

ROUTINE FEEDING PRACTICES IN A UNIVERSITY HOSPITAL IN RIYADH: ARE THEY BABY FRIENDLY?

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The incidence of breast-feeding in Saudi Arabia has been declining over the past two decades.¹⁻⁴ Such a decrease in prevalence and duration of breast-feeding contrasts with increased utilization of health services. Previous studies were focused primarily on the phenomenon of declining breast-feeding rates. The reasons behind this decline have not been investigated, particularly the contribution of feeding practices in the baby's first few days in the hospital to the declining rate of breast-feeding among Saudi women. We conducted this study to describe the feeding practices in a university hospital, and to evaluate its potential contribution to the declining rates of breast-feeding.

Patients and Methods

The hospital records of all infants born during the month of March 1997, were reviewed. All healthy infants of more than 36 weeks' gestation who did not require admission to the neonatal intensive care unit (NICU) were included. Data were collected on all infants regarding birth weight (BW), gestational age (GA), mode of delivery, maternal age and parity, amniotic fluid status, requirement for resuscitation at birth, Apgar score, and duration of hospital stay. The timing and type of first feed was recorded. Also recorded were the timing of the first breast-feeding event (BF-AGE), the number of bottle and breast-feeding events, and the number of breast-feeding events that were supplemented immediately or within one hour of breast-feeding by a bottle feed. Information regarding requirement for phototherapy, duration, total serum bilirubin, and presence of setup or hemolysis were recorded, as well as any abnormalities or problems noted in the infants.

The infants were subcategorized according to mode of delivery (by cesarean section or vaginally), and treatment with phototherapy. Each group was analyzed separately. Each feeding episode was counted as an event. The total

formula-feeding events (FFE) and the total breast-feeding events (BFE) for each infant were counted. The breast-feeding events were subdivided into isolated breast-feeding events (IBFE) and supplemented breast-feeding events (SBFE). Breast-feeding events were considered supplemented if a formula was fed immediately after or within one hour of the breast-feeding event. The mean and standard deviation for each category were calculated. The percentage of breast-feeding events to the total feeding events (BFE/TFE%) were calculated, using the formula: $BFE/TFE\% = BFE \times 100 / FFE + BFE$. The percentage of supplemented breast-feeding to total breast-feeding events (SBFE/BFE%) were calculated by the formula: $SBFE/BFE\% = SBFE \times 100 / BFE$. We considered the BF-AGE, the BFE/TFE% and the SBFE/BFE% as the breast-feeding outcome measures.

We used two-tailed *t*-test to compare two groups, one-way analysis of variance (ANOVA) for multiple comparisons, and correlation coefficients to describe associations between different variables. We considered a *P*-value of less than 5% as statistically significant.

Results

A total of 239 infants were born during the month of March 1997. We excluded 56 infants—49 were admitted to the NICU, four had no feeding records, one had micrognathia, another had Down syndrome, and one was an infant of less than 36 weeks' gestation. A total of 183 infants were included in the study, with Saudis constituting 90.2% (165). The female to male ratio was 1.2:1. The average maternal age was 30.3 ± 5.8 , with a range of 17-50 years. The gestational age (GA) ranged from 36 to 43 weeks, with a birth weight (BW) range of 2.200 to 4.620 kg. The average and standard deviations of the BW and GA are shown in Table 1. None of the infants required more than routine suction and oxygen during resuscitation at birth. None had an Apgar score of less than 7 at 5 minutes. The amniotic fluid was meconium-stained in 14 cases (7.7%). The mode of delivery was vaginal in 159 infants (86.9%) and by cesarean section in 24 infants (13.1%). Among those born vaginally, one was by forceps, and four by vacuum, while 18 infants required phototherapy for an average duration of 23.1 hours. The average BW and GA was similar in all groups (Table 1).

