
OBSTETRICS

Effect of Egg Supplementation for Breast Milk Production at 48 Hour Postpartum

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ABSTRACT

Objective: To compare breast milk volume at 48 hour postpartum between mothers who received eggs supplementation and control group.

Materials and Methods: From June 1, 2010 to September 30, 2010, 100 women without any complication who delivered healthy term babies with birth weight 2500 grams or more at Nakhon Nayok Hospital Nakhon Nayok, Thailand were recruited for this study. They were randomly allocated to receive either ordinary postpartum diet or ordinary postpartum diet with 1 hard-boiled egg per meal for 3 meals a day for 2 days. Both groups gave exclusive breastfeeding with three suckling techniques (early suckling, frequent suckling, correct suckling). Breast milk volume of both breasts was measured at 48 hours postpartum by electric breast milk pump (SPECTRA Brand) for 15 minutes.

Results: Maternal baseline characteristics: maternal age, body mass indexes (BMI), gestational age, parity, hematocrit, urine specific gravity and blood pressure were not different between groups. Median and mean breast milk volume in the study group was significantly higher than those in the control group.

Conclusion: Eggs supplementation significantly increases the breast milk production at 48 hours postpartum.

Keywords: Egg supplementation, breast milk volume, postpartum

Introduction

Breastfeeding is valuable for newborn infant since it contains immune substances, growth factors, hormones and enzymes. It can enhance vision, digestion, brain development intelligence, and cognitive development. Several nutrients are more easily absorbed from breast milk than formulas. It is also lower the risk of developing type 1 diabetes, food allergies, colonic diseases, and is less likely to associate with obesity. Breastfeeding also increase maternal-

infant bonding which has emotional benefits for the babies. The psychomotor and social development of breastfed babies clearly differs from that of bottlefed⁽¹⁾.

Many problems such as inadequate breast milk volume may lead to breastfeeding failure. Breast milk volume may be affected by various factors such as maternal stress, sickness, wrong suckling method, frequency of suckling, early or late time to start suckling, mode of delivery, prolong second stage of labor, sick newborn, low birthweight, maternal activities, food

intake, drugs and number of infant^(2,3).

Breastfeeding can be affected by the maternal nutritional status. The energy, protein, and other nutrients in breast milk come from the mother's diet or from her own body storage. Mothers should eat variety, and valuable foods while breastfeeding. Various methods have been proposed to increase the amount of breast milk including drugs and food supplement. Eggs contain many nutrients, low cost, easy to buy, no adverse effect to both mothers and infants. This study was conducted to determine whether eggs supplement can increase breast milk production by measuring breast milk volume at 48 hour postpartum between egg supplementation and control group

Materials and Methods

This study was approved by the Nakhon Nayok Hospital's Ethics Committee/ the Nakhon Nayok Hospital's Director on research involving human subjects. Trial was conducted from June 1, 2010 to September 30, 2010. One hundred cases of term, normal mothers without any complication, who had spontaneous vaginal delivery with babies weighted 2500 grams without postpartum complication at Nakhon Nayok Hospital were recruited. Written informed consents were obtained. They were randomized divided into two groups, 50 each. Both groups had only regular postpartum diet provided by the hospital and drank enough water. One hard-boiled medium egg (50grams/each), 3 meals a day for the first 2 days were added to the study group. Both groups had unrestricted skin-to-skin contact with the baby immediately after delivery, initiation of breastfeeding within the first hour of life (early suckling, frequently suckling, rightly suckling), exclusive breastfeeding, breastfeeding on demand – that is as often as the child wants (day and night), no use of bottles, teats or pacifiers. The babies did not receive pre-lacteal, water, glucose or any other fluids.

The breast milk volume of both breasts was measured by electric breast milk pump (SPECTRA Brand) for 15 minutes, once at 48 hours postpartum and compared between both groups.

Statistical analysis

The data was computed and statistic analysis by SPSS version 17.0. Descriptive statistics: range, mean, standard deviation (SD) and 95% confidence interval as well as Pearson Chi-Square test, and independent – samples T-tests, were used to detect the differences. A p-value of less than 0.05 was considered significant.

