

Pattern of Ocular Diseases in Children Attending Outpatient Department of A Rural Medical College in Central India

Shubhra Mehta¹, Manbir Singh², Amandeep Chawla³, Anishi Agarwal³

¹Associate Professor, Department of Ophthalmology, R D Gardi Medical College, Ujjain, Madhya Pradesh, India, ²Assistant Professor, Department of Ophthalmology, R D Gardi Medical College, Ujjain, Madhya Pradesh, India, ³Post-graduate, Department of Ophthalmology, R D Gardi Medical College, Ujjain, Madhya Pradesh, India

Abstract

Background: Ocular diseases in children vary from region to region. Childhood ocular morbidity can lead to lifelong blindness or visual impairment. Our study will help in understanding ocular diseases affecting children living in rural areas in a better way.

Materials and Methods: The present cross-sectional study was conducted in the Eye Department of R D Gardi Medical College, Ujjain, India. 1100 children aged ≤16 years were enrolled in the study. The children were divided into three groups: 0-5 years, 6-12 years, and 13-16 years, for studying various ocular morbidities in different age groups. Each child was subjected to a comprehensive ophthalmic evaluation, and the results were recorded and analyzed in detail.

Results: Refractive error was most common ocular problem detected in 461 (41.90%) children. 18 (1.63%) children were found to be suffering from amblyopia. Conjunctivitis was seen in 155 (14.09%) children. Congenital cataract, spring catarrh, vitamin A deficiency, trachoma, and dacryocystitis were other common diseases found in children in our study.

Conclusion: Ocular diseases in children vary from place to place. Climatic conditions, malnutrition, and lack of treatment facilities play an important role in the pattern of occurrence of ocular diseases.

Key words: Congenital cataract, Conjunctivitis, Refractive error, Vitamin A deficiency

INTRODUCTION

Ocular diseases affect every individual in this world, with the only difference being in the pattern of occurrence of disease depending on age, sex, region, and climatic conditions. Children are susceptible to many ocular diseases, especially those who are malnourished and living in unhygienic conditions. The pattern of ocular diseases varies, depending on whether they are living in developed countries or developing countries. Certain ocular diseases in children can lead to blindness or visual impairment, which can directly affect their growth and development.

Poor socio-economic condition and lack of proper medical facilities in rural areas are other important causes contributing to childhood blindness. Our study will help in understanding ocular diseases affecting children in a better way.

There are an estimated 19 million children worldwide with visual impairment, of which 1.26 million are bilaterally blind.¹ Approximately 500,000 children become blind every year and 60% of these die within 1-2 years of becoming blind.²

It is estimated that 1.5 million children suffer from severe visual impairment and of these, one million children live in Asia.³ Childhood blindness is second only to cataract in terms of blind years.⁴ Eye diseases are an important cause of medical consultation.⁵ The pattern of ocular diseases in children varies depending on the anatomical structure involved, such as whole globe or specific tissues of the eye such as sclera, cornea, uvea, conjunctiva, lens, and retina. Childhood

Access this article online



www.ijss-sn.com

Month of Submission : 07-2015

Month of Peer Review : 08-2015

Month of Acceptance : 09-2015

Month of Publishing : 09-2015

Corresponding Author: Dr. Shubhra Mehta, B-4/1, Doctor's Quarters, R D Gardi Medical College, Ujjain, Madhya Pradesh, India.
Phone: +91 9977796620. E-mail: shubhramehta@yahoo.com

ophthalmic disorders can seriously impact development, education, future employment, and quality of life. A major proportion of childhood blindness has been found to be preventable.⁶ Vitamin A deficiency is an important cause of visual impairment and night blindness, predominantly seen in children who are malnourished, especially in the rural areas of developing countries. It is estimated that worldwide, every year 5-10 million children develop xerophthalmia, of which a significant proportion go blind.⁷

In the United States, strabismus, amblyopia, and optical problems affecting visual acuity are the most common ocular problems seen among school - aged children.⁸ Eye injuries remain a major cause of unilateral visual impairment worldwide.⁹ School-going children have a high incidence of ocular trauma, which may be trivial injuries or potentially vision threatening injuries. These injuries can be open-globe injuries or closed-globe injuries. The blindness resulting from ocular injuries in children in the rural areas is usually due to the lack of medical facilities and improper treatment taken in the early phase of injury.

