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Original Research Paper

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AN ASSESSMENT OF XEROPTHALMIA PROBLEM AMONG SCHOOL GOING CHILDREN IN URBAN SLUMS OF RAIPUR

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ABSTRACT

Introduction: Present study was carried out in school children (6-15 years age) from slum areas of Raipur city near its Urban Health Centre to see the Magnitude of Xerophthalmia. Very few studies have been done to clinically assess the extent of Ocular manifestations of Vitamin A deficiency in primary school children

Method: Study was designed as a cross sectional study conducted in primary schools of urban slums of Raipur city near its Urban Health Centre . 1000 children were randomly selected from 10 schools and examined . From each school 100 children were randomly selected from standard I-VII. Xerophthalmia was diagnosed if there was a history of night blindness, or on examination, there were signs of conjunctival xerosis, Bitot's spots, corneal xerosis or keratomalacia. Information was analysed by using the Microsoft Excel and SPSS . Chi square test was used for analysis.

Results: 0.5% cases of night blindness, 1.4% cases of conjunctival xerosis and 2.1% cases of Bitot's spot were found. Types of family, lower social class (class IV & V) and poor intakes of green vegetables were significantly associated with the vitamin A deficiency.

Conclusion: Study showed that this preventable cause of ocular morbidity is still prevalent in fair magnitude. Studies are needed on this issue to highlight the importance

KEYWORDS : Xerophthalmia, Night blindness, Bitot's spot, raipur

INTRODUCTION

Deficiency of vitamin A has long been identified as a serious and preventable nutritional disease. It also contributes significantly, even at sub-clinical levels, to morbidity and mortality from common childhood infection. Studies suggest that ill health and risk of death from some infection are also increased even in children who are not clinically deficient but, whose vitamin A body stores is depleted [1,2]. 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]. At least 45 countries are now known to have serious vitamin A deficiency (VAD)[3,4]. Corneal scarring results from deficiency of vitamin A is responsible for about 19% of all causes of childhood blindness.[5]

Surveys indicate that the intake of Vitamin A is, on an average, about half the recommended dietary intake. It is important that the dietary practices are improved and intake of Vitamin A rich foods be actively promoted. The diet and nutritional status of urban slumchildren in India is far away from being satisfactory. Lack of basic amenities like safe drinking water, proper housing, drainage and excreta disposal make this population more vulnerable to infection which further compromise the nutrition of those living in the slums. Children living in slum are more prone to nutritional deficiency disorders[6].

Present study was carried out in school children (6-15 years age) from slum areas of Raipur city near its Urban Health Centre to see the Magnitude of Xerophthalmia. Very few studies have been done to clinically assess the extent of Ocular manifestations of Vitamin A deficiency in primary school children

METHEDOLOGY

After local ethical committee approval a community-based study was planned. The study area was near the Urban Health Centre of the Institute. Over a period of 4 months A cross sectional study was conducted among primary school children in the age group 6-15 years. Total sample size was calculated to be 930 children considering 30 % prevalence of ocular morbidity in previous studies. Total sample size was taken as 1000. List of primary schools running in slums in nearby areas was obtained from Raipur Municipal Corporation and District Education Office .10 schools were selected by the simple random sampling method and 100 children from each school were examined to achieve desired sample size. Prior permission for the study was taken from the school authorities. The investigator filled a predesigned proforma after explaining the purpose of the study. The first child was selected randomly by lottery method. The questionnaire dealt with information regarding the child like age, sex, residential address, class in which the student is studying, education, occupation and income of parents and dietary intake of dark green leafy vegetables/yellowish fruits. All the children were examined in day light for vitamin A deficiency. Xerophthalmia was diagnosed if there was history of night blindness, or there were signs of conjunctival xerosis, Bitot's spots, corneal xerosis and keratomalacia on clinical examination [7]. Anthropometric measurements were recorded as per the standard WHO guidelines. Dietary intake of dark green leafy vegetables/yellowish fruits noted in terms of frequency of consumption per week[1]. BMI percentiles were calculated for each respective age group. Socio-economic classification of children was done by modified Prasad classification method. Children diagnosed having xerophthalmia were given two lakh IU of vitamin A solution on the spot & referral to Hospital. Information was analysed by using the Microsoft Excel and SPSS (Version 20 , IBM , USA) Chi square test was used for analysis.

