PREVALENCE OF VIT A DEFICIENCY IN RURAL POPULATION OF UTTAR PRADESH

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ABSTRACT

BACKGROUND

Vit A deficiency is a major cause of preventable blindness. Such deficiency in childhood may lead to corneal scarring and loss of transparency of cornea, which is very difficult to manage in India.

The aim of this study was to find out the prevalence of Vitamin A deficiency in peripheral part of Lucknow and Barabanki, (Uttar Pradesh).

MATERIALS AND METHODS

This study was done in Mayo Institute of Medical Sciences (Uttar Pradesh), in which children aged 0-12 years were undertaken. Study population was selected by examining students at schools by Bal Suraksha Guarantee Yojna team and the OPD population of paediatrics and obstetrics and gynaecology, 1598 children and students participated in the study. Students were from 1st to 7th class, age was 0-12 years.

RESULTS

Prevalence of xerophthalmia was 4.29% in all the age group of 0-12 years. Prevalence of Bitot’s spot was 1.8% in children under six years of age and 4.93% in children above six years. The prevalence of xerophthalmia was significantly more in children over 6 years of age. Prevalence of anaemia was 18.4% in the study. High prevalence of xerophthalmia was observed in children suffering from anaemia, which conveys more of disease prevalence in weak and malnourished children.

CONCLUSION

With the effort of the Government Agencies and the NGOs, the manifestation of xerophthalmia and prevalence of Bitot’s spot in children under six years of age in the present study shows a declining manifestations of even the first sign of vit A deficiency, although it is still a public health problem. The higher prevalence in children above six years of age shows that apart from strengthening of vitamin A prophylaxis programs, health education is required so as to maintain and strengthen our goal.

KEYWORDS

Vitamin A, Bitot’s Spot, Prophylaxis, Xerophthalmia.

of the different categories under these three variables and a combined score is used for grading the socioeconomic status.

Haemoglobin estimation of all children was carried out and the cut-off point of 11 g/dl for children under six years and 12 g/dl for children above six years of age were considered for the diagnosis of anaemia (Park, 2011). Children suffering from xerophthalmia were given 200,000 IU of Vitamin A orally for two days. The statistical analysis was carried out by the chi-square test and the odds ratio with its 95% confidence interval.

RESULTS

Table 1. Prevalence of Xerophthalmia According to Age

- The overall prevalence of xerophthalmia was found to be 4.29%. Only the milder manifestations of xerophthalmia, i.e. night blindness and Bitot’s spots were observed.
- No case of corneal Stage X2, X3A, X3B, XS was seen, though the prevalence of xerophthalmia was 4.29%.
- Overall prevalence of signs and symptoms was 4.03%.
- The increase in the prevalence of xerophthalmia with the increase in age group was found to be statistically significant.
- The prevalence of Bitot’s spot was 1.83% more than 5 Member years and 4.93% in children above six.

<table>
<thead>
<tr>
<th>Age of Group</th>
<th>Number of Children</th>
<th>With Night Blindness (XN)</th>
<th>With Bitot’s Spot (X1B)</th>
<th>Night Blindness+Bitot’s Spots</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3 years</td>
<td>360</td>
<td>0 (0%)</td>
<td>2 (5.5%)</td>
<td>0</td>
<td>2 (5.5%)</td>
</tr>
<tr>
<td>4-6 years</td>
<td>389</td>
<td>5 (1.28%)</td>
<td>1 (0.26%)</td>
<td>6 (1.55%)</td>
<td>12 (3.07%)</td>
</tr>
<tr>
<td>7-9 years</td>
<td>386</td>
<td>7 (1.81%)</td>
<td>3 (0.77%)</td>
<td>10 (2.63%)</td>
<td>16 (4.13%)</td>
</tr>
<tr>
<td>10-12 years</td>
<td>377</td>
<td>14 (3.6%)</td>
<td>8 (2.08%)</td>
<td>22 (5.84%)</td>
<td>35 (9.06%)</td>
</tr>
<tr>
<td>Total</td>
<td>1512</td>
<td>26 (1.71%)</td>
<td>26 (1.71%)</td>
<td>52 (3.45%)</td>
<td>65 (4.29%)</td>
</tr>
</tbody>
</table>

