

Rehabilitation of Grade III Protein Energy Malnutrition on Out Patients Basis

Pages with reference to book, From 312 To 314

Azra Jamal, Tajammul Hussain (Department of Paediatrics, Sindh Government Hospital, New Karachi.)

Abdul Ghaffar Billoo (Department of Paediatrics, Civil Hospital, Karachi.)

Rafiq Khanani (Department of Pathology, Sindh Medical College and Jinnah Postgraduate Medical Centre, Karachi.)

Abstract

Malnutrition is an important yet preventable and curable cause of morbidity and mortality. One hundred and thirty-five children suffering from grade III Protein Energy Malnutrition (PEM) from a poor urban population of Karachi city were enrolled for rehabilitation by health education and growth monitoring as out patient. Of these, 89% showed satisfactory recovery during a mean follow-up period of 3.2 months. Mainstay of this study was simple health messages adapted according to local cultural practices in native language. This simple strategy can go a long way in prevention and treatment of PEM in all the developing countries (JPMA 45:312,1995).

Introduction

Malnutrition is one of the leading causes of morbidity and mortality in developing countries. Data from WHO suggest that 145.5 million children under five years of age were suffering from PEM¹. Asian children are at greater risk of growth failure due to malnutrition, the maximum brunt of which is borne by South Asia². According to Micronutrient Survey of Pakistan over half of the population of children under 6 years of age were suffering from malnutrition including 10% from severe malnutrition³, although Pakistan is self-sufficient in its food grains production⁴. This indicates that ignorance, poverty and wrong cultural practices are responsible for malnutrition rather than lack of availability of food only. WH.O. has set a target of "Health for All (HFA) by the year 2000", one of the goals of which as adopted by the World Summit for Children on September 30, 1990 is "A halving of severe and moderate malnutrition among the world under fives⁵. This goal can only be achieved by socially acceptable and economically feasible remedies of the problem. Conventionally, hospitalization was considered mandatory for management of grade III PEM⁶. Due to budgetary limitations, lack of availability of beds in the hospitals, reluctance of parents to hospitalization, high rate of hospital acquired infections and frequent relapses following discharge from the hospital, we decided to study the management of these children in nutrition rehabilitation clinic on out-patient basis.

Patients and Methods

In this study, children under five years of age affected by grade III PEM from paediatric out-patient department of Sind Government Hospital, New Karachi, were included. Grading was done according to Gomez classification i.e., Grade III meaning less than 60% of expected body weight⁷. To motivate the mothers who think that PEM (locally known as "Sookha") is untreatable, we used posters with photographs of marasmic children before and after treatment with following messages in local language. Grade III PEM (Marasmus) is not untreatable (Sookha Lailaj Naheen Hai). Grade III PEM (Marasmus) is treated at this clinic (Yahan Sookhay Ka Ilaj Kia Jata Hai) Detailed history including history of feeding practices since birth and complete clinical examination was done in all cases. Special investigations were corned out only whenever required e.g., Sepsis,

pneumonia, tuberculosis etc.

Mothers were given health and nutrition messages regarding breast feeding, weaning foods, wrong cultural taboos like 'hot' and 'cold' belief, importance of clean water and sanitation, child spacing, diarrhoea management, oral rehydration therapy and immunization,⁸⁻¹² keeping in mind the age of child, calorie requirement and financial background of the family. Time spent with each mother varied according to level of intelligence and/or education and knowledge of language. Mothers who could not understand Urdu language were taught with the help of interpreters in their local language. Mean time spent with each mother in first visit was 25-30 minutes and on subsequent visits, 10-15 minutes. The health information, we tried to get across, was adapted to local culture and emphasized repeatedly in local language. Basic teaching was reduced to the following simple points.

