Original Article

Assessment of Malnutrition in Pre-School children visiting immunization clinic, Maharana Bhoopal Hospital, Udaipur (Rajasthan)

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DOI : 10.5455/jrmds.20142116

ABSTRACT

Background: The pre-school age groups (2-5years) were evaluated for growth and nutritional status at immunization clinic at Maharana Bhoopal hospital, Udaipur.

Objectives: To study the malnutrition in pre-school children.

Material & Methods: The cross sectional study had been carried out between august 2013 to November 2013 with 1080children at immunization clinic Maharana Bhoopal Hospital Udaipur. Body weight, height were recorded including with age, gender and also education and occupation and socio-economic status of mother by interviewing the mother at the time they attended the immunization clinic and by the help of MAMTA CARD.

Result: The age and sex distribution of 1080 examined children revealed that 52.8% were males while 47.2% were females. The malnutrition in the subjects was determined as per World Health Organization child growth standards [1]. Data reveals that 4.2% of male children, 4.1% of female children were severely stunted and 10.7% of male children, 11.2% of female children were stunted. Whereas 3.1% of male children, 4.7% of female children were found to be severely wasted and 11.4% of male children, 12.3% of female children were wasted. Also found that 7.5% of male children, 7.6% of female children were overweight and 1.9% of male children, 1.0% of female children were obese.

Conclusion: There is need of more education about nutrition and dietary habits to population including proper antenatal and postnatal care of mother to decrease the prevalence of malnutrition in children.

Keywords: Children, Malnutrition, WHO child growth standards

INTRODUCTION

The Maharana Bhoopal hospital is a tertiary level hospital associated with R.N.T. Medical college, Udaipur (Rajasthan), situated in the centre of Udaipur city. It covers urban as well as rural population of Udaipur District. The study has been carried out in immunization clinic in preschool age group children of two to five years. In India 10.7% of population are in preschool age [2].Malnutrition in early childhood has grievous, long-term consequences since it impedes motor, sensory, cognitive, social and emotional development. Malnourished children are less likely to perform well in school and more likely to grow into malnourished adults, at greater risk of disease and early death. In India the children below five years mortality rates contributing 22% of the World [3].In India, around 46 per cent of all children below the age of three are too small for their age, 47 per cent are underweight and at least 16 per cent are wasted. Many of these children are severely malnourished. Malnutrition limits development and the capacity to learn. It also costs lives: about 50 per cent of all childhood deaths are attributed to malnutrition. Malnutrition is more common in India than in Sub-Saharan Africa. One in every three malnourished children in the world lives in India [4].

Malnutrition in children is not affected by food intake alone, in the same manner it is also affected by

access to health services, quality of antenatal and postnatal care for the child and pregnant mother as well as good hygiene practices. In India Girls were at more risk of malnutrition than boys because of their lower social status but now a days the scenario is changing due to literacy and Women empowerment [5].

MATERIAL AND METHODS

The present cross sectional study had been carried out between August 2013 to November 2013 at Maharana Bhoopal hospital, Udaipur. A total of 1080 children of two to five year age group were selected randomly while their visit to immunization clinic. This study was explained to the parents or guardians of the child and only after his or her consent we proceeded further. We excluded children who presented with congenital diseases, history of metabolic diseases, chronic diseases that could influence their growth. This information was collected during the interview. Anthropometric measurements were done. Height for age, Weight for age, Weight for height were calculated and tabulated by using Microsoft office. Height was recorded to the nearest 0.1cm and weight was recorded with minimum wearing clothing's measured to the nearest 0.1kg using standard techniques [6]. Z score median values (+3, +2, +1, 0,-1,-2,-3) are evaluated by using simplified Z score tables by WHO growth standards [1].

RESULTS

In this cross sectional study there were 570 (52.8%) male children and 510 (47.2%) female children. Out of 1080 children 311 (28.8%) were between age two to three year, 384 (35.5%) were between age three to four and 385 (35.6%) were between age group four to five years [Table 1].

Table 1: Distribution of children according to gender and age

Age (Years)	Male (%)	Female (%)	Total (%)
2-3	160(28.1)	151(29.6)	311(28.8)
3-4	210(36.8)	174(34.1)	384(35.5)
4-5	200(35.1)	185(36.3)	385(35.6)
Total	570(100)	510(100)	1080(100)

Result was interpreted as module of WHO child growth standards on interpretation of growth indicators [7]. By the application of Z score tables it was found that among of 570 male children 61 (10.7%) were stunted and 24 (4.2%) were severely stunted, 65 (11.4%) were underweight and 18 (3.1%) were severely underweight, 62 (10.9%) were wasted and 22 (3.8%) were severely wasted, 43 (7.5%) were overweight and 11 (1.9%) were obese [Table 2].