Refractive errors, strabismus, and amblyopia are diseases which are commonly found in children and should be managed as soon as they are detected. School health services that regularly screen for refractive error and refer affected children for refractive services can prevent poor performance in school and the development of amblyopia.¹⁰

School-going children also show a very high prevalence of allergic conjunctivitis. Vernal keratoconjunctivitis is common in male children, who usually have a complaint of severe itching and foreign body sensation in eyes. Corneal ulcers, trachoma, and dacryocystitis are also seen in children who are malnourished and living in unhygienic conditions.

Congenital cataracts are often seen in children whose mothers were exposed to infections and malnourishment during pregnancy. Children should receive prompt and proper eye care to avoid vision problems and eye morbidities.¹¹

The majority of ocular diseases found in children can be easily managed by improving the screening facilities in the rural areas as it will help in providing early and proper care to the affected children.

MATERIALS AND METHODS

The present study was conducted at R. D. Gardi Medical College, village Surasa; district Ujjain, which predominantly caters to the rural population of Malwa region of Madhya Pradesh. The study period was 6 months, from July

2014 - December 2014. All children ≤ 16 years of age, reporting to the Eye outpatient department (OPD) for the first time were included in the study. A total of 1100 children were enrolled in the study after taking written informed consent from the guardians. The study protocol was approved by the Local and Institutional Ethics Committee. The children were divided into three groups: Preschool (0-5 years), school-going (6-12 years), and older (13-16 years) children for studying various ocular morbidities in different pediatric age groups.

After taking consent, the preliminary data such as name, age, sex, residence, educational status, and residential area were recorded first. Visual acuity testing and refraction was done for all children. Presence of amblyopia was noted. Detailed anterior segment examination was done by both torch - light and slit - lamp, specially keeping in mind the effects of ocular trauma, vitamin A deficiency, corneal ulcers, strabismus, and trachoma. Dilated pupil examination was done to see for abnormalities of lens, vitreous, and retina. The presence of congenital cataracts or any posterior segment disorders was noted. Intraocular pressure was recorded. Ocular USG and laboratory investigations were done wherever required. Only the one main ocular condition or diagnosis, which had led to the current OPD visit, was taken into consideration for each patient. The whole data were then analyzed in detail.

RESULTS

Our study was conducted in Eye OPD, R D Gardi medical College, a rural medical college in Ujjain district of central India. A total of 1100 children were included in the study. 603 (54.82%) were male and 497 (45.18%) were female children in the study group (Table 1). This showed slight preponderance of various ocular diseases in male as compared to female children. There were 124 (11.27%) children ≤ 5 years of age and 976 children ≥ 6 years of age in the study group (Table 2). Refractive error was the most common ocular problem detected in 426 (38.72%) children ($P < 0.0001$). 230 of these children (53.99%) were in the age group of 13-16 years (Table 3 and Figure 1). 18 (1.63%) children were found to be suffering from amblyopia (Table 4 and Figure 2). Strabismus was found in 35 (3.18%) children. Adeoya *et al.*¹² had found the incidence of strabismus as 2.4% in their study group. Dacryocystitis was found in 51 (4.63%) children.

Congenital cataract was found in 24 (2.18%) children, and of these 14 (58.33%) were male and 10 (41.66%) were female children (Table 5), which is suggestive of the preponderance of congenital cataract in the male child. Mothers of the children who had congenital cataract

Table 1: Sex distribution in the study group (n=1100)

Sex	Number	Percentage
Male	603	54.82
Female	497	45.18
Total	1100	100

Table 2: Age distribution in the study group (n=1100)

Age of children	Number	Percentage
0-5 years	124	11.27
6-12 years	468	42.55
13-16 years	508	46.18
Total	1100	100

Table 3: Age-sex distribution of refractive error in study group (n=426)

Age of child	Male	Female	Total (%)
0-5 years	18	11	29 (6.80)
6-12 years	102	65	167 (39.20)
13-16 years	112	118	230 (54.01)
Total	232	194	426 (100)

Table 4: Pattern of ocular diseases in study group (n=1100)

