

Original Research Article

Complimentary feeding practices in severe acute malnutrition children admitted in malnutrition treatment centre of RNT medical college

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ABSTRACT

Background: To assess the complimentary feeding practice in Severe Acute Malnutrition (SAM) children aged between 6months to 5years.

Methods: 110 SAM children admitted in Malnutrition Treatment Centre (MTC) of MBGH Hospital, Udaipur over a period of 3 months were taken in the study. Structured questionnaire including child's personal data, socioeconomic status of the family, breast feeding and complementary feeding status were used. Clinical and anthropometric assessment of children was done.

Results: Out of the 110 children included in the study, 58 (52.7%) were males and 52 (47.2%) were females. Mean age of children included was 16.8 ± 10.73 months. Maximum children were in the age group of 6-12months 60 (54.5%), followed by 13-24 months of age 38 (34.5%), followed by >2-5years of age 12 (10.9%). Thirty-four (30.9%) children were on exclusive breast feeding, with 30 (27.3%) in age group of 6-12 months and 4 (3.6%) in 12- 24 months. Breast feeding with complimentary feeding was practiced in 30 (27.3%) children of 6-12 months of age and 22 (20%) children of 13-24 months. Out of the 76 children on additional feed with or without breast feeds, 70 (92.1%) consumed milk- either goat milk, cow milk or buffalo milk.

Conclusions: Anthropometric assessment revealed that maximum number of SAM children also had chronic malnutrition. Diet of SAM children mainly included milk and cereals. They did not obtain a balanced diet to meet their nutritional requirement.

Keywords: Balanced diet, Complimentary feeding, Severe acute malnutrition, Stunting

INTRODUCTION

The World Health Organization (WHO) defines malnutrition as "the cellular imbalance between the supply of nutrients and energy, and the body's demand for them to ensure growth, maintenance and specific functions." In children, under-nutrition manifests as underweight, stunting (short stature) and wasting.¹

Malnutrition in children is widely prevalent in developing countries including India. Acute malnutrition is classified into severe acute malnutrition (SAM) and moderate acute malnutrition (MAM) according to its severity. According to National Family Health Survey-3, in India, 43%

children under 5 years of age are underweight (<-2 SD WHO z score weight for age (WFA)), 48% children under 5 years of age are stunted (<-2 SD WHO z score height for age (HFA)) and 20% children under 5 years of age are wasted (<-2 SD WHO z score weight for height (WFH)); 6.4% of these children are severely wasted (<-3 SD WHO z score WFH). Since wasting denotes acute malnutrition, these children are said to have severe acute malnutrition or SAM.²

United Nations International Children's Fund (UNICEF) states under-nutrition as outcome of insufficient food intake and repeated infectious diseases. A young child is most vulnerable to the vicious cycle of malnutrition,

disease/infection and resultant disability all of which influence the present condition of the child at micro level and the future human resource development of the nation at the macro level.³

The aim of this study is to find out child feeding practices responsible for severe acute malnutrition among under-five Children.

METHODS

This is an observational study carried out in 110 SAM children admitted in Malnutrition treatment centre (MTC) of a tertiary care hospital attached to a medical college. Detailed history of all children of between 6 months to 5 years of age admitted in the MTC was taken from their parents and their anthropometry was recorded according to standard procedure followed by clinical examination.

The study included all children who fulfilled the inclusion criteria as per WHO reference of SAM i.e., (1) Weight for height/length (WFH/L) <-3SD and/or (2) visible severe wasting and/or (3) Mid upper arm circumference (MUAC) <11.5 cm and/or (4) Bipedal nutritional oedema.

Anaemia among the children was classified based on WHO classification as mild anaemia with haemoglobin level between 10-10.9 mg/dl, moderate anaemia with haemoglobin between 7-9.9mg/dl and severe anaemia with haemoglobin level <7mg/dl.

The data collected was entered into data spread sheets and the result was calculated accordingly using standard software of Biostatics (SPSS Version 20).

RESULTS

A total of 110 children were included in the study. Out of them 58 (52.7%) were males and 52 (47.2%) were females. Mean age of the children included in the study was 16.89 ± 10.73 months. Maximum children were in the age group of 6-12months 60 (54.5%), followed by 13-24 months of age 38 (34.5%), followed by >2-5years of age 12 (10.9%).

According to WHO criteria for diagnosing SAM, weight for height was <-3SD in 82 (74.5%) children, mid upper arm circumference was <11.5cm in 76 (69%) children, and Edema was present in 16 (14.5%) children.

Mean weight of SAM children included in the study was 6.46 ± 1.58 kg, mean height was 71.53 ± 8.09 cm and mean MUAC was 11.24 ± 1.18 cm. Among these children, 108 (98.2%) were underweight and 100 (90.9%) were stunted.

Thirty-four (30.9%) children were on exclusive breast feeding with 30 (27.3%) in age group of 6-12 months and 4 (3.6%) in 12-24 months. Breast feeding with complimentary feeding was practiced in 30 (27.3%)

children of 6-12 months of age and 22 (20%) children of 13-24 months. Out of the 24 (21.8%) children on exclusive top feeding, half were in the age group of 13-24 months and the other half in the age group of >2years (as shown in Table 1).

Table 1: Feeding pattern among children of various age group.

Feeding practice	6-12 months	13-24 months	>2-5 years
Exclusive breast feeding	30	4	0
Breast feeding +complimentary feeding	30	22	0
Top feeding	0	12	12

Complimentary or top feed used was mostly milk. Out of the 76 children on additional feed with or without breast feeds, 70 (92.1%) consumed milk- either goat milk, cow milk or buffalo milk. Cereals were consumed by 60 (78.9%) children mainly in the form of roti, rice and biscuits. Equal proportion of children consumed pulses and fruits 12 (15.8%); while vegetables were consumed by only 8 (10.5%) children.

