

A Survey about Factors of Discontinuation in Feeding Mother's Milk to Preterm Infants in Alzahra Educational-Medical Centre, Tabriz, 2006

¹Mehrbanou Amirshahi, ²Reihane Ivan Bagha,

³Mohammad Bagher Hosseini and ⁴Morteza Ghoujzade

¹Department of Midwifery, Faculty of Nursing and Midwifery,
Zabol University of Medical Science, Zabol, Iran

²Faculty of Nursing and Midwifery, Tabriz University of Medical Sciences, Tabriz, Iran

³Department of Paediatrician, ⁴Department of Physiology,
Tabriz University of Medical Sciences, Tabriz, Iran

Abstract: Breastfeeding has too much benefit to mothers and their preterm infants it is very important to continue it at least 6 month of their age. Some deal factors such as mothers' concern about inadequate milk supply, the weak infants' sucking etc, affect the discontinuation of breastfeeding in the preterm infants. In this survival analysis, 460 preterm infant who were returned to hospital by their mothers and were qualified objects, were selected based on simple-random sampling. The data was collected through questionnaires and check lists and analyzed through Descriptive statistical methods, Life-Tables and Gehan test. The continuation of breastfeeding in 1, 3, 6, 12, 24 and 29 months old preterm infants were 87, 59, 42, 13, 2 and 1%. Consequently, mothers' concern about inadequate milk supply, weak sucking infant were the major reasons for stopping breastfeeding. There was a significant statistical relationship between the continuation of breastfeeding and mother's age and kind of delivery. The study showed the continuation of breastfeeding decreased by increasing age of preterm infant.

Key words: Preterm infant, breastfeeding, discontinuation, continuation

INTRODUCTION

International Lactation Consultant Association (ILCA) have emphasized on Breastfeeding is a part of breeding process, which supplies mother's health and optimal growth of all infants. Preterm infants have more crucial need than the term ones for mother's milk, which in itself, is exposed to dangers like infection, retinopathy and hypoglycemia by virtue of preterm production (Tamlyn, 2002).

World Health Organization (WHO, 2005) and American Academy of Pediatrics (AAP, 1997) have emphasized on exclusive feeding of infants on mother's milk at least up to 6 months and its continuation along with supplements up to 2 years or more (Burby, 2004).

National development project of mother's milk in the United States intends at least 75% of mothers to feed infants their milk and at least 50% of them to continue this process till 6 months (Ego *et al.*, 2003).

Pediatrics Association of America has emphasized on feeding preterm infants on mother's milk since 1997. The

benefits of breast-feeding for mothers are as follow: reducing the danger of breast and ovarian cancer, losing extra weight of pregnancy period, reducing insulin need in breast-feeding diabetic mothers and preventing bleeding in postpartum period. The benefits of breast-feeding for infants include: being more digestible compared with the powdered milk, increasing the Intelligent Quotient (IQ) of the infants, reducing the dangers of diabetes, asthma, eye infections and some childhood cancers. Mother's milk is of great importance.

In preterm infants since it is regarded as a defensive shield against all kinds of infections, it provides Omega-3 fatty acids and antioxidants such as vitamin E, beta carotene and torin, which prevent retinopathy, vitamins and minerals like calcium, which is essential for skeleton. It also supplies cholesterol, which is an essential part of brain development, protects the infants against all allergies and gives them the opportunity to be familiar with mother's smell, breast and embrace and encourages both sides to have close relation in order to put up with the crisis. Preterm infants are susceptible to diseases;

therefore they are not probable to benefit from mother's milk. Despite all recommendations and benefits of breastfeeding, it is going to be reduced throughout the world and this reduction in developed countries (under 35%) is more than developing ones (Nascimento and Issler, 2005).

Breastfeeding continuation in Iran and lots of countries is less than the minimum period recommended by WHO (2005) and AAP (1997) (Good Mojab, 2003).

WHO have emphasized on Malnutrition in infants is the major consequence of early weaning, which has a profound effect on infants' health and growth.