Results

Maternal characteristics: maternal age, body mass index (BMI), gestational age, parity, hematocrit, urine specific gravity, systolic blood pressure, diastolic blood pressure of both groups were not difference (Table1). The experience in breastfeeding of both groups had no statistic significant difference (Table 2). The mean infants' birthweight of the control group and the trial group had no statistic significant difference (Table 3). The breast milk volume in the study group was significantly higher than the control group (Table 4). Fig. 1 shows that most of lactating women in the control group had very little breast milk volume, 80% of this group had breast milk volume < 10 cc (54% had breast milk volume 0.1 – 2.4 cc), 12% had breast milk volume 10 cc – < 20 cc, 6% had breast milk volume 20 cc – < 30 cc, only 2% (1 case) had breast milk volume > 30 cc. Fig. 2 shows that 66% of the study group had breast milk volume 1-24 cc, 10% had much breast milk volume 35 – 40 cc, and 24% had very much breast milk volume 45 – 70 cc. Only 30% of this group had breast milk volume < 10 cc.

Table1. Maternal baseline characteristic

	Control group (± SD)	Study group (± SD)	p-value *
Age(years)	25.2 (6.6)	25.2 (6.9)	0.776
Gestational age (weeks)	38.6 (1.1)	38.6 (0.9)	0.766
Parity	0.9 (0.7)	0.9 (0.8)	0.7
BMI (kg/m ²)	25.4 (3.2)	24.0 (5.8)	0.126
Hematocrit (%)	35.9 (3.5)	36.7 (3.4)	0.251
Urine specific gravity	1.014 (0.003)	1.014 (0.004)	0.785
Systolic BP (mmHg)	119.7 (11.2)	118.1 (15.11)	0.659
Diastolic BP (mmHg)	72.54 (9.17)	71.78 (10.61)	0.992

* p- value – considered significant < 0.05

Table 2. Maternal experience in breastfeeding

			Control group	Trial group	Total	p-value *
Experience in breastfeeding	No	N	17	19	36	0.677
		%	47.2%	52.8%	100.0%	
	Yes	N	33	31	64	
		%	51.6%	48.4%	100.0%	
Total		N	50	50	100	
		%	50.0%	50.0%	100.0%	

* p- value – considered significant < 0.05

Table 3. Infants' birthweight

Birthweight (gm.)	N	Minimum	Maximum	Mean	Std.Deviation	p-value *
Control	50	2570	3630	3104.2	289.7	0.108
Trial	50	2500	3980	3007.8	305.5	

*p- value – considered significant < 0.05

Table 4. Breast milk volume (c.c.)

Breast milk volume(c.c.)	N	Minimum	Maximum	Mean	Std. Deviation	Median	p-value *
Control	50	0.1	32.0	5.39	7.09	2.0	<0.001
Trial	50	1.0	70.0	25.27	21.55	16.0	

