Assessment of Nutritional Status of Children Attending Paediatrics OPD of a Tertiary Care Hospital in Eastern Nepal

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Abstract

Introduction: Malnutrition is one of the major health problem worldwide, especially in developing world and so is in Nepal, the causes being numerous. The objectives of this study were to assess the nutritional status of children attending paediatric OPD of BPKIHS and to find relation of the nutritional status with different factors. **Material and Methods:** This descriptive cross sectional study was done by face to face interviews using semi-structured questionnaire and anthropometric variables were recorded. Data of total 192 children was analysed by descriptive statistics. *p*-value <0.05 was considered significant. **Results:** According to IAP classification 50.52% were malnourished [grade I 65.97%, grade II 26.8%, grade III 7.21%]. According to WHO classification 47.39% stunted-moderate 89%, severe 11% and 9.89% wasted [moderate 94.73%, severe 5.26%]. Female sex, low education level in mother, low economic status, unavailability of exclusive breast feeding, low birth spacing and hospitalization were significantly associated with malnutrition. **Conclusion:** Malnutrition is common in children visiting paediatric OPD of BPKIHS. Female sex, maternal illiteracy, poverty, early weaning, birth spacing and hospitalization in past were major risk factors for malnutrition.

Key words: Malnutrition, IAP, stunting, wasting, WHO

Introduction

Malnutrition is a major health problem worldwide especially in developing world. It is a major cause of morbidity and mortality in Nepal. The term malnutrition refers to both under nutrition as well as over nutrition. But here malnutrition refers to under nutrition. Various factors are implicated as the cause for malnutrition. Here we have tried to study the burden of malnutrition in children visiting paediatrics OPD of BPKIHS as it could be an indirect indicator of nutritional status of children in Eastern Nepal as BPKIHS is the main tertiary health care centre in this region. Further we have tried to see the association of various factors with malnutrition. The indicators of malnutrition are Stunting, Wasting and Underweight[1].

Material and Methods

This descriptive cross-sectional study was carried out from 25th

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June to 23rd July, 2010 for a duration of one month in paediatric OPD of BPKIHS with the objective to assess the nutritional status of children attending paediatrics OPD of BPKIHS and to find the risk factors associated with malnutrition. All children between 1 to 5 years visiting paediatrics OPD with mother and parents giving assent were included in the study. Face to face interviews were conducted using semi structured questionnaire after properly explaining the questionnaire.

Anthropometry (weight, height, length) was taken using standard methods and appropriate instruments. Weight was recorded with weighing Secca scale with an accuracy of 50 g and crown to heel length in 1- 2 years with infantometer and height using stadiometer in 2-5 years age group, with an accuracy of 0.1 cm. Oedema was diagnosed when there was bilateral pitting when pressure was applied above the medial malleolus for 30 seconds. Underweight was classified using Indian Academy of Pediatrics (IAP), stunting and wasting was classified according to World Health Organization (WHO). Data were analysed with Statistical Package for Social Sciences (SPSS) version 10 and p-value <0.05 was considered significant. Underweight was compared with sex, maternal education, economic status, breast feeding, and use of iron, folic acid and tetanus toxoid (TT) in mother during pregnancy, hospitalization of child, birth spacing, and colostrum feeding and hospital delivery.

Parameters were arbitrarily classified, maternal education: above and below SLC; monthly family income: <8,000, 8,000-16,000 and <16,000; breast feeding: exclusive up to 6 months, mixed feeding and no breast feeding; birth spacing: <3 years and >3 years and were analysed using bivariate analysis.

Results

A total of 192 children were interviewed out of which 110 were male and 82 were females out of all; 97, 91 and 19 were underweight, stunted and wasted respectively.

Discussion

According to NDHS 2016, the prevalence of wasting in Nepal is 10% which is comparable to our study. The prevalence of stunting and under nutrition was higher in our study compared to national data[3]. The reason behind this could be a hospital based study. The factors they assessed which had high proportion of malnutrition were low birth weight, under nourishment in mother, maternal illiteracy, low family income and food insecurity. But the prevalence of stunting, wasting and under nutrition in study in Allahabad, India in 2006 was 51.6%, 10.6% and 36.4% which was similar to our study[4].

