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A Study on Prevalence of Refractive Errors among School Children in School Health Survey

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Abstract

Introduction: Children are particularly vulnerable to infections, injuries, and deficiency disorders due to their poor nutritional status, lack of proper hygiene, and care. Majority of the cases of ophthalmianeonatorum and keratomalacia are seen in this class of people even though they are easily preventable by early intervention timely institution of proper remedial measures and effective methods of prophylaxis and treatment. *Methodology:* This was a cross sectional study carried out in schools for children aged 5 – 15 years to know the prevalence of refractive errors. The sample size was 1012 which included both boys and girls. Predesigned semi structured questionnaire was prepared as study tool *Results:* Out of 1012 students, 39 had refractive errors and among them 71.8% of students had myopia, 20.5% students had hypermetropia and 7.69% of students had astigmatism *Conclusion:* The type of refractive errors seen in both boys and girls in the decreasing order was found to be myopia, hypermetropia and astigmatism.

Keywords: Refractive Errors; School Screening; Myopia.

Introduction

The concept of Preventable blindnesshas gained increasing recognition lately. The term 'prevention' may have one meaning in developed countries and an entirely different one in the developing countries.

The first meaning may relate to preventing the disease from appearing, or if it has occurred, preventing the onset of functional loss. The second meaning implies limiting functional loss to the minimum by active treatment [1]. The first group would include genetic counselling, prenatal care, adequate nutrition especially in children, eradication of vectors of infectious diseases, systemic health examinations and health care from birth onwards, preventive vaccination, active immunization, general education in hygiene and to reduce the 'risk of accidents to the eye by dangerous toys. For many ofthese measures the ophthalmologist serves as an advisor, mainly. The second group includes curative measures through expansion of eye services of all kinds and at all levels.

The main factors governing the health problems of the citizens of the underdevelopedcountries are poverty, ignorance, illiteracy, negligence, superstition, home medication, apathy for good advice, want of medical facilities; lack of personal hygiene, malnutrition, environmental pollution, and hazardous occupations [2].

Children are particularly vulnerable to infections, injuries, and deficiency disorders due to their poor nutritional status, lack of proper hygiene, and care. Majority of the cases of ophthalmianeonatorum and keratomalacia are seen in this class of people even though they are easily preventable by early intervention timely institution of proper remedial measures and effective methods of prophylaxis and treatment [3].

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The components for action in "National P'rogramme for Control ofBlindness in India"are [4]:

Initial Assessment

The magnitude, geographical distribution, and causes of blindness within the country or a region are estimated by surveys. This forms the basis and helps in setting priorities and in the development of appropriate intervention programmes.

Methods of Intervention

a. Primary Eye Care

Many ocular defects such as conjunctivitis, early trachoma, superficial foreign bodies, minor trauma and xeropthalmia can be treated/ prevented by adequately trained primary health workers at the grass root level. They serve as a link between the population and eye health services. They are trained to carry put specific eye care activities and refer difficult cases to the doctor. Currently there is one village guide for every 1000 population and two Multipurpose workers for every 5000 population in our country.

b. Secondary Eye Care

This is provided by Eye Departments or established Eye Clinics in P.H.C's, or District Hospitals. They operate by using mobile eve services. In India, the approach by mobile camps have gained popularity with good results. Apart from surgery these camps also undertake general health surveys, early detection of diseases, immunization, screening for ocular defects and education of the masses. They also serve in following up and evaluating these cases at regular intervals. The advantages of this 'system is that inexpensive and specialist facilities are taken to the masses at the peripheral levels. They also, undertake school screening, identification of con-genital, traumatic, cataract, and vision impairing deficiency diseases.

c. Tertiary Eye Care

These are usually established in regional or national capitals and are associated with medical colleges or institutions. These provide sophisticated eye can services, not available at secondary centers. Most states possess their own Eye Banks, Blind Rehabilitation centers, Braille schools, and Organizations where the blind are employed. These centers also help in arranging outlets for the products produced and manufacturedby the blind.

d. Specific Programs

Various programs have been undertaken under the national scheme for the prevention of blindness.

A few are mentioned below: I) Trachoma Control Programme

II. Vitamin A Prophylaxis Programme

III. School Eye Health Services

IV. Occupational Eye Health Services

Long Term Measures

These efforts are aimed at improving the quality of life and modifying or tackling the factors responsible for the persistence of eye health problems for e.g. poor hygiene and sanitation, bad dietary habits, and in changing certain social and behavioral patterns.

Evaluation

Evaluation must be an integral part of intervention programs, to measure .the extent of alleviation of ocular disease and blindness. The manner and degree to which these programs have been implemented should also be assessed to determine the nature of changes for further future improvements.

School health services are an important branch of community health services. Thepresent concept is that school health services are an economical and powerful means of raising the community health level.

