



Original article

Feeding and Weaning practices of children with severe acute malnutrition - An observational study

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ABSTRACT

Introduction: Breastfeeding and weaning are the very important aspect of child nutrition and any issue with these may adversely affect the overall health of child. **Material and Methods:** A total of 375 infant and children (6 months to 5 years) of acute severe malnutrition were enrolled in the study during a period of one year (January 2010- December 2010) and a detailed history and physical examination finding were recorded in pretested proforma at the time of admission. Feeding and weaning history taken in detail by caregiver. **Results:** Only 9.3% patients had exclusive breast feeding up to 5 months of age. Mean duration of exclusive breast feeding was 2.6 ± 1.5 months. Out of 375 patients, 40.4% patients started complementary feeding after 9 months of age. Mean age of weaning was 8.4 ± 3.9 months. Breast feeding was stopped in 37.5 % patients before 6 month of age. Severity of malnutrition (Indian academy of pediatrics grade III & IV) was more in patients of above 9 months of age those did not started weaning as compared to those below 9 months of age (78.5% v/s 55.5%). **Conclusion:** Delayed starting of complementary feeding and less duration of exclusive breastfed is important factor associated with for severe acute malnutrition.

KEYWORDS: Acute severe malnutrition, Complementary feeding, Breastfeeding.

INTRODUCTION

Feeding practices and weaning has very much influence on nutritional status of child. Weaning is a difficult period in an infant's life because if the food supplements or substitutes are not adequate in quantity and quality during this period then the child becomes malnourished.

Breast milk is the best available food for infants and those who have been deprived of this, are expected to show a greater prevalence of malnutrition. Delays in the initiation of breast feeding are known to be detrimental to the health of infants and children and lead to malnutrition[1]. There is higher prevalence of malnutrition in children where breast-feeding was initiated late or not exclusively breast fed up to 4-6 months[2-3]. Delayed weaning is also detrimental to health. This explains the significantly higher prevalence of malnutrition in children, who were weaned late, i.e. beyond

6 months of age [1]. Apart from age of weaning, type of supplementary food and method of feeding are also important. An improper and unhygienic weaning practice is the root of malnutrition.

MATERIALS AND METHODS

We conducted observational (questioner based) study of patients with acute severe malnutrition admitted in tertiary care hospital in Rajasthan. A total of 375 patients admitted during period of 12 months (January 2010 – December 2010) were enrolled in study.

A total of 375 children with age group between 6 month to 5 year of age having severe acute malnutrition.

Criteria for inclusion were (age group 6 month to 5 years):

1. Weight for height/ length -3 SD (WHO/NCHS median height).
2. Bilateral pedal oedema
3. Grossly visible severe wasting.
4. Mid upper arm circumference <11.5 cm

Observational (questioner based) study: A detailed history, physical examination and anthropometric measurements were recorded at the time of admission by using standard methodology. Detailed feeding and weaning history was taken. Socioeconomic status and education level were also recorded. After admission, investigations like Haemoglobin, total and differential leucocytes count, ESR, urine and stool examination, MT, HIV ELISA, chest X-Ray, electrolytes and other investigations were done as and when required.

Table 1: General characteristic of the study subjects

Characteristic	n (%)
Age(in months)	14.92 ±7.48
Sex ratio (Male: Female)	2.9:1
Demographics	
Rural	310 (82.66)
Urban	65 (17.33)
Socioeconomic status (modified kuppuswami)	
I & II	15 (4)
III, IV & V	360 (96)
Education status of caretaker	
Illiterate	335 (89.33)
Primary	30 (8)
Secondary	5 (1.33)
Number of children in family	
1 or 2	180 (48)
3 or more than three	195 (52)
Immunisation status of patients	
Unimmunised	160 (42.66)
Partially immunised	165 (44)
Complete immunised	50 (14.66)
Grade of malnutrition (IAP)	
I & II	100 (26.66)
III & IV	275 (73.33)

Only 9.3% patients had exclusive breast feeding upto 5 months of age and nearly 74.7% children were exclusively breast fed upto two months of age. Mean duration of exclusive breast feeding was 2.6 ± 1.5 months. Out of 375 patients, complementary feeding had been started in 13 (17.3 %) patients before 6 months of age, in 90 (24%) between 6 to 9 months and in 105 (28%) after 9 months of age. Mean age of starting complementary feeding was 8.4±3.9 months.

Out of all patients those started complementary feeding, 165 (63.5%) patients were started semisolid and solid foods

RESULTS

Out of all admitted patients, 360 (96 %) were below 2 yr of age and male to female ratio was (M: F) 2.9:1. The mean age of admitted patients was 14.92 ± 7.48 months. Out of 375 patients, 360 (96%) patients belong to lower socioeconomic scale (III, IV &V) and 82.7% patients living in rural area. Most of the caretaker i.e. 335 (89.3%) were illiterate and father were literate in 245 (66.2 %) cases. In all cases, caretakers were mothers. Majority of patients were either unimmunised or partially immunised i.e. 160 (42.7 %) and 165 (44 %) cases respectively. About 195 (52 %) patients had three or more children in their families including index case. Out of all admitted patients, 155 (41.3%) had grade IV, followed by 210 (32%) grade III, 80 (21.3%) grade II and 20 (5.3 %) had grade I malnutrition. Female patients were more severely malnourished than males (84.2% v/s 68.21%) Table 1.

along with top milk. Semisolid and solid foods were started between 6 to 9 month in 11 (33.3%) and after 9 months in 110 (66.4%) patients. Mean age of starting semisolid to solid food was 11.6±3.53 months.