1. Continue breast feeding for as long as possible upto two years as it has been revealed in the "Holy Quran"¹³
2. Never use bottle feeding and pacifiers.
3. Use spoon and cup for feeding and weaning when necessary.
4. Prepare weaning infant food in measured quantity every time from the food stuff available at home e.g., rice, pulses, flour, wheat, vegetables, fruits and cooking oil.
5. Continue foods and fluids during illness and more frequent feeding after illness to catch-up growth.
6. Sterilize utensils, wash hands and keep the environment clean.
7. Bring your child for weighing regularly.
8. Convey these messages to your relatives and neighbours.

Counselling of mothers was done to provide the affected children the level of nutrition they can afford within their local resources. Children were called for follow-up at weekly or fortnightly intervals according to individual requirement for a minimum period of 3-6 months or until satisfactory weight was achieved. On subsequent visits, compliance of the messages were assessed by asking the mother to describe the feeding practices that were taught earlier and response of the child and improvement felt by mother. Further follow-up was done every month. Medico-Social worker was sent to homes of children whenever it was felt necessary for mothers who could not bring their children for follow-up. Re-assessment was done on each visit. Health messages reemphasized and modified according to knowledge and attitude of mothers. Growth monitoring was done by weighing the child on each visit. Criteria of improvement was gain in weight, change of behaviour, improvement in general condition, return of appetite and loss of oedema in marasmic kwashiorkor.

Results

Out of 135 children, 74 were males and 61 females. Seventy-two children were under 1 year of age, 41 in the 2nd year of life and 22 in the age group 2-5 years. One hundred and thirteen (84%) were under 2 years of age. Calorie intake at the time of inclusion in the study was 21-30% of requirement in 29 cases, 31- 40% in 71 cases and 41-50% in 35 cases. Least calorie intake in respect of requirement was noted in age group 6-18 months. Significant (<0.001) weight gain observed in age group 0-12 months was from 48% to 70% of expected body weight(EBW) within the mean duration of 3.19 months. In age group 13-24 months, the weight gain was from 43% of EBW to 66% during a mean follow of period of 3.18 months which is again statistically significant ($P < 0.01$). Insignificant weight gain from 45 to 56% in age group 25-60 months was observed during a mean follow up of 3.1 months (Table I).

Table I.

Age Group	No. of cases	Mean age			Mean initial weight as percentage of EBW			Mean final weight			Mean duration in months			"P" value
		Age	S.D.	S.E.	Mean wt. of EBW	S.D.	S.E.	Mean Wt.	S.D.	S.E.	Duration in months	S.D.	SE	
0-12 months	72	7.75	3.2	0.5	48%	5.25	0.84	70%	11	1.9	3.19M	1.65	0.26	<0.001
13-24 months	41	19.7	3.7	0.6	43%	9.00	1.66	66%	9.3	1.7	3.18M	1.33	0.24	<0.01
25-60 months	22	37.9	8.4	2.2	45%	9.61	2.57	56% of EBW	10	2.8	3.1M	0.96	0.25	<0.24

S.D.= Standard deviation

S.E.= Standard error

E.B.W.= Expected body weight

Regular follow-up was possible in 103 (76%) cases. Ninety- one (89%) showed satisfactory improvement and remaining 12 (11%) slow improvement. Majority of cases, (97%) improved satisfactorily within 6 months and only 3% required further follow-up. (Table II and III).

Table II. Duration of follow up of satisfactorily improved cases (91)

2-3 months	41
3-4 months	24
4-6 months	23
6M - 1 Year	03

Table III. Rate of weight gain of satisfactorily improved cases (91)

Rate of weight gain	Number of cases	Percentage
2-3 lbs/months	35	94.5
1-2 lbs/months	51	
<1 lb/months	5	5.5

Weight gain of 2-3 lbs./month was observed in 35 (38%) and 1-2 lbs/month in 51 (56%) cases. Two cases expired due to septicaemia and diarrhoea. Of 30 drop-outs, 29 visited 4-6 times and all were improving, while only one case which dropped out after 2 visits did not show any improvement.

