

DISCUSSION

WHO and UNICEF jointly developed the global strategy for infant and young child feeding. The strategy calls upon governments to ensure that the health and other relevant sectors protect, promote and support exclusive breast feeding for six months and continued breast feeding for two years.⁽⁵¹⁾ Although there is an upward trend in breast feeding rates in various countries, the global monitoring indicates that only 39% of all infants worldwide are exclusively breast fed even in the infants who are less than 4 months of age.⁽⁵²⁾ Hence broad based efforts are needed to break the barriers to breast feeding initiation and continuation.⁽⁵³⁾

The present cross sectional study was conducted on two hundred breastfed infants with age one year attending The outpatient clinic of Alexandria University Children's Hospital and Two family health centers in Alexandria which are San Stefano family health center as an urban area and Mohsen family health center as a rural area. Ninety five of them were starting weaning at three months of age and the rest (105) experienced optimal weaning at six months of age.

Several maternal data were collected and statistically analyzed to know their effects on breast feeding and its continuation. These criteria include age and education. The present study revealed that the lower the maternal education the higher the occurrence of early weaning. Maternal age also affects breast feeding practice as it was found that the younger the mother the earlier the weaning. Other maternal data in the present study (residence and infant order) had no effect on the weaning practice.

These results come in line with previously performed studies⁽⁵⁴⁾ which found that mother's age and mother's education have strong positive impact on breast feeding initiation and continuation.

Prince and Rose,⁽⁵⁵⁾ found that younger women and those with limited socioeconomic resources were more likely to develop breast feeding problems and stop breastfeeding at the first month.

Baseline data were collected in the present work to evaluate the circumstances of breast feeding practice. It was found that the regularity of breast feeding as regard scheduled feeding, day and night feeding, increase number of feeds per 24 hours and usage of both breasts alternatively in feeding encourages the mothers to continue exclusive breast feeding up to six months. These results were matching with WHO recommendation for exclusive breast feeding in the first six months of age.⁽¹²⁾

There is relation between duration of breast feeding and frequency of gastrointestinal and respiratory tract diseases. Studies in US and Europe have found that exclusive breast-feeding for at least six months decreases the risk of infectious morbidity.⁽³⁹⁾ Exclusive breastfeeding for six months is associated with a lower risk of gastrointestinal infection.⁽³⁸⁾ The risk of hospitalization for lower respiratory tract infections in the first year is reduced by 72% if infants breastfed exclusively for more than four months.^(40, 44)

In the current study it was found that exclusive breast feeding for six months could protect infants from frequent attacks of gastroenteritis. The mean number of gastroenteritis attacks that affect infants experienced optimal breast feeding was 1.49 ± 0.75 in comparison with 2.63 ± 0.97 number of attacks that affect infants

experienced early weaning. There was statistical significant difference between both groups.

As regard respiratory infections in the present study there was statistical significant difference between the two groups as the mean number of respiratory tract infections that affect infants experienced optimal breast feeding was $1.53 \pm .94$ in comparison with 2.82 ± 1.10 number of attacks that affect infants experienced early weaning. Also there is statistical significant difference in the incidence of hospital admission either for respiratory or gastrointestinal infections ($P < .001$).

These results are in agreement with previously performed studies. Kramer. et al. ⁽³⁸⁾ conducted a study comparing 2862 infants exclusively breastfed for three months with 621 infants who were exclusively breastfed for six months or more and found that a significant reduction in the incidence of gastrointestinal infection was observed during the period from three to six months in the six months group [adjusted incidence density ratio: 0.35 (0.13, 0.96)], but no significant differences in risk of respiratory infectious outcomes or atopic eczema or hospitalization for respiratory or gastrointestinal infections were apparent. This difference between both studies may be due to different sample size.

Also another explanation of such difference may be due to a prospective study in Dundee ⁽⁵⁶⁾ that suggested the introduction of solid foods before 12 weeks was associated with increased respiratory symptoms which matching with the result of the present study.

Regarding allergy and atopic disease, it is impossible to exclude contact to food allergens in exclusively breast-fed infants. Severe allergic reactions can occur from exposure to minute quantities of food allergens even during breast-feeding in infants at high risk for allergy (Tan et al., 2001). ⁽⁵⁷⁾

In the present study, skin allergy and atopic diseases affect infants experienced early weaning more than those experienced optimal weaning, there was statistical significant difference between both groups with family history of atopic diseases while there was no statistical significant difference between those with negative family history.

As regard GIT allergy, there was statistical significant difference between infants experienced early and optimal weaning either with family history of GIT allergy or not. Also there was increase in percentage of infants experienced early weaning who had skin and GIT allergy with positive family history more than those with negative family history.

