

EFFECT OF DISCHARGE PLANNING ON PHYSICAL STATUS OF NEONATES

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Abstract- This survey has been conducted to indicate the positive effects of implementing neonates continuous care patterns on their physical health as well as early diagnosis and decrease of complications in 6 weeks after delivery. This quasi-experimental study has been conducted on 118 mothers and their neonates in one maternity hospital in IRAN. Neonates were assigned in control and experimental groups. Discharge planning included mothers face to face interview, training in hospital, the determination of readiness for discharge and follow up by home visit and telephone call. Data were collected by demographic questionnaire and physical status check lists for neonates. Statistical comparison of the two groups shows that physical status of neonates was significantly better in experimental group than control group ($P < 0.001$). Accordingly, the implication of discharge planning by nurses could be useful in improving the neonatal physical status and decreasing their problems after birth.

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INTRODUCTION

Neonatal period is a sensitive period which may be accompanied by diseases like meningitis and sepsis, early diagnosis of which is very important (1). According to WHO in 2000, 245 neonates were born in every minute, 8 of whom were died and 12 were hospitalized; thus special health services were organized to improve this condition (2).

Adequate protection for neonates by nurses could play an effective role in infants adaptation and prevent complications after birth (3, 4). Today, registered nurses provide family focused care that includes: assessing and monitoring newborn physical, behavioral, and nutritional status; assisting

with initiation of breast feeding and providing support to promote its success; fostering parent-infant relationship; evaluating coping abilities and developmental task accomplishment of the new family; teaching about the needs and the care of the newborn and the sibling(s); and coordination care among the family's health care providers and community resources (5).

Postpartum nursing is central to ensuring the health of new families and managing the risk of complications that occur in the post-birth period. Therefore, families should continue to have access to adequate postpartum nursing care. Postpartum programs that include stabilization in the hospital or birth center, home visits, and case management by a registered nurse address both the economic and care issues. These types of short stay programs are safe, cost-effective, with a satisfying experience for participants. In addition, the home visit component provides for the early identification of complications thus preventing costly rehospitalizations, bridges the

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gap between hospital discharge and the first follow up visits with primary health care providers; promotes efficient use of existing health care resources and provides the care in the most appropriate environment considering the recovery needs of the mother, adaptation of the newborn and developmental tasks of the family (5, 6).

The American Nurses Association recommended a written and precise discharge program for all neonates who are discharged during the first 48 hours after delivery (5). This program is begun from hospital and continued at home. It is consisted of the followings:

1. A criterion to guarantee the discharge of only healthy people.
2. Mother's health care during pregnancy period.
3. Mother's participation in training classes at the first 24 hours following delivery.
4. Telephone calls and at least one visit at home.
5. Following the programs of third trimester of pregnancy, hospitalization in postpartum period, advices about warning signs, vaccination times and family planning (5, 6).

Early discharge patterns are performed in our country; however, discharge programs of neonates are not considered in the society. This survey has been conducted to indicate the positive effects of implementing neonates continuous care patterns on their physical health as well as early diagnosis and decrease of complications in 6 weeks after delivery.

MATERIALS AND METHODS

This quasi-experimental study was conducted in May and July 2003, in one maternity hospital in Qom city (Iran). The study had the approval of Ethic Committee, the USWR.

One hundred eighteen women and their neonates by presenting sampling method were studied. They were assigned in control and experimental groups randomly. The inclusion criteria for neonates were: being first offspring, normal vaginal delivery, early discharge (during 24 hours), singleton, birth weight = 2.5-3.5 kg being, term, breastfeeding, resident in Qom city, and Persian language of mother.

The exclusion criteria were prematurity, abnormal or sick neonate; lack of enthusiasm of

mother and lack of accurate address or Tel. number for follow up. After the study was explained to interested mothers by a trained nurse (BS degree), written informed consent, address and Tel. number were obtained from volunteers. This nurse became deployed in the hospital for sampling, and performing discharge planning for experimental group by face to face interview and training mothers during study in the mornings. She also followed up the experimental group in the afternoons by home visits. During face to face interview, the nurse taught mothers about common problems in mothers and neonates, gave them an educational booklet, and determined the readiness of mother & neonate for hospital discharge by a checklist (26 questions). This interview took 30 minutes including checklist completing by the nurse. Then, the mothers and neonates were visited at home 2-3 days after discharge during which physical examination was performed by the nurse, and training needs of mothers were determined by a questionnaire (25 questions) that were completed by mother in 10 minutes. These questions were about neonatal feeding & daily health care and problems of mothers or neonates. Next, theoretical as well as practical trainings were conducted. They were also visited at the end of first, third, fourth, fifth, and sixth weeks, and followed up by telephone call at the end of second week. Routine discharge was carried out for control group (without any program). They were visited at the end of sixth week and physical status check list was completed by the nurse.