Discussion

This study shows that domiciliary management of grade III PEM is very successful (Table I). Rehabilitation at OPD level has many advantages. The savings from unnecessary hospitalization may be utilized for diet of children. Active involvement of the mother and family leads to prevention of relapses and subsequent children will be less likely to suffer from malnutrition as mother has already

received nutrition education. Moreover, improvement in health is more perceptible to neighbours and relatives leading to spill over benefits. The index mother can transfer the messages effectively to others. In addition, hazards of nosocomial infections and disturbance of family life due to hospitalization can be avoided. In our study, only twelve cases showed unsatisfactory improvement because mothers could not follow the instructions as they were the sole bread winners and had to look after large families. Of the 30 drop-outs, 29 were improving despite inadequate follow-up. Though most of the children who participated in this study belonged to low socioeconomic status, yet the success achieved was in 90% cases. This shows that non-availability of food is not the major cause of malnutrition. Consumption of per capita calories is far more important than per capita food production¹⁴. The important contributory factors leading to malnutrition were early discontinuation of breast feeding, late and incomplete weaning, unhygienic conditions and dietary taboos. Low literacy rate (19% in females)¹⁵ and lack of nutrition education are more important contributory factors than availability of food only. This study shows that simple messages based on health and nutrition education combined with simple method of growth monitoring can go a long way in preventing and correcting even severe cases of grade III PEM.

References

1. Nutritional surveillance. Global Trends in PEM Prevalence. World Health Organization. Weekly Epidimological Records., 1984;59:189- 92.
2. Haaga, J., Kendrich. C., Test, K. et al. Estimate ofthe prevalence of malnutrition in developing countries. Geneva. Switzerland, WHO, 1 985;38:33 1.347.
3. Micronutrient survey of Pakistan. Nutrition cell planning and development division. Govt. of Pakistan. In Health and Health related statistics of Pakistan, 2nd ed. Islamabad, Planning Commission, Govt. of Pakistan, 1987, p. 66.
4. Berg, A. The nutrition factor. In Khan M.A. and Qazi, S.A. eds. Consequences of Malnutrition 1st eds., National Nutrition Foundation. The Medical Centre, Islamabad, Pakistan, Shalimar, 1990, p. 1.
5. The state of World's children 1995, United Nations Children Fund, (UNICEF) New York, Oxford University Press, 1995, pp. 9-11.
6. Alleyne, G.A.O., Hay, R.W., Picou, D.I. et al. The treatment of severe protein energy malnutrition. Protein energy malnutrition. 1988, pp. 104-121.
7. Gomez, F., Ramas, G.R., Frank, S. et al. (1956) in protein energy malnutrition. eds. Alleyne, GA. O., Hay, R.W., Picou, D. I., Stanfied, J. P. and Whitehead, R G. Protein energy malnutritiion. Jaypee Brothers, Edward Arnold, 1988, pp. 140-141.
8. Protecting, Promoting and supporting breast feeding. The special role of Maternity Services. Ajoint WHO/UNICEF Statement Geneva, WHO., 1989, pp 3-9.
9. Khan, MA., and Baker, J. Dietforyoung children. Innutrition inPrimary Health Care (1981), National Nutrition Foundation. The Medical Centre Islamabad, Pakistan, Shalimar, 1981, pp. 38-43.
10. Maloney, C. Beliefs and fertility in Bangladesh. Dacca, International Centre for diarrhoel diseases research, 1981, p. 131.
11. Medical education for diarrhoea control PRITECH/WHO Medical Education Project, Pilot Version, Geneva, WHO., 1988, pp.21-23.
12. Nizar, Ajjan. Vaccination. Lyon, France, Institute Meriux, 1986, pp.33-37
13. Ayah 232 Albaqar, Holy Quran, Aya 15 Al Ehqaf, Holy Quran.
14. The state ofthe World's Children, 1989, UNICEF Walton St. Oxford, Oxford University Press, 1989.