



ORIGINAL RESEARCH PAPER

Paediatrics

PATTERN OF CO-MORBIDITIES IN CHILDREN (6 MONTH TO 5 YEARS) WITH SEVERE ACUTE MALNUTRITION ADMITTED IN WARD AND MNTC OF A TEACHING HOSPITAL JHALAWAR MEDICAL COLLEGE

KEY WORDS: SAM, PEM, CO-MORBIDITY, INFECTIONS.

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ABSTRACT

INTRODUCTION- Protein energy malnutrition is a major public health problem in India. Malnutrition is one of the most important underlying causes of child mortality in developing countries, particularly during the first 5 years of life. Severe acute malnutrition (SAM) is associated most commonly with infection, anaemia and micronutrient deficiency.

METHODOLOGY – The study was carried out in Department of Pediatrics, SHKBM hospital Jhalawar Medical College, Jhalawar. This study was including children of the age of 6 months to 5 years admitted in MNTC Jhalawar Medical College.

RESULT: The study was carried out from 11 October 2017 to 10 October 2018. 152 cases (78 boys and 74 girls) were analyzed for co-morbidities associated with severe acute malnutrition. Present study shows that distribution of different type of comorbidity Anemia (80.3%), Upper respiratory infection (56.6%), Lower respiratory tract infection (13.8%), Acute gastrointestinal infections (49.3%), Urinary tract infection (29.6%), Skin Infection (18.4%), sign. of vitamin deficiency (35.5%), Tuberculosis (4.6%), Malaria (10.5%) and Measles (3.3%) SAM Children.

CONCLUSION- On the basis of this study, we conclude that the problem of severe malnutrition is multi-dimensional and inter-generational in nature. Prevalence of severe acute malnutrition is still high in community setting. Anemia, Diarrhea, Respiratory tract infections, skin infection, tuberculosis and vitamin A deficiency are the most common co morbid conditions in admitted severe acute malnourished children in this region. Anemia was commonest nutritional deficiency with severe acute malnutrition.

INTRODUCTION

Protein energy malnutrition is a major public health problem in India. Malnutrition is one of the most important underlying causes of child mortality in developing countries, particularly during the first 5 years of life.¹ Severe acute malnutrition (SAM) is associated most commonly with infection, Anaemia and Micronutrient deficiency. There are multiple mechanisms of action in the relationship between malnutrition and susceptibility to bacterial infections diseases such as SAM, which impairs normal immune system development.² Infection itself can lead to a deficit in crucial body supplies of protein, energy, minerals, and vitamins. In the course of immune response, energy spent rises at the same time that the infected host undergoes a reduction in food consumption.³ Malnourished children experience largely from bacterial, gastrointestinal, and respiratory infections.⁴ The first line of defence against these types of infection is the innate immune response, particularly epithelial barriers and the mucosal immune response.⁵ SAM importantly compromises mucosal epithelial barriers in the gastrointestinal, respiratory, and urogenital tracts resulting in susceptibility of infection. In India more than 5 million children die every year as a direct or indirect result of malnutrition. This high mortality rate in children like ours, with complicated SAM is because of co-morbid condition namely infection and micronutrient deficiencies. Anticipation and early detection of some of these co-morbid conditions, along with preventive measures may bring down this unacceptably high mortality statistics.⁶

Malnutrition in children is widely prevalent in developing countries including India, in India more than 33% of deaths within the age group of 0-5 years are associated with malnutrition. Severe acute malnutrition (SAM) is a unique type of severe malnutrition and is different from severe underweight and severe stunting.⁷

According to national family health survey IV (NFHS-4, 2015-16) 36.7% children under the age of five years are

underweight (low weight for age). 39.1% children under the age of five years are stunted (low height for age). 23% children under the five years of age are wasted (low weight for height) 8.6% of these children are severely wasted (<-3SD). Since 'wasting' denotes acute malnutrition, these children are said to have severe acute malnutrition or SAM. Median case fatality rate is approximately 23.5% . This can be brought down to 7 to 10 % by standard management protocols, that is why it is very important to identify severe acute malnutrition and managing appropriately.⁸

AIMS & OBJECTIVES

To study pattern of co-morbidities in children (6 Month to 5 Years) with severe acute malnutrition.

MATERIAL & METHODS

Study population:

The study was carried out in Department of Pediatrics, SHKBM hospital Jhalawar Medical College, Jhalawar. This study was including children of the age of 6 months to 5 years admitted in MNTC Jhalawar Medical College.

INCLUSION CRITERIA:

1. Children of 6 Months to 5 years fulfilling MTC admission criteria
 - a. Age :6 months to 5 years
 - b. Wt for Ht less than -3SD and/or
 - c. Visible severe wasting and/or
 - d. Edema of both feet and/or
 - e. Mid arm circumference less than 11.5 cm
2. Only those children whose parents have given consent to participate in the study were included in this study.
3. Children with 6 months to 5 years of age with severe acute malnutrition (SAM) admitted in the Malnutrition Treatment Centre were included.

