ORIGINAL RESEARCH PAPER

Paediatrics

PREVALENCE OF PROTEIN ENERGY MALNUTRITION AMONG CHILDREN OF AGE GROUP 1-5 YEARS IN KANCHIPURAM

KEY WORDS: PEM, Malnutrition, Prevalence, Urban And Rural

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ABSTRACT

PEM is undoubtedly the most serious nutritional problem affecting several thousand young children in India. The present study was a cross-sectional study of prevalence of protein energy malnutrition in Kanchipuram among 380 children of age group 1-5 years. Prevalence rates vary among different continents of the world. Ethical clearance was obtained. The instrument used was a predesigned and pretested semi-structured questionnaire. Physical measurements such as height and weight measured using standard methods. The prevalence of protein energy malnutrition is 33.7% (128). Protein energy malnutrition was found among 14.5% of the urban children and 19.2% of the rural children in this study. This study was found to be statistically insignificant (p value 0.2216). The service delivery component of RCH and other child health programs needs to be strengthened further, both in rural and also in urban areas, to improve nutritional status of under-five children.

INTRODUCTION

Malnutrition is the principal cause of child deaths and it's an important factor that suppresses India's spectacular growth. Malnutrition is widespread in all areas like rural, tribal and also in urban areas and thus it is a significant public health problem which is described as a silent killer, silent emergency, invisible enemy. Growing children are most vulnerable to its consequences. Their nutritional status is a sensitive indicator of community health and nutrition. Protein-energy malnutrition is undoubtedly the most serious nutritional problem affecting several thousand young children in India. Inadequate food, ignorance, undesirable social practices tend to impede child's early growth. Lack of spacing and large number of siblings are the order of the day amongst low income groups and in rural areas. Though there are several national programmes in India, like RCH programme, IMNCI, ICDS scheme, Mid-day Meal programme etc., but still the burden of malnutrition remains high in India[1]. Improper hygiene, lack of nutritious food and poor sanitary practice in the household, poverty, illiteracy among mothers and lack of health care only aggravates the problem of malnutrition. At the same time, child nutrition is positively influenced by urbanization, female literacy, access to health care, safe water and sanitation[2]. At least half of Indian infant deaths are related to malnutrition, often associated with infectious diseases, which are mostly vaccine preventable diseases (VPDs) [3]. Nutritional problems like Protein Energy Malnutrition (PEM), Vitamin A deficiency and Anaemia, which occurs due to iron deficiency, continues to be major problems in Indian children. These nutritional deficiencies adversely affect the health and development of children and contribute to high level of morbidity and mortality in the developing countries like India[4]. The present study was undertaken to assess the current prevalence of Protein-energy malnutrition in both rural and urban areas of Kanchipuram in Tamil Nadu.

METHODOLOGY

This study was conducted as a cross sectional study, to find the prevalence of Protein energy malnutrition (PEM) among children in the age between 1-5 years in Kanchipuram conducted by the department of Paediatrics in Meenakshi Medical College Hospital and Research Institute, a tertiary care teaching hospital located in Enathur, Kanchipuram. The instrument used was a predesigned and pretested semi-structured questionnaire. Physical measurements such as height and weight measured using standard methods. Study area includes urban and rural areas. The study was conducted for duration of 12 months to study the factors associated with PEM and to compare the prevalence of PEM between urban and rural area.

INCLUSION CRITERIA

Children between the age group of 1-5 years

EXCLUSION CRITERIA

• Those not willing to participate in the study.
• Locked houses at the time of data collection.

STATISTICAL ANALYSIS

Statistical Package for social sciences (SSPS) and MS EXCEL. The descriptive data to be presented as number and percentages with mean and standard deviation where ever required. The chi square test to be used for analysing the categorical data. The z test is used for comparing the mean between the two groups.

ETHICAL CONCERN

Ethical clearance was obtained from the Ethical committee meeting conducted at Meenakshi Medical College and Research Institute, Kanchipuram, Tamil Nadu, India.

