

Weights Must Not be Taken Lightly: Burden of Severe Acute Malnutrition Patients in a Rural Tertiary Care Hospital of Maharashtra

Dr Monalisa Panjwani¹, Dr Chatterjee Rajib², Dr Jayashree P Jadhav³

¹Post Graduate Resident, Department of Pediatrics, ²Professor and HOU, Department of Pediatrics, ³Professor and HOD, Department of Pediatrics
Dr. BVP Rural Medical College, PIMS University, Loni, Ahmednagar, India

Corresponding Author: Monalisa Panjwani

DOI: <https://doi.org/10.52403/ijhsr.20240548>

ABSTRACT

Aim: To identify the magnitude of the burden of co-morbidities of severe acute malnutrition (SAM) in a rural tertiary care centre in Maharashtra, to facilitate necessary planning for care to reduce disparity in urban and rural outcomes of these patients.

Methods: From March 2023 to April 2024, data was collected from the wards of a tertiary care rural hospital. Children with SAM were examined and managed for primary complaints, any associated co morbidities, and nutritional rehabilitation was done.

Results: Presenting diagnosis was most commonly respiratory tract infection, including tuberculosis, and acute gastroenteritis, followed by anemia and acute febrile illness. Co-morbidities such as chronic diarrhoea (12, 14%), congenital heart disease (4, 4.7%), neurological involvement such as cerebral palsy, meningitis, infantile tremor syndrome and spinal muscular atrophy (14, 16.6%), bony abnormalities such as rickets with spine deformities and bowed legs causing abnormal posture and delayed mobility (10, 11.9%) also contributed to the burden in our setup.

Conclusion: This study is an attempt to enhance data about the gravity of malnutrition and thus the need for improvement in facilities for the care of these patients to reduce the vicious cycle of malnutrition and infections.

Keywords: Malnutrition, child health, SAM, diet, anemia, edema, wasting

INTRODUCTION

According to the National Family Health Survey (NFHS 5), the prevalence of severe acute malnutrition in preschool children is a startling 7.7% in India ^[1].

While there has been a dramatic improvement in childhood survival over the last several decades, malnutrition still remains the underlying cause of death for a vast majority of children under the age of five years worldwide. The common pathway for numerous of these deaths is acute

malnutrition, in particular, severe acute malnutrition (SAM), consisting of severe wasting or malnutrition with edema. Given the concordance of risk factors such as unfortunate poverty, the lack of a good quality diet, and frequent infections, often SAM is superimposed on chronic malnutrition, which is clinically manifested as underweight and stunted children.

This is often complicated by problems requiring medical attention such as

gastroenteritis, pneumonia and the like, at the time of admission to wards.

Efforts must be made for development of systematic clinical protocols to decrease morbidity and mortality among some of the most vulnerable children imaginable.

Our aim for this study is to identify the magnitude of the burden of co-morbidities of SAM in a rural tertiary care centre to facilitate necessary planning for care to reduce disparity in urban and rural outcomes of these patients.

MATERIALS & METHODS

Study Type and Design: Observational, retrospective study.

Materials: All patients aged 6 to 59 months admitted from April 2023 to March 2024 to were screened for malnutrition by

anthropometry by using standard techniques.

To classify as severe acute malnutrition, criteria taken were:

Weight for height/length (WFH/L) < -3SD and/or Visible severe wasting and/or

Mid upper arm circumference (MUAC) and/or Bipedal nutritional edema

Study Setting: Pediatric wards of DBVP RMC, PIMS (DU) Loni and DVVP PRH, Loni

Period of Study: (One year) From April 2023 to March 2024.

Type of sampling: Purposive Sampling.

STATISTICAL ANALYSIS

84 children were included in the study, out of which 36 were males (42.8%) and 48 were females (57.1%)^(Figure 1).