EXCLUSION CRITERIA:

1. Children whose parents refused for participation in the

- study.
- Children having obvious or suspected, congenital malformation, organic cause of pedal edema and genetic disorders including thalassemia were excluded from this study.
 - Minimum 5 day hospital stay.
 - Sampling technique: Complete Enumeration (census)
 - Sample size: All children between 6 to 5 years of age with SAM admit in the MNTC during study period.
 - Study period: 11 october 2017 to 10 October 2018.
 - Study design : Cross sectional analytical study

E) Sources of data :

- Children hospitalized with diagnosis of Severe Acute Malnutrition in Pediatrics department (MNTC), Jhalawar medical college and fulfill our inclusion criteria.
- Patient case sheet and medication chart, lab reports.

F) Method & collection of data:

This study was carried out in the Department of Pediatrics, jhalawar medical college, Jhalawar from 11 October 2017 to 10 October 2018. All children between six months to 5 years of age with severe acute malnutrition (SAM) admitted in the Nutritional Rehabilitation Ward were included.

G) Ethical issues:

A written, informed consent was obtained from parents. Clearance from Departmental Ethics Committee was taken prior to the start of the study. All participants had the option to withdraw from the study anytime during their hospital stay.

APPROVAL OF ETHICAL COMMITTEE:

Approval of Institutional Ethics Committee was obtained from Letter No.S.NO.11/DATE 09-10-2017.

H) Statistical Analysis:

Individual case data from study proforma was entered on a MS-Excel sheet and analyzed as following according to the study plan. Statistical analysis was done by SPSS software (20.0 trial version) and Chi Square statistical tests were used for finding the final results, Microsoft word and Excel were used to generate graphs, table's etc. The entire statistical test was conducted at 5% significance level p value <0.05 is considering as significant.

RESULTS

- The study was carried out from 11 October 2017 to 10 October 2018. 152 cases (78 boys and 74 girls) were analyzed for co-morbidities associated with severe acute malnutrition.
- Present study shows that distribution of different type of comorbidity Anemia (80.3%), URTI (56.6%), LRTI (13.8%), Acute GI (49.3%), UTI (29.6%), Skin Infection (18.4%), sign. of vitamin deficiency (35.5%), Tuberculosis (4.6%), Malaria (10.5%) and Measles (3.3%) in SAM Children

Table 1 Distribution of comorbidities

Anemia	80.3%
URTI	56.6%
Acute GI	49.3%
Signs Of Vit. Deficiency	35.5%
UTI	29.6%
Skin Infection	18.4%
LRTI	13.8%
Malaria	10.5%
Tuberculosis	4.6%
Measles	3.3%

Table 1 and Fig.1 shows the distribution of different types of comorbidities namely Anaemia(80.3%), URTI(56.6%), LRTI(13.8%), Acute GI(49.3%), UTI(29.6%), Skin Infection(18.4%), sign. of vitamin deficiency(35.5%), Tuberculosis (4.6%), Malaria (10.5%) and Measles(3.3%) in

SAM Children.

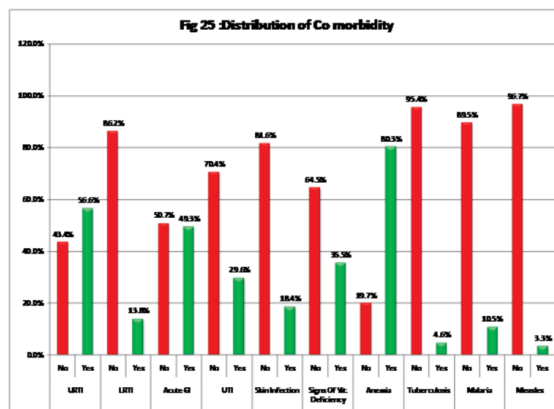


Figure 1

DISCUSSION

Total 152 SAM Children were admitted during the study period, out of that 78 (51.3%) were male children and 74(48.7%) were female children. Mean age of children reporting with malnutrition was similar to other studies and there was no significant sex predominance in malnourished children.⁴

Protein energy malnutrition (PEM) predominantly seen between the period of infancy and childhood. i.e. from 6 months to 5 years of age. Severe malnutrition is not only an important cause of morbidity and mortality, but also leads to permanent impairment of physical and possibly mental growth of those who survive. In addition to a critical care, a nutritional therapy followed by nutritional rehabilitation is a very important aspect for these children.

In present study Anemia and upper respiratory infection were the two most common co morbid diseases followed closely by acute gastrointestinal infection. Previous studies have also reported that malnourished children suffer in greater proportion from bacterial gastrointestinal and respiratory infections.⁹

LIMITATION

Absence of a comparative group, no biochemical evaluation for micronutrient deficiencies and non-assessment of contributing factors for these deficiencies were the main lacunae of the study.

CONCLUSION

On the basis of this study, we conclude that the problem of severe malnutrition is multi-dimensional and inter-generational in nature. Prevalence of severe acute malnutrition is still high in community setting.

Anemia, Diarrhea, Respiratory tract infections, skin infection, tuberculosis and vitamin A deficiency are the most common co morbid conditions in admitted severe acute malnourished children in this region.

Anemia was commonest nutritional deficiency with severe acute malnutrition. High incidence of anemia and multivitamin deficiency is supposed to be due to a higher rate of parasitic infestation. Intestinal parasitosis is a major public health problem in developing countries. Anemia and Vitamin A deficiency were the two most common micronutrient deficiencies in this study. Vitamin B12 and folate are essential micronutrients which are critical especially during infancy and early childhood as these are periods of rapid growth, development, and increased demand. Malnutrition further increases the risk of these micronutrient deficiency due to poor socioeconomic status, inadequate intake and poor absorption.

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