

A Comparison of the Effect of Short Abdominal Skin-To-Skin Contact and Kangaroo Skin Contact on Initiation of Successful Breastfeeding

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ABSTRACT

BACKGROUND AND OBJECTIVE: Kangaroo skin contact is an important factor in breastfeeding. However, in contrast to abdominal contact, it is considered timely. Therefore, while shortening the contact time, this study aims at comparing the effects of short abdominal skin-to-skin contact and Kangaroo skin contact on successful breastfeeding.

METHODS: This clinical trial study was conducted among pregnant women in maternity hospitals of Torbat Heydarieh in 2015. Sixty-eight primigravida women with term pregnancy and aged 18-40 years were selected through convenience sampling and were divided into two groups of intervention (Kangaroo skin contact) and control (abdominal skin contact). Questionnaires about demographic, fertility and medical data were completed for both groups. Infants with 8-10 Apgar and birth weight of 2500 – 4000 g were exposed to Kangaroo skin and abdominal skin contact for 5-10 minutes. After delivery, The Infant Breastfeeding Assessment Tool (IBFAT) was completed and the mean values of feeding desire, searching, latch on and sucking pattern were analyzed (IRCT: 2014090419039N1).

FINDINGS: The mean feeding desire in the intervention group was 2.63 ± 0.6 and in the control group was 2.61 ± 0.6 , searching was 2.76 ± 0.43 and 2.73 ± 0.44 , latch on was 2.76 ± 0.43 and 2.79 ± 0.41 , sucking pattern was 2.82 ± 0.54 and 2.64 ± 0.64 , and total score was 11.84 ± 5.10 and 10.79 ± 1.82 , respectively, indicating no significant difference in any of the dimensions.

CONCLUSION: The results of the study showed that short abdominal skin-to-skin contact and Kangaroo skin contact did not differ significantly regarding their effect on initiation of successful breastfeeding.

KEY WORDS: *Kangaroo Contact, Skin Contact, Breastfeeding.*

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Introduction

Infancy is one of the most sensitive stages in the growth and development of children (1, 2). Breast milk is an unpatrolled way to provide the ideal infant food. Evidence suggests that breastfeeding for the first six months is most desirable method (3). Breastfeeding and its continuity have also been emphasized in Islam (4). Breast milk promotes the growth of the infants and protects them against diseases, reduces mortality and accelerates the process of recovering from diseases (5). The World Health Organization (WHO) has reported that in 94 countries of the world, only 35% of infants are breastfed until they are four months old. The prevalence was 35.1% in Uganda, 27.3% in Saudi Arabia (6) and 42.2% in Japan in the first month (7). According to the Iran's Ministry of Health and Medical Education, the breastfeeding rate until one year of age was 84.1% and until two years of age was 51.1% in 2010, indicating a decline compared to the year 2005 (8).

In recent years, changes have been made in the lifestyle, the relationship between mother and child and nutritional patterns. As a result, there has been a significant reduction in breastfeeding in many industrialized countries, which is currently a serious problem (9). One of the most important factors affecting breastfeeding is care and intervention during delivery (10) and early breastfeeding is one of the effective factors in the continuation of breastfeeding (11). The separation of the mother and the infant, even for a short period, can reduce the success of breastfeeding (12).

Mothers and health care providers need education and support to succeed in breastfeeding. Accordingly, the WHO and UNICEF launched the Infant Friendly Hospital Initiative (BFHI) in 1992 (13). One of the actions of these hospitals is the "Ten Steps to Successful Breastfeeding", the fourth step of which is to provide Kangaroo care (8) and the best standard practice for initiation and continuation of breastfeeding (14). In a study in 2016, it was argued that Kangaroo skin – to – skin contact increases milk volume and breastfeeding duration (15).

In a study by Hake-Brooks et al., skin – to – skin contact has been shown to increase breastfeeding duration within the first to sixth months of the infant's life (16). Recent studies on 34 randomized controlled trials have confirmed this (17). Most studies have shown that Kangaroo care can lead to successful breastfeeding (15). In 2010, 75% of all nursing

mothers in the United States began breastfeeding early and within the first hour after childbirth (18). The first hour of birth is the moment when the infant has the most responsiveness, and is therefore the most favorable time to start breastfeeding and deglutition in a infant (19).

At the first hour of birth, the infant shows behaviors such as pursing the lips or rotational movements of the lips, and helps to start breastfeeding. As a result, this is a golden opportunity to communicate, and the most benefit comes from the skin – to – skin contact between the mother and the infant (20). Currently, skin – to – skin contact is done in both abdominal and Kangaroo forms after delivery. In Kangaroo skin – to – skin contact, the naked infant is placed on the mother's body and between her breasts (21), and while keeping the infant warm, the infant crawls toward the mother's breasts and the breastfeeding process begins (22).

