

A Study on Vitamin A Deficiency in School going Children of CHC -Hebbal

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Abstract

Background: Vitamin A deficiency exists as a public health nutritional problem among school going children in developing countries around the globe. Vitamin A (VAD) deficiency disorders include Xerophthalmia and its potentially blinding sequale, anemia, increased severity of infections, poor growth and mortality.

Material & Methods: A cross sectional study was conducted in Rural Health Centre Hebbal among all school going children from 1st to 7th standard(5-15 year) by using a predesigned and a pretested proforma. Ocular examination was done and the data was collected and analyzed by appropriate statistical tests.

Results:Out of the 178 school going children included in the study, the prevalence of vitamin A deficiency was 7.9% comprising 14 children, out of which 8 had conjunctival xerosis and 8 had Bitot's spots on examination. Out of the 14 children, 5 belonged to Class V and 9 belonged to Class IV of socio economical classification. The greater prevalence was found among children with vegetarian diet. 100% of vitamin A deficiency positive cases are not supplemented with Vitamin A.

Conclusion : The prevalence of Vitamin A deficiency is more in School going children belonging to lower socio economic classes and dietary factors play a vital role in its etiology.

Key words: Vitamin A deficiency, Xerophthalmia, Night blindness, Bitot's spot.

Introduction

Vitamin A is an essential nutrient needed in small amounts for normal functioning of the visual system, growth & development, maintenance of epithelial cellular integrity, immune function & reproduction[1]. Deficiency of Vitamin A has long been identified as a serious & preventable nutritional disease [2]. Though one of the main causes of xerophthalmia is poor intake of Vitamin A rich foods, it is also associated with poverty, Ignorance, faulty feeding habits among the entire population but young children in particular [3]. Xerophthalmia is the leading cause of childhood blindness in Asia & the world. Different strategies have been proposed to combat Xerophthalmia these include periodic supplementation with large dose of Vitamin A, fortification with Vitamin A and dietary modification [4].

Children in the School going age group (6-16Years) represent 25% of the population in the developing countries. They fall best in the preventable blindness age group and Schools are the

best forum for imparting health education to the children [5]. Present study was conducted to assess the prevalence of VAD among School children (5-15 years) in Rural Health Centre Hebbal, Attached to M.R.Medical College Gulbarga.

Materials and Methods

A cross sectional study was conducted in CHC Hebbal, rural field practice area of Community Medicine Department M.R.M.C., Gulbarga, among all School going children from 1st to 7th standard (5-15 years age). Data was collected by using Pre-designed pretested proforma and ocular examination was done for signs of Vitamin A deficiency. The data was collected & analyzed by appropriate statistical tests.

Results

Out of 178 School children surveyed in Hebbal, the total number of positive cases found were 14 (7.9%). Among them 8(57.14%) had conjunctival Xerosis, 8(57.14%) had Bitot's spots. Among the Vitamin A deficiency positive cases, 8(57.14%) are 9 years & 6 are > 9years age group.

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The mean age of positive cases is 9.86 ± 2.44 years (mean \pm S.D.) and among them 57.14% (8) of positive cases are males and 42.86% (6) are females. From the 14 positive cases, 5(35.71%) are from Socio-Economic class V, & 9 (64.29%) are from Socio-Economic class IV. The mean height of positive cases is 107.53 ± 30.55 cms (mean \pm S.D.) and the mean weight of positive cases is 21.21 ± 5.69 Kgs (mean \pm S.D.). 71.42% (10) of positive cases are vegetarians, & 28.58% (4) are non vegetarians and 100% (14) of positive cases are not supplemented with Vitamin A.

Discussion

Although there is a substantial documentation of prevalence, severity & health consequence of Vitamin A deficiency in preschool aged children, extent of VAD in older children has not given much attention.

Present study was carried out in school children (5-15years age) from rural health centre Hebbal, Gulbarga to see the prevalence of VAD. In Present study prevalence of Vitamin A deficiency was observed to be 7.9% a cross sectional study conducted in primary schools in Ahmedabad showed 2.9% VAD prevalence in same age group [2]. Cross sectional survey with multistage sampling of 3 of 19 districts (Baroda, Ahmedabad & Rajkot) in Gujarat state showed 6.30% to 13.5% prevalence in same age group [6]. Evidence from various countries of south-eastern Asia had shown VAD ranging from 0.2% to 15% in school aged children [7].

