International Journal of Contemporary Pediatrics
Lakhkar BB et al. Int J Contemp Pediatr. 2017 Mar;4(2):460-463
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291
DOI: http://dx.doi.org/10.18203/2349-3291.ijcp20170689

Original Research Article

A study of correlation of different grades of malnutrition with feeding practices during 1st 6 months of life

Diksha Sharma*, Devendra Sareen, Subhash Bamnawat

Department of Pediatrics, Geetanjali Medical College and Hospital, Udaipur, Rajasthan, India

Received: 21 November 2016
Accepted: 20 December 2016

***Correspondence:**
Dr. Diksha Sharma,
E-mail: dikshaa304@gmail.com

ABSTRACT

Background: Childhood under nutrition is a critical public health and development challenge in many developing countries including India. Nearly half of all deaths in children under-5 age group are attributable to under-nutrition. One of the key reasons for under-nutrition in early life is the faulty and sub-optimal infant and young child feeding practices.
Methods: 295 children under the age of 5 years residing in rural areas of Udaipur were studied. Feeding pattern and various demographic factors were taken into account, considering age at which breastfeeding was initiated, practice of exclusive breastfeeding up to 6 months, colostrum given or not, any pre-lacteal feed given or not. Assessment of anthropometric measurements was done and children were categorized as per classification of malnutrition by the WHO.
Results: Total of 295 children were studied, out of which 59% (174) children were malnourished. 23.2% of SAM children received exclusive breastfeeding up to 6 months compared to 52.1% of control group, which was statistically significant. Difference between severely malnourished and control group children who received pre-lacteal feed was also significant. Only 21% of severely malnourished children were started with breastfeeding within 1st hour of birth.
Conclusions: Most of the children who were not given breastfeeding up to 6 months, offered pre-lacteal feed, deprived of colostrum at birth, not started complementary feeding at appropriate time were severely malnourished.

Keywords: Breastfeeding, Complementary feeding, Colostrum, Malnutrition, Pre-lacteal feeding

INTRODUCTION

An estimated 40% of the world's severely malnourished under-5 children live in India. Nearly half of all deaths in children under age 5 are attributable to under-nutrition.[1] Under-nutrition encompasses stunting (chronic under nutrition) wasting (acute under nutrition) and deficiencies of micronutrients (essential vitamins and minerals).[2]

Underweight prevalence increases rapidly from birth to age 20-23 months. One of the key reasons for under-nutrition in early life is the faulty and sub-optimal infant and young child feeding practices. The first two years of life provide a critical window of opportunity for ensuring appropriate growth and development of children through optimal feeding.[3]

Early and exclusive breastfeeding is now recognized as one of the most effective interventions for child health. Scientific evidence shows that early initiation of breastfeeding can reduce neonatal mortality significantly. Exclusive breastfeeding up to 6 months can prevent up to 13% of the under-five deaths.[7]

Poor breastfeeding and complementary feeding practices, together with high rates of morbidity from infectious

diseases are the prime proximate causes of malnutrition. Socio-economic and environmental conditions, together with feeding practices, are important determinants of malnutrition in developing countries. Delayed breastfeeding initiation, colostrum deprivation, supplementary feeding of breast milk substitutes, early introduction of complementary feeding, and incorrect weaning from breast milk are commonly found practices in communities around the world.

METHODS

This study was conducted in 295 children under the age of 5 years residing in slum areas in Udaipur. All the mothers were interviewed regarding breastfeeding and other infant feeding practices in detail in pretested questionnaires. The points taken into consideration were age at which breastfeeding was initiated and time at which complementary feeding was started, colostrum given or not, any pre-lacteal feed given, time of initiation of breastfeeding, mother's age, education, occupation, socio economic status, total no. of children, type of family etc. Assessment of various anthropometric measurements was done and children were categorized as per classification of malnutrition by Z score/SD score by WHO.

The WHO recommends the use of Z scores or SDS for evaluating anthropometric data, so as to accurately classify individuals with indices below the extreme percentiles.

- A score of -2 SD to -3 SD indicates moderate malnutrition
- A score of less than -3 SD indicates severe malnutrition
- A score of +2 SD to +3 SD indicates overweight.

Study further divided children into 3 group's i.e. severe acute malnutrition (SAM), moderate acute malnutrition (MAM) and control (normal + overweight).

All observations were subjected to statistical analysis by Chi-square test in SPSS Version-19 and co-relation was found.