However, in the abdominal skin – to – skin contact, the infant is placed on the abdominal skin for a short time. In this kind of contact, there is no face-to-face communication between mother and infant. During Kangaroo skin – to – skin contact, the contact, thermal, and olfactory receptors can lead to maternal oxytocin release, resulting in more oxytocin secretion and more milk production (23).

The World Health Organization recommends the Kangaroo skin – to – skin contact within the first 30 minutes of birth (24). This long time requires adequate support and training for mothers and having sufficient manpower. Generally, the maternity hospitals face these shortcomings.

The long time required on the one hand and the high level of occupation of the midwife on the other, raises questions about its value. In spite of many advertisements, abdominal skin – to – skin contact is used in many maternity hospitals instead of Kangaroo skin – to – skin contact, because it is both simpler and shorter (25).

The question arises, however, that given the problems encountered in implementing the Kangaroo method, and if the contact is done in a shorter period, does it continue to benefit from continuation and promotion of breastfeeding compared to short abdominal contact, or not? Since no study has not been conducted in this regard so far, this study compared the effect of short abdominal skin – to – skin contact and Kangaroo skin – to – skin contact on the initiation of successful breastfeeding.

Methods

This clinical trial study was carried out among pregnant women at Torbat-e Heydarieh Maternity Hospitals in 2015 after being approved by the ethics committee of Torbat-e Heydarieh University of Medical Sciences with the code of ethics 16.1 (IRCT: 2014090419039N1). The sample size according to the study of Monajemzadeh et al. (26), with a confidence coefficient of 98% and a test power of 80%, was determined to be 68 people; 34 people in the intervention group and 34 people in the control group. Mothers aged 18-40 years old, Persian and speaking Farsi, term pregnancy with healthy fetus, primigravida, intended pregnancy, normal vaginal delivery, Apgar score of 8-10, infant weight of 2500 to 4000 grams were included in the study and if there were any medical, pregnancy and delivery problems, tobacco and drug addiction, mental and physical problems, unhealthy infant and the reluctance of the mother to continue collaboration, the mother was excluded from the study. The questionnaires included demographic information, reproductive and medical records, and the stages of delivery, and the infant breastfeeding assessment tool (IBFAT).

The IBFAT consists of four parts: The desire to feed (0–3), search (0–3), latch on (0–3), and sucking pattern (0–3); maximum score was 12 and minimum score was zero. Successful breastfeeding is confirmed with a score of more than eight (27). The demographic characteristics questionnaire was a reliable tool. The reliability of fertility, medical, and maternal and neonatal questionnaires was confirmed by Test-retest method ($r=0.94$, $r=0.89$, $r=0.77$, $r=0.84$, respectively). The reliability of the data of the stages of delivery and successful breastfeeding assessment form was assessed by simultaneous observation test ($r=0.78$, $r=0.85$). The validity of the demographic characteristics questionnaire, fertility, medical, and maternal and neonatal questionnaires was confirmed by content validity, and the successful breastfeeding assessment form was also confirmed by Carfoot et al. through content validity (27).

The samples were then selected using non-probability convenience sampling method and after obtaining written consent, they were randomly assigned to two groups of intervention and control. Demographic, fertility and medical information questionnaires were completed. In the intervention group, the naked infant was placed on the abdomen and between the mother's breasts immediately after the

postnatal care (cleansing of the airway, clamping of the umbilical cord and drying) to have eye contact. In order to prevent hypothermia, a warm and dry shawl was placed on the infant and the infant's head was covered and the mother was asked to cuddle her infant and look at its face.

The duration of the contact was 5 – 10 minutes, during which no breastfeeding was done. The infant was then transferred to a radiant heater. In the control group, however, the infant was placed on the mother's abdomen regardless of position according to the routine method of the hospital, it was shown to the mother and transferred to the heater. The stages of delivery, and maternal and neonatal questionnaires were completed for all samples. During the first hour after delivery, breastfeeding was done by the mother. Then, a successful breastfeeding assessment form was completed. Data were analyzed using SPSS Ver.20, Chi-square, Mann-Whitney, and independent t-test while $p<0.05$ was considered significant.

Results

There was no statistically significant difference between the two groups in terms of their personal characteristics (such as their age, level of education, their occupation and their husband's occupation, family income), information about fertility and medical history (number of pregnancies, abortions and stillbirths, infant's gender, prenatal care and the time of the first visit, mother's and her husband's attitude about pregnancy), information about delivery stages (use of analgesia, birth control drugs and perineal status), maternal information (satisfaction with delivery, feeling after skin – to – skin contact with the infant), neonatal information (gender, weight, height and head circumference) and other intervening variables (Table 1).

The mean scores of successful initiation of breastfeeding included variables of "desire to feed": in the intervention group (2.63 ± 0.6) and in the control group (2.61 ± 0.6); "searching": in the intervention group (2.76 ± 0.43) and in the control group (2.73 ± 0.44); "latch on": in the intervention group (2.76 ± 0.43) and in the control group (2.79 ± 0.41) and "sucking pattern": in the intervention group (2.82 ± 0.54) and in the control group (2.64 ± 0.64) and the total score in the intervention group (11.84 ± 5.10) and in the control group (10.79 ± 1.82), indicating no significant difference.

