EFFECTIVENESS OF NUTRITIONAL INTERVENTION MEASURES ON CHILDREN ADMITTED IN NUTRITIONAL REHABILITATION CENTER (NRC) KING GEORGE HOSPITAL-VISAKHAPATNAM

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ABSTRACT

BACKGROUND

NRC was started in Visakhapatnam (KGH) in December' 2012 to nutritionally rehabilitate severely acute malnourished children. This study was conducted to assess the effectiveness of rehabilitation services provided at Nutritional Rehabilitation Center.

OBJECTIVES

1) To evaluate the effectiveness of Nutritional interventional measures undertaken at Nutritional Rehabilitation Center through review of selected anthropometric measure indicators. 2) To assess the nutritional status after discharge from Nutritional Rehabilitation center.

METHODS

A Retrospective record based (secondary data) study conducted in the month of November 2013.Sevevnty five children were admitted in Nutritional Rehabilitation Center (NRC) of KGH, Visakhapatnam in the months of April to October 2013. The data was obtained from NRC records including anthropometric measurements at admission, discharge and follow-up.

RESULTS

Twenty percent of the children were less than 12 months of age and 34.7% were in the age group of 13–24 months. Forty eight percent were female and 52% were male children. Majority (93%) of the children stayed in the NRC for more than 14 days. There was significant difference in the weight of children at the time of admission and at the time of discharge (t= -15.942, p=0.001). There was no significant difference in Mid Arm Circumference at the time of admission and at the time of discharge (t = -0.942, p=0.349). Fourteen percent were defaulted. There was significant difference in weight of children at the time of discharge and at the time of first follow-up (t=2.203, p=0.03) and third follow-up (t= -8.903, p=0.001).

CONCLUSIONS

NRCs are effective in improving the nutritional status of severely acute malnourished children and the follow-up also shows the children are having catch-up growth.

RECOMMENDATIONS:

1) Adequate number of NRCs should be available for severely acute malnourished children in all the areas.
2) Effective counseling measures should be adopted to decrease the default rate.

KEYWORDS

Malnutrition, Rehabilitation, Nutrition Rehabilitation Centre, Nutrition Intervention Measures.

INTRODUCTION: Malnutrition is the major public health problem in many developing countries including India.

According to NFHS-3 about 43% of children were underweight and 6.4% of children had severe acute malnutrition (SAM) in India.[1] Nutritional status will influence the growth, development and morbidity among children and ultimately effect the strength and productivity of future generations. To support the growth and development of children, Government of India is providing nutritional education and supplementary nutrition through many programs like ICDS, Midday meal scheme etc. But these programs were not sufficient to deal with severe

malnutrition which needs tertiary level of prevention measures such as disability limitation and rehabilitation to prevent further complications. For that, Government of India started Nutritional rehabilitation centers (NRC) in the year 2011. At present under National health mission, there were 896 NRCs in India and 30 NRC's in Andhra Pradesh, and 2 NRC's in Visakhapatnam district, one at Visakhapatnam and one at Paderu. [2]

NRC is a unit of health facility where children with severe acute malnutrition are admitted and managed till they are rehabilitated completely. The main functions of NRCs were 1. To provide clinical management for severe acute malnutrition. 2. To promote physical and psychosocial growth of severe acute malnutrition children. 3. To build capacity of mothers and care givers in appropriate feeding and care practices. 4. To identify social factors that contributed to SAM. 5. Demonstration and practice by doing on the preparation of energy dense child foods using locally available, culturally acceptable and affordable food items. 6. Follow-up of children discharged from the facility.[3] Based on this back ground the present study was conducted to study the effectiveness of nutritional intervention measures on children admitted in Visakhapatnam Nutritional Rehabilitation Center.

METHODOLOGY: It was a retrospective study conducted in Nutritional rehabilitation centre at King George Hospital, Visakhapatnam in the month of November 2013 among 75 children admitted in NRC in the months of April to October 2013. The objectives of the study were 1) To evaluate the effectiveness of Nutritional interventional measures undertaken at Nutritional Rehabilitation Center through review of selected anthropometric measure indicators. 2) To assess the nutritional status after discharge from Nutritional Rehabilitation center, follow-ups were done every two weeks i.e,1st at the end of one month, 2nd after one and half months, and 3rd after two months. The data was obtained from NRC records including anthropometric measurements at admission, discharge and follow-up. A prior permission was taken from Medical officer of NRC to use the recorded data. Data was analyzed with Microsoft excel and relevant statistical tests were applied to test the significance of results.