RESULTS

A total of 295 children were included in this study. 174 (59%) children were malnourished out of which 23.3% were severely malnourished and 35.5% moderately malnourished (Table 1).

Association of exclusive breastfeeding with different grades of malnutrition showed that 23.2% severely malnourished children received exclusive breast feeding up to 6 months while 76.8% severely malnourished children didn't receive exclusive breast feeding up to 6 months, which was statistically significant. Out of 295 children 119 children received exclusive breastfeeding up to 6 months. Only 23.2% of SAM children received exclusive breastfeeding up to 6 months as compared to 52.1% of the control group, which was statistically significant (p=<0.001). This result shows that children who received exclusive breast feeding up to 6 months had low risk of severe acute malnutrition (Table 2).

Table 1: Demographic profile of studied children.

Parameter	Number (n = 295)	Percentage (%)
Male	148	50.2%
Female	147	49.8%
SAM	69	23.3%
MAM	105	35.5%
Control	121	41.2%
Given colostrum	214	72%
Given pre-lacteal feed	169	57.2%
Exclusively breastfed up to 6 months	119	40.3%

Table 2: Association of different grades of malnutrition with exclusive breast-feeding up to 6 months.

Exclusive breastfeeding up to 6 months	SAM no. (%) N = 69	MAM no. (%) N = 105	Control no. (%) N = 121
Given	16 (23.2%)	40 (38.1%)	63 (52.1%)
Not given	53 (76.8%)	65 (61.9%)	58 (47.9%)

*p<0.001 (HS) (SAM versus control).

Table 3: Co-relation of different grades of malnutrition with pre-lacteal feed introduction.

Pre-lacteal feed	SAM no. (%) N = 69	MAM no. (%) N = 105	Control no. (%) N = 121
Given	49 (71.1%)	64 (60.9%)	56 (46.3%)
Not given	20 (28.9%)	41 (39.1%)	65 (53.7%)

*p = 0.001 (HS) (SAM versus control).

Table 4: Co-relation of grades of malnutrition with introduction of colostrum.

Colostrum	SAM no. (%) N = 69	MAM no. (%) N = 105	Control no. (%) N = 121
Given	41 (59.4%)	68 (64.7%)	105 (86.8%)
Not given	28 (40.6%)	37 (35.3%)	16 (13.2%)

*p<0.001 (HS) (SAM versus control).

A total of 169 children received pre-lacteal feed soon after birth, it's further correlation with different grades of malnutrition showed that 71.1% (49) severely malnourished children received pre-lacteal feed at birth compared to only 46.3% (56) children of control group, which was statistically significant (p = 0.001). Thus, it shows that children who received pre-lacteal feed had high risk of malnutrition in later life. The most common given pre-lacteal feed was Ghutti (49.8%) (Table 3).

Table 5: Association of grades of malnutrition with the starting of breastfeed.

Breastfeed initiation	SAM no. (%) N = 69	MAM no. (%) N = 105	Control no. (%) N = 121
Within 1st hour of birth	15 (21.8%)	53 (50.4%)	73 (60.2%)

Co- relation between introduction of colostrum with different grades of malnutrition showed that SAM children received the least colostrum i.e. 59.4% as compared to the control group from which 86.87% received colostrum at birth. The p value =<0.001 which was highly significant (Table 4).

The children were divided according to the time at which breastfeeding was started. It was found 60.2% of the children were given breastfeed within 1st hour of birth in control group, and in SAM only 21.8% children received breastfeeding within 1st hour after the birth (Table 5).

In this study 47.1% of the mother's practicing exclusive breastfeeding up to 6 months were illiterate and most of these children belonged to severe acute malnutrition group.

DISCUSSION

In our study 59% of the total children were malnourished as per WHO-Z score (Severely acute malnourished + moderately acute malnourished). Schroeder4 also showed that children under-5 years with mild to moderate malnutrition had more risk of dying as compared to their respective healthy counter parts. Swami studied pre-school children and found prevalence of malnutrition increased significantly with increase in age till 3rd year of life then started declining.[5]

Only 119 (40.3%) of the studied children were given exclusive breast feeding up to 6 months. In its correlation with different grades of malnutrition, it was found that only 23.2% of the severely malnourished children were given exclusive breast feeding up to 6 months, which was statistically significant. Choudhary K reported a strong association of exclusive breast feeding up to 6 months with malnutrition.[6] Exclusive breastfeeding up to 6 months can prevent up to 13% of the under-five deaths.[7]

