

Study on ocular diseases in school children in west Hyderabad

B. Hymavathi¹, D. Nirupama^{2*}, L. Prathima³, G. Satyanarayana Reddy⁴, T. Sanjay Reddy⁵

¹⁻³Assistant Professor, ⁴Professor, ⁵Professor and HOD, Dept. of Ophthalmology, Apollo Institute of Medical Sciences and Research, Telangana, India

***Corresponding Author: D. Nirupama**

Email: dr.mandiganirupama@gmail.com

Abstract

Introduction: A study on ocular diseases in children is important because early detection and treatment will reduce the burden of blindness in the society as children in the school-going age group (5-16 years) represent 25% of the population in developing countries. Most of the eye diseases start from childhood. If they are not detected early they can hamper children's activities in school and may also cause severe ocular disability in their future.

Objectives: Our school eye survey will help in early detection and treatment of ocular morbidities in rural schools of Film nagar, Hyderabad.

Materials and Methods: In this study 1218 school children aged between 5 to 16 years were screened for ocular morbidities and specific treatment was given to the children with ocular diseases. SPSS software was used for statistical analysis.

Results: The total prevalence of ocular morbidity was 32.5%. Refractive errors accounted for 11.0% of the cases followed by Blepharitis accounting for 10.1% of cases. The other ocular morbidities were Allergic conjunctivitis 7.6%, Amblyopia 1%, Duane's Retraction syndrome 0.3%, Meibomian gland dysfunction 0.5%, Congenital cataract 0.3%, Exotropia 0.5%, intrastromal corneal foreign body 0.2%, Bitot's spots (Vitamin A deficiency) 0.2% Corneal opacity 0.5%, Double elevator palsy 0.2%, Axenfield rieger's syndrome 0.2%, Chalazion 0.2%.

Conclusion: Refractive errors was the most common ocular morbidity followed by Blepharitis. Periodic school eye health programs and ocular hygiene play an important role in reducing the ocular morbidities.

Keywords: Ocular morbidity, School children, Refractive errors, School eye camps, Ocular hygiene.

Introduction

Vision is one of the most important senses in our body. Normal vision is the most essential element for an overall social and psychological development and good education.

About 30% of blind population of India lose their eyesight before the age of 20 years and many of them are under 5 when they become blind.¹ A national survey on blindness 2001-2002 showed that 7% of children aged 10-14 years have problems with their eye sight.² WHO and Indian government have accorded priority for the prevention and control of blindness and visual impairment and included it in "Vision 2020".³

One of the most common causes of visual impairment in the world is refractive errors. It is the second major cause of treatable blindness.⁴ This indicates lack of adequate eye screening services in the population concerned. The majority of blindness caused due to refractive errors is curable.

Data on causes and prevalence of ocular morbidity in children is essential for planning and evaluation of preventive and curative services for children in a given region. Screening children periodically helps in early detection of ocular diseases. Early diagnosis and treatment paves way for a better future of the children which in turn helps in betterment of the society at large.

So the aim of this study is to know the prevalence of ocular diseases in school children between 5 and 16 years.

Materials and Methods

A cross sectional study on school children was done in rural area of Film nagar, Hyderabad, Telangana district

during October 2017 to February 2018. Three schools were randomly selected. The principals of the schools were approached and were briefed about the purpose of the survey. Their permission was taken.

Parents consent was taken through school dairies. All the students were brought to our hospital under the supervision of their respective class teachers. Examination was done in Ophthalmology out patient department. The visual acuity was tested by Snellen's chart. Ishihara's isochromatic chart was used to check colour vision. Slit lamp examination was done to examine the margins of the eyelids and the anterior segment of the eye. Fundus examination was done with 90 D lens under slit lamp under drug mydriasis. Cover-uncover test was used to assess latent squint.

Cycloplegic refraction was done in children aged between 5 to 10 years with visual acuity less than 6/9. They were called back for post mydriatic test and glasses were prescribed. In children between 11 to 16 years with visual acuity less than 6/9 subjective refraction was done and glasses prescribed. All the children were asked to come for review after 6 months. All the other ocular morbidities were treated appropriately. All the students absent on the day of their examination were again called on the last day of the survey and examined. A short talk was given in the school assembly regarding eye health education and emphasis was laid on regular ophthalmic checkup.

Results

Total number of children screened were 1218, out of which 662(54.35%) were boys and 556(45.64%) were girls.

The percentage of ocular morbidities in boys was 54.3% and that of girls was 45.7%.