Methodology

This was a cross sectional study carried out in schools for children aged 5–15 years to know the prevalence of refractive errors. The sample size was 1012 which included both boys and girls. Predesigned semi structured questionnaire was prepared as study tool The screening included both boys, and girls in the age group of 5 to 15 years. Students from the 1st Standard to the Xth Standard were screened for any ocular disorders. Screening was undertaken with the help and active cooperation of the school management. In each of these institutions the assistance of that particular class-teacher and the physical instructor was made available. The class teacher was given the proformas and general aspects, like name, age, sex, class, address were filled up. The physical instructor was helpful in organizing the students into batches and in their general discipline. He was also briefed before

the screening about what the study exactly aimed-at. He was given adequate training in the use of the "Snellens" chart for assisting in the recording of the distant visual acuity. Also with the help of pictures and charts, certain gross visual defects commonly encountered in children like for example: bitot spots, pterygiurn, conjunctivitis etc. were 'made familiar to him.

The data was entered in Microsoft excel and was analyzed.

Results

It was observed that higher percentages of children were affected in 6th, 7th and 8th classes.Their percentage being 9.35%, 10.53% and 9.18% respectively.

Out of 1012 students, 39 had refractive errors.

The Prevalence of refractive errors was-

Table 1: Refractive errors

Refractive Errors	Number of Students Affected	Percentage
Myopia	28	71.80%
Hypermetropia	08	20.51%
Astigmatism	03	7.69%
Total	39	100%

Table 2: Gender wise distribution of Refractive errors

Refractive Errors	Boys	Girls	Total
Myopia	18 (64.2%)	10(35.7%)	28
Hypermetropia	05 (62.5%)	03 (37.5%)	08
Astigmatism	02 (66.6%)	01 (33.3%)	03
Total	25 (64.1%)	14 (35.8%)	39

Out of 1012 students, 39 had refractive errors and among them 71.8% of students had myopia, 20.5% students had hypermetropia and 7.69% of students had astigmatism

The above table indicates that the type of refractive errors seen in both boys and girls in the decreasing order was found to be myopia, hypermetropia and astigmatism

Discussion

Childhood is the period of growth and development and is subjected to factors of stress and strain. The defence mechanism is not fully geared to combat external infections, and cannot sustain for long internal deficiencies, Hence, childhood is a very vulnerable period. Children ofschool going age are exposed to communicable eye diseases, nutritional deficiencies and many may be suffering from refractive errors needing only simple corrections. Any negligence, how ever slight might at times cost the child his vision or even the loss of his eye. Hence many Indian ophthalmologists of repute have, taken particular interest in screening school children for causes of visual impairment and blindness. The following are few such studies:

In 1977, Sharma et al, examined 4900 primary school children in urban areas of Jodh-pur city of Rajasthan found that nearly 4550 i.e, 92.86% were visually defective. In another study in 1974 by Surinder Siligh et al on 11,813 school children in Patiala city, 7590 i.e, 64.25% were found to be harbouring some or the other eye disease [5].

When the present study is compared to the above figures, it is observed that the present study has higher percentage of refractive errors (54.93%) whereas lower percentage of conjunctivitis (5.63%) and no case oftrachoma was detected.

James Kuruvilla et al examined 8,496 school children aged between 5-12 years in UdipiTaluk of South Karnataka district. 1061 (i.e, 12,5%) students were visually defective out of total 8496 students [6].

K. Indirabai et al conducted a study of school children at Tirupati in AdhraPradesh,while evaluating school Health Service Programme. Nearly 5900 primary school children within the age group 5-14 years were examined: they noted Vit. A deficiency in 17.5% of the children screened.

Pal et al found 42.20% incidence of eye problems in school screening study in New Delhi Mukerjee and Sengupta showed that in urban West Bengal 83% of school had some visual defect.

Sri HariRao et al found that 71.3% of children had some or other ocular defect in a school in New Delhi.

To conclude, in every city and every Village of our country, there are many school going children who

have defective eye sight due to nutritional deficiencies, inflections, injury or refractive error. These children need special attention. Unfortunately such visually defective children are not easily recognized by their teachers or by the poor and ignorant parents. Even when they are aware of the defect, they do not know that with the adoption of simple remedial measures, most of their disability could be over come and blindness prevented. As a result these children are the victims in the hands of their own parents and teachers. Both parents and teachers are equally responsible for the wellbeing and Welfare of school children.

Conclusion

In schools, training teachers in vision tests and identification of the common eye disorders can help the opthalmologist to identify ocular disorders in less time and with more efficiency. For this, a close working relationship between the teacher, parent and eye specialist is necessary especially for follow-up studies. It is only then that such screening programmes will become more meaningful and fruitful.

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