Table 1. Comparison of demographic characteristics in the two groups

Variable	Contact Mean±SD	short abdominal skin-to-skin Mean±SD	Kangaroo skin-to-skin Mean±SD	P-value
Mother's age (years)	25.67±6.30		26.82±5.42	* 0.49
Birth weight (g)	3.27±5.16		3.09±4.14	* 0.19
Infant head circumference (cm)	34.46±4.12		34.42±1.39	* 0.11
The amount of oxytocin (cc)	14.54±1.03		24.74±1.88	* 0.064
Active phase of the first stage of labor (min)	172.2±9.94		148.2±11.64	** 0.381
Active phase of the second stage of labor (min)	42.94±3.21		28.69±4.52	* 0.071
Active phase of the third stage of labor (min)	9.58±1.72		6.51±4.23	* 0.876
The interval from birth to first contact of mother and infant (min)	4.10±16.04		1.43±5.57	* 1.000

** T – Test, * Mann Whitney Test

Table 2. Comparison of the initiation of successful breastfeeding during the first hour after delivery in the two groups

Variable	Contact Mean±SD	short abdominal skin – to – skin Mean±SD	Kangaroo skin – to – skin Mean±SD	P-value
Desire to feed	2.61±0.6		2.63±0.6	0.97
Searching	2.73±0.44		2.76±0.43	0.77
Latch on	2.79±0.41		2.76±0.43	0.25
Sucking pattern	2.64±0.64		2.82±0.57	0.46
Total score	10.79±1.82		11.84±5.10	0.47

* Mann-Whitney Test

Discussion

In this study, the effect of short abdominal skin-to-skin contact and Kangaroo skin – to – skin contact on successful breastfeeding was not statistically different and reducing the duration of the intervention could not be effective. Although the mean successful initiation of breastfeeding in the Kangaroo skin-to-skin contact was more than short abdominal skin-to-skin contact, this difference was not significant. Charpak et al. (2000) stated that 20 years after initiation of Kangaroo care, its protective effects on neonates have been well documented (28). In a study by Iqbal et al., their results indicated that early contact was a contributing factor to increased success in the initiation and continuation of lactation (29).

The reasons for this inconsistency can be attributed to the duration of the intervention, which was 45 minutes in their study, while it has taken an average of 120 minutes to start breastfeeding infants. Karimi et al. showed that the success rate of breastfeeding in skin – to – skin contact was significantly higher than normal postpartum care (30). In a study by Ward et al., skin – to – skin contact for six weeks has been shown to

increase the success of exclusive breastfeeding by 22% (31). Flacking et al. have argued that skin contact with any length of time from a few minutes to several hours has positive effects on breastfeeding (32). Morelius et al. also showed that short abdominal skin – to – skin contact and Kangaroo skin – to – skin contact groups showed no difference in the initiation of breastfeeding (33). Perhaps one reason for the success of breastfeeding in Kangaroo methods is the mothers' high motivation, because according to a study, of all mothers who had a great desire for breastfeeding and at the same time used skin – to – skin contact, 60.1% of them were successful in this regard (34).

A study by Robiquet et al. indicated that the effect of Kangaroo care on breastfeeding should be at least 90 minutes, and any interruption at this time would reduce the success (35). The meta-analysis performed among 988 newborns in 2015 showed that long-term Kangaroo skin-to-skin contact in the first week of birth was associated with an increase in successful breastfeeding (36). But in most of these studies, the ideal time to start breastfeeding in skin contact and kangaroo is two hours, so that the infant shows

behaviors that lead to breastfeeding by the stimulation of touch and smell and warmth (22). In the study of Vaidya et al. (37), the minimum time required to start breastfeeding was 60 minutes and the maximum time was 120 minutes. In the study of Flacking et al., minimum time was 12 minutes and the maximum time was 47 minutes (32). However, because of congestion and overcrowding in the maternity ward as well as the lack of midwives in the present study, the duration of the Kangaroo method reduced to 5-10 minutes, and the positive effect of skin contact on exclusive breastfeeding was proved once again (34, 38).

In a study by Sampaio et al., who chose a period of 30 minutes for skin-to-skin care, the results indicated that this contact with the mother was not associated with successful breastfeeding (39). A study by White et al., who performed Kangaroo contact at the first hour after birth, showed that a group of women who did not have skin – to – skin contact were as successful as the intervention group (17). The result of the study

showed that the hypothesis of positive effect of Kangaroo skin-to-skin contact on the initiation of successful breastfeeding was rejected despite the shorter duration of this method and there was insufficient evidence in this regard to prove the hypothesis. However, since the first breastfeeding is the most important factor in the future success of breastfeeding (22), it is suggested that breastfeeding should be done longer and more frequently if Kangaroo skin – to – skin contact is used to promote breastfeeding, so that positive effects on breastfeeding can be observed.

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