Data was collected by demographic questionnaire (22 questions), and physical status check list (28 questions). The demographic questionnaire was completed by mother (in control and experimental group) in 10 minutes and included questions about age, occupation and education of parents, family income, housing condition, prenatal problems, history of systemic diseases and abortion in mothers, mother's support, any refer to prenatal care centers, use of iron and folic acid tablets in prenatal period, breast feeding, unwanted pregnancy, neonate's gender and birth weight. The physical status check list was completed by the nurse in 20 minutes and included questions about neonate's physical condition. The questionnaires were developed by the researchers in Persian language and had short

answers (yes/no). To establish the reliability of questions, a random sub sample of 16 mothers were asked and coefficient correlation was calculated to be 80% by using α Chronbach. To establish the validity of questions, using content validity method; evaluation of questionnaire by 10 faculty member of nursing and medicine schools was performed.

Data were analyzed using descriptive and inferential statistics. Descriptive statistics were used for demographic data as well as to describe the sample. Analytic descriptive statistics including tables of relative frequency distribution and charts were used to compare the two groups. Groups were compared using parametric (Chi square and *t* test) and non-parametric (Mann-Whitney test) statistics as appropriate. Differences were considered significant at $P \leq 0.05$ (confidence interval = 95%).

RESULTS

Many items were compared to determine the effect of discharge planning on physical status of neonates.

Accordingly, no significant differences were seen between 2 groups in the followings: age, occupation and education of parents, family income, housing condition, prenatal problems, history of systemic diseases and abortion in mothers, mother's support, any refer to prenatal care centers, use of iron and folic acid tablets in prenatal period, breast feeding, unwanted pregnancy, neonate's gender and birth weight (Table 1).

Neonate's physical condition is shown in table 2. There are significant differences between 2 groups in eye discharge, napkin dermatitis, long nail and neonate's daily health care; however, no significant differences have been observed in ear discharge, nose obstruction, oral *candidiasis*, diarrhea, vomiting, and loss of appetite, poor feeding, continuous crying, normal sleep patterns, normal defecation and vaccination. Moreover, significant differences were seen in rehospitalization rate of neonates ($P = 0.001$). The main reason for rehospitalization was hyperbilirubinemia. There were no significant differences in neonates' respiratory rate (RR), pulse rate (PR), temperature (T), weight and feeding at week 6.

Table 1. Demographic criteria in 2 groups

Variables	Experimental group		Control group		Test	Sig. Level
	Number	Percent	Number	Percent		
Mother's age (15-25yr)	50	84.75	53	89.83	T	0.7
Father's age (19-29yr)	50	84.75	48	81.36	T	0.2
Mother's job (House wife)	56	94.9	57	96.6	X ²	0.31
Father's job (self-employment)	30	50.8	27	45.8	X ²	0.8
Mother's education (high school)	44	74.6	41	69.5	X ²	0.86
Father's education (high school)	38	64.4	42	71.2	X ²	0.42
Family income (200\$/month)	36	61	34	57.6	X ²	0.65
Housing condition (tenant)	24	40.7	31	52.5	X ²	0.35
Prenatal systemic diseases of mother	2	3.4	2	3.4	X ²	1
Mother's prenatal problems	8	13.6	9	15.3	X ²	0.76
Mother's history of abortion	7	11.9	6	10.2	X ²	0.37
Mother was supported	58	98.3	57	96.6	X ²	0.55
Mother's regular refer to prenatal care centers	55	93.2	53	89.8	X ²	0.11
Prenatal use of oral supplements by mother	47	81.4	48	79.3	X ²	0.55
Unwanted pregnancy	1	1.7	0	0	X ²	0.31
Breast feeding	57	96.6	53	89.8	X ²	0.27
Birth weight (2.5-3.5 kg)	48	81.3	50	84.7	X ²	0.70
Neonate's gender (female)	33	55.5	31	52.5	X ²	0.71