On the other hand, breastfeeding continuation in preterm infants is less than the term ones and less attention is paid to its continuation, the optimal age for weaning and the reasons for discontinuation in mother's milk in infants (Norris *et al.*, 2002).

Most of infants, are not able to suck the mother's breast initially and have to be fed drawn milk of breast. Preterm infants' mothers are more exposed to delivery side-effects and suffer from more stress due to the hospitalization of their infants in Neonatal Intensive Care Unit (NICU). There are some reasons for lack of breastfeeding continuation. From among them we can mention: mothers' anxiety about insufficient milk, lack of information about the importance of mother's milk for preterm infants, lack of continuous supervision of medical staff regarding breastfeeding, absence of requisite tools for milking, mothers' exhaustion and weak sucking of breast (Melanie *et al.*, 2003).

If breastfeeding process is educated to mothers and families in the hospital and continued after being discharged from the hospital, breastfeeding continuation increases in susceptible group of mother- preterm infant (Gabriel, 2004; Callen and Pinelli, 2005).

As there is little evidence regarding breast-feeding and its continuation in preterm infants, present study has been conducted. The main aim of this study is to define the continuation period for breastfeeding in preterm infants and identify the reasons for failure to continue the breastfeeding in this group of the infants. Other aims of the study are to investigate the relation of continuation of breastfeeding with some personal-social and delivery characteristics of mothers and preterm infants.

MATERIALS AND METHODS

This study is a survival analysis conducted on 460 preterm infants in AlZahra Educational-Medical Center from April 2006 to October 2006. The subjects had to be born in this center and discharged from the center with the ability to be fed mother's milk.

The method was simple random sampling. Data were collected by means of questionnaires and checklists,

which were formatted according to related scientific texts and articles. The checklist consisted of questions about some personal-social and delivery characteristics of mothers and some personal characteristics of preterm infants extracted from mothers' deliveries files. The questionnaire contained questions about the way the mother fed her infant (mother's milk or powdered milk and the type of powdered milk) and the reasons why they did not feed their infant with their milk any more.

The questionnaires were filled in by mothers. Reliability of questionnaires was determined by means of content validity and their stability was determined through retesting. In order to estimate the average continuation of breastfeeding, Life-Tables were used and to compare the alikeness of survival duration distribution with each personal- social and delivery characteristic of mother and infant, Gehan test was used. Data were analyzed by statistical software of SPSS.14/win, $p < 0.05$ was significant.

RESULTS

Most of mothers (35.4%) were 26-30 years old, diploma (41.5%), residents of cities (93.5%) and had the monthly income of 1000000-2000000 RIs (48.9%). About 59.3% of mothers experienced their first deliveries, while 38.5% of them had 1-3 deliveries, 1.7% had 4-6 deliveries and 0.45% had 7-10 previous deliveries. Pregnancy period was 26-29 weeks, 30-33 weeks and 34-37 weeks in 16.3, 51.1 and 32.65% of the subjects, respectively. Virtually all mothers were delivered under spinal anesthesia (86.3%) and caesarean (61.7), while 38.3% had natural deliveries.

The most dominant reasons for preterm delivery are early contractions (32%) and then preeclampsia (24.3%) and early rupture of amnion sac (20%). Diabetes and bradycardia (1.7%) are the least important reasons for preterm delivery (it should be mentioned that in some cases, there are more than one risk factor in one delivery).

Demographic properties of preterm infants were as follows: infants were between 1-30 months. Most of preterm infants were boys (52.2%) and the first child in the family (59.7%). When they were born, 44.1% weighed <1500 g, 44.8% weighed between 1500-2500 g, 8.9% weighed between 2500-3500 g and only 2.2% weighed >3500 g. When filling in the questionnaires, half of the infants were fed mother's milk and Homana was the most prevalent powdered milk among others (31.8%).

In the present study feeding continuation was 87% in 1 month and 1% in 30 month (Table 1 and Fig. 1).