Anaemia was prevalent among SAM children with equal number of them having moderate and severe anaemia 42 (38.1%) while 16 (14.5%) had mild anaemia.

Also, it was observed that maximum number of children were admitted following infective cause- diarrhoea 20 (18.2%), respiratory infections 46 (41.8%) and malaria 8 (7.3%).

DISCUSSION

A child with SAM is different because his physiology is seriously abnormal due to reductive adaption. The functioning of every cell, organ and system is affected and this puts the child in a very fragile state.⁴

Consequences of under-nutrition in childhood include stunting, wasting, impaired cognitive development, poor school performance and readiness, decreased immune-competence, increased risk of infection, morbidity and mortality. Also, its consequences in adult life include intellectual disability, reduced economic productivity and reproductive performance, increased risk of developing diabetes, hypertension, obesity and cardiovascular diseases later in life.⁵

Majority of the children were in the age group of 6-<24 months 98 (89.0%). Sex distribution of the study was approximately half for males and females, showing no gender variation. Nutrition deprivation in the early years of life especially during latter half of infancy and 2nd year of life is known to be responsible for development of SAM. Though the children were admitted for acute malnutrition, on examination, they were also found to be stunted which indicates chronic malnutrition and

underweight. Among them, 108 (98.2%) children were underweight and 100 (90.9%) children were stunted.

WHO recommends exclusive breast feeding for first six months of life, thereafter nutritionally adequate and safe complimentary feeding and continued breast feeding upto two years of life. Hence risk factors for under-nutrition in infants and children include suboptimal breast feeding, inappropriate complimentary feeding practices, low micronutrient density of complimentary food, low intake of animal source food, monotonous diet etc.⁶

In our study, we observed that 34 (30.9%) children were on exclusive breast feeding even beyond 6 months of age. Twelve (10.9%) children between 13-24 months of age did not receive breast feeding at all. Even the complimentary feeding practices were inappropriate i.e., not constituting a balanced diet. It was mainly milk based in 70 (92.1%) children and cereal based in 60 (78.9%) children. Diluted goat milk and cow milk was used. Diet mainly constituted of roti, rice and biscuits. There was a significant lack in the consumption of pulses, fruits and vegetables.

In 2016, Bhandari B et al, conducted a study in 137 SAM children and observed that 79.5% continued breast feeding up to 1 year and 52.5% continued breast feeding up to 2 years. Introduction of semi solid food is maximum between age groups 10-12 months that is 54% of total patients and only 14.3% children started at the age of 6 month. Approximately half of SAM children (50.3%) presented with associated acute diarrheal disease, 6.5% SAM children had respiratory tract infections, 5.1% had urinary tract infections and skin infections.⁷

Lack of micronutrient in the diet also lead to anaemia in these children. Forty-two (38.1%) children had moderate and severe anaemia while 16 (14.5%) children had mild anaemia. In 2011, Sibabrata Das and Harihar Sahoo did a study to explore the determinants of child under-nutrition in Madhya Pradesh, they concluded that about three-fourth (74%) of the children were anaemic in Madhya Pradesh. Among which 3, 44 and 27% of children are severely, moderately and mildly anaemic respectively.⁸ Malnutrition increases the risk and worsens the severity of infections. Same results were obtained even in our study, showing maximum number of children infected either from a respiratory infection 46 (41.8%), diarrhoea 20 (18.2%) and malaria 8 (7.3%). In 2012, Rakesh Kumar et al. studied the co morbidities in 104 hospitalized children with severe acute malnourishment at Gandhi Memorial Hospital, Rewa district, their study showed diarrhoea (54.0%) as a leading morbidity followed by acute respiratory tract infections (27.8%).⁹

Recommendations

Anthropometric assessment should be done regularly at each point of health care to identify early growth faltering before the child lands into severe acute malnutrition. Infant and young child feeding (IYCF) guidelines should be propagated at health care setup as well as in community to improve the dietary practices and hence reduce the development of SAM.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Health W, Tech O, Ser R. Physical status: the use and interpretation of anthropometry. Report of a WHO Expert Committee. World Health Organization technical report series. 1995;854:1-452.
2. Operational guidelines on facility based management of children with severe acute malnutrition. Ministry of Health and Family Welfare, Government of India;2011:1.
3. Children in India 2012-A Statistical Appraisal, Ministry of Statistics and Programme Implementation, New Delhi; 34.
4. Facility based care of Severe Acute Malnutrition (SAM), World Health Organization, NRHM. March 2011;14-5.
5. Jamison DT, Breman JG, Measham AR, Alleyne G, Claeson M, Evans DB et al., editors. Disease Control Priorities in Developing Countries. 2nd edition. Washington (DC): The International Bank for Reconstruction and Development / The World Bank; 2006.
6. World Health Organisation. Food and Agriculture Organisation of the United Nations. Guidelines on food fortification and micronutrients; 2006.
7. Bhandari B, Chib R, Mehta A. To assess the epidemiological risk factors and feeding practices in SAM children of gorakhpur area. *International J Advanc Res*. 2016;4(3):231-4.
8. Das S, Sahoo H. An Investigation into Factors Affecting Child Undernutrition in Madhya Pradesh. *Anthropologist*. 2011;13(3):227-33.
9. Kumar R, Singh J, Joshi K, Singh HP, Bijesh S. Hospitalized Children with Severe Acute Malnutrition in Rewa District. *Indian Pediatr*. 2014; 51:125-7.

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