



ORIGINAL RESEARCH PAPER

Paediatrics

CLINICAL PROFILE, RISK FACTORS AND OUTCOME OF SEVERE ACUTE MALNOURISHED CHILDREN AT NUTRITIONAL REHABILITATION CENTRE , A TERIARY CARE CENTRE

KEY WORDS:

Gummadi Vandana Ushashree

Associate Professor, Department Of Paediatrics, GMC, Suryapet.

Vangara Dilip Kumar*

Senior Resident, Department Of Paediatrics, GMC, Secunderabad.
*Corresponding Author

ABSTRACT

To study the risk factors for SAM in children aged between 6 months to 59 months and to evaluate clinical profile ,complications and outcome of SAM children. Prospective observational study, PLACE OF STUDY: Nutritional rehabilitation centre, Department of Paediatrics, ESTIMATED SAMPLE SIZE: 150 STUDY PERIOD: July 2018-July 2019, AGE GROUP: 6 months - 59 months. The findings of this study confirm the association of severe acute malnutrition with inappropriate infant and young child feeding practices. To reduce childhood malnutrition due emphasis should be given in improving the knowledge and practice of parents on appropriate infant and young child feeding practices.

INTRODUCTION

Childhood “under nutrition” is an important public health and development challenge in India. Undernourished children have significantly higher risk of mortality and morbidity. More than 50% of deaths in 0-5 years are associated with malnutrition. Beside increasing the risk of death and disease, under nutrition also leads to growth retardation and impaired psychosocial and cognitive development. Children with Severe Acute Malnutrition (SAM) have nine times higher risk of dying than well-nourished children.

Acute malnutrition is an unstable condition and results from a relatively short duration of nutrition deficit and is often complicated by concurrent infection.

The risk factors for malnutrition are poverty, parental illiteracy, inadequate feeding practices and large family size¹². Breast feeding till the age of two years and exclusive till the age of 6 months is of prime importance for the prevention of malnutrition¹³.

The mortality rate of children with complicated SAM that receive treatment in inpatient set ups has remained unacceptably high³. Such high mortality in inpatient units has been attributed to co-morbidities such as infections and micronutrient deficiencies³.

Our study tried to find out the risk factors, clinical profile, and outcome of SAM children admitted to our tertiary care hospital.

MATERIALS AND METHODS:

Prospective observational study, PLACE OF STUDY: Nutritional rehabilitation centre, Department of Paediatrics, ESTIMATED SAMPLE SIZE: 150 STUDY PERIOD: July 2018-July 2019, AGE GROUP: 6 months - 59 months, Detailed Clinical examination of the patients was done. Vitals of the child (Temperature, HR, RR, Peripheral pulses, blood pressure) were recorded, General physical examination of child was done according to proforma. Detailed system examination was performed. All cases which were eligible were included in the study.

Routine investigations and specific investigations where ever indicated were done. All the patients were treated according to the diagnosis and as per protocols.

OBSERVATION AND RESULTS

150 children with severe acute malnutrition admitted to nutritional rehabilitation centre of Hospital, during the

period one year from July 2018 to July 2019 were analyzed according to different characteristics.

Among the 150 SAM children, 60 (40%) were males and 90(60%) were females.

Among 150 cases SAM children 73 cases (48.7%) belonged to Class V (Lower socioeconomic status), 78 cases (48.7%) belonged to Class IV (Upper Lower socioeconomic status), and 4 cases (2.6%) belonged to class III (lower middle socioeconomic status).

Out of 150 cases studied, Parents of 5 Children (3.3%) were divorced, 2 children (1.3%) had history maternal loss and 1 child (0.7%) had history of paternal loss.

Out of 150 SAM cases 69 cases (46%) had Wt/Ht below -3 standard deviation, 3(2%) children had MUAC less than 11.5cm, 60 children (40%) had met the both the criteria. 17 cases were having severe wasting along with low Wt/Ht (<-3SD) and low MUAC (<11.5ms). Out 150 cases only one case (0.7) had oedema of the feet.

Among 150 case studied, 83 (55.3%) cases were having history of low birth weight.

Pre lacteal feeds were given to 89 cases (59.3%) Colostrums was not given to 101 cases (67.3%) Breast feeding was not at all initiated for 4 cases.

Exclusive breast feeding duration was less than 6 months in 102 cases (68%).