Table 2. Physical status of neonates in 2 groups

Variables	Experimental group		Control group		Test	Sig. Level
	Number	Percent	Number	Percent		
Eye discharge	12	20.3	31	52.5	X ²	0.001
Ear discharge	1	1.7	1	1.7	X ²	1
Nasal obstruction	6	10.2	10	16.9	X ²	0.42
Oral candidiasis	1	1.7	3	5.1	X ²	0.3
Omphalic infection	2	3.4	7	11.9	X ²	0.08
Napkin dermatitis	10	16.9	36	61	X ²	0.000
Rash	15	25.4	40	69	X ²	0.00
Long nails	0	0	6	10.2	X ²	0.02
Abdominal flatulence	11	18.6	30	50.8	X ²	0.000
Vomiting	8	13.6	15	25.4	X ²	0.162
Diarrhea	2	3.4	6	10.2	X ²	0.27
Loss of appetite	0	0	2	3.4	X ²	0.49
Poor feeding	2	3.4	5	8.5	X ²	0.43
Continuous crying	3	5.1	8	13.6	X ²	0.2
Daily health	52	88.1	32	54.2	X ²	0.00
Normal defecation	52	89.8	49	83.1	X ²	0.42
Normal sleep pattern	55	93.2	48	81.4	X ²	0.09
Vaccination	59	100	57	96.6	X ²	0.24
Rehospitalization	10	17	44	74.6	Mann-Whitney	0.00

DISCUSSION

According to the results of this study, physical problems of neonates in experimental group were observed less than control group. These problems included: eye discharge, napkin dermatitis, and rash, long nails, daily health care and hyperbilirubinemia. Some studies (7, 8) showed that, physical problems (fever, omphalitis, pneumonia, loss of appetite, flatulence, dehydration, severe hyperbilirubinemia) are seen more in neonates without discharge program.

Regarding the results of this study, the rate of rehospitalization in neonates with discharge program is lower and it is cost-saving.

The major reason of rehospitalization was hyperbilirubinemia. Two studies (7, 9) are in agreement with this result. In the mentioned studies, the problems of neonates who received a complete early discharge program (including follow up visits) had been discovered soon, so they had been treated

early, which led to the decrease of rehospitalization rate.

Study of Danielson *et al.* assessed the impact of very early discharge (defined as discharge on the day birth) on the risk of infant readmission during the neonatal period in the California healthy population (10). The design of the study was retrospective cohort based on a linked dataset consisting of the birth certificate, newborn and maternal hospitalization record, and linked infant readmission records for all healthy vaginally delivered, and routinely discharged California newborns from 1992-1995. They showed that one night stay with adequate antenatal and postnatal care outside the hospital did not increase the risk of readmission for healthy, vaginally delivered infants born in California. They suggested the need for improved discharge planning and follow-up processes for all newborns. They also suggested the need to enhance efforts around in hospital parental education; to increase the knowledge of the warning signs and

risks of infant dehydration, and the availability of routine home health service visits by a trained nurse, and the facilitation of access to early neonatal health care are all practices that would be expected to decrease readmission. Another retrospective cohort study in Metropolitan University Hospital and children's hospital on term infants cared for in a single term nurse before and after implementation of an early discharge program, indicated that early discharge (< 32 h) of newborn infants to inner city parents can be accomplished without increasing hospital based resource use in the first 3 months of life provided coordinated post discharge care and home visiting services are available (11). To determine the impact of early follow-up visits by the age of 4 days on infant outcomes during the first month of life, a retrospective analysis was conducted on 155 full-term newborns by Meara *et al.* (12). They concluded, for newborns with short stays, that early follow up visit may reduce rehospitalization in early postpartum period. Another intervention pattern that was carried out by Kafatos *et al.*, involved home visits on nutrition, general hygiene, breast feeding, and newborn care (13). Visits were scheduled every 2 weeks in the first 2 months of pregnancy and every month until the infant was 12 months old. Prematurity and the perinatal mortality were reduced by for interventions, but there were a significantly higher number of fetal deaths. Reported illness days had a significant lower mean 1 year for interventions. Hospitalizations were not significantly different. Both groups used the clinic for infant illness; home visits depressed the use of free routine checkups for interventions from 0 to 4 months. The results were mixed but the program was partly successful. In conclusion, this study indicated that nurses (even one nurse) can perform discharge program for infants very well and the home visit component provides for the early identification of complications thus preventing costly rehospitalization. The American Nurses Association and AWHONN also support reimbursement for perinatal and postpartum home nursing care by registered nurses.

Conflict of interests

We have no conflict of interests.

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