Islam MA showed that maternal factors such as illiteracy, mothers' employment outside, lack of breastfeeding and maternal malnutrition and selected socioeconomic indicators such as poor family income, use of unprotected surface water or unhygienic latrine were found to be significantly associated with severe malnutrition in their children and reduced prevalence of exclusive breastfeeding up to 6 months.[8]

A total of 72% children received colostrum at birth in our study. 86.8% of control group were given colostrum at birth while only 59% of the SAM received colostrum at birth. The main reason for not giving colostrum was found to be mainly lack of knowledge about the significance of colostrum. Baranwal K also conducted a study and showed that children deprived of colostrum showed more prevalence of malnutrition as colostrum helps in reducing infection and thus further contributing to reduction in malnutrition among children.[9]

In this study 169 (57%) of the studied 295 children were given pre-lacteal feed at the time of birth. The reason for such a practice was found to be some old beliefs and religious values. When correlated with different grades of malnutrition we found that only 46.3% of the control group and 71% of the severe malnutrition group received pre-lacteal feed, which was statistically significant. It's co-relation was found in accordance with the previous study done by Chaudhary K where they found a strong positive association between duration of (both shorter and longer), pre-lacteal, diluted milk as weaning food, bottle feeding, giving excess milk and less solid protein diet, not able to recognize cue of hunger by mother, lack of demand feeding, and severe acute malnutrition.[6]

60.2% of the children were given breastfeed within 1st hour of birth in control group as compared to only 21.8% children in SAM group. Early initiation of breastfeeding, within one hour of birth, protects the newborn from acquiring infection and reduces newborn mortality.[10] It facilitates emotional bonding of the mother and the baby and has a positive impact on duration of exclusive breastfeeding.[11] Kumar D showed that initiation of breast-feeding after six hours of birth, deprivation from colostrum and improper complementary feeding were found significant risk factors for underweight.[12]

ACKNOWLEDGEMENTS

Authors would like to thanks the immense help receive from the scholars whose articles are cited and included in references of this manuscript. They are also grateful to authors/editors/publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

REFERENCES

1. UNICEF India- The children- Nutrition, 2016. Available at www.unicef.org. Accessed on January 2016.
2. Shreyaswi Sathyanath M., Rashmi, Udaya NK. Prevalence and risk factors of under nutrition among under five children in a rural community, NUJHS. 2013;3(4).
3. Guidelines for enhancing optimal infant and child feeding practices, 2016. Available at www.mohfw.nic.in. Accessed on September 2016.
4. Schroeder DG, Brown KH. Nutritional status as a predictor of child survival: summarizing the association and quantifying its global impact. Bulletin of the WHO. 1994;72(4):569-79.
5. Swami HM, Thakur JS, Bhatia SP, Bhatia V. Nutritional status of pre-school children in an integrated child development service ICDS block of Chandigarh. J Indian Med Assoc. 2001;99(10):554-6.
6. Choudhary K, Shekhawat K, Acharya R. A case control study to find out child feeding practices responsible for severe acute malnutrition among under-five children admitted in MTC at a tertiary care centre, Bikaner, Rajasthan. Available at http://www.iapsmupuk.org/ journal/index.php/ IJCH/article/view/915.
7. Jones G. How many child deaths can we prevent this year? The Lancet. 2003;362(9377):65-71.
8. Islam MA, Rahman MM, Mahalanabis D. Maternal and socio-economic factors and risk of severe malnutrition in a child: a case control study. Eur J Clin Nutri. 1994;48(6):416-24.
9. Baranwal K, Gupta VM, Mishra RN, Prakash S, Pandey ON. Factors influencing the nutritional status of under-five (1-5 years) children in urban slum area of Varanasi. Indian J Com Health. 2010;21(2).
10. Edmond KM. Effect of early infant feeding practices on infection-specific neonatal mortality: an investigation of causal links with observational data from Ghana. Am J Clin Nutr. 2007;86(4):1126-31.
11. Klaus M. Mother and infant: early emotional ties. Paediatr. 1998;102:1244-6.
12. Kumar D, Goel NK, Mittal PC, Misra P. Influence of infant-feeding practices on nutritional status of under-five children. Indian J Pediatr. 2006;73(5):417-21.

Cite this article as: Sharma D, Sareen D, Bamnawat S. A study of correlation of different grades of malnutrition with feeding practices during 1st 6 months of life. Int J Contemp Pediatr 2017;4:460-3.