Breast feeding duration was inappropriate in 134 cases (89.3%) Bottle feeding was given to 98 cases (65.3%).

Complementary diet initiation was inappropriate in 127 cases (84.6%).

Out of 150 SAM cases admitted, Nutritional anemia is the most common micronutrient deficiency noted, seen in 106 cases (70.7%). Acute gastroenteritis is the most common infectious aetiology observed , seen in 58 cases (38.7%), 53 cases (35.3%) had Pneumonia,

3 cases (2%) had Urinary tract infection, 17 cases (11.3%) were found to have Sepsis.

Out of 150 cases, 5 cases (3.3%) had otitis media, 8 cases (5.3%) were found to be having shock, out of 8 cases of shock,

5 cases were found to be having septic shock, and 3 cases were found to be having hypovolemic shock.

48 cases (32%) found to have hair changes, 42 cases (28%) had skin changes. Vitamin B deficiency is the most common vitamin deficiency noted in the study group, observed in 57 cases (38%), which is followed by Vit. D deficiency (19 cases i.e. 12.7%) and Vit. A deficiency (18 cases i.e. 12%).

Complications

Hypokalemia is the most common electrolyte imbalance noted in the SAM children, observed in 31 cases (20.7%) which followed by hyponatraemia (seen in 26 cases i.e. 17.3%).

Hypothermia and hypoglycemia were noticed in 14 cases (9.3%) and 16 cases (10.7%) respectively.

Table 1: Clinical Characteristics

Clinical characteristic	n	Percentage
Nutritional Anaemia	106	70.7
Acute Gastroenteritis	58	38.7
Pneumonia	53	35.3
UTI	3	2
Sepsis	17	11.3
Shock	8	5.3
Hair changes	48	32
Skin changes	42	28
Skin infections	12	8
Otitis media	5	3.3
Vit A deficiency	18	12
Vit B deficiency	57	38
Vit D deficiency	19	12.7
Vit C deficiency	0	0

Table 2: Complications

CHARACTERISTICS	NUMBER	PERCENTAGE (%)
Hypothermia	14	9.3
Hypoglycaemia	16	10.7
Shock	8	5.3
Septic shock	5	
Hypovolemic shock	3	
Hyponatremia	26	17.3
Hypokalemia	31	20.7

DISCUSSION

In our study 102 children with SAM (68%) were having history of lack of exclusive breast feeding in the first 6 months of life Solomon et al, in their study Observed that Lack of exclusive breastfeeding for the first 6 months of age was more common in the cases 49 (48.0%)

Waggle RR, Pahari et al⁵², observed that 88 cases (74.5%) were having history of lack of exclusive breast feeding.

Bahawaluddin Jamro et al, in their study showed that Exclusive breast feeding was present in only 70 (25.9%) Baitun Nahar et.al observed that the reported duration of breastfeeding was significantly less among the severely-underweight children [median 4.0 months] than the control children (median 6.0 months, p<0.001), and the predominant breastfeeding rate until 5-6 months was significantly greater among the control children (68% vs. 38% respectively, p<0.001), Approximately 15% of the severely-underweight children were never breastfed compared to <1% of the control children (p<0.001).

In study by Kumar et al²⁵ in 2006, Initiation of breast-feeding after six hours of birth, deprivation from colostrums and improper complementary feeding were found significant (P<0.05) risk factors for underweight.

Soon after birth the baby is awake, alert and biologically

ready to breast feed and initiation is very easy. Later on the baby goes to a prolonged sleep and therefore initiation maybe difficult leading to feeding problems and malnutrition¹².

Effect Of Lack Of DBF In SAM:

In our study it has been observed that 130 children (86.7%) were Stopped breast feeding before 24 months of age.

Solomon Amsalu, Zemene Tigabu, observed that Discontinuation of breastfeeding before 24 months of age was seen in 12/39 (30.8%) of the cases.

Breast feeding should be continued well into the second year of life which is the Period of maximum brain growth and myelination whereas supplementary feeding improves nutrition¹².

Age At Initiation Of Complimentary Diet In SAM:

In our study it has been observed that 127 cases (84.7%) were having either early initiation of complimentary diet (<6months) or late initiation of complimentary diet (>6 months) Ghulam Shabir Laghari, Muhammad Akbar et al, observed that 104 cases out 152 (69%) had history of late initiation of complimentary diet.