p* value – considered significant < 0.05

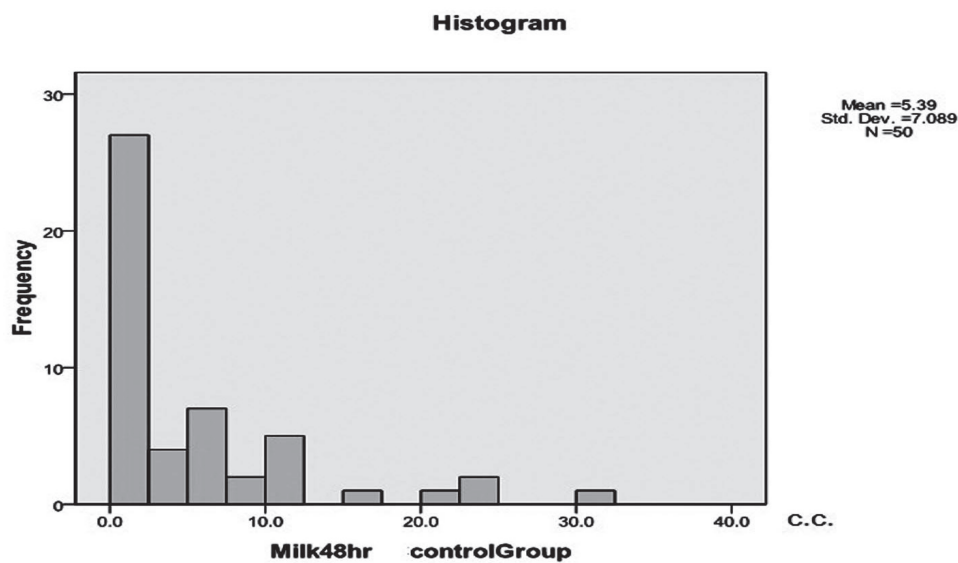


Fig. 1. breast milk volume of the control group

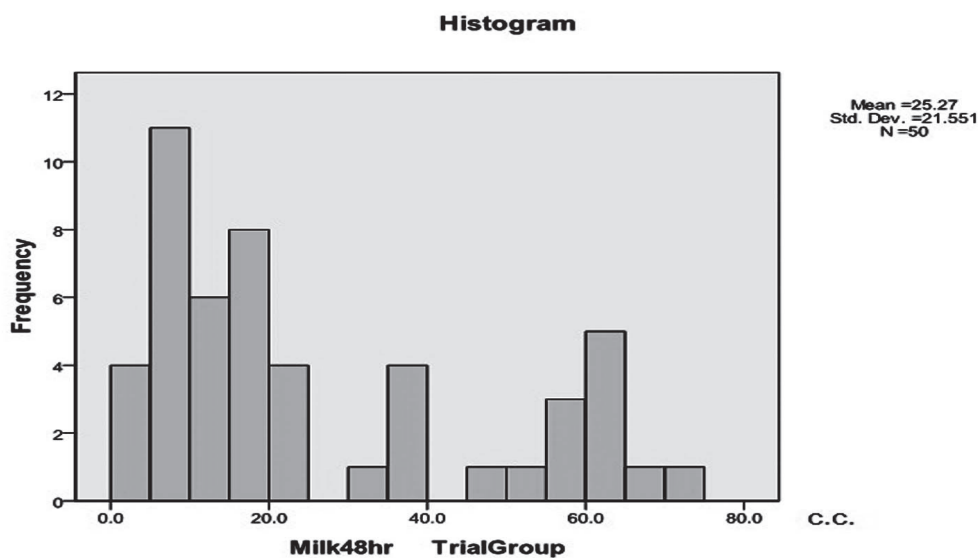


Fig. 2. breast milk volume of trial group (supplemented eggs)

Discussion

Maternal baseline characteristics were similar between both groups. Egg supplementation in the present study significantly improved the breast milk production in the well-nourished mothers while González-Cossío T et al's and Naing KM et al's studies reported similar results in the undernourished mothers^(4,5). Although maternal malnutrition is not considered an important constraint to breastfeeding for most mothers, giving additional food to malnourished mothers during pregnancy and/or lactation may help increase milk production⁽⁶⁾.

Lactation needs other nutrients such as folate, calcium, zinc, iron, vitamin A, vitamin B1 (Thiamin), vitamin B2 (Riboflavin), B6 (Pyridoxine), vitamin B12, iodine^(3,7) which are easily obtained from eggs. Eggs are nutrient-dense food. One medium egg (average 50 grams) contains 78 kcal, protein 6.29 grams, carbohydrate trace, fat, cholesterol, sodium, potassium, calcium, phosphorus, magnesium, iron, zinc, iodine, selenium, chlorine, sulphur, and 13 vitamins. An egg yolk is one of the few foods which contain vitamin D⁽⁸⁾.

Food supplementation for lactating women in areas with malnutrition has little impact on milk volume⁽²⁾. However, such supplementation may improve maternal health and therefore is more likely to benefit the mother than the infant, except women with affected milk composition.

