisher – exact test.

Table 4 illustrates distribution of the experimental and control groups according to their uterine consistency after placental delivery. It was observed that the firm uterus existed in (94%) of mothers who have initiated breast feeding early compared with (88%) of those who have followed late breast feeding, while it was lax in (6%) of mothers who have initiated breast feeding early compared with (12%) of those who have followed late breast feeding after placental delivery. This difference was not statistically significant where (P=0.5).

Also, the firm uterus existed in (96%) of mothers who have initiated early breast feeding compared with (88%) of those who have followed late breast feeding, while it was lax in (4%) of mothers who have initiated breast feeding early compared with (12%) of those who have followed late breast feeding at 30 min after placental delivery. This difference was not statistically significant where (P=0.3).

While, the firm uterus existed in (98%) of mothers who have initiated breast feeding early compared with (88%) of those who have followed late breast feeding, and it was lax in (2%) of mothers who have initiated breast feeding early compared with (12%) of those who have followed late breast feeding at one hour after delivery of the placenta. This difference was not statistically significant where (P=0.1).

In addition, the firm uterus existed in (100%) of mothers who have initiated breast feeding early compared with (88%) of those who have followed late breast feeding, while none of the mothers who have initiated breast feeding early had lax uterus compared with (12%) of those who have followed late breast feeding at the one and half hour and 2 hours after delivery of the placenta. This difference was not statistically significant where (P=0.056).

Group	Uterine consistency		Total	
	Lax N (%)	Firm N (%)		
Experimental Group (EBF)	0 (.0)	50 (100.0)	50 (100.0)	AR = 10%
Control Group (LBF)	5 (10.0)	45 (90.0)	50 (100.0)	NNT = 10

Table 5: Distribution of the participants according to uterine consistency at 2 hours after placental delivery.

AR = Attributable risk, NNT = Number needed to treat.

Table 5 shows the distribution of the experimental and control groups according to uterine consistency at 2 hours after placental delivery, it was observed that the firm uterus existed in (100%) of mothers who have initiated breast feeding early compared with (90%) of those who have followed late breast feeding, while none of the mothers who have initiated breast feeding early had lax uterus compared with (10%) of those who have followed late breast feeding.

In addition, the table also shows that 10 cases whose uterine consistency were lax were attributed to delayed initiation of breast feeding (AR=10). It may be concluded that about 10 cases were required to initiate breast feeding early to avoid the existence of lax uterus (NNT=10).

	Min – Max	Mean ± SD	Md (IQR)	Test
Experimental Group (EBF)	100 - 500	194.1 ± 80.1	205 (121.3)	Z = 3.226
Control Group (LBF)	120 – 600	260.58 ± 110.4	230 (66.3)	P = 0.001

Table 6: Distribution of experimental and control groups according to the amount of vaginal blood loss.

* Significant, $p < 0.05$, P = Probability of the chance, Z = Mann-Whitney test.

Table 6 clarifies distribution of the experimental and control groups according to the amount of vaginal blood loss. It was observed that the mean of vaginal blood loss among the control group 260.58 was higher compared with the experimental group 194.1 which was relatively low, this difference was statistically significant where P= 0.001.

Discussion

In a critical time like immediate postpartum period, it is necessary to be careful when dealing with parous women. Emphasis the importance of early initiation and frequency of breast feeding in minimizing the amount of vaginal blood loss is important to be clear for those women.

The results of the present study revealed that there was no statistically significant difference between the control and study groups regarding mother's age, education and occupation and its effect on breastfeeding.

The current finding was in line with Orun et al, who mentioned that many studies investigated demographic data for their effect on breastfeeding manners. Nevertheless, none of these aspects was

shown to affect early breastfeeding starting.

Likewise, this finding agreed with Dashti et al, who found that there was no association between breastfeeding initiation and a demographic aspect that have been stated to be associated with breastfeeding initiation in other studies of Middle Eastern women. However, in study in Saudi Arabia reported by Khattab et al there is no association between maternal age or any demographic data and breastfeeding initiation.