Those who started complementary feeding; most commonly used supplementary food was top milk in 210 (100%), followed by mashed chapati in 110 (42.3%), khichadi /daliya in 85 (32.7%) and mixed dal/rice in 50 (19.2%) patients and most commonly used weaning method was by katori spoon and cup in 195 (75 %) patients, followed by bottle in 45 (17.3 %) and both bottle and katori spoon in 20

(7.7%) patients Table 2. Out of 375 patients, 115 (30.7%) patients were on breast feed only and yet not started weaning at the time of hospitalisation; among them 45

(39.1%) patients were below 9 months of age and 70 (60.9%) patients were above 9 months of age.

Table 2: Feeding and weaning characteristic of the study subjects

Characteristic	n (%)
Duration of exclusive breast feeding	
Up to 2 months	280 (74.66)
Up to 4 months	100 (26.66)
More than 4 months	45 (12)
Age of starting complementary feed (n= 260)	
6 – 9 months	90 (34.61)
9-12 months	80 (30.7)
More than 12 months	25 (9.6)
Age of starting solid and semisolid food (n=165)	
6-9 months	55 (33.3)
9-12 months	50 (30)
More than 12 months	60 (36.4)
Type of complementary food (n=260)	
Top milk	260 (100)
Meshed chapatti	110 (42.3)
Khichdi/daliya	85 (32.7)
Dal/rice	50 (19.2)
Method of weaning (n=260)	
Only Katori, spoon and cup	195 (75)
Only Bottle	45 (17.3)
Both bottle and katori	20 (7.6)

DISCUSSION

Breast milk is the best food for infant and there is high prevalence of malnutrition among those who have been deprived of this. In our study we observed that only 9.3% patients had exclusive breast feeding up to 5 month of age. Nearly 74.7% children were exclusively breast fed up to two months of age. Mean duration of exclusive breast feeding was 2.6 ± 1.5 months. Likewise, Aneja et al reported in their study that among 155 children (6-12 months of age), nearly, 41% were exclusively breastfed for less than two months and only 20 % were exclusively breastfed till the age of 5-6 months. The mean weight of children who were exclusively breastfed for two months was 4.5 ± 3.9 kg as compared to 6.0 ± 4.5 kg for those who were exclusively breastfed for 6 months[4].

Similarly, Mallik et al also reported that among the children less than two years, malnutrition was observed significantly more in those who were not exclusively breast fed than the children exclusively breast fed for 4- 6 months [3]. Prolonged breast feeding may reduce the consumption of complementary foods without an equivalent increase in human milk intake, thereby, diminishing total energy intake [5].

In our study, out of 375 patients, 78.7% children were still on breast feed at the time of hospitalization and among them 40.7% of children were above 12 months of age. Singh et al

conducted a study on infant feeding and weaning practices and observed that only 23% of mothers initiated breast feeding within 24 hours of delivery and most mothers breast feed for at least 2 years [6].

Different studies found increase in mild to severe malnutrition in children who were breast fed during second year of life [7-9]. Likewise, Assenso, while assessing the effect of prolonged breast feeding on the nutritional status, observed considerably lower nutritional status of children who continue to receive the breast milk up to 2nd and 3rd year of life in comparison with fully weaned children in the same year [10].

In our study, out of 375 patients, 30.7% patients were on breast feed only and yet not started weaning and among them 60.9% patients were above 9 months of age. Severity of malnutrition (PEM grade III & IV) was more (78.5%) in those patients who were on breast feed only above 9 months of age compared to those below 9 months of age (55.5%). Similarly, Assens et al also observed that higher prevalence of malnutrition is associated with prolonged breast fed children because weaning is delayed or supplementary feeding is not given to these children at appropriate time [10]. This association of severe degree of malnutrition with prolonged breast-feeding is also in agreement with the findings of Jahan and Hossain [11-12].

In our study, we found that 69.3% patients had started weaning at the time of hospitalization and among them 25% started before 6 months of age and another 40.7% after 9 months of age. Amongst these patients, 63.5% started semisolid to solid food along with top milk. 30.6% patients did not start weaning at the time of admission and among them 65.2% were above 9 months of age. Mean age of weaning was 8.4±3.9 months and mean age of starting semisolid and solid food was 11.6±3.53 months. Rasanias and Sachdev in their study reported that weaning was started at optimum age (4-6month) in 42.9% children, started early (< 4month) in 24.5% and in rest it was delayed beyond 6 months of age.

Severe malnutrition was significantly higher ($p < 0.05$) in children where weaning was delayed [1]. Similarly, Singh et al also reported that only 24.7% of mothers introduced supplementary foods before 6 months of age and mean age of food supplementation initiation was 8.7 months. Delayed weaning is also detrimental to health. Prevalence of malnutrition was more in children where breast-feeding was continued for longer period, because as the age advances, breast milk remains inadequate for the children [6].

Apart from age of weaning, type of supplementary food and method of feeding are also important. In our study, we observed that 69.3% patients received top milk supplementation and most commonly used top milk was goat milk. The most common supplementary semisolid food given was Chapatti followed by Khichari. Common mode of feeding top milk was katori spoon (75%) followed by bottle (17.3%) and both katori spoon and bottle (7.7%). Aneja et al also reported that most common mode of feeding top milk was katori spoon (67.7%) followed by bottle (28.3%) and most common complimentary semisolid food was khichadi followed by rice [4]. Rasanias and Sachdev also observed in their study that 65.8% of mothers were using bottle for feeding top milk and overall malnutrition prevalence was higher ($p < 0.001$) in bottle fed children (83%) and most common supplementary foods were milk, rabadi, rice, and roti [1].

CONCLUSION

The results of the present study indicate that improper weaning practices, particularly, the timing and type of food items used for weaning result in childhood malnutrition. This indicates the need to create a practical programme at grass root level for improvement in weaning practices. Much care and attention needs to be given to young child nutrition especially during weaning to ensure good health status and development.

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