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ASSOCIATION OF RISK FACTORS WITH SEVERE MALNUTRITION IN CHILREN UNDER FIVE YEARS OF AGE

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ABSTRACT

Objectives: To determine the association of risk factors with severe malnutrition in children under five years of age.

Material and Methods: The study was carried out in Paeds Unit of Khyber Teaching Hospital, Peshawar from January 2005 to December 2005. Children less than five years old with severe malnutrition were included in the study. Risk factors (social and medical) in these children were documented on a separate printed proforma and their association with severe malnutrition was determined.

Results: One hundred and twenty five children with severe malnutrition both male and female were included in the study population. Their age range was from two months to sixty months. Among the social risk factors the commonest association was between maternal incompetency and severe malnutrition (72%) while the least common association was between drug addiction and working mother within the family (6%). Among the medical risk factors having strong association with severe malnutrition were recurrent respiratory tract infections (80%), chronic diarrhea (79%) followed by mixed feeding practices (62%) and lactation failure (54%). Least significant association was found between severe malnutrition and infections like whooping cough (7%) and tuberculosis (3%).

Conclusion: Multiple risk factors like social/medical are commonly associated with severe malnutrition in children below five years of age.

Key Words: Risk factors, malnutrition, weaning, vaccination, infections.

INTRODUCTION

Malnutrition is one of the leading causes of morbidity and mortality in children below five years of age throughout the world, particularly in developing countries[1-2]. Malnutrition is responsible for about 60% of the total deaths annually either directly or indirectly in children less than five years of age, majority of these deaths are associated with inappropriate feeding practices during the first year of life[3]. Data from UNICEF states that the highest level of underweight children is found in South Asia, involving 46% of all deaths under five in the region[4].

Severe malnutrition is a significant public health problem in Pakistan, associated with either social or medical risk factors[5-7]. The purpose of this study was to know the association of social and medical risk factors in children with severe malnutrition below five years of age in this province of the country, because no such study has been conducted in the past in this region.

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MATERIAL AND METHODS

This study was conducted in Paediatric Unit of Khyber Teaching Hospital, Peshawar from January 2005 to December 2005. Total of 125 children with severe malnutrition, (bilateral symmetrical oedema feet along with other signs of malnutrition like hair and skin changes or those without oedema but with a Z-score of < 70% or below – 2SD of weight for height) were included in this study. Children with no malnutrition, and with mild malnutrition were excluded from the study. Risk factors (social and medical) were documented on a separate printed proforma and correlation of these risk factors with malnutrition in these children was determined and the results were compared with national and international studies.

RESULTS

A total of 125 children with severe malnutrition were assessed for risk factors during the study period. Among them 62(49.6%) were male and 63(50.4%) female. Their age range was from 2 months to 60 months. The commonest risk factors (social and medical) associated with severe malnutrition in these children are shown in tables. Among the social risk factors, maternal incompetency due to lack of education was the commonest risk factor i.e. (57.6%) responsible for malnutrition in these children alon2g with other social risk factors as shown in Table 1.

Table 1: Social Risk Factors

S. No.	Risk Factors	Female (%)	Male (%)	Total No. of cases
1.	Incompetent mother	40 (55.6)	32 (44.4)	72
2.	Previous child death	33 (56.9)	25 (43.1)	58
3.	Large family size	25 (64.1)	14 (35.9)	39
4.	>2 children below 5 year	17 (53.1)	15 (46.9)	32
5.	Others (Working mother 1, Drug addiction 2, Father dead 3)	2 (33.3)	4 (66.7)	6

Table 2: Medical Risk Factors

S. No.	Risk Factors	Total No. of cases	Male (%)	Female (%)
1.	Chronic/ Recurrent Diarrhea	79	40 (50.6)	39 (49.4)
2.	Recurrent Respiratory Tract Infection	80	43 (53.8)	37 (46.2)
3.	Mixed Feeding	62	28 (45.2)	34 (54.8)
4.	Lactation Failure	54	30 (55.6)	24 (44.4)
5.	Incomplete Vaccination	49	22 (44.9)	27 (55.1)
6.	Low Birth Weight	47	24 (51.1)	23 (48.9)
7.	Delayed Weaning	49	6 (12.2)	43 (87.8)
8.	Inadequate Weaning	27	12 (44.4)	15 (55.6)
9.	Measles	11	9 (81.8)	2 (18.2)
10.	Whooping Cough	7	2 (28.6)	5 (71.4)
11.	Others (Tuberculosis 3,Cleft Palate 1, Congenital Heart Disease 1)	5	4 (80)	1 (20)

Among the medical risk factors, the commonest risk factors having strong association in children with severe malnutrition are chronic or recurrent diarrhea 79 (63.2%), recurrent respiratory tract infection 80 (64%) followed by other medical risk factors and their association with severe malnutrition as shown in Table 2.

DISCUSSION

Malnutrition is common in our country (48%) with severe malnutrition in 12% of children; particularly below 5 years of age. Risk factors (including social and medical) play a significant role in children with severe malnutrition. Recurrent or chronic diarrhea (79%) and recurrent respiratory tract infections (80%) played significant role in children with malnutrition in our study, consistent with studies conducted in other parts of the country as well[5,7]. Diarrheal disease in children has also got a strong association with malnutrition in Brazilian children[8].

Malnourished children had a higher incidence of infections in our study due to poor immune response because of inadequate nutrition consistent with study conducted by Shalein et al[9]. Maternal incompetency due to lack of education was the most prevalent social risk factor in in our study, with similar results being shown in Ethiopian children[10,13]. Lactation failure, mixed feeding and delayed or inadequate weaning in our study has got a positive association with severe malnutrition, consistent with results in other studies as well[5,7].

Introduction of weaning foods too early, before six months of age or too late, after one year of age has a strong association with severe malnutrition. A study conducted in China showed that the introduction of other diets before the age of six months leads to increase chances of infection like diarrheal illness and pneumonia[10–12] leading to malnutrition in these children.

Lack of immunization or incomplete vaccination has got an important role in children with malnutrition.

This study shows that children with incomplete vaccination status have high prevalence of malnutrition. Immunization is an essential intervention to prevent childhood infections and malnutrition[9]. Larger family size in our study is associated with severe malnutrition, with similar results shown in studies conducted in India[14–15] and Ethiopia[16]. Low birth weight and a previous child death in family play a significant role in children with malnutrition in our study, consistent with a study conducted in India[17].

CONCLUSION

Improving maternal education and discouraging mixed feeding before the age of six months, as well as creating an awareness in public regarding vaccination, will help in preventing malnutrition in children below five years of age in our society.

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