Study of Dietary Management on Severe Acute Malnutrition in Children Admitted in Nutritional Rehabilitation Centre at Durg District Hospital

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Abstract

Background: according to WHO Health statistics 2012 India has more than one-third of the world's under-nourished children and 54% of deaths among under five children are due to malnutrition in developing countries.

Objective: To assess the impact of dietary management on severe acute malnutrition among children admitted in NRC Durg.

Materials and Methods: A study was carried out among admitted children in Nutritional Rehabilitation Centre of Durg District Hospital. A pre-defined questionnaire was used to collect the information. Paired t test was calculated to see the association.

Results: Majority (90%) children were severe acute malnourished and (10%) were moderate acute malnourished. The mean height, weight, MUAC and Haemoglobin (Hb) % of children increased at the time of discharge and during follow up visits. A statistically significant relationship was found between weight, height, MUAC and Hb% at different intervals (p<0.05). Conclusion: Nutritional rehabilitation centre has a positive impact on the nutritional status of the children who were admitted to the hospital.

INTRODUCTION

Severe acute malnutrition is defined by a very low weight for height (below -3z scores of the median WHO growth standards), by visible severe wasting, or by the presence of nutritional oedema. Decreasing child mortality and improving maternal health depend heavily on reducing malnutrition, which is responsible, directly or indirectly, for 35% of deaths among children under five. Nutrition Rehabilitation Center (NRC) is a in a health facility where children with Severe Acute Malnutrition (SAM) are admitted and managed. A steady linkage with ICDS identifies and refers severely malnourished children in the community using MUAC tape. Children are admitted in NRC as per the defined admission criteria adopted in line with IAP 2006 and new WHO 2009 recommendations and provided with medical and nutritional therapeutic care.

Severely malnourished under-five children in India are estimated to constitute 6.4%, in addition to 19.8% who are moderately malnourished according to the National Family Health Survey (NFHS) – 3(1). This translates to about 8.1 million children with severe acute malnutrition (SAM) in India. Currently available facilities for hospitalized care of children in India would be inadequate even if they were utilized exclusively for the treatment and rehabilitation of children with SAM. The objective of this study is to study dietary management on severe acute malnutrition among children admitted in NRC Durg.

MATERIALS & METHODS

The present study was carried out amongst the children admitted in NRC at Durg District Hospital. Primary &Secondary data was collected with help of predefined questionnaire. Study was conducted during the 10 months from July 2016 to April 2017. Phase wise data collection was undertaken as per at the different interval:

Admission

Discharge

1st Follow up

2nd Follow up

03rd Follow up
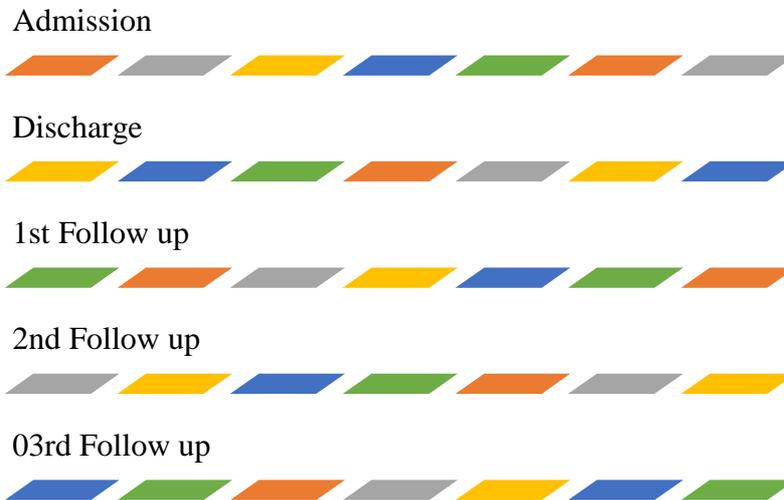
Total 100 samples randomly identified and selected for the study. Predefined questionnaire has been used for data collection of admitted children, demographic profile, medical history, clinical information, anthropometric measurement and related information was collected. During the follow up Also anthropometry, nutritional knowledge of mother/parents and any other relevant information was collected. Categorization of children into SAM and MAM was undertaken as per WHO definition and Depending on a child's age and ability to stand, measurement of child's length or height was taken.

Care has been taken to select children up to age group of 60 months. Attention has been given to randomly select samples from nearby locations/areas of NRC Durg. A travel plan was prepared to visit all the 60 participants. In total three follow up was done with a turnaround time of 30 days. The participants unavailable on scheduled day were visited on the next available day to reduce the drop-out rate. The collected data were entered and analysed with help of SPSS. Frequency, percentage, mean and standard deviation were calculated. Paired t test was used to determine the association. Level of significance was considered at $p < 0.05$.

Results

In the present study, 28 % children belonged to the age group of 06-12 months, followed by 37-48 months (21%) . 19 % were from age group of 13-24 months &13% were in 25-36 months . Majority 75 (75%) were male and 25 (25%) were female.