Exhaustion (30.1%) and anxiety of mothers about insufficient milk (55.3%), weak sucking (50.5%) and refusing mother's breast by preterm infants (48.5%) were

Table 1: Frequency distribution of preterm infants according to breastfeeding continuation

Breast-feeding continuation	Number	(%)
1 month	453	87
3 months	326	59
6 months	225	42
1 year	90	13
2 years	11	2
30 months	3	1

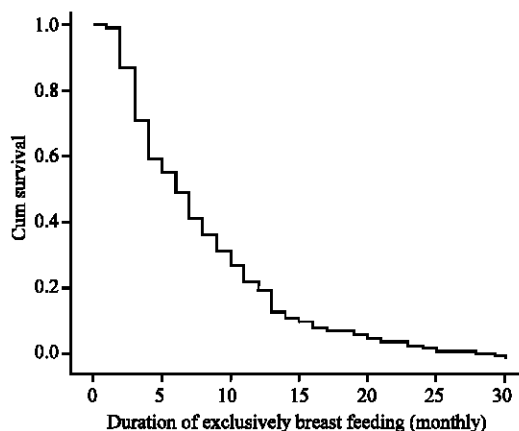


Fig. 1: Survival graph of preterm infants Breastfeeding

the most prevalent reasons for discontinuation in mother's milk (Table 2).

Only 1.9% of infants during 1 hour after birth, 1% during 1-6 h, 6.8% during 6-24 h and 20.4% >24 h-1 week after birth, had been fed mother's milk. For the rest 6.9%, the first contact between mother and infant occurred from 1 week to 3 months after the birth. Most of them (38.6%) were hospitalized in NICU from 21-40 days.

All mothers were interested in breastfeeding and well supported by families. There was a significant statistical relation between breastfeeding continuation and some variables such as mother's age ($\chi^2 = 17.02$, $df = 5$, $p = 0.004$), type of delivery ($\chi^2 = 13.7$, $df = 1$, $p < 0.0005$), infant's gender ($\chi^2 = 4.70$, $df = 1$, $p = 0.03$) and the type of milk consumed by the infant ($\chi^2 = 146.76$, $df = 1$, $p < 0.0005$).

To be more precise, mothers who were 26-30 years old and had natural delivery of female babies had more permanent breast-feeding. On the other hand, no significant statistical relation was found between breast-feeding continuation and pregnancy age ($p = 0.116$), living place ($p = 0.386$) and monthly income of the family ($p = 0.473$).

Furthermore, all preterm infants were fed mother's milk when they were discharged from the hospital. About (24.3%) of mothers had been trained during pregnancy and (52.9%) of them had been trained before being discharged from the hospital.

Table 2: Frequency distribution of factors of discontinuation in mother's milk

Variable	Frequency(%)
Mother's factors	
Tiredness	30.1(31)*
Sickness	14.6(15)
Returning to work	608(7)
Lack of tendency for breast-feeding	0(0)
Worry about insufficient milk	55.3(57)
Insufficient milk	5.8(6)
Pregnancy during the first 6 months after delivery	1(1)
Infant's factors	
Sickness	8.7(9)
Surgery	5.8(6)
Weak body	18.4(19)
Weak suckling	50.5(52)
Refusing mother's breast	48.5(50)
Extreme cry	28.2(29)
Rehospitalization in NICU	5.8(6)
Losing weight according to growth graph	8.7(9)
Being fed on powdered milk before mother's milk	27.2(28)
Other factors	
Stress	14.6(15)
Lack of husband's support	3.8(4)
Hospitalization of infant for a long time	11.7(12)
Noise of NICU	5.9(6)
Financial status of family	1.9(1)
Lack of other family members' supports	0(0)
Physician suggestion to discontinue breast-feeding	0(0)
Others	1.9(1)

*Numbers in parentheses indicate percent

DISCUSSION

In this study, all preterm infants were fed mother's milk (either drawn milk or directly from mothers' breasts) when leaving the hospital. In 1995, 60% of mothers who had term infants and (48%) of mothers who had light weight infants fed mother's milk to their infants in the United State (Melanie *et al.*, 2003).

