Section: Pharmacology

Research

PREVALENCE OF PROTEIN ENERGY MALNUTRITION IN CHILDREN 1-5 YEARS OF AGE IN PERIPHERAL REGION OF JAMMU-A CROSS SECTIONAL STUDY

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Received : 04/11/2022
Received in revised form : 15/12/2022
Accepted : 28/12/2022

Keywords:
Malnutrition, mortality, Growth assessment, child deaths.

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DOI: 10.47009/jamp.2023.5.1.37

Source of Support: Nil,
Conflict of Interest: Nonedeclared

Int J Acad Med Pharm
2023; 5 (1); 176-178

Abstract

Background: Malnutrition continues to be a primary cause of ill health and mortality among children in developing countries. It is a major public health problem and accounts for about half of all child deaths worldwide. **Materials and Methods:** A cross sectional study was undertaken in children 1 to 5 years of age, anthropometric parameters (weight, height and mid-arm circumference) were noted to find out Protein Energy Malnutrition among children attending Outpatient Department of Pediatrics at Community Health Centre, Akhnoor in Jammu district during the period Ist November 2018 to 31st May 2019.**Result:** In the present study, 150 (62.76%) out of 239 children were suffering from Protein energy malnutrition. Maximum number of PEM cases (47 each) belong to age group of 1-2 years and >2-3 yrs, followed by 32 cases belongs to >3–4year age group and 24 cases belong to >4-5 year age group. Maximum PEM cases (86) are females with male-female ratio 1:1.34. Although protein energy malnutrition is more common in low-income and poorly educated families, children from higher-income and well educated families are also affected, including children from large urban areas in low socioeconomic neighbourhoods. **Conclusion:** Growth assessment thus not only serves as a means for evaluating the health and nutritional status of children, but also provides an indirect assessment of the quality of life of an entire population. Malnutrition is like an iceberg, most people in the developing countries live under the burden of malnutrition.

INTRODUCTION

Malnutrition continues to be a primary cause of ill health and mortality among children in developing countries. It is a major public health problem and accounts for about half of all child deaths worldwide.[1]

About 150 million children in developing countries are still malnourished and more than half of underweight children live in South East Asia Region (SEAR). The high levels of under nutrition in children in South Asia pose a major challenge for child survival and development. Besides poverty, there are other factors that directly or indirectly affect the nutritional status of children.[2]

The magnitude of the problem of malnutrition among children under five years of age is high throughout in India. A child's entire life is determined in large measures by the food given to him during his first five years. Childhood is a period of rapid growth and development, and nutrition is one of the influencing factors in this period.[3]

A number of anthropometric indices have been used successfully for many years to estimate the prevalence of under-nutrition among pre-school children. These include height-for-age, weight-for-age and weight-for-height. Height-for-age is an index of cumulative effect of under-nutrition during the life of the child.[4]

In 1990 an estimated one out of three children (177 million) younger than five years in the developing

world were or had been malnourished at one stage in their lives. The diagnosis was based on a weight-for-age below two standard deviations (SD) of the national centre for health statistics (NCHS) median. In countries where the prevalence of malnutrition is high, the total number of malnourished children has not decreased with an increase in population.[5]Ayayaetal. Stated that malnutrition is still one of the leading causes of morbidity and mortality in children younger than five years and according to Kilic et al, severe PEM still affects 2-3% of the pediatric population worldwide. The objective of this study was to assess the protein energy malnutrition in children between 1-5 years of age attending OPD of Pediatric department in peripheral region of Jammu district.

MATERIALS AND METHODS

A cross sectional study was undertaken in children 1 to 5 years of age. The sample size of 239 was calculated by considering prevalence of PEM in past study with 10% permissible error. History was taken and Anthropometric parameters (weight, height and mid-arm circumference) were noted as per performa for growth assessment of these children attending Outpatient Department of Pediatrics at Community Health Centre, Akhnoor in Jammu district during the period I st November 2018 to 31st May 2019 and Prevalenceand pattern of Protein Energy Malnutrition was studied.

Inclusion Criteria

- The study population consisted of children of age group 1-5 years attending Pediatric OPD of Community Health Centre Akhnoor of Jammu District.

Exclusion Criteria

- Children suffering from major congenital anomaly.
- Children who are already under treatment for PEM.
- Children who's Parents do not give consent for study participation.

Statistical Analysis: SPSS software was used for statistical analysis.