In present study among vitamin A deficiency positive children 8 (57%) had conjunctival Xerosis, 8 (57%) had Bitot's spots & health problem among preschool and school children [2]. In present study

(Table 1) among VAD positive cases majority 8(57.14%) were 9 years age group. But similar study done by Naresh T. Chauhan et al observed majority 17 (58.62) were >9years age group among VAD Positive cases [2]. The Prevalence of VAD (Xerophthalmia) was 8.88% among boys & 6.8% among girls (Table 2). Similar studies done by Naresh T. Chauhan et al shows that 19(4.1%) girls are VAD positive & 10(1.9%) boys are VAD positive. Similarly Tarik Kassaye et al shows in their study, 28(6.7%) females are VAD positive 20 (5.0%) males are VAD positive [8]. In present study (Table 3) among Vitamin A deficiency positive cases 5(10.4%) belonged to SES V, 9(6.92%) belonged to SES IV. Similar study done by Naresh T Chauhan et al Shows prevalence of Vitamin A deficiency was 100% in social class IV & V. In present study (Table 4) Vitamin A deficiency cases 10(71.43%) are more among vegetarians than non vegetarians i.e. 4(28.57%) cases.

In present study (Table 5) prevalence of Xerophthalmia is 14 (10.5%) among school children who were not received Vitamin A Supplementation, which is statistically significant. Similar study done by V.Sampathkumar et al observed 4.9% prevalence among school children who were not covered under Vitamin A Prophylaxis [9]. Xerophthalmia is commonly a problem of preschool children for whom prophylactic intervention is carried out. However studies have shown a higher prevalence of xerophthalmia among school aged children these children may go undetected unless specifically sought [9].

Table 1. Age wise distribution of Children

Age	VAD Positive		VAD Negative		Total		Chi square Value	p-Value
	No.	%	No.	%	No.	%		
=9	8	57.14	84	51.22	92	51.69	0.181	p>0.05 Insignificant
>9	6	42.86	80	48.78	86	48.31		
Total	14	100.00	164	100.00	178	100.00		

Table 1. shows that 8 (57.14%) of the positive cases are <9 years where as 6 (42.86%) are >9 years. . Similar observations were made by Khan et al [1] .

Table 2. Sex wise distribution of children

S.E.S	VAD Positive		VAD Negative		Total		χ^2 Value	P-Value
	No.	%	No.	%	No.	%		
V	5	35.71	43	26.22	48	26.97	0.59	P>0.05 Insignificant
IV	9	64.29	121	73.78	130	73.03		
Total	14	100.00	164	100.00	178	100.00		

Table 2. shows that 8 (57.14%) of the positive cases are males where as 6 (42.86%) are females. Hence the prevalence was higher in boys than in girls like other studies [2,3] .

Table 3. Distribution of children by SES

S.E.S	VAD Positive		VAD Negative		Total		Chi square Value	p-Value
	No.	%	No.	%	No.	%		
V	5	35.71	43	26.22	48	26.97	0.59	p>0.05 Insignificant
IV	9	64.29	121	73.78	130	73.03		
Total	14	100.00	164	100.00	178	100.00		

Table 3. shows that 14 (100%) of the positive cases belonged to lower Socio-Economic Classes like in the study done by Arlappa N et al [4] .

Table 4. Distribution of children by Diet

Diet	VAD Positive		VAD Negative		Total		Chi square Value	p-Value
	No.	%	No.	%	No.	%		
Veg	10	71.43	82	50.00	92	51.69	3.31	p>0.05 Insignificant
Non-Veg	4	28.57	82	50.00	86	48.31		
Total	14	100.00	164	100.00	178	100.00		

Table 4. It is observed that 10 (71.43%) of the positive cases were vegetarians and 4 (28.57%) of the cases were Non vegetarians.

Table 5. Distribution of children according to Vitamin-A supplementation

Vitamin-A supplementation	VAD Positive		VAD Negative		Total		Chi square Value	p-Value
	No.	%	No.	%	No.	%		
Given	0	0.00	45	27.44	45	25.28	6.71	p<0.01 Significant
Not Given	14	100.00	119	72.56	133	74.72		
Total	14	100.00	164	100.00	178	100.00		

Table 5. Shows that 100% (14) of the positive cases are not immunized with the Vitamin A.

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