

Growth of Exclusively and Non-Exclusively Breast Fed Infants (0-4 Months) in Posyandu Kenangan Area, District of Deli Serdang

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ABSTRACT A prospective study of all infants visited Posyandu in Kenangan Area was done to study their growth until the age of 4 months according to their feeding pattern (exclusively breast fed or not) This study lasted for 3 months (December 1992 until February 1993). Ninety two infants met the study criteria (spontaneous delivery and cry immediately, no congenital anomaly, body weight over 2500 gram, and appropriate for gestational age). In most of these infants, the first visit was at 1-2 months age (34 infants or 36%). The number of infants with exclusively breast fed was 25 or 26% and non-exclusively breast fed was 67 or 74%. There were 38 infants or 41% who got breast feeding exclusively since birth and 48 or 51% after 25-72 hours following birth. There were 50 infants or 52% who got supplementary food before 2 month age. The average monthly body weight increase, in exclusively breast fed group was higher than in non-exclusively breast fed group infants. [*Paediatr Indones* 1997; 37:25-30]

Introduction

There are two patterns of growth from infancy until adulthood; the (first and second) fast growing and (first and second) slow growing. The first fast growing begins from birth until 5 years of age, while the second fast growing is from 11 to 17 years of age. The first slow growing occurs between 6-11 years, and the second between 17-20 years of age.¹ Growth in the first year of live is very fast with a high body weight increase, and this first fast growing is very important and crucial for future growth. Growth disturbance in the first year of live (especially the 0-4 months age) will affect

the following growth. These growth patterns (fast and slow) are influenced by genetic and environment factors. Nutritional factor is one of the most important environmental factor^{1,2,4,5}

Breast feeding is the main feeding of 0-4 months infants. If breast milk is absent or insufficient, supplemental feeding made from cow's milk is usually given.^{1,6} The Health Department of Republic of Indonesia since 1990 proclaimed and recommended to give breast feeding only for every infant until 4 months age, so called exclusive breast feeding (EBF).⁵ This study aimed to determine and compare infants growth in EBF and non exclusively breast feeding (NEBF) in the first 4 months of age.

Methods

A 3 months prospective study (1 December 1992 - 28 February 1993) was done to all 0-4 months old infants who visited Posyandu at Kenangan area, Percut Sei Tuan, District of Deli Serdang, North Sumatra. Inclusion criteria for subject were: infants with the birth weight over 2500 grams of both sexes, normal delivery, no evidence of asphyxia, no congenital anomaly, and appropriate for gestational age. The subjects had to be apparently healthy when they visited the Posyandu. Subjects who had irregular visits to Posyandu were excluded from the study.

Subjects were asked make a regular visits on a monthly basis until the age of 4 months. On every visit infants were examined physically. The nutritional status and body weight were measured monthly by a trained nurse using a baby scale with an accuracy of 100 grams. The baby was naked on weighing. A questionnaire was completed by the parents about food intake from birth until 4 months age. Infants were then grouped according to their daily food intake during their first 4 months age into EBF group, i.e, those who only got breast feeding until 4 month old, and NEBF group, i.e. those who got breast feeding with milk formula or with supplementary food (fruits, milk porridge).

Results

This study was done on 24 Posyandus in Kenangan Area, Percut Sei Tuan, which operated at regular monthly schedule. Of 95 infants fulfilled the study criteria, 3 were excluded from the study because they migrated to another site. Table 1 shows that in 25 infants of the EBF group, their mothers education respectively as follows: 9 primary school, 10 junior high school, 6 senior high school, and 23 of these mothers are not working. Table 2 depicts age of the baby at the start of breast feeding; 38 (41%) were given breast feeding within 24 hours, while the other 54 (59%) were given breast feeding after 24 hours. Table 3 shows that 40,3% of infants got early supplementary

Table 1. Distribution of demographic characteristics at four months of age by feeding pattern

	Feeding pattern		
	EBF	NEBF	Total
Sex: Male/Female	15/10	32/35	47/45
Age (mo)			
o 0-	5	12	17
o 1-	8	24	32
o 2-	8	18	26
o 3-4	4	13	17
Mother's education			
o Primary school	9	6	15
o Junior high school	10	9	19
o Senior high school	6	42	48
o College	-	10	10
Mother's occupation			
o Working	2	11	13
o Not working	23	56	79

Table 2. Distribution of infants and the time of first breast feeding after birth

Age at initiation of breast feeding (hrs)	N	%
0-12	6	6
13-24	32	35
25-36	24	26
37-48	17	19
>48	13	14
Total	92	100

food due to mother's suspicion that after having breast feeding the infants kept on crying which meant that the infant still hungry and needed supplementary food and in 28.3% infants giving early supplementary food were to stimulate rapid growing.