It seems that mothers do not continue feeding their infants on mother's milk when they are discharged from the hospital and lose breastfeeding supports. As the infants grow up, the process of breast-feeding descends. This descending continuation of breastfeeding in this study has one to one correspondence with results of Simic's *et al.* (2004) and Flaking's *et al.* (2003) studies in which breast-feeding continuation in 1, 3, 6 and 12 year old infants is reported 85, 61, 44 and 11%, respectively.

According to Melanie *et al.* (2003) study, which was conducted on 361 mothers-preterm infants, 22% of mothers breastfed their infants till 6 months or more. The success rate in mothers who breastfed their infants was more than others.

In mentioned study, the more intelligent and literate the mothers were, the more breastfeeding period was concluded. The probability of breast-feeding increased provided that mothers were literate had previous breastfeeding experiences and stayed shorter in hospital.

In our study, mothers believed that the most prevalent reasons to discontinue breast-feeding were their worries about insufficient milk, tiredness, weak sucking and refusing the infants to suck mothers' breasts. Most of mothers got diploma 41.5%, had a middle social-economic status 48.9% and experienced their first pregnancies 59.3%.

However, breastfeeding continuation was more successful compared to Melanie's study, which could be resulted from the culture and religion of our country and stimulus system of AlZahra Hospital in supporting mother's milk. In this study, 93.5% of parents lived in cities. Residence plays an important role in breast-feeding continuation. Living in towns and villages may have negative impacts on breast-feeding continuation by virtue of distance and transportation problems (it is considered as a research limitation).

Findings of Callen and Pinelli (2005), Simic *et al.* (2004), Buckley and Charles (2006) and Kavanaugh *et al.* (1995) accord with the present study. This study indicates that doctors have not recommended to discontinue the breastfeeding or confirmed insufficient mother's milk. Therefore, mother's anxiety about her insufficient milk may be due to her stress of seeing her infant in NICU. Regrettably, the first contact of mother and infant is with delay. Since, breastfeeding continuation is almost impossible without frequent emptying of mother's breast (Melanie *et al.*, 2003). Absence of mothers near their infants in NICU and lack of facilities such as electronic milkers can be effective in this regard.

Additionally, mothers are concerned about weak sucking of their infants and lack of sufficient milk and as a consequence, their infants' hungers. So, they impel to powdered milk. As a result, preterm weak infants who cannot suck breasts properly find it easier to use bottles and do not accept breasts anymore. We have come to conclusion that more emphasis should be put on breast-feeding training in pregnancy period and in NICU.

One of the reasons for incomplete coverage of mothers' training is that the relationship between obstetricians and nurses is far from the set standards. As an illustration, based on appraisal scheme of Ministry of Health and Medical Education, one nurse has to be responsible for at least 2 infants in NICU in each working shift. Therefore, in this 24-bed unit, at least 12 nurses have to provide services in each shift. On the other hand, there are just 4 nurses and one assistant paramedic responsible for infants in NICU. This problem reduces opportunities to educate parents. Therefore, it is necessary to employ expert nurses in order to educate mothers how to breast-feed infants in NICU. These experts are able to solve mothers' problems concerning breastfeeding, reduce their stress and help them to come into contact with their infants sooner.

Another factor in breastfeeding discontinuation is mothers' tiredness. They are mostly tired of pregnancy and delivery side-effects and taking care of preterm infants who need more attention and energy than the term ones.

To manage successful breastfeeding continuation, it is essential to establish consultation clinics in hospital with more delivery numbers. These clinics can solve mothers' problems regarding breastfeeding through correct and useful consultation and guidance and proper support.

This study demonstrates that there is a significant relation between breastfeeding continuation and variables of mother's age, type of delivery, sex and type of milk taken by the infant. These findings accord with those in studies of Ego *et al.* (2003), Norris *et al.* (2003) and Flacking *et al.* (2003).