Bahawaluddin Jamro et al in their study showed that late weaning was started in 150 (55.6%) cases.

Birth weight in SAM:

In our study it has been observed that 63 cases (42%) were having birth weight of less than 2.5 kilogram

Ngueyn Ngoc Hien et al and Nguyen Ngoc Hoa et al In their study showed that birth weight <2500 gram is a significant risk factor for SAM, (odds ratio 7.99 for underweight 4.35 for stunting for 8.62 for wasting).

In a study done in Limpopo, South Africa most children twelve to 24 months old that had a birth weight of less than 2.5kg, were more likely to develop stunting.

About 25% of the stunted children weighed less than 2.5kg at birth (Kleynhans et al. 2006).⁶⁰⁺

Rayhan et al⁶³ in their study showed that there were 59.7% were very small at birth 53.8% were smaller than average among stunted children, where as 17% were very small, 15% were smaller than average among underweight children, 69% were very small, 51.9% were smaller than average among under weight.

Ghulam Shabir Laghari, Muhammad Akbar et al observed that out of 152 cases there were 53 (35%) cases were having history of low birth weight.

History Of Prolacteal Feed:

In our study it has been observed that 89 cases (59.3%) were having history of feeding with prolacteal feeds at birth. Solomon Amsalu, Zemene Tigabu, in their study showed that prolacteal feed were given more frequently in the cases 24 (23.5%) than in the controls 12 (13.3%) (OR=2.31).

History Of Bottle Feed In SAM:

In our study it has been observed that, 98 cases (65.4%) were having history of bottle feeding.

Solomon Amsalu, Zemene Tigabu, their study showed that Bottle feeding was more frequently used in 23 cases (22.5%) than in 9 controls (8.8%) (OR=3.01, 95% CI 1.24-7.49)

Bahawaluddin Jamro et al their study showed that mixed feeding was seen in 170 (62.9%) and bottle feeding was seen in 30 (11.1%) cases.

Ghulam Shabir Laghari, Muhammad Akbar et al observed that 72 cases (47%) were having history of mixed or bottle feed, and improper dilution.

Effect Of Maternal Nutrition In SAM:

In our study maternal nutrition was inadequate in 100 cases (66.7%).

Baitun Naha et al in their study observed that there were 348 cases (71.3%) whose mother's weight <44.5 kilogram, compared to control 160 (31%), and there were 213 cases (43.7%) whose mother's body mass index <18.5, compared to 82 controls (16.2).

Immunization Status In SAM:

In our study there were 30 cases (20%) having history of partial immunization KUMAR, et al in their study it was observed that 51.97% had partial immunization.

Bahawaluddin Jamro et al in their study it was observed that out of 270 cases there were 140 (51.9%) cases were not immunized. Ghulam Shabir Laghari, Muhammad Akbar et al observed that out of 152 cases there were 100 cases (66%) were partially immunized.

Complications Of SAM Acute GE in SAM:

In our study there were 58 cases (38.7%) KUMAR, et al studied the co morbidities in hospitalized children with severe acute malnourishment, 104 severe acute malnourished children were included of which 54% had diarrhoea.

Bahawaluddin Jamro et al in their study observed that out of 270 cases diarrhoea was noticed in 120 cases (44.4%).

Carlos Bernal et al in there Descriptive and prospective study of 335 children under the age of 6, admitted between 2001 and 2005 for severe acute malnutrition observed that 230 cases (68.4%) were having diarrhoea on admission.

Muzamil Shababa Ejaz conducted cross- sectional study a total of 150 patients were enrolled in this study. Their mean age was 24.4 ± 13.8 months (range 60 to 60 months). Of all, 63 (44%) patients were severely stunted, 44 (29%) had moderate stunting, 27 (18%) had mild stunting while only 16 (10.7%) had normal stature. Severely malnourished (<-3SD) were 119 (79%) patients Rickets was found in 54 (36%) patients.

CONCLUSION

The findings of this study confirm the association of severe acute malnutrition with inappropriate infant and young child feeding practices. To reduce childhood malnutrition due emphasis should be given in improving the knowledge and practice of parents on appropriate infant and young child feeding practices. It is observed that majority of cases with malnutrition fall in the age group of less than 2 years, making a significant impact on both physical as well as cognitive development of children.

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