Matching to our results Kajosaari. et al. ⁽⁵⁸⁾ found in a prospective non randomized cohort study in Helsinki on 135 exclusively breast-fed infants with an atopic family history observed atopic eczema and a history of food allergy to be significantly reduced when solid foods were introduced after six months of age compared to three months.

Contradictory to our results Kramer. et al., 2009 ⁽⁵⁹⁾ found that at the age of 6.5 years in children who had been breast-fed exclusively for three months compared to those exclusively breast-fed for six months in the PROBIT study, there was no statistically significant difference in the prevalence of atopic symptoms or diagnoses according to the ISAAC questionnaire nor in skin prick test results. Also Tarini. et al., 2006 ⁽⁶⁰⁾ found in a systematic review of early introduction of complementary food that, there

was insufficient evidence to suggest that the early introduction of complementary food to infants is associated with an increased risk of food allergy

The advice on the timing of the introduction of complementary foods was changed by the Committee on Nutrition, Section on Allergy and Immunology of the American Academy of Pediatrics,⁽⁶¹⁾ the Section on Pediatrics of the European Academy of Allergology and Clinical Immunology⁽⁶²⁾ and the ESPGHAN Committee on Nutrition.⁽⁶³⁾ These all agree that there is no convincing scientific evidence that avoidance or delayed introduction of potentially allergenic foods beyond 4-6 months reduces allergies in infants considered at increased risk for the development of allergy or in those not considered to be at increased risk.

Regarding anthropometric measurement there is statistical significant difference between the two groups as the mean weight, height and head circumference of infants experienced early feeding was less than the mean of those infants experienced optimal breast feeding at age of one year.

These findings are matching with the results of previously performed studies. Kramer. et al.⁽³⁸⁾ found that from three to six months, weight gain was slightly greater in the three months group [difference: 29 g/mo (95% CI: 13, 45 g/mo)], as was length gain [difference: 1.1 mm (0.5, 1.6 mm)], but the six months group had a faster length gain from 9 to 12 month [difference: 0.9 mm/mo (0.3, 1.5 mm/mo)] and a larger head circumference at 12 month [difference: 0.19 cm (0.07, 0.31 cm)].

As regard gross motor assessment, large number of infants who continue breast feeding up to six months crawled (68.8%) and walked alone (95.3%) in the normal percentile 25th-50th, 50th-75th compared to infants with early weaning, but with no statistical significant difference.

Matching to our results Dewey. et al.⁽⁶⁴⁾ in Honduras study found that infants were exclusively breastfed for four months and then randomly assigned to continue exclusive breastfeeding (EBF) until six months or received high-quality, hygienic solid foods (SF) in addition to breast milk between four and six months. Infants in the EBF group crawled sooner and were more likely to be walking by 12 month than infants in the SF group.

The introduction of complementary food with different feeding modes (spoon, cup, self-feeding with fingers) marks important developmental milestones in motor and coordinative abilities which appear at individually variable ages but which follow a constant pattern. Both too early and too late introduction of new feeding modes might hamper the normal development as well. It was considered that the available data do not permit to define precisely an age when the introduction of complementary food is needed for further neuromuscular development. However, many infants will have matured their neuromuscular coordination enough at about five months to be spoon fed.⁽³⁹⁾

Regarding fine motor development assessment in the current study there was statistical significant difference between the two groups ($P=0.001$). Also in language development, in the present study there was statistical significant difference between the two studied groups in speaking meaningful words as infants who experienced optimal duration of breast feeding could speak one or two meaningful words earlier than early weaning infants.

These findings was found by Vestergaard. et al.⁽⁶⁵⁾ who reported that achievement of two motor skills (crawling and pincer grip) was linked to the duration of breastfeeding

in a large sample of Danish infants. The proportion of infants who mastered the specific milestones and early language development (defined as the ability to babble in polysyllables) increased consistently with increasing duration of breastfeeding. Vestergaard. et al data support the hypothesis that breastfeeding benefits neurodevelopment.

Consistent differences in neurodevelopmental outcome between breastfed infants have been reported, but the outcomes are confounded by differences in parental education, intelligence, home environment, and socioeconomic status.^(44,66) The large, randomized Promotion of Breastfeeding Intervention Trial provided evidence that adjusted outcomes of intelligence scores and teacher's ratings are significantly greater in breastfed infants.⁽⁶⁷⁾ In addition, higher intelligence scores are noted in infants who exclusively breastfed for three months or longer, and higher teacher ratings were observed if exclusive breastfeeding was practiced for three months or longer.⁽⁶⁸⁾

Exclusive breast feeding for optimal duration of six months have great benefits in infants immunity which measured by frequency of infection and hospital admission as we found reduction in gastroenteritis attacks and respiratory tract infections. Also benefits in anthropometric measurement which showed significant increase by age of one year. Regarding benefits in infant development by assessing gross motor, fine motor, social and language development there is significant improvement in development of infants experienced optimal duration of breast feeding over those with early weaning.