Journal of Neonatal Nursing xxx (2017) 1–4

Contents lists available at ScienceDirect

Journal of Neonatal Nursing

journal homepage: www.elsevier.com/jneo

Original Article

Effects of a feasible supportive care program on breastfeeding behaviors and neonatal outcomes among the late preterm newborns in the south east of Iran

Zahra Moudi [a, b, *], Batoul Molashahi [a], Mahmoud Imani [c], Hossein Ansari [d, 1]

[a] Pregnancy Health Research Center, Zahedan University of Medical Sciences, Zahedan, Iran
[b] Dept of Midwifery, School of Nursing & Midwifery, Mashahie Sq., Zahedan, Postal Code: 9816913395, Iran
[c] Zahedan University of Medical Sciences, Dept of Pediatrics, Zahedan University of Medical Science, Zahedan, Iran
[d] Zahedan University of Medical Sciences, Dept of Epidemiology & Biostatistics, School of Health, Hesabi Sq., Zahedan, Iran

ARTICLE INFO

Article history:
Received 30 January 2017
Received in revised form
20 February 2017
Accepted 26 February 2017
Available online xxx

Keywords:
Preterm infant
Breastfeeding
Weight gain
Managed care program

ABSTRACT

According to the World Health Organization, different strategies should be examined targeting towards the improvement of the neonatal outcomes among the (late) preterm newborns in different contexts. The present study aimed to investigate the influence of a feasible supportive care program on the breastfeeding behaviors and neonatal outcomes in the late preterm neonates. This quasi-experimental study was conducted on 80 mothers and their late preterm babies who were delivered and admitted to the Neonatal Intensive Care Unit. While the intervention group received a supportive care program, the control group received the routine care. According to the results of the study, the intervention improved the breastfeeding. In addition, the newborns were demonstrated to gain more weight and experience lower readmission rate after two months. This study provided evidence that supportive program could improve the breastfeeding and neonatal growth and decrease their morbidity.

Introduction

According to the World Health Organization (WHO), annually, 15 million neonates are born alive before 37 completed weeks of gestation (World Health Organiation, 2016). The late preterm birth is ascribed to the baby delivery at 34 to <37 weeks of gestation (Kair and Colaizy, 2016). The rate of preterm birth ranges from 5 to 18.1% per 100 live births (World Health Organiation, 2016). An increasing proportion of the preterm births has been reported to occur at 32 to <37 gestational weeks (>80%) over the past decades (Raju et al., 2006; World Health Organiation, 2012). Vakilian et al. (2015) noted that the prevalence of the preterm delivery is about 9.2% in Iran. Nevertheless, the WHO reported that 12.9% per 100 birth occurs before 37 weeks of gestation (World Health Organiation, 2012).

The preterm birth is the primary cause of neonatal deaths and second cause of mortality among the children under the age of five years (World Health Organiation, 2012). Furthermore, the preterm delivery has significant impacts on survival and quality of life of preterm infants (World Health Organiation, 2015). Even the neonates born at 34–36 gestational weeks have been shown to have an increased risk of neonatal and infant mortality as compared to the term ones (Kramer et al., 2000). However, most of these lives can be saved using feasible and cost-effective interventions (World Health Organiation, 2012), such as warming, protection from infection, and breastfeeding support (Greer, 2001).

The benefit of breast milk for the preterm newborns during the hospital stay is well-known. Accordingly, the recent studies demonstrated that the breast milk improves the short term weight gain (Simmer et al., 2016), which is a valuable indicator of the preterm neonatal growth (Sammy et al., 2016). Breastfeeding in the late preterm newborns is frequently performed similar to that in the term neonates. However, according to the literature, breastfeeding in these newborns is more problematic due to the newborns' ineffective breastfeeding behaviors and insufficient milk supply in the mothers with late preterm neonates (Kair and Colaizy, 2016; Liebert, 2011; Meier et al., 2013).

The previous studies demonstrated that the main cause of readmission in this group of newborns is exclusive breastfeeding after getting discharged from hospital, which leads to dehydration,

* Corresponding author. Pregnancy Health Research Center, Zahedan University of Medical Sciences, Zahedan, Iran. Fax: +98 5433442481.
E-mail addresses: moudi@zaums.ac.ir (Z. Moudi), bmolashsahi@yahoo.com (B. Molashahi), Imani_mahmood@yahoo.com (M. Imani), ansarih88@gmail.com (H. Ansari).
[1] Fax: +98 5433295837.

http://dx.doi.org/10.1016/j.jnn.2017.02.008
1355-1841/

hyperbilirubinemia, and suspected sepsis (Meier et al., 2013). Meier et al., 2013 noted that the breastfeeding failure among the late preterm babies need evidence-based strategies to protect the growth and maternal milk supply until the completion of breastfeeding (Meier et al., 2013).

According to the WHO (2012), the premature newborn survival depends on the place of birth, and poorer families are at higher risk in this regard. Sistan and Baluchestan Province with a total fertility rate of 5.1% has the lowest rank in terms of enjoying development benefits among the 30 provinces of Iran (Biranvandzadeh et al., 2015). Based on the WHO, different strategies should be examined targeting towards the improvement of the neonatal outcomes among the (late) preterm babies' in different contexts, especially in low and middle income countries (World Health Organiation, 2012). Regarding this, the present study aimed to determine the influence of a feasible supportive care program on the breastfeeding behaviors and neonatal outcomes among the late preterm babies in an underprivileged population in Iran.