Table 2: Distribution of nutritional indicators in male children

Nutritional level in no. of children	Height for age (%)	Weight for age (%)	Weight for height (%)
No. below -3 s	24(4.2)	18(3.1)	22(3.8)
No. below -2 s	61(10.7)	65(11.4)	62(10.9)
No. below -1 s	106(18.6)	117(20.5)	81(14.2)
No. between +1&-1 s	264(46.3)	278(48.8)	257(45.1)
No. above +1 s	83(14.6)	64(11.2)	94(16.5)
No. above +2 s	26(4.6)	25(4.4)	43(7.5)
No. above +3 s	06(1.0)	03(0.5)	11(1.9)
Total	570(100)	570(100)	570(100)

s = standard deviation

Table 3: Distribution of nutritional indicators in female children

Nutritional level in no. of children	Height for age (%)	Weight for age (%)	Weight for height (%)
No. below -3 s	21(4.1)	24(4.7)	22(4.3)
No. below -2 s	57(11.2)	63(12.3)	60(11.8)
No. below -1 s	86(16.8)	80(15.7)	70(13.7)
No. between +1&-1 s	243(47.6)	242(47.4)	237(46.5)
No. above +1 s	66(12.9)	59(11.6)	77(15.1)
No. above +2 s	27(5.3)	32(6.3)	39(7.6)
No. above +3 s	10(1.9)	10(1.9)	05(1.0)
Total	510(100)	510(100)	510(100)

s = standard deviation

Table 4: Impact of mother's employment on nutritional status of children

Nutritional status of children	Occupational status of mothers(n=1080)		P Value
	Employed (n=194)	Housewives (n=886)	
Stunted	42(21.6%)	121(13.7%)	0.00
Wasted	36(18.6%)	134(15.1%)	0.23
Obese	03(0.01%)	13(0.01%)	1.00

Accordingly out of 510 girl children 57 (11.2%) were stunted and 21 (4.1%) were severely stunted, 63 (12.3%) were underweight and 24 (4.7%) were severely underweight, 60 (11.8%) were wasted and 22 (4.3%) were severely wasted, 39 (7.6%) were over-weight and 05 (1.0%) were obese [Table 3]. On the basis of mother's employment it was found that children of employed mother's 194 (18%) there were 42 (21.6%) stunted, 36(18.6%) wasted and 03 (0.01%) obese children and in mother's who were housewives 886 (82%) there were 121 (13.7%) stunted, 134 (15.1%) wasted and 13 (0.01%) obese children [Table 4]. On applying chi square the observed difference in nutritional status of the children as per mothers occupation found to be statistically significant only in case of stunting ($p < 0.05$).

DISCUSSION

This study was a primary study done at tertiary level hospital in Udaipur. This study provides the glimpse of the prevalent picture of malnutrition in preschool age children in urban areas of Udaipur district. Malnutrition levels are high in Rajasthan, as per National family health survey-3 (2005-06) the prevalence of stunting and wasting, among under-3 children is 33.7%, 19.7% and (for rural this is 36.4%,19.9%) [8]. A previous study by M.S. Tripathi and V. Sharma, which was done at urban slum of Udaipur in pre-school children reveals that 42% children were stunted, 30% were wasted and 66% were underweight [9]. Along with this however malnutrition varies in different states from 13% - 55% from Meghalaya to Madhya Pradesh respectively [10]. In contrast to these studies, overall stunting in present study found to be 15.1% however proportion of wasted children (15.7%) was almost near to the findings of NFHS- 3.

Economic development or even the adequacies of food at household levels are not only parameters for a stable and satisfactory nutritional status, this may also influenced by mother's education and occupation. A previous study on preschool children by A. Mittal states that on the basis of employment children of employed mother's 58.97% were stunted and 46.15% were underweight while children of housewife mother's 44.8% were stunted and 37.8% were underweight [11]. In contrast to that, in present study on the basis of employment among employed mother's 42 (21.6%) stunted, 36 (18.6%) wasted and 03 (0.01%) obese children and children of housewife mother's 121 (13.7%) stunted, 134 (15.1%) wasted and 13 (0.01%) were obese. Nutritional deficiency is found to be more in children of rural and low socio-economic status families.

The present study provide a snapshot of nutritional indicators in urban pre-school children, more elaborate pragmatic studies needed to get clear picture of the nutritional status of children of communities residing in urban and rural areas of Udaipur district.

CONCLUSION

Present study provides a glimpse of malnutrition in pre-school age children. It was found that there is need of more elaborative education about nutrition and dietary habits to population including proper antenatal and postnatal care of mother to decrease the prevalence of malnutrition in children along with proper vaccination coverage and proper counselling of parents by health care workers.

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How to cite this article: Sharma SP, Bhatnagar R , Kumar A, Meena N, Chawala G, Choudhary M. Assessment of Malnutrition in Pre-School children visiting immunization clinic, Maharana Bhoopal Hospital, Udaipur (Rajasthan). J Res Med Den Sci 2014;2(1):88-91

Source of Support: None
Conflict of Interest: None declared

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Date of Submission: 03/02/2014
Date of Acceptance: 05/03/2014