ORIGINAL ARTICLE

Nutritional Status of Under Fives on National Immunization Day in Srinagar

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Abstract

A large number of children were reached on national immunization day (NID) on 20.01.2002 in Srinagar, and an attempt was made to assess the nutritional status of under fives by using weight for age criteria. Eight hundred seventy under fives were selected randomly from urban, rural and slum areas of Srinagar. Protein energy malnutrition (PEM) was found to be in 390(44.82%) of cases. out which 24.14%, 14.96%, 5.06% 0.068% had grade I, II, III and IV PEM respectively. The prevalence of PEM was higher among females (49.58%) as compared to males (41.48%). It was also high in the age group of 1-3 yrs (55.84%), in slums (57.83%) and in the children of labour class (58.99%). The prevalence of malnutrition increased with the birth order and family size and decreased with high literacy rate in parents. National immunization day can be used to assess the nutritional status of children and on this day other common childhood problems can be successfully looked into, so that a normogram for any region or country for administering vitamin A and educating mothers can be prepared.

Key words

National Immunization Day (NID), Protein energy malnutrition (PEM), Pulse Polio Immunization (PPI) Vitamin A Deficiency (VAD), World Health Organization (WHO).

Introduction

The Government of India has decided to immunize the children for Pulse Polio up to the age of five as recommended by WHO (1), to eradicate polio and the NID has become an additional opportunity to reach children. In the year 1997 more than 450 million, almost two third of world children under the age of five were immunized on NIDs (2). In India nearly 5 million persons were mobilized to manage 650,000 PPI booths (average 8 people per booth and many more to fetch the children to these booths is an indication of social mobilization success (3). The programme reaches about 98% of the target population on either of the days. The fact that only 93.2% in various states and 92.5% in urban poor population had both the doses in 1996-97, indicates that there was a scope to reach all accessed with both doses. The large cross section of under five children with their mother or relative available gave an opportunity not only to study various childhood problems but also to educate mothers. WHO also recommended vitamin A supplementation during NID as a part of overall national plan to control vitamin A deficiency (VAD) wherever this exists (4). On this background, this study was conducted to use NID to assess the nutritional status of under fives in Srinagar.

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Material and Methods

The study was conducted on the National Immunization Day (20.01.2000) in Srinagar. Four centrally located polio immunization centers were selected to give proportionate representation of 870 children up to the age of five from urban rural and slum areas. A trained team of 5 final year MBBS students, 2 interns and a resident from the department of Pediatrics were assigned on the duty at each polio centre. Information were collected and documented on a pre-tested and pre-designed questionnaire from mothers and relatives accompanying the child, current age of the child was determined from the vaccination cards, local events calendar or other eligible records. The weight of the child with minimum clothing and barefooted (the approximate weight of the cloths was also deducted) was taken MISAKI baby scale (BT-5012), recording maximum weight of 12 kg and weight factors of up to 50 gm children above 2 years of age were weighed with dial type weighing machine (Adult type). Zero error was adjusted prior to weighing. Both types of machines were checked frequently against known weights. Nutritional status was assessed using weight for age criteria of Indian Academy of Pediatrics (5).

Results

In this present study 870 pre-school children were studied, out of them 121 (13.90%) were from urban, 111 (12.75%) were from rural and 638 (73.33%) were from slum areas. We found 390 (44.82%) of these under fives pre-school children as malnourished with 210 (24.14%), 130 (14.94%), 44 (5.06%) and 6 (0.68%) as grade I, II, III and IV malnutrition respectively as shown in figure 1.

Distribution of children with PEM in relation to sex, age area and occupation is shown in Table I. The prevalence of PEM was higher among females (49.58%) as compared to males (41.48%). It was also high in the age group of 1-3 years (55.84%), in slums (57.83%) and among the children of labour class (58.99%) as shown in Table I. It was observed that the prevalence of PEM was high with increase in family size and birth order as shown in Table II. It was also observed that with the increase in educational status of the parents, the prevalence of malnutrition steadily decreased as shown in Table III.

Fig 1: Showing grades of PEM.

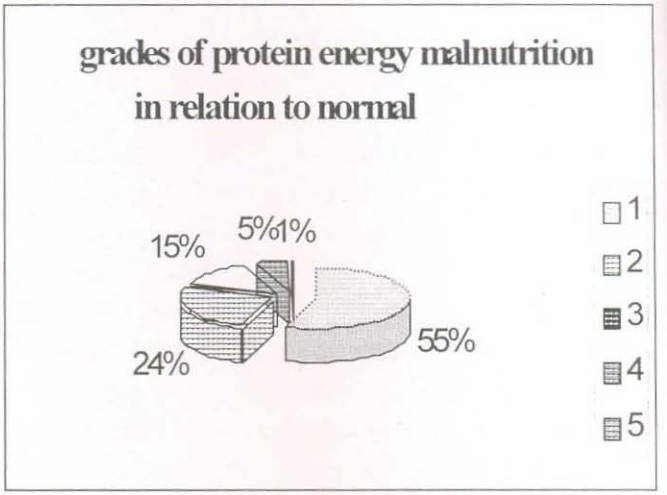

Table 1: Distribution of PEM in relation to sex, age, area and occupation.