Different Classifications of Malnutrition

Table 1: Indian Academy of Pediatrics [IAP] classification for underweight[1]

Grade of malnutrition	Weight for age of the standard [median]%
Normal	>80
Grade 1	71-80
Grade 2	61-70
Grade 3	51-60
Grade 4	<50

Table 2: WHO Classification for malnutrition[2]

	Moderate malnutrition	Severe malnutrition
Symmetrical edema	No	Yes
Weight for height	SD score [-2 to -3]	SD score <-3
Height for age	SD score [-2 to -3]	SD score <-3

Table 3: Distribution of various aspects of malnutrition

Underweight	Total 97 (50.5%)	Stunting	Total 91 (47.39%)	Wasting	Total 19 (9.89%)
Grade 1	64 (65.9%)	Moderate	81 (89%)	Moderate	18 (94.7%)
Grade 2	26 (26.8%)				
Grade 3	7 (7.2%)	Severe	10 (11%)	Severe	1 (5.26%)
Grade 4	0				

Table 4: Factors affecting malnutrition

Factors	Division	Total	Underweight	p-value
Sex	Male	110	47	<0.02
	Female	82	50	
Education level	<SLC	129	73	<0.02
	>SLC	63	24	
Economic status	NRs <8,000	32	21	<0.02
	NRs 8-16,000	119	65	
	NRs >16,000	41	11	
Birth spacing	<3 years	81	54	<0.001
	>3 years	111	43	
Maternal Breast Feeding	Exclusive	108	40	<0.05
	Mixed	72	48	
	None	12	9	
Hospitalization	Yes	21	15	<0.05
	No	171	82	
Colostrum feeding	Yes	163	80	>0.05
	No	29	17	
Iron and Folic acid in pregnancy	Yes	127	58	>0.05
	No	65	39	
Tetanus Toxoid in pregnancy	Yes	135	66	>0.05
	No	57	31	
Hospital delivery	Yes	149	74	>0.05
	No	43	23	

Similarly in same study by Bantamen G et. al. in northwest Ethiopia, factors that were found responsible for malnutrition were inappropriate child caring and feeding practices such as using unprotected source of water for drinking and frequency of diarrheal episode, child vaccination status, food handler or care giver poor hand washing practices, parental decision making on use money for child care[5]. In a study done by Sharma KR in Mugu district, Nepal, following factors were associated with malnutrition: food scarcity, poor hygiene and environmental practices, lack of care of the mother towards her child due to priority given to work and lack of knowledge about proper child feeding/care[6].

In a study done by Md. Israt Rayhan and M. Sekander Hayat Khan in Bangladesh 45% were stunted, 10.5% wasted and 48% under nutrition[7]. These studies were similar to our study. In the same study factors responsible for stunting were less birth spacing, small birth weight and maternal illiteracy; factors responsible for wasting were small birth weight and under nourished mother; factors for underweight were less birth spacing, small birth weight and under nourishment in mother.

In a study done by Ruwali D, prevalence of under nutrition, stunting and wasting was found to be respectively 22.7%, 37.3% and 25.7% and socioeconomic factor being the most important factor associated with malnutrition[8]. Similarly in a study done by Joshi H S, prevalence of stunting, wasting and under nutrition were respectively 13%, 12% and 26% and factors associated with malnutrition were determined to be maternal education status, socioeconomic status, occupation and dietary knowledge[9]. The difference in the result between our study and above two study is probably because of difference in population, geographical area and hospital based study.

Thus there is difference in prevalence of malnutrition in different parts of the world and there is difference within different parts of Nepal but the size remains remarkably alarming. Different study assessed different factors to assess the risk factors associated with malnutrition and common factors among them were family income, maternal education and birth weight.

Conclusion

Malnutrition still prevalent in children visiting paediatric OPD at BPKIHS and in the eastern part of Nepal. Factors responsible for underweight were female sex, low education level of mother, poor economic condition, less birth spacing, lack of exclusive maternal breast feeding and previous hospitalization. Thus these parameters should be taken care of to deviate the curve of malnutrition.

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