CONCLUSION

In our study, breastfeeding continuation of mothers of preterm infants accords with most of studies. Virtually all preterm infants were fed mother's milk when leaving the hospital and more than half, were still fed mother's milk when they were 3 months. Descending order of breastfeeding continuation indicates that preterm infant' mothers need education and continuous support of health experts in order to continue breastfeeding successfully.

Continuing the support after being discharged from the hospital, both bears useful knowledge about the importance of breastfeeding for mothers and solves their probable problems during this period. Hence, establishing mother's milk clinics in which parents are educated and problems are solved is highly recommended.

ACKNOWLEDGEMENT

The authors would like to deeply appreciate the support of all the staff of Tabriz Nursing and Midwifery Faculty and all the colleagues in Alzahra Hospital also all mothers, who wholeheartedly and actively assisted us to carry out this research study.

REFERENCES

- American Academy of Pediatrics, 1997. Work Group on Breastfeeding [editorial]. Breastfeeding and the use of human milk. Pediatrics, 100: 1035-1039.
- Burby, L., 2004. 101 Reasons to Breastfeed Your Child. <http://www.promom.org/101/html>.
- Buckley, K.M. and G.M. Charles, 2006. Benefits and challenges of transitioning preterm infants to at breast-feeding. Int. Breast Feed. J., 1: 1-13.

- Callen, J. and J. Pinelli, 2005. A Review of the Literature Examining the Benefits and Challenges, Incidence and Duration and Barriers to Breastfeeding in preterm Infants. *Adv. Neonata. Care.*, 5: 72-88.
- Ego, A., J.P. Dubos, M. Djavadzadeh- Amini, M.P. Depinoy, J. Louyot and X. Codaccioni, 2003. Premature discontinuation of breastfeeding. *Arch. Pediatr. J.*, 10: 11-18.
- Flacking, R., K. Nyqvist, U. Ewald and L. Wallin, 2003. Long-term Duration of Breastfeeding in Swedish Low Birth Weight Infants. *J. Hum. Lact.*, 19: 157-165.
- Gabriel, J., 2004. Kangaroo mother care an example to follow from developing countries. *BMJ.*, 329: 1179-1181.
- Good Mojab, C., 2003. Relearning the Lost Art of Breastfeeding. Obstacle and Resources for Iranian and American Women. [http:// ammawell/brstfdiranamer.html](http://ammawell/brstfdiranamer.html).
- Kavanaugh, K., L. Mead, P. Meier and H.H. Mangurten, 1995. Getting Enough: Mothers' Concerns About Breastfeeding a Preterm Infant after Discharge. *JOGNN*, 24: 23-32.
- Melanie, M., M. Smith, D. Mauren, J. Veronica and P. Hinton, 2003. Initiation of Breastfeeding among Mothers of Very Low Birth Weight Infants. *Pediatrics. J.*, 111: 1337-1342.
- Nascimento, M. and H. Issler, 2005. Breastfeeding: making the difference in the development, health and nutrition of term and preterm newborns. *J. Rev. Hosp. Clin.*, 58: 1-16.
- Norris, F.J., M.S. Larkin, C.M. Williams, S.M. Hampton and J.B. Morgan, 2002. Factors affecting the introduction of complementary foods in the preterm infant. *Europ. J. Clin. .*, 56: 448-454.
- Simic, T., D. Sumanovic-Glamuzina, M. Boranic, I. Vuksic and A. Boban, 2004. Breastfeeding Practices in Mostar /Bosnia and Herzegovina: cross-section self-Report study. *CMJ.*, 45: 38-43.
- Tamlyn, M., 2002. Premature infants. <http://www.parentingweb.com/Lounge/prematur4e.html>.
- WHO, 2005. Desirable rate of exclusive breastfeeding, still distant goal in most of the Arab World. <http://www.Who.In/archives/whday/en.html>.