Methods

This quasi-experimental study was conducted on 80 mothers and their late preterm neonates who were delivered and admitted to the Neonatal Intensive Care Unit (NICU) at Ali-ibn Abi Talib Hospital, Zahedan, Iran, during July 10-October 13 in 2016. The samples included the mothers with late preterm neonates (34≤ gestational age <37) admitted to the NICU at a tertiary-level hospital.

Inclusion criteria were: a singleton baby, without any congenital abnormality. The mother's eligibilities for the study were: literacy, speak and understand Farsi, with no previous history of preterm baby care, and lack of history of mental illness/psychiatric antecedents or illicit drug use during pregnancy. Exclusion criteria were: asphyxia and any critical conditions (such as, septicemia, intracranial hemorrhage) during hospitalization in the NICU or illnesses that could affect weight gain of baby, and neonatal death; for mothers: postpartum psychosis, and absence of educational and training sessions.

To reduce the risk of communication of information between groups' participants (contamination), the sampling was performed for two weeks. Subsequently, the sampling was stopped until the neonates and mothers were discharged, and then re-sampling was carried out. The two groups were matched for age and education. Two to three days after delivery, the mothers were asked to participate in the study. After obtaining the mothers' informed consents, the intervention group was explained about the objective of the study and invited to participate in a four-session training program (Table 1). At the end of each session, the mothers were given pamphlets and CDs.

On the other hand, in the control group, the mothers received the routine care and were informed that their neonates would be followed up for two months. Consequently, the neonates were followed up from birth to two months of age. After enrollment, the demographic characteristics forms were filled out for all the mothers and neonates. Therefore, at the time of discharge, the mothers were trained and required to fill in the Formula and Breastfeeding Checklists for two months. The maternal feeding performances were followed up over phone calls. Additionally, the newborns were weighed by the researcher 72 h after discharge and once per month for two months.

Ethical approval

The present study was approved by Zahedan University of Medical Sciences (Jun 19, 2016; IR.AUS.REC:1395.116) in Zahedan, Iran. The permission was obtained from the directors of the Ali-ibn Abi Talib Hospital and NICU ward.

Table 1
The content of each session.

Session duration	Education and training contents for the intervention group
1. 60–90 min	- Mothers' first visit of NICU Familiarizing the mothers with the NICU environment and circumstances as well as their newborns' conditions, encouraging them to touch their neonates, asking the mothers to wash their hands before touching the newborns, answering the their questions, and providing the mothers with researchers' telephone number from whom information and support could be obtained (lecture, clinical practice/exercise, and discussion)
2. 60–90 min	- The neonates' general conditions were improved, and breast milk was given to the newborns via dropper or syringe every 3 h. Explaining breast pumping and different methods for expressing breast milk, how to express breast milk by hand, procedures for collection, storage, and transportation of breast milk to the NICU, how to feed the newborn with syringe or dropper, how to carry the neonate and change the diaper, and answering the mother's questions (lecture, demonstration, giving practical help, assessing the mothers' performance, paying compliments to the correct behaviors, discussion, and giving CD and pamphlet)
3. 60–90 min	- Mother breastfed the newborn Explaining breastfeeding positions, assisting others in the breastfeeding, assessing the breastfeeding practice and providing practical support, training Kangaroo care, and answering the mother's questions (lecture, demonstration, assessing the mothers' performance, paying compliments to the correct behaviors, discussion, and giving CD and pamphlet)
4. 60–90 min	- Before discharging the newborn from the hospital Training the mothers to give their newborns a massage, bathe the neonates, and how to calm a crying or a colicky newborn, explaining about the post-discharge care and follow-up, and distributing the checklist of neonate feeding practice among the mothers (lecture, demonstration, assessing the mothers' performance, paying compliments to the correct behaviors, discussion, and giving CD and pamphlet)

Analysis

The statistical analysis were performed using SPSS version 16. The Kolmogrov–Smirnov test was applied to test the normality of the continuous variables. The data were analyzed using the Student's t-test (comparing the normality of or symmetrically distributed variables) and Mann–Whitney U test (comparing the non-normal distributed data). In addition, the statistical tests including the Chi-square, exact Chi-square, and Fisher's exact tests were performed to analyze the categorical and binary data. Furthermore, the Monte Carlo test was used to test the 2 by 3 consistency table with dome cells less than five. The two-tailed tests were also used to compare the variables between the control and intervention groups. The P-value less than 0.05 was considered statistically significant.

Results

Between July 10 and October 13, 2016, a total of 126 late preterm newborns were screened for eligibility according to which 42 neonates were excluded due to not meeting the inclusion criteria. Out of the 84 eligible newborns, 44 and 40 cases were assigned into the intervention and to control groups, respectively. However, in the intervention group, one newborn was not reassessed at the follow-up due to (accidental) decease and three neonates were lost the follow-up. Finally, the intervention and control groups included 39 and 40 neonates, respectively. The maternal and neonatal

Please cite this article in press as: Moudi, Z., et al., Effects of a feasible supportive care program on breastfeeding behaviors and neonatal outcomes among the late preterm newborns in the south east of Iran, Journal of Neonatal Nursing (2017), http://dx.doi.org/10.1016/j.jnn.2017.02.008