RESULTS

In the present study, 150 (62.76%) out of 239 children were suffering from Protein energy malnutrition [Table1]. Maximum number of PEM cases (47 each) belong to age group of 1-2 years and >2-3 yrs, followed by 32 cases belongs to >3–4year age group and 24 cases belong to >4-5-year age group. Maximum PEM cases (86) are females with male-female ratio 1:1.34 (Table2). Although protein energy malnutrition is more common in low-income and poorly educated families, children from higher-income and well-educated families are also affected, including children from large urban areas in low socioeconomic neighbourhoods. PEM was also seen in children with chronic diseases.

Table 1: Prevalence of protein energy malnutrition among chidren

PEM	Male	Female	Total
Present	64	86	150
Absent	41	48	89
Total	105	134	239

Table 2: Age and sex wise distribution of the PEM cases

Age group	Male	Female	Total
1-2 years	21	26	47
>2-3 years	20	27	47
>3-4 years	13	19	32
>4-5 years	10	14	24
Total	64	86	150

Table 3: IAP Grading of protein energy malnutrition among cases.

PEM grade	Male	Female	Total
Grade I	28	21	49
Grade II	24	27	51
Grade III	08	20	28
Grade IV	04	18	22
Total	64	86	150

Out of 150 cases of PEM, maximum 51 cases belong to PEM Grade II followed by 49 cases of PEM Grade I, 28 cases of PEM Grade III and 22 cases belong to Grade IV PEM [Table 3]. The degrees were based on weight below a specified percentage of median weight for age as per IAP classification of PEM. The risk of death increases with increasing degree of malnutrition. An adaptation of Gomez's original classification is still used today. While it provides a way to compare malnutrition within and between populations, the classification has been criticized for being

ISSN (O): 2687-5365; ISSN (P): 2753-6556

"arbitrary" and for not considering overweight as a form of malnutrition.

DISCUSSION

In the present study, 150 (62.76%) out of 239 children were suffering from Protein energy malnutrition [Table1].Maximum number of PEM cases (47 each) belong to age group of 1-2 years and >2-3 yrs, followed by 32 cases belongs to >3–4year age group and 24 cases belong to >4-5 year age group. Maximum PEM cases (86) are females with male-female ratio 1:1.34 [Table2]. Out of 150 cases of PEM, maximum 51 cases belong to PEMGrade II followed by 49 cases of PEM Grade I, 28 cases of PEM Grade III and 22 cases belong to Grade IV PEM [Table3].

In the developing world, 129 million of children younger than five years are underweight and 10% are severely underweight. Underweight is more prevalent in Asia than in Africa, with Asia showing rates of 27% and Africa rates of 21%.[6]

In our study prevalence of PEM (62.76%) was almost similar to study conducted in Varanasi where it was observed to be 67%, however PEM was found to be significantly higher (62.66%) in the age group of 1-3 years as compared to other age groups in our study.[7,8] This age group also exhibited significantly higher prevalence ($p<0.05$) of Grade I, II, III PEM. Sen et al. also reported a higher prevalence in the age group of 1-3 years.[9,10] It was found that in Varanasi study female had an overall higher prevalence of PEM as also grade II PEM in comparison to males who had overall higher prevalence of Grade I PEM. Contradictory results were reported by Srivastava (1985) as overall higher prevalence PEM among males.[11]

The prevalence of PEM is high in 2-3 years of age group (67.1%), followed by in 1-2 years (66.1%), 3-4 years (61.5%) and 4-5 years (52.17%). This association between age and PEM is found to be statistically significant similar findings were noted in a study done by chakraboty. Sen et al, also reported higher prevalence in 1-3 years of age group.[1]

Christiaensen and Alderman et al, (2001) found that more boys than girls younger than five years old had malnutrition in Ethiopia and this was the same for a study in Turkey by Kilic et al, (2004) that found 14 male and seven female infants with marasmus and nine male and six female infants with kwashiorkor. Mahgoub et al, (2006) also found that in the age group of children zero to three years old in Botswana, malnutrition was more prevalent in males than in females. Studies in Tamil Nadu, India also showed that PEM was more prevalent in males five to seven years old.[12]

CONCLUSION

Malnutrition in children is the consequence of a range of factors that are often related to poor food quality, insufficient food intake and severe and repeated infectious diseases or frequently some combination of the three. These conditions in turn are closely linked to the overall standard of living and whether a population can meet its basic needs, such as to food, housing and health care. Growth assessment thus not only serves as a means for evaluating the health and nutritional status of children, but also provides an indirect assessment of the quality of life of an entire population. Malnutrition is like an iceberg, most people in the developing countries live under the burden of malnutrition.

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ISSN (O): 2687-5365; ISSN (P): 2753-6556