Reasons of SAM when analysed it was observed that lack of appetite was the major factor reported by 36 (36%) of participants, followed by cough 23 (23%), fever 17 (17%) and diarrhoea 13 (13%), vomiting 6 (6%), swelling of limbs/body were 3 (3%), respectively while urinary complaints was least with 2 (2%)

Table: 1 Mean weight distribution of Sample

Mean weight at Admission	Mean weight at discharge	Total mean weight gain
7.32 ± 2.03 kg	8.03 ± 2.27 kg	0.71 kg
t= -6.817 df =58, p= 0.001		
Mean weight at discharge	Mean weight at 1st follow up	Total mean weight gain
8.03 ± 2.27 kg	8.98 ± 2.40 kg	0.93 kg
t=2.387 df =58, p= 0.010		
Mean weight at 1st Follow up	Mean weight at 2nd follow up	Total mean weight gain
8.98 ± 2.40 kg	9.32 ± 2.96 kg	0.34 kg
t= 3.729 df =58, p= 0.130		
Mean weight at 2nd Follow up	Mean weight at 3rd follow up	Total mean weight gain
9.32 ± 2.96 kg	9.54 ± 3.03 kg	0.22 kg
t= -1.02 df =58, p= 0.192		

In this study the mean weight at admission was 7.32 ± 2.03 Kg and mean weight at discharge was 8.03 ± 2.27 Kg. The total mean weight gain was 0.71 Kg and this difference was found to be statistically significant. The mean weight at discharge was 8.03 ± 2.27 Kg and mean weight at 1st follow up was 8.98 ± 2.40 Kg. Total gain in mean weight was 0.93 Kg and the difference was statistically significant. Mean weight at 1st follow up was 8.98 ± 2.40 Kg and mean weight at 2nd follow up was 9.32 ± 2.96 Kg, the total mean weight gain was 0.34 Kg while in the third follow up total mean weight gain was 0.22 Kg. The difference

between mean weight in 2nd and 3rd follow up was statistically significant. t= 1.138 df =58, p= 0.003

Mean MUAC discharge	Mean MUAC 1st follow up	Total mean MUACgain
11.51 ± 2.10 cm	11.78 ± 2.10 cm	0.27 cm
t = 1.376 df = 58, p = 0.001		
Mean MUAC 1st Follow up	Mean MUAC 2nd follow up	Total mean MUACgain
11.78 ± 2.10 cm	12.07 ± 1.22 cm	0.29 cm
t = 1.467 df = 58, p = 0.084		
Mean MUAC 2nd Follow up	Mean MUAC 3rd follow up	Total mean MUACgain
12.07 ± 1.22 cm	12.37± 1.52 cm	0.30 cm

t = 1.89 df = 58, p = 0.231

Table 3: MUAC Distribution of Samples

Table 4: haemoglobin Distribution of samples

Mean Hb% admission	Mean Hb% discharge	Total mean Hb% gain
9.37 ± 1.39	10.13 ± 2.10	0.76
t= 1.344 df =58, p= 0.01		
Mean Hb% discharge	Mean Hb% 1st follow up	Total mean Hb% gain
10.13 ± 2.10	10.42 ± 2.13	0.45
t= 1.332 df =58, p= 0.312		
Mean Hb% 1st Follow up	Mean Hb% 2nd follow up	Total mean Hb% gain
10.42 ± 2.13	10.89 ± 3.07	0.47
t= 1.201 df =58, p= 0.137		
Mean Hb% 2nd Follow up	Mean Hb% 3rd follow up	Total mean Hb% gain
10.89 ± 3.07	11.01 ± 2.09 cm	0.12
t= 1.97 df =58, p= 0.01		

Study reveals that mean mid upper arm circumference (MUAC) at admission was 11.51 ±

2.10 cm and at the time of discharge it was 11.78 ± 2.10 cm. The total MUAC increase was

0.27 cm. In follow up also the difference between mean of MUAC was significant. (Table 3) The percentage of haemoglobin of the admitted children was (mean Hb %) was 9.37 ± 1.39 and mean Hb% at discharge was 10.13 ± 2.10. The total mean Hb% change was 0.76 which is found to be statistically significant. (Table 4)

Discussion

In this study, age distribution was seen as majority of the participants (28%) were aged between 06 to 12 months. Many other similar study were undertaken such as in Taneja et al in 2012 found that in Madhya Pradesh 40% children were of aged 13-24 months and 20% were of aged 25-36 months (Taneja et al., 2012).

The study reveals that NRC plays crucial role in management of SAM as majority of children (82%) were in improved condition during discharge and only (12%) of them were under lower position from initial condition.

The mean weight at admission and discharge were 8.03 Kg and 8.98 Kg &the mean weight difference is statistically significant. Taneja et al in their study at Madhya Pradesh have reported that similar statistically significant association between the differences of weights in all three follow-ups and discharge (Taneja et al 2012).

In the study men height difference at time of admission and at time of discharge is also statistically significant.

Conclusion

The Study established the fact that there is a statistically significant relationship among weight, height, MUAC and haemoglobin (Hb %). The study also provide information on importance of NRC as a resource for management of SAM children. Study also establishes the fact that after discharge and during subsequent follow ups the growth has been slow but consistent.

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