Total number of students in age group 5-8 were 420(34.48%) out of which 96 (22.85%) had ocular morbidities, in age group 9-12 there were 440(36.12%) and 116(26.36%) had ocular morbidities and in age group 13-16 there were 358(29.39%) out of which 184(51.39%) had ocular morbidities. (Table 1).

Table 1: Age and gender distribution of patients

5-8	220	39.6	200	30.2
9-12	178	32	262	39.6
13-16	158	28.4	200	30.2
Grand total	556	100	662	100

The total prevalence of ocular morbidity was 32.5%. Refractive errors accounted for 11.0% of the cases followed by Blepharitis accounting for 10.1% of cases.

In refractive errors the most common refractive error in our study was Compound myopic astigmatism (35.8%) followed by Simple myopia (32.9%). The other refractive errors were Simple myopic astigmatism (19.4%), mixed astigmatism (7.5%) and Hypermetropia (4.5%). (Table 2).

The other ocular morbidities detected were Allergic conjunctivitis 7.6%, Amblyopia 1%, Duane's Retraction syndrome 0.3%, Meibomian gland dysfunction 0.5%, Congenital cataract 0.3%, Exotropia 0.5%, intrastromal inert corneal foreign body 0.2%, Bitot's spots (Vitamin A deficiency) 0.2% Corneal opacity 0.5%, Double elevator palsy 0.2%, Axenfield rieger's syndrome 0.2%, Chalazion 0.2%. (Table 3).

Table 2: Showing types of refractive errors with percentages

Refractive Error	Female (Total 70)	Percentage (52.2%)	Males (total 64)	Percentage (47.8%)	Total (134)	Percentage (11.0%)
Simple myopia	20	28.6	24	37.5	44	32.9
Hypermetropia	4	5.7	2	3.1	6	4.5
Compound myopic astigmatism	26	37.1	22	34.3	48	35.8
Simple myopic astigmatism	16	22.9	10	15.6	26	19.4
Mixed astigmatism	4	5.7	6	9.3	10	7.5

Table 3: Disease analysis with grand total percentage

Name of the Diagnosis	Male		Female		Grand total	
	N	%	N	%	N	%
1. Normal	376	45.7	446	54.3	822	67.5
2. Blephartitis	60	10.79	62	9.36	122	10.01
3. Allergic conjunctivitis	32	5.75	60	9.06	92	7.6
4. Refractive Errors :						
a. Simple myopia	20	3.59	24	3.62	44	3.6
b. Hypermetropia	4	0.71	2	0.30	6	0.5
c. Compound myopic astigmatism	26	4.67	22	3.32	48	3.9
d. Simple myopic astigmatism	16	2.87	10	1.51	26	2.1
e. Mixed astigmatism	4	0.71	6	0.90	10	0.8
5. Amblyopia	8	1.43	4	0.60	12	1
6. Duane's Retraction Syndrome Type I	2	0.35	2	0.30	4	0.3
7. Meibomian gland dysfunction	2	0.35	4	0.60	6	0.5
8. Congenital cataract	2	0.35	2	0.30	4	0.3
9. Exotropia	2	0.35	4	0.60	6	0.5
10. Intrastromal inert corneal foreign body	2	0.35	0	0	2	0.2
11. Bitot's spots(vitamin A deficiency)	2	0.35	0	0	2	0.2
12. Corneal opacity	2	0.35	4	0.60	6	0.5
13. Double Elevator Palsy	0	0	2	0.30	2	0.2
14. Axen field Riegers syndrome	0	0	2	0.30	2	0.2
15. Chalazion	0	0	2	0.30	2	0.2
Grand Total					1218	

Discussion

Studies on prevalence of ocular morbidities in children is important as they might lead to blindness. Majority of ocular diseases can either be prevented or treated.

In the present study prevalence of ocular diseases is 32.5%. In boys the prevalence of ocular diseases is 54.3% and in girls it is 45.7%. Studies done by Prajapati et al in Gandhinagar, Gujrat and Kumar D et al in Lucknow⁵ showed similar results.

Refractive errors, (11.0%) is the commonest cause of ocular morbidity in the present study.

Refractive error is the second leading cause of treatable blindness in the world.⁶ These results were comparable with Gupta et al⁷ who also found refractive error (22%) as the most common disorder. Similar prevalence was observed in study conducted by Deshpande Jayant D et al in Maharashtra⁸ and Das et al⁹ in Kolkata. Refractive error is the cause of visual impairment in 83% children in urban India¹⁰ and 70% in rural India.