Table 1: Comparative Analysis of Xerophthalmia

<table>
<thead>
<tr>
<th>Demographic Factor</th>
<th>Study Subject</th>
<th>Xerophthalmia</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>802</td>
<td>45 (5.6%)</td>
<td>0.89</td>
</tr>
<tr>
<td>Females</td>
<td>710</td>
<td>20 (2.5%)</td>
<td></td>
</tr>
<tr>
<td>Socio-Economic Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middle Class</td>
<td>588</td>
<td>20 (3.4%)</td>
<td>1.76</td>
</tr>
<tr>
<td>Lower Class</td>
<td>924</td>
<td>45 (4.8%)</td>
<td></td>
</tr>
<tr>
<td>Family Size</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 5 Member</td>
<td>894</td>
<td>33 (3.6%)</td>
<td>0.59</td>
</tr>
<tr>
<td>More than 5 Member</td>
<td>618</td>
<td>32 (5.1%)</td>
<td></td>
</tr>
</tbody>
</table>

Table 2

Table 3: Association of Xerophthalmia with Anaemia

<table>
<thead>
<tr>
<th>Anaemia</th>
<th>With Xerophthalmia</th>
<th>Without Xerophthalmia</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Anaemia</td>
<td>36 (18.4%)</td>
<td>159 (81.6%)</td>
<td>195 (12.9%)</td>
</tr>
<tr>
<td>Without Anaemia</td>
<td>29 (22.0%)</td>
<td>1289 (97.8%)</td>
<td>1317 (87.1%)</td>
</tr>
<tr>
<td>Total</td>
<td>65 (4.29%)</td>
<td>1447 (95.71%)</td>
<td>1512 (100%)</td>
</tr>
</tbody>
</table>

Table 2 describes the prevalence of xerophthalmia according to sociodemographic factors. A higher prevalence of xerophthalmia was observed in boys, lower socioeconomic status and children with family size of five and above; however, the difference was not significant. The overall prevalence of anaemia was in the study population 12.9%. A high prevalence of xerophthalmia was observed in children suffering from anaemia (Table 3). Estimates of odds ratios and their 95% confidence intervals confirmed significant association between xerophthalmia and anaemia.

DISCUSSION

Vit. A deficiency is a major cause of preventable blindness and disabling public health problem in children of India. A very few studies have been done here to access the load of vit A deficiency in children of all age groups. The current study observed 4.29% prevalence of xerophthalmia in children up to 12 years. The earlier-conducted studies have reported a prevalence of xerophthalmia in the range of 1.1% to 22.3% in different population groups and in different parts of the country.[5,6] and different socio-economic groups.[7,8]

Now-a-days, there are reports of decrease in the prevalence of Vitamin A deficiency, which is due to the efforts of Government Health Agencies and various NGO organisations who are running prophylaxis immunisation programs and oral vit A. A dose has been made compulsory and has been included in national immunisation program.[9,10] So there are milder manifestations of xerophthalmia, which shows that the prevalence of vit A deficiency is on the decline. This study shows a significantly higher prevalence of vitamin A deficiency in the older age groups > 6 years. Similar findings (Sharma SK, et al 1985; Fakhir S, et al 1993) have also been reported by other investigators. The observed association with anaemia, low socioeconomic status and low intake of nutrients and is generally associated with various infections which further precipitates or aggravates vitamin A deficiency.

CONCLUSION

Our study tells about the prevalence of xerophthalmia prevalence in children between 0-12 year’s age, which is 1.8% but is still high enough and should be under 0.5% as directed by the WHO guidelines.

A Multidisciplinary Approach is required to Tackle with this Problem

- Education of parents.
- Easy approach to health facilities.
- Community participation.
- Screening of children in schools.
- Health education.
- Limited family size.
- Dietary diversification.

Such an approach will improve all the deficiency diseases and make the child fit and aid in the development of country.

REFERENCES