Definitions used in the study[3] (SAM) Severe Acute Malnutrition – very low weight for height (z-score below -3SD, WHO child growth standards, Mid Upper Arm circumference <11.5cm or with nutritional oedema.

Appetite test: Up to 12 months- if the child takes more than 25 ml/kg of catch up diet, the child is considered to have good appetite.

For children above 12 months, if body wt. is <4kg – 15 gm,4-7kg -25gm or more,7-10 kg – 33gm or more of locally made nutritious diet consumed is taken as good appetite.
Cured – If the child has achieved >15% of the target weight and has satisfactory weight gain for three consecutive days (>5gm/kg/day).

Default - Child who did not complete 14 days of stay in NRC. Non responder – If the child did not respond at the end of four months.

RESULTS: In the present study 48% were male children and 52% female children. One fifth 20% were infants, 34.7% were between 13-24 months age group. Most of the children (58%) were referred to NRC by ASHA. One third of children admitted in NRC directly without any referral. 78.7% children passed appetite test done at the time of admission and remaining 21.3% children failed. Most of the children (93.3%) stayed at NRC for 14 or more than 14 days and remaining few children (6.7%) stayed <14 days.

The mean weight of children was increased significantly from the time of admission (8.24±2.48) to the time of discharge (8.90±2.47). There was no difference in height of children and Mid Upper Arm Circumference of children at time of admission and discharge (t = -0.942, p=0.349).

The children showed the catch up growth after getting discharged from NRC and their weight was increased gradually during the first (8.97±2.28 Kg) and the subsequent follow ups (9.57±2.57 Kg). After the third follow up 15% were defaulted 69% of children were cured and remaining 16% children not responded. There was no statistical association between gender and cure rate among children (p=0.21). The cure rate among children of younger age was much higher compared to the older children and this difference was statistically significant (p=0.02).

Weight of the Child	MEAN	S D	
at admission N=75	8.24 Kg	2.48 Kg	Paired t- test t =-15.4 P value <0.05
at discharge N=75	8.90 Kg	2.47 Kg	
at first follow up N=67	8.97 Kg	2.28 Kg	Paired t- test t = P value <0.05
at third follow up N=63	9.57 Kg	2.57Kg	
Table 1: Comparing mean weights of children at admission, discharge, and follow ups			

DISCUSSION: In the present study it was observed that more than half of children were referred by ASHAs. It was indicating the awareness about NRC among ASHAs. But one third of children were admitted directly without any referral. It was difficult to maintain follow up for these children as they came directly to NRC without any referral and they will go to home directly without contacting any health care providers. So it will be difficult to give nutritional education and follow them till up to third follow up.

In the current study most of the children stayed at NRC for more than 14 days. This finding was consistent with Gunjan Taneja et al. in their study conducted at Indore and Ujjain in Madhya Pradesh [4]. Although it was risky to stay long periods in the hospital as there was a chance to get infected with nosocomial infections, the severity of mal

nutrition made it compulsory to stay at NRC till the child get normal nutritional status.

In the present study it was observed that there was significant weight gain since from admission to the discharge and from discharge to third follow up. The same result was also found in various other studies conducted by Gunjan Taneja et al., Colecraft et al., Savadago et al., Gaboulaud et al. [4,5,6,7]

The change in the height of children can be observed only with long follow up periods. In the present study the mean duration of stay at NRC is 14 days and hence the significant difference in the mean height of children was not observed.

Gunjan Taneja et al., reported the difference in MUAC since from admission to discharge. [4] But in the current study it was reported that, there was no significant difference. Probably this finding may be due to mixed cases of kwashiorkor and marasmus.

In the present study 15% of children were drop outs and this finding was consistent with Gunjan Taneja et al., study. [4] They reported that drop outs were increasing at successive follow ups as reported in the current study. Dropout rates can be decreased by giving health education to the mothers about the importance of follow up at the time of discharge. Sending information about the admitted children to the local PHC can also decrease the dropout rates.

In the present study it was observed that, there was weight gain in children since from the discharge and third follow up. It was indicating the catch up growth in the children. The same finding was also reported by Gunjan Taneja et al., in their study. [4]

CONCLUSION: The nutritional interventions taken at NRC were effectively improving the nutritional status of admitted SAM children. But the care should be taken to decrease the dropout rates at successive follow ups. The children discharged from NRC are also showing the catch up growth.

LIMITATIONS: The study was done with secondary data, which was already recorded in NRC.

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