EPIDEMIOLOGICAL STUDY OF MALNUTRITION (UNDER NUTRITION) AMONG UNDER FIVE CHILDREN IN A SECTION OF RURAL AREA

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Abstract

Prevalence of malnutrition is very high in India; especially in rural area. A cross sectional study was done in randomly selected six villages to estimate the prevalence and demographic and socioeconomic factors associated with malnutrition. The prevalence of malnutrition among the under five children was 50.46%.Children from lower socioeconomic status, with low birth weight were significantly malnourished.

Key words: *Protein Energy Malnutrition, under five*

Introduction

Deaths in children constitute more than 34% of total deaths in India[1]. Seven out of ten of these deaths are due to respiratory infections, diarrhoea and malnutrition. There is high under five morbidity and mortality in India[2]. Protein energy malnutrition is major contributory factor in majority of these childhood morbidities and mortalities.

At present 65% under five children are under weight which includes 47% moderate and 18 % severe cases of malnutrition[3] (UNICEF 2006 State of Worlds children).

There is no significant reduction in prevalence of malnutrition during last 12-13 years in spite of various programmes.

Comprehensive study, regarding causative, aggravating and associated factors leading to malnutrition will be the initial step to study the problem in depth.

Present study highlights magnitude of problem and some socioeconomic, demographic and environmental factors associated with malnutrition among under five children of rural area.

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Materials and Methods

It was a cross sectional community based study. The study was conducted in six villages selected by simple random sampling method from the field practice area of Rural Medical College Loni. Sample size was calculated by the formula pq/L^2. Six hundreds and fifty two under five children were examined from six villages during the period May - 2006 to Nov – 2007 Weight of the children was taken with the help of weighing scale.

Data Collection

House to house survey was done and necessary data was collected with the help of pre-tested questionnaire by interviewing mother and other care takers. Clinical examination of the children was done and anthropometric measurements were taken.

Analysis

Percentages, proportion, chi square test.

Results

Out of 652 under five children studied, 329 were malnourished. The prevalence of malnutrition was 50.46%. The findings of the study are shown in following tables.

Age in years	Malnourished children	Well nourished children	Total
0-1*	56 (43.75 %)	72 (56.25%)	128 (100%)
1-2	78 (56.93%)	59 (43.07%)	137(100 %)
2-3	75 (52.8%)	67 (47.2%)	143(100 %)
3-4	45 (40.11%)	67 (59.89%)	112(100 %)
4-5	75 (56.3%)	58 (43.7%)	133(100 %)
Total	329	323	652

Table 1: Age wise distribution of Malnourished Children

* 0-1 year includes age up to 1 year and 1-2 yrs include age from completed 1 year up to 2 yrs and so on.

χ^2=11.40 , d.f.= 4, p<0.05 (Significant)

Majority of Children from the age group of 1 to 3 years were significantly malnourished.

Sex of the child	Mal-nourished children	Well nourished children	Total
Male	171 (47.36%)	190 (52.64%)	361 (100%)
Female	158 (54.30%)	133 (45.70%)	291(100%)
Total	329	323	652

Table No. 2 Sex wise distribution of malnourished children

Socio economic status	Mal nourished children	Well nourished children	Total
Class I (> Rs2322/capita /mth)	007 (31.8%)	015 (68.2%)	22
Class II (Rs 1161 - 2321/capita)	021 (30%)	49 (70%)	70
Class I11 (Rs696_-1160/capita)	082(40.6 %)	120 (59.4%)	202
Class IV (345-695/capita)	112 (58.03%)	081 (41.97%)	193
Class V (<345)	107 (64.84%)	058 (35.16%)	165
Total	329	323	652

Table 3:Distribution of Malnourished Children according to Socio Economic Status

(χ^2=39.2 d.f.=4 p<0.01 highly significant)

Modified B.G. Prasads classification was used to classify the socioeconomic status. Majority of Children from the socioeconomic status IV and V were malnourished.

IAP Grade	No. of children
Grade I	168 (51.06%)
Grade II	138(41.94%)
Grade III	021(6.38%)
Grade IV	002(0.62%)
Total	329

Table 4:Distribution of Malnourished Children according to IAP Classification

When malnourished children were classified according to Indian Academy of Pediatrics (IAP) classification majority of malnourished children belong to IAP Grade I (wt.-70-80%of expected wt) & Grade II (60-70% of expected wt).

Birth weight	Malnourished children	Well nourished children	Total
<2500 gm(LBW)	105 (88.98%)	013 (11.02%)	118 (100%)
>2500 gm	224 (41.94%)	310 (58.06%)	534 (100%)
Total	329	323	652

Table 5: Association of Birth wt. with Nutritional Status (Z=13.11 significant)

Majority of malnourished children had birth weight less than 2500 gm (low birth wt). Significant association was observed between birth weight and malnutrition.

Discussion

Protein calorie malnutrition is a widespread nutritional disease in developing countries[4]. As mentioned by Gupta et al[5] preschool (under five) children are notoriously fraught with the risk of malnutrition and the prevalence of malnutrition varies between 50-80%.

The prevalence of malnutrition of under five children in field practice area of RMC Loni was 50.46%. Similar findings were observed by Banarjee et al in his study conducted in tribal area[6].The prevalence of malnutrition observed by Garg et al[7] was 58.2%**.**

Out of 329 malnourished children 171 were males and 158 were females. The prevalence of malnutrition was significantly more in 1-3 year age group. Similar finding was observed by Gupta et al. Improper weaning, recurrent infections make this age group more vulnerable.

Inverse relation has been observed between income and prevalence of malnutrition Children from socioeconomic class IV &V were significantly malnourished.

Majority of malnourished children belong to grade I (51.0%) & grade II (41.9%) of IAP classification only 0.2% children were severely malnourished. Similar findings were observed by Gupta et al and Garg et al. 88.98% children with low birth weight were malnourished. Significant association was observed between birth weight, & malnutrition.

Conclusion

The prevalence of malnutrition was high among under five children of rural area.

Socioeconomic status, birth wt., age group have impact on prevalence of Protein Energy Malnutrition.

Multi pronged approach like maternal and child health care, nutrition education, growth monitoring etc. will be beneficial to combat the problem of malnutrition.

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