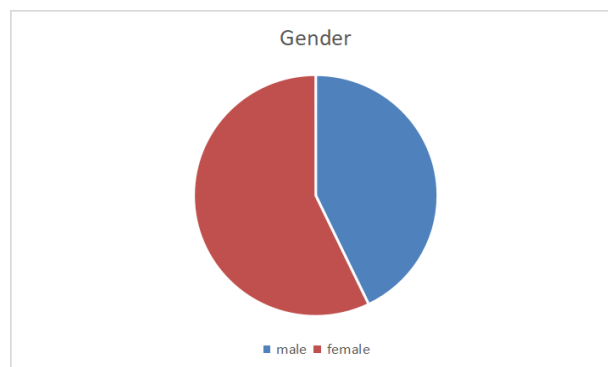


Figure 1

Majority of the patients were from a poor socioeconomic background with minimal to no access to nutritious diet and quality education^(Figure 2).

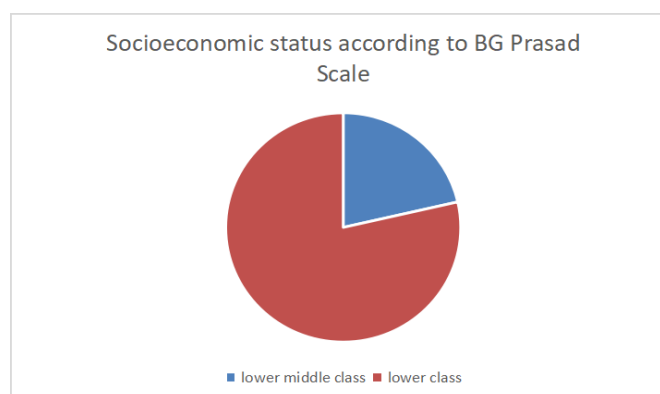


Figure 2

Out of the study population 52 children (61.9%) received bottle feeds and/or top feeds, and only 10 (11.9%) were completely immunized for age, adding on to the risk for infections^(Figure 3-4).

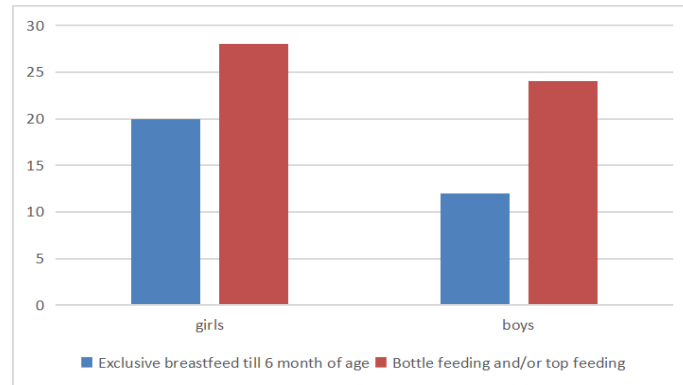


Figure 3

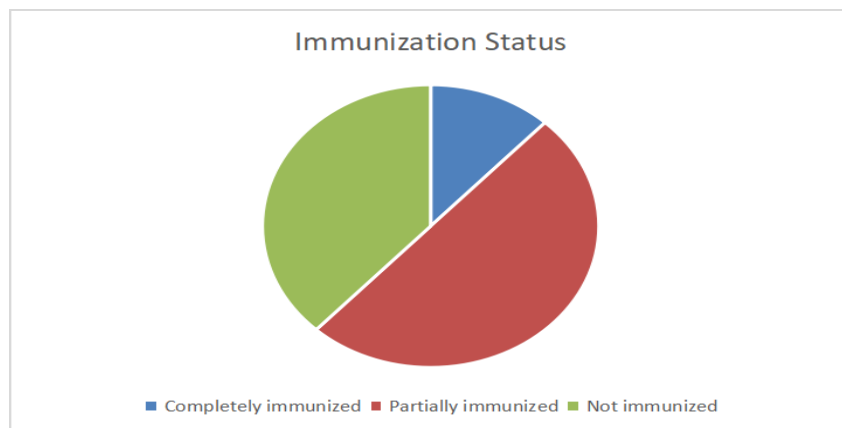


Figure 4

Presenting diagnosis was most commonly bronchopneumonia, including tuberculosis, and acute gastroenteritis, followed by anemia and acute febrile illness (Figure 5).