Conversely, Egyptian study reported that there is an association between educational level and early initiation of breastfeeding [16]. The results contradict with Dennis who found that socio-demographic factors that affect the breastfeeding duration are age, educational level and of higher income that made breastfeeding is longer [17,18].

These results are not in the same line with Yılmaz E [19], who found that additional factors that had statistically significant effects on the duration times of early breastfeeding like educational status of both parents, frequency and on demand breastfeeding, breast problems, artificial feeding, and social assistance.

As regards to the effect of early and late breast feeding on fundal level and uterine consistency the present study revealed that the majority of women in the early breast-feeding group had firm uterus below the level of the umbilicus compared to mothers in the late breast-feeding group. This could be attributed to the fact that increase of oxytocin secretion resulting from the early infant suckling which stimulates the receptors in the breast that help the posterior pituitary to release oxytocin. The oxytocin also encourages the uterine contract, in a mother associates with lactation. This uterine contraction improves the genital tract involution, so that the uterus of the lactating woman goes back to pre-pregnant condition faster. Alike findings were noted by Holdcroft A et al, who found proved a significant increase in the uterine contraction during breastfeeding.

In relation to postpartum blood loss, the results of the present study revealed that the mean of vaginal blood loss among the control group was higher compared with the experimental group which was relatively low, this difference was statistically significant. A study by Niroomanesh et al. [20] among two groups the first group were received active management of the third stage of labor and the second group were assigned to breast stimulation or breastfeeding after delivery. The findings were showed that, the duration of the third stage of labor (4.42 vs. 6.08 min) and the number of sanitary pads (10.5 vs. 11.72) were significantly less in the oxytocin group. These results are similar to the present study results.

Contradictory to this result, a study by Narenji et al. [21], which involved three groups of women, measured the effect of breastfeeding on the duration of the third stage of labor and vaginal hemorrhage immediately after delivery. The findings there showed no significant difference between the three groups in the mean length of the third stage of labor and PPH.

An opposite result was reported by Bullough in randomized controlled trial to assess the outcome of suckling on PPH, the results showed that; the frequency of PPH and the mean blood loss were not significantly different between the suckling and the control group.

In the same line with the previous study is the study of Dashtinejad E. [22], which designed to compare the effect of breast pump stimulation with oxytocin administration regarding the duration of the third stage of labor, vaginal hemorrhage after birth, and anemia. The study results showed no significant difference between the groups as regards the length of the third stage of labor. Moreover, in the mentioned study the number of women with moderate bleeding in the control group was almost twice that in the breast stimulation group; however, the two groups did not show any significant difference regarding bleeding immediately after labor.

A noncompliance study is a study of Thompson J. [23], which reported that blood loss was negatively associated with full breastfeeding in the first postpartum week (p for trend 0.01) these results reported after adjustment for method of birth and timing of the first opportunity to suckle, this association almost reached statistical significance using p value of ≤ 0.05 .

Early breastfeeding is one of the most important stimuli for the production of oxytocin, which is also responsible for uterine contraction, accelerating the return of the organ to its normal size and reducing the possibility of the occurrence of postpartum hemorrhage and anemia. High levels of oxytocin can increase the pain threshold, reducing maternal discomfort and thus contributing to an increased feeling of love for the baby [24].

Conclusion

Studies reveal that breastfeeding protects the mother from short- and long-term problems, and that breastfeeding exclusively for longer periods can result to an optimum maternal health. Early initiation and frequency of breast feeding immediately following labor decrease the amount of vaginal blood loss and improve uterine involution.

Recommendations

Nurses working in maternity and pediatric field should guide and help mothers to initiate breast feeding immediately after birth to benefit from its advantages. Also, additional research is needed to study the effect of early initiation of breast feeding on the amount of blood loss to support our results.

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