Foods (eggs) can not increase volume of milk if the women did not use "The Three Sucklings"⁽⁹⁾ including early suckling (i.e. on the delivery table), frequent suckling (exclusive breastfeeding and no mother baby separation), correct suckling (good attention to position and attachment). In the present study, both groups provided exclusive breastfeeding with these "Three Sucklings". So these events should not confound the results of study.

Only single breast milk volume measurement at 48 hours postpartum was the limitation of this study because most of cases were discharged in the third postpartum days and several kinds of foods were given to the mothers. Follow-up breast milk volume should be measured such as 7, 14 and 30 days.

In conclusion, eggs supplementation can significantly increase the breast milk production at 48 hours postpartum.

Acknowledgments

The author thanks The Nakon Nayok Hospital's Director for nurses for their help to conduct this study.

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ผลของการรับประทานไข่เสริมต่อการสร้างน้ำนมในการวัดที่ 48 ชั่วโมงหลังคลอด

ธิดิมา เหล่าศิริรัตน์

วัตถุประสงค์ : เพื่อเปรียบเทียบปริมาณน้ำนมมารดาในการวัดที่ 48 ชั่วโมงหลังคลอดระหว่างมารดาที่ได้รับการรับประทานไข่เสริม กับกลุ่มที่ไม่ได้รับการรับประทานไข่เสริม

วัสดุและวิธีการ : ระยะเวลาที่ศึกษาตั้งแต่ 1 มิถุนายน 2553 ถึง 30 กันยายน 2553 ศึกษาเฉพาะกลุ่มมารดาที่คลอดปกติ ครอบคลุม กำหนด น้ำหนักทารกแรกเกิดตั้งแต่ 2500 กรัมขึ้นไป ที่หอผู้ป่วยสามัญหลังคลอด โรงพยาบาลนครนายก จังหวัดนครนายก จำนวน 100 คน แบ่งเป็นสองกลุ่มแบบสุ่มเปรียบเทียบ กลุ่มละ 50 คน กลุ่มควบคุมรับประทานอาหารที่โรงพยาบาลจัดให้เท่านั้น และดื่มน้ำได้มากเท่าที่ร่างกายต้องการ กลุ่มทดลองรับประทานอาหารและน้ำเช่นเดียวกันแต่เสริมไข่ไก่ขนาดกลางต้มสุกมื้อละ 1 ฟอง วันละ 3 มื้อ 2 วัน ทั้งสองกลุ่มเลี้ยงลูกด้วยนมแม่อย่างเดียวนับแต่เสริมไข่ไก่ขนาดกลางต้มสุกมื้อละ 1 ฟอง วันละ 3 มื้อ 2 วัน วัดปริมาณน้ำนมโดยเครื่องปั๊มไฟฟ้าทั้ง 2 เต้า นาน 15 นาทีเพียงครั้งเดียวเมื่อครบ 48 ชั่วโมง

ผลการศึกษา : ลักษณะพื้นฐานของมารดา เช่นอายุมารดา ดัชนีมวลกาย อายุครรภ์จำนวนครั้งของการตั้งครรภ์ ความเข้มข้นของเลือด ความถ่วงจำเพาะของปัสสาวะ ความดันโลหิต ไม่แตกต่างกันอย่างมีนัยสำคัญในทั้ง 2 กลุ่ม พบว่ากลุ่มที่ได้รับการเสริมไข่มีค่ามัธยฐานเฉลี่ยปริมาณน้ำนมที่เวลา 48 ชั่วโมงหลังคลอดมากกว่ากลุ่มที่ไม่ได้เสริมไข่ อย่างมีนัยสำคัญ

สรุป : การให้รับประทานไข่เสริมหลังคลอดสามารถเพิ่มปริมาณน้ำนมมารดาได้อย่างมีนัยสำคัญที่เวลา ในการวัดที่ 48 ชั่วโมงหลังคลอด