RESULTS

In total, 1000 examined including 53.6% boys and 46.4% girls Among study participants, 88.6% belong to nuclear family and 45% had more than three siblings. 34.8% father and 34.8% mother were illiterate. Majority of children had their both parents (82.5%) working as unskilled/semi-skilled/skilled work. As per modified Prasad classification, 36.5% family belongs to lower (IV &V) social class. Body mass index was measured and 73.3% children found underweight and 16.6% overweight/obese. Highest no of cases observed in age group 9 to 10 yrs (5.9%) and lowest in age group 13 to 14 years (0.8%). Higher prevalence in girls was statistically significant ($p=0.03$)

Almost 3% of boys and girls reported various forms of

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xerophthalmia. As per WHO standards of prevalence of night blindness >1% and Bitot's spot, >0.5% considered as public health problem among preschool and school children. The prevalence of night blindness 0.5%, Bitot's spot 2.1% and of conjunctival xerosis 1.4% was found in present study. Consumption of dark green leafy vegetables < 3times per week significantly associated with occurrence of VAD (p=0.01).

DISCUSSION

In present study prevalence of Xeropthalmia was observed to be 2.9% which was similar to finding of a comprehensive study of morbidity in Tamilnadu [8]. Cross-sectional survey with multistage sampling of 3 of 19 districts (Baroda, Ahmedabad and Rajkot) in Gujarat state showed 6.30 % to 13.5 % prevalence in same age group [9]. Studies done on school children in other part of country show prevalence of xerophthalmia ranging from 1.8 % to 10.6% [10,11,12,13,14]. Evidence from various countries of South-eastern Asia had shown VAD ranging from 0.2 % to 15 % in school aged children [5]. In present study, highest no of cases were observed in age group 9 to 10 years (5.9%) and lowest in age group 13 to 14 years (0.8%). The prevalence of xerophthalmia among boys was 1.9% and in girls it was 4.1% and the difference observed was statistically significant, p=0.03. These observations were correlated with the Ethiopian study conducted by Tarik Kassaaye et al. [16], but not to the Lucknow study conducted by D. Kumar et al [10]. The prevalence of night blindness (0.5%) in the present study comparable to the Gupta et al., study [14]. Wedner et al., reported the higher prevalence (5.3%) of night blindness among school children (7-19years) but the study conducted in rural area of Tanzania [17]. Prevalence of vitamin A deficiency was higher in social class IV and V, than in social class I, II and III. This difference was statistically significant, p=0.00. Similar observation was found in the study done by Pal R et al [18].

Dietary deficiency of vitamin A leads to development of xerophthalmia in those children taking insufficient green leafy vegetables. This was also observed by Tarik Kassaaye et al and Faruk Ahmed et al [16,19].

The observation of this study underlines the magnitude and severity of Xeropthalmia vitamin A deficiency in an age group that policy makers do not usually consider to be at risk in this respect. It is important to educate the community about the important morbidity in school age children, their aetiology and prevention. Provision of rich food in vitamin A must be supplied regularly in Mid Day Meal. Increase awareness of school children and parents about importance of taking dark green leafy vegetables, yellow fruits and dairy products by respective Public Health people in the district. Identify high risk children who are prone to develop vitamin A deficiency and intervene with appropriate strategy to prevent xerophthalmia amongst those children. If space is available than school kitchengarden should be made, So that children can take message to their home to develop kitchen garden.

Vitamin A deficiency observed among children less than five years of age group in urban slums range from 5.3 % to 24.6 %. However, data on the 6 to 15 years age group not readily available for this under privileged group [20].

CONCLUSION:

Efforts to reduce vitamin A deficiency in younger children to a level is not considered to be of public health significance which are encouraging but challenging the task remains in children 6-15 year age in which prevalence is high [15]. Further studies are required to map out the prevalence of vitamin A deficiency among 6 to 15 years age group in urban slum in other part of India, so that attention of the policy maker to this problem can be drawn as it demands systemic evaluation of the extent of Xeropthalmia in this age group.

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