Monthly increase of average body weight in the EBF and NEBF groups was shown in Table 4. It shows that monthly increase of EBF infants was higher than the NEBF group, except in the first months of age (900 grams vs. 1520 grams) and difference of

28 Growth and development of exclusively & non-exclusively breast-fed infants

Table 3. Distribution of reason for food supplementation in 67 infants

Reason for food supplementation	n	%
Mother's suspicion that crying infant after breast feeding means 'still hungry'	27	40.3
Early food supplementation means 'rapid growing'	19	28.3
Working mothers	11	16.4
Other reasons	10	15
Total	67	100

Table 4. The average body weight increase according to age and feeding pattern

Age (mo)	n	Feeding pattern		
		EBF		NEBF
		increase in body weight, mean (range), grams	n	increase in body weight, mean (range), grams
1	5	900 (500-2700)	8	1250 (250-2100)
2	5	940 (800-1200)	12	765 (750-1100)
3	13	850 (500-1500)	38	700 (600-1200)
4	21	895 (600-1100)	57	885 (400-1100)
Total	44	950	115	926

$t = 1.9491, df=157; p<0.05$

these monthly body weight increase between EBF group and NEBF group was statistically significant ($p<0.05$).

Monthly increase of average body weight in the EBF and NEBF groups was shown in Table 4. It shows that monthly body weight increase of EBF infants was higher than that in the NEBF group, except in the first months of age (900 grams vs. 1250 grams). The difference of these monthly body weight increase between EBF group and NEBF group was statistically significant ($p<0.05$).

Discussion

Breast milk has many advantages than milk formula, including

1. Breast milk contains all nutrients which is quantitatively and qualitatively meet the need for infants growth in the first 4 months of live,
2. Breast milk does not aggravate the functions of gastrointestinal tract and kidney
3. Breast milk contains several kind of antibodies, for infection protection,
4. Breast milk contains lactoferrin for binding serum,
5. Breast milk contains no beta lactoglobulin that causes allergy,
6. Breast feeding is practical, economical and available at any time at ideal temperature, always fresh and free from microorganisms,
7. Breast feeding improves psychological relationship between mother and her baby.^{2 +6}

In spite of its advantages, there has been a strong tendency to many mothers to give other food in the form of milk formula or semi-solid food before the baby aged 4 months old. Of 92 infants (0-4 months) longitudinally studied there were only 38 or 41% who got breast feeding within the first 24 hours of live, due to the availability of mother's breast milk production. There were 67 or 74% infants who got early supplementary food (before 4 months age), with mother's reasons: 27 or 40.3% infants seems still hungry after breast feeding and 19 or 28.3% infants if supplementary food given earlier it will stimulate infants growing rapidly. Only 25 or 26% of infants who got exclusively breast feeding until its 4 months age, and this finding was higher than Enoch et al (1988) in Jakarta who reported only 17% from 845 studied infants.

The overall average body weight increase in the EBF group infants was slightly higher than that in the NEBF group (950 grams versus 926 grams). The average of monthly increase of body weight in EBF group was always larger than that in the NEBF group except in the first months of age (EBF : 900 gram versus NEBF : 1250 gram). This finding confirm with Moh Effendi's (1977) in Semarang : from 145 infants they concluded that the nutritional status of breast fed infants group was better than that of the milk formula group. Suharyono and Hariarti also reported their findings in Jakarta that the percentage of good nutritional status was higher in breast fed group infants (43.3%) than in milk formula group infants (33.5%).²

The monthly average body weight increase of EBF group infants were higher in the first four months of age (I: 900 grams; II: 940 grams; III: 850 grams; IV: 895 grams) than the average body weight increase recommended for normal (800 grams / month in the first 3 moths of age and 550 grams/month in the second 3 months of age). The average body weight increase in NEBF group were slightly smaller (II: 765 grams; III: 700 grams) than recommended average monthly body weight increase for normal (800 gram/month in the first 3 month age).

The statistically significant differences in body weight increase was found between EBF infants group and NEBF group ($p < 0,05$) at 2 months age and 3 months age.

30 Growth and development of exclusively & non-exclusively breast-fed infants

In conclusion it can be stated that growth of infants in both EBF and NEBF groups within the first 4 months of life is sufficient, and infants in both groups show a normal average monthly increase in body weight. Early supplementary food practice before 4 months of age is not necessary and not recommended.

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