

ORIGINAL ARTICLE

A Study Comparing Rooming-in with Separate Nursing

by

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Abstract

A study comparing rooming-in with separate nursing involving 253 and 161 pairs of mothers and their newborns respectively, was carried out in Ujung Pandang General Hospital from September 1985 to February 1987 inclusive. Breastmilk production started earlier in mothers on rooming-in program compared to those with separate nursing.

Jaundice was more often seen and physiological body weight loss more obvious in the separate nursing than in the rooming-in group.

This study failed to show the differences in the incidence of diarrhea and moniliasis between the two systems, but the overall morbidity of nosocomial infections seemed to be lower in the rooming-in group.

Introduction

Rooming-in (RI) refers to that arrangement in the hospital, where the newborn is allowed to stay along with the mother thereby the mother and her offspring are cared for as an entity and the father can also take part in handling his baby. This system permits the establishment of a closer relationship between the mother and her baby and the nursery system (Abdurachman, 1985; Hamzah, 1984; Mustadjab and Munir, 1986).

Actually, rooming-in as being practised now, has been known a long time ago. With the progress in medical technology and the high mortality of mothers and babies, the traditional home delivery shifted towards hospital delivery.

The introduction of modern neonatal nursery which meant to relieve mothers of the burden of caring for their newborns immediately after birth and thus help them to recover from birth stress, created new problems such as outbreaks of diarrhea and various kinds of neonatal infections. Several factors might play a role in the epidemiological aspects of diarrhea and infections in newborns e.g. inadequate antibody formation, high degrees of virulence of microorganisms, lack of prenatal care and close contact to health personnel

especially in overcrowded nurseries (Mustadjab and Munir, 1986; Djoeanda et al., 1979). For several decades, this fact still remained a serious problem until Gessel and Ilg reintroduced the rooming-in system in 1943 expected to reduce neonatal infections and diarrhea in the nursery (cited from Abdurachman, 1985). Since then, many authors have reported RI superior to separate nursing (SN) (Suradi, 1983; Djuanda et al., 1979).

In Indonesia, in an effort to achieve "health for all by the year 2000" of which one of the aims is to reduce the infant mortality rate, the government initiated a breastmilk promotion campaign (Peningkatan Penggunaan Air Susu Ibu: PPASI) in July 1977. RI is one of the aids to achieve this goal. For this reason, some hospitals in Indonesia are nominated as pioneers for carrying out the RI program. This program has been executed in Ujung Pandang General Hospital since June 1986.

In this study we compared some aspects between RI and SN such as stimulation of breastmilk production, incidence of diarrhea, moniliasis and other nosocomial infections, incidence of jaundice and physiological weight loss during hospitalization.

Materials and Methods

The study was conducted in "Bahagia Maternity and Nursery" of Ujung Pandang General Hospital from September 1986 to February 1987. The mothers were divided into two groups according to their wishes, SN or RI. The newborns chosen for this study were healthy fullterms, appropriate for gestational age, with uncomplicated pregnancies and uneventful deliveries. We used continuous RI by which the

newborns were allowed to stay with their mothers all the time. The visitors were restricted and during visiting hours the mothers were instructed to see them outside the room.

Information on RI were supplied to the mothers by doctors, nurses and students. They were taught how to bath a baby, to take care of the umbilicus, to change diapers etc. The mothers were instructed to

breastfeed their babies as early as possible in the delivery room, where mothers were loosely gowned. The babies loosely wrapped in a blanket were presented to them so that skin contact could easily be initiated. Breastfeeding was given on demand with a maximum interval of three hours. In case of absence or shortage of breastmilk production indicated by still crying of the baby after feeding, formula milk was substituted by spoon to fill in the missing schedule.

In SN the newborns were nursed separately and they were exposed briefly to their mothers shortly after birth just for identification. Then the babies were fasted for six hours before they were routinely breastfed in a strict three-hour schedule. Formula milk replaced the missing schedule.

The general condition of the babies, sex, birth weight, weight loss during the hospital stay, jaundice, diarrheal diseases and any signs of infection were recorded. Data

from the mothers such as age, parital status (primi - or multipara) and breastmilk production were also noted.

Statistical analysis used the chi square test to assess significance of two proportions and the relative deviation test for comparing the two mean samples.