RESULTS

In this study there were 32.6% of children in Urban and 32.1% of the children in rural area in the age group of 12-24 months. In the age group of 25-36 months there were 26.8% and 25.3% of children in Urban and Rural areas respectively. Around 37-

48 months of age there were 22.6% and 27.9% of children in urban and rural area respectively. In the age range of 49-60 months 17.9% of the children were from urban and 14.7% of the children were from rural area. Protein energy malnutrition was found among 14.5% of the urban children and 19.2% of the rural children in this study. In total 33.7% of the children were found to have protein energy malnutrition. P value for protein energy malnutrition between urban and rural population in this study was found to be statistically insignificant (p value 0.2216). In this present study regarding PEM (128) grading 41.8% of the children in urban and 34.2% of the children in rural were under Grade I malnutrition. Grade II malnutrition was seen in 23.6% and 30.1% of the children in urban and rural population respectively. Grade III malnutrition was found in 20% of the children in urban population and 21.9% of the children in rural population. Around 14.5% of the urban children and 13.6% of the rural children had Grade IV malnutrition.

PEM grading	Urban	Rural	Total
Grade I	23 (41.8%)	25 (34.2%)	48 (37.5%)
Grade II	13 (23.6%)	22 (30.1%)	35 (47.9%)
Grade III	11 (20%)	16 (21.9%)	27 (36.9%)
Grade IV	8 (14.5%)	10 (13.6%)	18 (24.6%)
Total	55 (100%)	73 (100%)	128 (100%)

Based on the socio economic status, 2.9% of the children had PEM in class I, 3.4% of the children had PEM in class II socio economic status, 5.5%, 9.5% and 12.4% of the children had PEM in class III, class IV and Class V socio economic status respectively. The difference was found to be statistically significant for Socio economic class and PEM. (p value of 0.0000). In this study mothers who have gone for less than 3 ANC visits, 12.4% of the children were found with PEM. Among mothers who have gone for 3-6 ANC visits 17.9% of the children were found with PEM. Among mothers who have done >6 ANC visits 3.4% of the children were found to have PEM. The difference between number of ANC visit and PEM was found to be statistically significant. (p value 0.0000). Among mothers who had pregnancy complications 3.4% of the children were found with PEM and among mothers who had no complications during pregnancy 30.3% of the children were found to have PEM. The difference was found to be statistically significant with p value of 0.0003. Among babies born with birth weight of less than 2.5 kg 11.3% of PEM was noted, babies born more than or equal to 2.5 kg were 22.4% of PEM was recorded in this study. The difference between birth weight and PEM was found to be statistically significant with p value of 0.0342. Among fully immunized children 31.6% of them had PEM and among partial immunized children 1.3% of them had PEM. PEM was seen in 0.8% of the unimmunized children. The difference in immunization status was found to be statistically significant for PEM with p value of 0.0066.

CONCLUSION
Protein energy malnutrition was found among 33.7% of study population with prevalence of 14.5% in the urban children and 19.2% in the rural children in this study. Regarding grading of PEM 18.0% of the children in urban and 19.5% of the children in rural were under Grade I malnutrition. Grade II malnutrition was reported in 10.2% and 17.2% of the children in urban and rural population respectively. Grade III malnutrition was found in 8.6% of the children in urban population and 12.5% of the children in rural population. Grade IV malnutrition was observed in 6.3% of the urban children and 7.8% of the rural children. Age less than two years, male gender, increased family size, poor education and occupation of parents, poor socio economic status, lack of ANC visit, low birth weight, time of initiation of breast feeding, exclusive breast feeding, Poor consumption of dietary requirements, unimmunized children, type of housing and overcrowding are the factors found to be significantly present among children with PEM. Hence service delivery component of RCH and other child health programs needs to be strengthened further, both in rural and also in urban areas, to improve nutritional status of under-five children.

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