Variable		Total	PEM	%age
Sex	Male	511	212	41.48
	Female	359	178	49.58
Age	0-1 Year	150	24	16.00
	1-3 Year	351	196	55.84
	3-5 Year	369	170	46.07
Area	Urban	121	07	05.84
	Rural	111	14	12.71
	Slum	638	369	57.83
Occupation	Labourer	578	341	58.99
	Shopkeeper	33	15	45.45
	Skilled	88	14	15.90
	Business	82	13	15.85
	Professional	89	07	07.86

Table 2: PEM in relation to birth order and family size.

Variable		Total	PEM	%age
Birth order	1	287	114	39.72
	2	333	135	40.54
	3	196	83	42.34
	Above 4	54	28	51.85
Total		**870**	**360**	**44.82**
Family Size	1	51	11	21.56
	2	72	22	30.55
	3	113	41	36.28
	Above 4	634	286	45.11
Total		**870**	**360**	**44.82**

Table 3: PEM in relation to Education qualification of parents.

Education		Total	PEM	%age
Mothers	Illiterate	588	312	53.06
	Primary	142	35	24.64
	Matric	87	9	10.34
	Above Matric	53	4	7.54
Total		**870**	**360**	**44.82**
Father's	Illiterate	521	323	61.99
	Primary	52	10	19.23
	Matric	152	16	10.52
	Above Matric	145	11	7.58
Total		**870**	**360**	**44.82**

Discussion

With almost half of the under five children having malnutrition, PEM is not an issue that can be ignored. The present study approach of using children attending PPI campaign to assess their nutritional status was not only found to be feasible but also served as a rapid method for data collection and an opportunity to educate their mothers since the study programme was conducted on a NID, a proper sample selection process as urban, rural and slum areas were fairly represented giving proportional representation. The study was conducted in SKIMS Medical College Hospital Bemina and its surrounding areas. This area is recently inhabited by people from rural, urban and fishermen from Dal Lake. There are some slum dwellers also residing in the vicinity, thus representing all strata of society. The prevalence of PEM (44.84%) in this study was comparable to the other parts of the world. As the myth prevails that the region of the world with the most malnutrition is Africa, but global data analysis shows that the worst affected region is not Africa but south East Asia where more then 50% children were malnourished. Bangladesh and India had malnutrition rates that were higher then even the poorest countries of Africa (6).

As per WHO, vitamin A deficiency and national immunization days can be combined as the target population of under fives was the same. Nation -wide campaign discovered the "unreached" and those most at risk; limited financial and human resources were used efficiently and cost effectiveness and impact were increased. Same could be true for malnutrition since the distribution of prevalence of PEM and xeropthalmia in pre school children is similar and almost all cases of Keratomalacia had severe PEM (7). The prevalence of PEM is very high in our country among preschool children as reported in various studies which also justifies its inclusion as supplementary activity to NIDs (8-11).

It was observed that the literacy in urban and rural areas was higher than in slums and majority of the informers in our study were females. Since such studies do not require special logistics or formally trained health workers and does not increase the work load at immunization posts besides it costs very low some extra work-

ers can also be engaged to ensure smooth functioning and to avoid delays.

The supplementary activity of NID should not over shadow the primary activity of administering polio drops to the children. Screening of children can be done before or after administering polio drops. Besides assessment of nutritional status, this approach could be used to screen for common childhood health care problems e.g. delivering vitamin A, educating mothers and health care workers on nutrition, organizing special camps which will raise public awareness on nutrition. Normogram for a region and even for a country as a whole can be prepared by undertaking a multicentric study on national immunization days. Good planning is always essential for successful integration of additional activities. The key steps should include explaining the importance of additional activities to decision makers, convincing them and getting their arrangements involving public at all levels engaging parents in such activities through staff, other health care workers and volunteers explaining them the importance of such activities and finally evaluating the success.

To conclude, use of NID to assess the nutritional status of under five children was found to be feasible, cost effective and rapid method for data collection. This approach can also be used for screening and dealing with common childhood problems, preparing normograms for a region or country administering vitamin A and educating mothers about child healthcare problems.

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