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All infants received glucose water as their first feed, followed by a formula feed at an average age of 3.0 ± 1.2 hours. Only 11 women (6%) did not breast-feed their infants during their hospital stay. All of those women gave birth vaginally, and their hospital stay was shorter than those who breast-fed their infants (30 ± 10 vs. 55 ± 37 hours, $P < 0.0001$). None of the infants was an exclusive breast feeder. As shown in Table 2, the age of first breast-feeding event was delayed in all groups (20 ± 16 , median=15 hours), and further delayed in infants born via cesarean section (49 ± 17 , median=54 hours). The percentage of the average breast-feeding events to total feeding events (BFE/TFE%= $37 \pm 23\%$, median=38%) was low and similar in all groups, indicating a high rate of formula feeding in all groups. Additionally, a high percentage of breast-feeding events were supplemented (BFSE/BFE %= 61 ± 30 , median=63%) with a formula within one hour, or immediately after the breast-feeding events. The use of phototherapy did not alter the breast-feeding outcome measures, but extended the duration of hospital stay. The average hospital stay was significantly longer in those born via cesarean section (141 ± 26 , median=140). Maternal age or parity did not have any significant correlation with any of the breast-feeding outcome measures.

Discussion

Most mothers in this study (94%) attempted to breast-feed their infants in the first few days of life in the hospital. In a previous survey on a similar group of mothers, 97% planned to breast-feed when they were pregnant.¹ In our study, the 11 mothers (6%) who did not breast-feed during their stay in the hospital had a shorter average stay in the hospital than those who breast-fed their infants (30 ± 10 and 55 ± 37 hours, respectively, $P < 0.0001$), and therefore, may not have had the chance to start breast-feeding. This is supported by the fact that breast-feeding was delayed (16 ± 9 hours) in the group of infants in this study. This makes the percentage of mothers attempting to breast-feed even higher than the 94% found in this study. This rate of mothers attempting to breast-feed is significantly higher than the 54.4% reported in the USA, with an incidence of in-hospital breast-feeding of 65.0%, 33.3% and 77.7% among white, black and Hispanic mothers, respectively.⁵⁻⁷ However, this high rate in our population is followed by subsequent failure to maintain breast-feeding in the first few months of life.¹⁻⁴ Such a decline is more prevalent among urbanized communities.³

It is a well-known fact that hospital routine contributes to the early failure to maintain breast-feeding.⁸ In an effort to identify the real reasons why women stopped breast-feeding, Ferris et al.⁹ followed over 250 women who delivered in Connecticut in 1981. They found that successful breast-feeders fed their babies five hours earlier than those who discontinued after two weeks. Providing just one ounce of formula a day led to ultimate

discontinuation. The most vulnerable period was the immediate postpartum period.⁹ In our hospital, the infant is separated from the mother after delivery, for observation and routine care for the first four hours of life. During this observation period, the infant will usually receive glucose water and one formula feed. Thereafter, the infant is allowed to room in with the mother. The nurse routinely provides the mother with bottles and formula, and gives the mother the option to breast-feed and/or use formula supplements. A nurse who may know only a few words of the Arabic language spoken by most mothers provides brief instructions on breast- and bottle-feeding. The infant will be separated from the mother during the first few days, especially if delivery was by cesarean section, or if the mother is not feeling well and wishes to sleep at night, or if the infant needs phototherapy. Many mothers request the nurses to take care of their infants at night. There is no lactation specialist in the hospital and no breast-feeding support group. Upon discharge, the mother will sometimes be instructed briefly by the pediatric resident on breast-feeding. A follow-up in six weeks at the well-baby clinic is usually provided upon discharge.

In this study, we found that all infants are routinely fed by a formula bottle feed during their hospital stay in the first few days of life. The average age of the first breast-feeding event was delayed in infants born vaginally, and even more delayed in infants born via cesarean section— 15.7 ± 9.3 and 48.8 ± 17 hours, respectively. Furthermore, the average breast-feeding events to total feeding events (BFE/TFE) was low ($37\% \pm 23\%$), and breast-feedings were supplemented (BFSE/BFE) with a formula

TABLE 1. Birth weight and gestational age in infants according to mode of delivery and phototherapy.