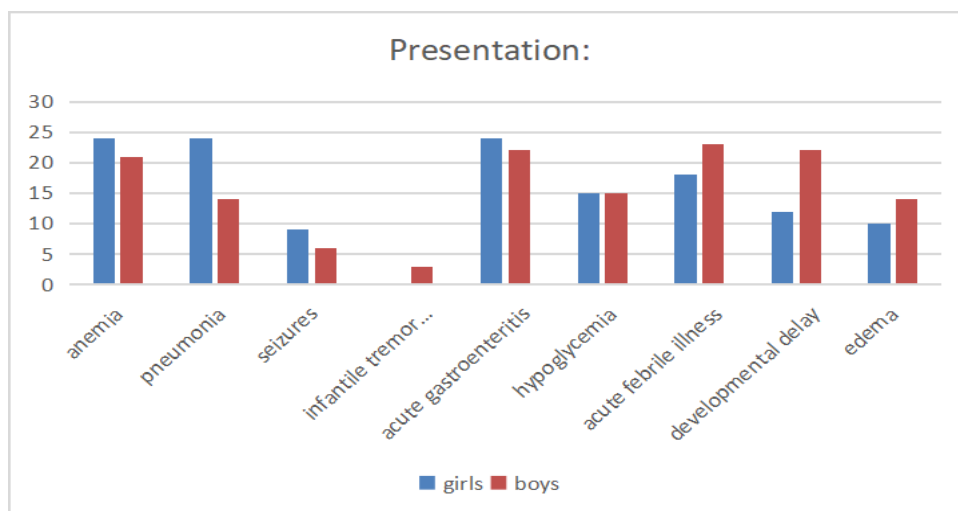


Figure 5

RESULT

In children with SAM, both forms of immunity (humoral immunity and cell mediated immunity) are depressed. This is secondary to defects in mucosal defense

mechanism, free radical scavenging function, skin barrier, phagocytic function. Lack of education regarding hygiene and handling by parents and caretakers also make SAM children susceptible to severe

infections resulting in increased susceptibility to life threatening infections such as acute gastroenteritis, septicemia, pneumonia and urinary tract infections. Comorbidities such as chronic diarrhoea (12, 14%), congenital heart disease (4, 4.7%), neurological involvement such as cerebral palsy, meningitis, infantile tremor syndrome and spinal muscular atrophy(14, 16.6%), bony abnormalities such as rickets with spine deformities and bowed legs causing

abnormal posture and delayed mobility (10, 11.9%) also contributed to the burden in our setup (Figure 6).

In children with respiratory infections, tuberculosis screening was done and 18% of presenting SAM children were started on anti-tubercular regimen.

Out of a total of 45 children with anemia, (28, 62%) had iron deficiency anemia and the rest showed dimorphic anemia on peripheral blood smear)

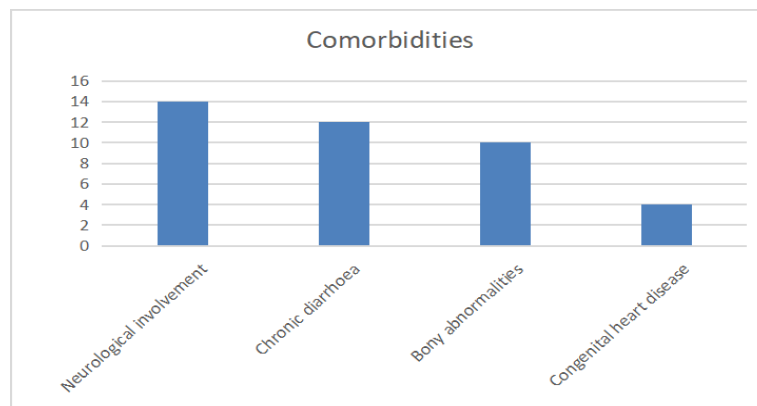


Figure 6

DISCUSSION

Factors such as poverty, large family size, quality and quantity of food served in rural households, awareness, immunization, education, child rearing practices play an important role in the long term in the development of malnutrition. Rapid increase in size of population has an indirect role on malnutrition. Socioeconomic development of the nation with involvement of adequate protocols can prove to be beneficial in the reduction of malnutrition, reducing the burden on a family in a myopic view and also the nation's structure as a whole.