Nosocomial infection denotes an infection contracted in the hospital such as (1) diarrhea: passing of watery stool with a frequency of more than 7 times a day with or without mucus and blood; (2) moniliasis or oral thrush are white spots on the tongue or buccal mucosa, difficult to remove; (3) respiratory distress syndrome characterized by rapid respiration (more than 60 per minute) with or without cyanosis, chest retractions, diminished pulmonary air entry and expiratory grunting.

Jaundice is a yellow coloration of the skin or sclera observed clinically with the naked eye in daylight.

Results

remaining 161 received separate nursing.

Of 692 deliveries, 414 fulfilled the criteria; 253 mothers preferred RI and the

Table 1 : Initial clinical characteristics of the study subjects

	RI n = 253	SN n = 161		
male/female	131/122	75/86	p > 0.05	NS*
birth weight (mean ± SD)	3021.23 ± 306.55	2996.34 ± 249.50	p > 0.05	NS**
primi/multipara	78/175	56/105	p > 0.05	NS*
mother's age (mean ± SD)	25.94 ± 5.68	25.86 ± 5.09	p > 0.05	NS**

n : total number of pairs of mothers and their babies.

NS* : not significant by chi square analysis.

NS** : not significant by relative deviation test.

The initial clinical characteristics of the study subjects were comparable (table 1).

Breastmilk production occurred within 1.85 days in RI compared to 3.07 days in SN. The difference was significant (table 2).

A significant difference was found in the overall morbidity rate between RI and SN (table 3). In RI there were 3 cases of moniliasis and 5 babies suffered from conjunctivitis and rhinorrhea while in SN

one child suffered from contracted diarrhea, 5 cases moniliasis and 6 cases conjunctivitis + rhinorrhea.

There was no significant in the incidence of moniliasis between RI and SN (table 4).

A dramatic fall in the incidence of jaundice was seen in RI (13.44%) as compared to SN (26.09%) (table 5).

Physiological weight loss was significantly less in RI than in SN (table 6).

Table 2 : Breast milk production in RI and SN

	breast milk production (days)	
	range	mean ± SD
RI	1 - 4	1.85 ± 0.84
SN	1 - 5	3.07 ± 0.93

z = 13.5124 p < 0.001

Table 3 : Morbidity of nosocomial infection

	nosocomial infections		total
	+	-	
RI	8	245	253
SN	12	149	161
	20	394	414

X² (ldf) = 3.9365 p < 0.05

Table 4 : Incidence of moniliasis in RI and SN

	moniliasis		total
	+	-	
RI	3	250	253
SN	5	156	161
	8	406	414

x_c² (ldf) = 0.9210 p > 0.05

Table 5 : Incidence of jaundice in RI and SN

	j a u n d i c e				total
	+		-		
	n	%	n	%	
RI	34	13.44	219	86.56	253
SN	42	26.09	119	73.91	161
	76		338		414

$$X^2 \text{ (ldf)} = 12.4941 \quad p < 0.05$$

Table 6 : Physiological weight loss in RI and SN

	weight loss (grams)	
		r a n g e
RI	(-180) - (+ 120)	21.42 ± 78.78
SN	(-300) - (+ 50)	80.06 ± 73.22

$$Z = 7.7107 \quad p < 0.001$$

Discussion

RI is considered to be the best way in nursing babies born in hospital or maternity clinics because it benefits the mothers and babies as well as the personnel. Principally, RI creates an early contact between mother and baby, early sucking and breastfeeding on demand.

According to Sameroff, RI makes the mother optimistic, she understands her baby's crying, comes close, stays close and attends to the infant's need. Early skin-to-skin contact will faster emotional bond between mother and baby (cited from Djauhariah, 1986).

Protuberent breast that are only found in human beings permit mother infant eye-to-eye contact and allow the infants to scan the mother's face during sucking. The contact of the nipples against the palate and posterior tongue elicits sucking and milking. Sucking triggers release of maternal prolactin and oxytocin. Prolactin stimulates milk synthesis and oxytocin promotes milk release (let down reflex) (cited from Mustadjab and Munir, 1986).

Although the subjects in this study were not randomly selected, we have tried to eliminate factors that could influence the

results, such as birth weight, sex distribution of the newborns, age and parital status of the mothers. It appeared that the initial characteristics in the two groups were comparable.