Blepharitis is the second most common ocular morbidity (10.01%) in our study. The cause of which could be poor ocular hygiene and poor environmental hygiene. The third most common ocular morbidity in our study is Allergic conjunctivitis (7.6%).

The prevalence of vitamin A deficiency in this study is only 0.2%. Higher prevalence (5.4-9%) was reported in studies done in Rajasthan¹¹ and Kolkata.¹² Lower prevalence in our study shows that better prophylaxis measures and living conditions are present in recent years as compared to the older studies.

The limitation of this study is that we did not include children less than 5 years of age. Therefore we could have underestimated the prevalence of childhood ocular morbidities as they also contribute to the pediatric eye diseases.

Apart from refractive errors (11%) the prevalence of Blepharitis (10.01%) and allergic conjunctivitis (7.6%) are significant in our study. Thus stress should be laid on environmental hygiene and ocular hygiene. Since most of the ocular morbidities were treatable implementation of appropriate eye care programs targeting school children would reduce the burden of visual impairment among the younger population.

Conclusion

Refractive errors is the commonest among various ocular morbidities in school children. All the other ocular morbidities were either preventable or treatable. Early recognition and prompt treatment of ocular diseases by regular screening of children would reduce the ocular morbidities. For this schools form an important platform. Teachers should be educated about the importance of ocular hygiene and periodic eye checkups. The data of our survey would help in providing valuable information for proper planning and conduction of future school based health programs.

Financial Interest: Nil

Acknowledgement

We would like to thank all the school principals and the students for their cooperation. A special thanks to our optometrist and our Out patient department Nurse for all the assistance they have extended.

Conflicts of Interest: None.

References

1. Sushank Ashok Bhalerao, Mahesh Tandon, Satyaprakash Singh, Shradha Dwivedi, Santosh Kumar, Jagriti Rana et al. Visual impairment and blindness among the students of blind schools in Allahabad and its vicinity: A causal assessment. *Indian J Ophthalmol* 2015;63:254-8.
2. Ashish S Chaudhari, Sohil H Mansuri, Anoop Singh D Rajput, Niti J Talsania. Magnitude of refractive errors among children in urban and rural areas of Ahmedabad district. 2016;5:1457-9.
3. Minto H, Gilbert C. Low vision: we can all do more. *Community Eye Health J* 2012;2(4).
4. Renu Bedi, Dinesh Kumar Bedi, Nizamuddin Charushila Dudule, Rashmi Gupta, Sanjeev Sharma, et al. Prevalence of ocular morbidity among school children in Ajmer city. *IOSR J Dent Med Sci* 2015;14:20-25.
5. Prajapati P, Oja J, Prajapati J, Kedia G, Chudasama RK et al. Prevalence of ocular morbidity among school adolescents of Gandhinagar Gujarat. *Online J Health Allied Sci* 2010;9(4).
6. Dandona R, Dandona L. Refractive error blindness. *Bulletin World Health Organisation*. 2001;79:237-3.
7. Gupta M, Gupta BP, Chauhan A, Bhardwaj A. Ocular morbidity prevalence among school children in Shimla, Himachal, North India. *Indian J Ophthalmol* 2009;57:133-8.
8. Deshpande Jayant D, Malathi K. Prevalence of ocular morbidities among school children in rural area of north Maharashtra in India. *Natl J Community Med* 2011;2:249-54.
9. Das A, Dutta H, Bhaduri G, De Sarkar A, Sarkar K, Bannerjee M et al. A study on refractive errors among school children in Kolkata. *J Indian Med Asso* 2007;105:169-72.
10. Murthy GV, Gupta SK, Ellwein LB, Muñoz SR, Pokharel GP, Sanga L, et al. Refractive error in children in an urban population in New Delhi. *Invest Ophthalmol Vis Sci* 2002;43:623-31.
11. Desai S, Desai R, Desai NC, Lohiya S, Bhargava G, Kumar K, et al. School eye health appraisal. *Indian J Ophthalmol* 1989;37(4):173-5.
12. Datta A, Chaudhaery N, Kundu K. An epidemiological study of ocular condition among school children of Calcutta Corporation. *Indian J Ophthalmol* 1983;31:505-10.

How to cite this article: Hymavathi B, Nirupama D, Prathima L, Reddy GS, Reddy TS. Study on ocular diseases in school children in west Hyderabad. *Indian J Clin Exp Ophthalmol* 2019;5(2):190-2.