Promotion of low cost, accessible, calorie dense sources of sustainable and safe nutrition need to be facilitated to curb the increasing problem noted. Vulnerable populations of neglected rural remote areas, slums, tribal populations, marginalized populations must be adequately targeted alongside the easily accessible schools and government run hospitals. Streamlining of service delivery at a community level is startlingly lacking and must be developed.

Adequate charting of growth parameters with essential education methods is necessary.

Complacency must be avoided at a scientific perspective as despite the worldwide burden of mortality and morbidity malnutrition poses, any efforts being made at a contributory research point of view are tragically not enough.

Attempts at improving already existing schemes must be made as well, including: Integrated Child Development Scheme (ICDS), Village Child Development Centres (VCDCs), Public Distribution System (PDS), APJ Abdul Kalam Amrut Aahar Yojana.

A vast majority of the patients (84%) with SAM were admitted in the duration between April to July which can be attributed to associated comorbidities, for instance diarrhoea and dehydration that have seasonal variation as well. This implies necessary programmatic and management demands.

Hospitals need to be well prepared for a higher load in summer months to provide adequate nutritional rehabilitation and appropriate care to these patients.

Singla et al. also found a seasonal variation in SAM admissions in their setup [2].

Edema was noted in very few of the patients (5, 2.3%) in our setup. Saini et al. noted edema in 16% patients in their study [3].

Most of the SAM patients present with complications, with pneumonia or diarrhoea as the presenting complaints.

Like in our study, Kumar et al. in their study of 104 children have reported diarrhoea (54%) to be the most common association [4]. Saini et al. in their study of 125 children have also reported diarrhoea (42%) to be the most common association [3]. Kaushik et al. noted a very high level of malnutrition (78.6%) in children admitted in their wards with acute respiratory tract infection [5].

Stunting, was noted to be 1.5 times in children with SAM in this study population as compared to other admitted under five children in wards. This confirms the magnitude of chronic malnutrition in SAM patients. An acute event like infection can cause the wasting associated.

Under five year old children may have moderate acute malnutrition which has an added high risk of SAM with ongoing illnesses and continuation of poor diet. This adds further gravity to the already poor situation. Hence, they too must be identified, counselled, managed and monitored appropriately by peripheral health care workers before further worsening towards SAM.

CONCLUSION

Noteworthy progress has been made in the management of SAM over the last few decades, most notably, the development of systematic clinical protocols for inpatients that prioritize attention to life threatening complications, and the development and endorsement of the community-based model

of management for SAM. When appropriate staffing, supplies, and systems are made available, these models of care can significantly reduce morbidity and mortality among some of the most vulnerable children. Breaking the vicious cycle of malnutrition and infections is essential in a developing nation such as ours.

Declaration by Authors

Ethical Approval: Approved

Acknowledgement: None

Source of Funding: None

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. International Institute for Population Sciences (IIPS) and ICF. 2021. National Family Health Survey (NFHS-5), 2019-21: India: Volume II. Mumbai: IIPS.
2. Singla S, Suman RL, Meena P, Goyal S, Jain R, Meena S. Severe acute malnutrition: seasonal variations in Southern Rajasthan, India. *Int J Res Med Sci* 2016; 4:5310-3.
3. Susheel Kumar Saini, Ajay Kumar Saini, Seema Kumari. Co-morbidities in Children with Severe Acute Malnutrition – A Hospital based Study. *Journal of Pediatrics, Perinatology and Child Health* 6 (2022): 296-304.
4. Kumar R, Singh J, Joshi K, Singh HP, Bijesh S. Co-morbidities in hospitalized children with severe acute malnutrition. *Indian Pediatrics*. 2014 Feb; 51:125-7.
5. Kaushik PV, Singh JV, Bhatnagar M, Garg SK, Chopra H. Nutritional correlates of acute respiratory infections. *Indian journal of maternal and child health: official publication of Indian Maternal and Child Health Association*. 1995;6(3):71-2.

How to cite this article: Monalisa Panjwani, Chatterjee Rajib, Jayashree P Jadhav. *Weights must not be taken lightly: burden of severe acute malnutrition patients in a Rural Tertiary Care Hospital of Maharashtra*. *Int J Health Sci Res*. 2024; 14(5):363-367. DOI: <https://doi.org/10.52403/ijhsr.20240548>