Description of group	All infants	VD	CS	VD, no phototherapy	VD + phototherapy
# of infants	183	159	24	141	18
Birth weight (kg)	3.37 ± 0.5	3.37 ± 0.5	3.43 ± 0.6	3.37 ± 0.5	3.36 ± 0.5
Gestational age (wk)	39.4 ± 1.3	39.5 ± 1.2	38.8 ± 1.6	39.5 ± 1.2	38.9 ± 1.6

P-value=not significant; VD=vaginal delivery; CS=cesarean delivery.

TABLE 2. Breastfeeding outcome measures in different groups of infants.

Description of group	All infants	VD	CS	VD, no phototherapy	VD + phototherapy	<i>P</i> -value
# of infants	183	159	24	141	18	
BFE-TFE%	37 ± 23	36 ± 23	45 ± 17	36 ± 23	39 ± 23	NS
SBFE-BFE %	61 ± 30	64 ± 30	$45 \pm 19^*$	62 ± 31	77 ± 21	<0.01
BF-AGE (HS)	20 ± 16	16 ± 9	$49 \pm 17^*$	16 ± 9	15 ± 9	<0.001
HS	53 ± 37	40 ± 13	$141 \pm 26^*$	38 ± 11	55 ± 14	<0.001

*Significantly different from all other values in the same row; VD=vaginal delivery; CS=Cesarean delivery; HS=hospitalization.

within one hour, or immediately after the breast-feeding in $61\% \pm 30\%$ of the breast-feeding events. The fact that none of the breast-feeding outcome measures were affected by maternal age, parity or nationality, may indicate that such practice is universal and influenced mainly by hospital routines. The impact of formula bottle-feeding and delayed breast-feeding on the letdown reflex, emptying of the breast and nipple confusion, has been discussed in the literature.^{7,11-12} In a survey on 347 mothers attending a well-baby clinic in our hospital, Al-Ayed and Qureshi found that insufficient breast milk was the most common reason for choosing bottle-feeding (52.6%), followed by infant refusal of the breast (15.5%).¹ Both these conditions can be related to the late introduction of breast-feeding and the early and high rate of bottle-feeding and supplementation in this study population. Insufficient breast milk could be due to incomplete emptying of the breast, and maternal feelings of inadequacy in the first few days of the infant's life when the infant finds it easier and more satisfying to be fed from a bottle. A vicious circle ensues, resulting in decrease in breast milk and infant preference for the bottle. Nipple confusion may contribute in part to this end result.¹² We have not studied the effect of this hospital practice on subsequent breast-feeding outcome.

Other demographic factors are also possibly involved in the final breast-feeding pattern among women in this population. Factors such as working conditions, peer effect and misconceptions about breast-feeding should not be ignored.¹³ We think that a proper hospital routine in favor of supporting breast-feeding would have a beneficial influence on breast-feeding patterns in the community. The joint WHO/UNICEF Baby-Friendly Hospital Initiative is an example of an approach to the early prevention of breast-feeding problems by promoting appropriate maternity service routines.¹⁴ The ten steps to successful breast-feeding are as follows: 1) Having a written breast-feeding policy that is routinely communicated to all health care staff; 2) training of all health care staff in skills necessary to implement this policy; 3) informing all pregnant women about the benefits and management of breast-feeding; 4) helping mothers to initiate breast-feeding within half-an-hour of birth; 5) showing mothers how to breast-feed and maintain lactation even if they are separated from their infants; 6) giving newborn infants no food or drink other than breast milk, unless medically indicated; 7) allowing newborn infants to remain with

their mothers at least for the first 24 hours; 8) encouraging breast-feeding on demand; 9) giving no artificial teats or pacifiers to breast-feeding infants; and 10) fostering the establishment of breast-feeding-support groups, and referring mothers to them on discharge from the hospital or clinic.¹⁵ We suggest as well that follow-up in the well-baby clinic should be within the first two weeks of birth to provide proper follow-up and support for breast-feeding mothers during this critical period.

Most women breast-feed their infants in the first few days of life. However, the feeding practices in this university hospital are characterized by late introduction of breast-feeding and a high rate of formula feeding to infants who normally need to be breast-fed. Such practices are not baby friendly, and may be contributing to the subsequent failure of breast-feeding.

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