This study supported the hypothesis that early contact and early sucking can stimulate early synthesis of breastmilk. The association between RI and increased occurrence of breastfeeding was also observed by Procianoy et al., 1983. They hypothesized that RI increased the feeling of motherhood and exposed mothers to a prolonged contact with their babies in the first day after delivery, resulting in a positive attitude towards breastfeeding (Procianoy et al., 1983). Similar results were also reported by other investigators (Suradi, 1983; Mustadjab and Munir, 1986; Taylor et al., 1986).

In developing countries, early weaning is associated with increased infant mortality and morbidity (Taylor et al., 1986). Fergusson et al., (1981) had observed the relationship between breast-feeding practice and the rate of gastrointestinal and lower respiratory illness during the first two years of life (Fergusson et al., 1981). If breastmilk and its immunologic advantages and protection is with-drawn, a high incidence of infections and deaths may occur (Djoeanda et al., 1979; Soetjningsih and Sudaryat, 1986).

In addition, there are other factors related to SN itself, such as overcrowding, limited personnel and inadequate facilities which all allow the spread of nosocomial infections. One of the measures in reducing the risk of infection is minimizing handling of babies which is practised in RI where nursing the baby is mostly done by the mother herself under supervision of the nursing personnel.

In SN, shifts of nurses during 24 hours will expose the neonates to several persons

which increase the risk of an outbreak of infection.

Although our study failed to show the advantages of RI in reducing the incidence of diarrhea and moniliasis, the overall incidence of nosocomial infections seems to be significantly lower in RI than in SN.

As the infant's need for feeding is normally fulfilled, it may decrease the incidence of hyperbilirubinemia because the enterohepatic bilirubin circulation is decreased. We found jaundice less in RI as compared to SN.

The physiological weight loss was less in RI than is SN in accordance with the findings of Djoeanda et al., (1979), and Mustadjab and Munir (1986). Jelliffe found that babies fed on demand regained their birthweight sooner than did infants fed on a rigid schedule (cited from Mustadjab and Munir 1986; Djoeanda et al., 1979).

Although RI is widely promoted and strongly recommended now, not all mothers agree with this. A questionnaire to mothers in Ujung Pandang in 1981 showed that only 41 per cent of mothers justified RI, 55.7 per cent refused and the remainder gave no comment.

Unlike those who agreed with RI, the mothers who refused RI were educated and of high socioeconomic standing and generally preferred bottle feeding. (Djauhariah, 1986).

Recently, formula feeding is widely used in the community, not only in urban areas but even in remote country areas. The switch from breast milk towards formula was influenced by advertisements, radio etc. (Soelistyowati et al., 1986).

Hospitals and maternity clinics as modern health centres may be promoters of formula feeding. However hospitals that put RI into practice can be expected as a potential source of supporting breastmilk

campaign (Samil, 1986). Moreover, RI saves money by cutting down the expenses of milk formula (Soedibjakti and Moeljono, 1986; Soetjningsih and Sudaryat Suraatmaja, 1986).

Despite the current breastmilk campaign, the enthusiasm for breast feeding is tempered by increasing numbers of critical failure to thrive in breastfed infants. Neifert and Seacat (1986) pointed out that the main cause was improper feeding techniques i.e. inappropriate feeding routine that fail to produce the regular sucking stimulus needed to generate a fullmilk supply.

Following delivery, breastfeeding should be initiated as soon as possible, usually in the delivery or recovery room. The first day is a learning period; the breast is offered when the infant is alert and interested in

sucking. While only a little colostrum is produced, most healthy newborns do not need routine supplementation of water or formula (Neifert and Seacat, 1986).

In other instances insufficient sucking stimulus may be caused by: (1) underlying infant pathology like prematurity, small for gestational age, cleft lip or palate and cardiac anomalies; (2) anatomic breast problems such as inverted nipple; (3) primary lactation failure for instance inadequate mammary glandular tissue or inhibited lactogenesis by retained placenta. (Neifert and Seacat, 1986).

If the problems are detected and treated early, adequate lactation can be achieved. Finally, the success of RI mainly depends on the willingness and awareness of mothers supported by dedication and ability of nursing personnel.

Conclusion

Our comparative study fits previous report, namely:

- (1) RI encourages breast milk synthesis.
- (2) Incidence of jaundice is less in RI as compared to SN.

- (3) Morbidity of nosocomial infections in RI is less than in SN.
- (4) Physiological weight loss is more in SN than in RI.

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