Ocular diseases	Number of cases	Percentage
Refractive error	426	38.72
Amblyopia	18	1.63
Squint	35	3.18
Congenital cataract	24	2.18
Dacryocystitis	51	4.63
Infective conjunctivitis	155	14.09
Eye injuries	93	8.45
Stye/Chalazion	119	10.81
Corneal ulcer	12	1.09
Trachoma	48	4.36
Spring catarrh	39	3.54
Vitamin A deficiency	48	4.36
Iridocyclitis	09	0.81
Chorioretinitis	06	0.54
Congenital glaucoma	05	0.45
Orbital cellulitis	07	0.63
Retinoblastoma	02	0.18
Optic atrophy	03	0.27

had a history of malnourishment or infection during pregnancy. Ocular injuries were seen in 93 (8.45%) children ($P < 0.0001$).

Spring catarrh was found in 39 children (3.54%). 22 (56.41%) out of the 39 children were in age group of 6-12 years (Table 6). Trachoma was seen in 48 (4.36%) children. These diseases were common in rural areas due to the exposure of children to the dry, dusty, and unhygienic environment. Corneal ulcers were seen in 12 (1.09%) children in the study group.

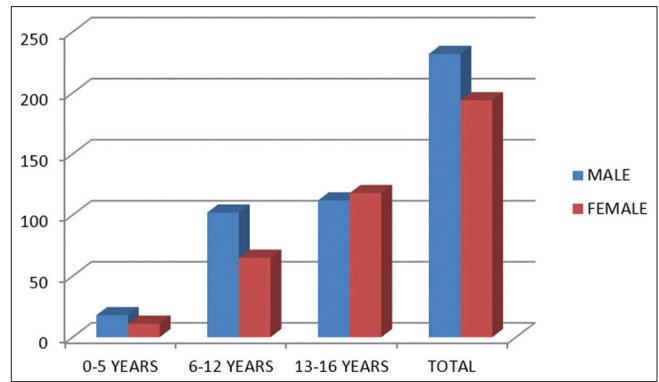


Figure 1: Age sex distribution of refractive error in study group (n=426)

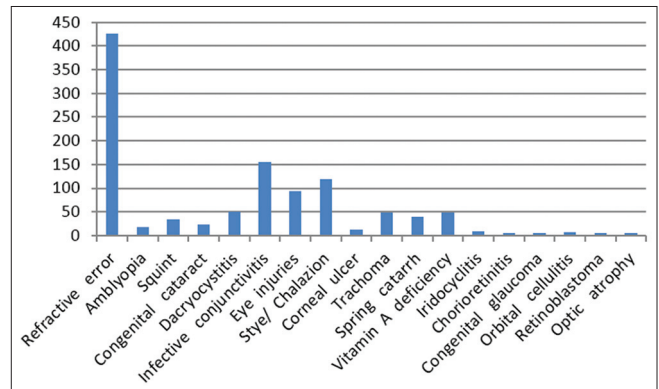


Figure 2: Pattern of ocular diseases in study group (n=1100)

Vitamin A deficiency was seen in 48 (4.36%) children, mostly <5 years of age, who were malnourished. 22 (45.83%) of the 48 children had conjunctival xerosis (Table 7). Lid inflammations such as the stye, chalazion, and blepharitis were seen in 119 (10.81%) children. Infective conjunctivitis was seen in 155 (14.09 %) children ($P < 0.0001$). Retinoblastoma was seen in 2 (0.18%) and congenital glaucoma was found in 5 (0.45%) children. Optic atrophy was found in 3 (0.27%) children.

Iridocyclitis was seen in 9 (0.81%) children and chorioretinitis was seen in 6 (0.54%) children in the study group.

Our study found that the most common ocular disease occurring in children ≤ 16 years of age, in our area, was uncorrected refractive error followed by conjunctival disorders mainly due to adverse climatic conditions and poor hygiene. Vitamin A deficiency was also common as many of the children were malnourished.

DISCUSSION

Uncorrected refractive error was the most common ocular morbidity in our study, as most of the children (88.72%) in our study group were ≥ 6 years of age, who could articulate their problems to parents/care givers.

Table 5: Sex distribution of congenital cataract in study group (n=24)

Sex of child	Number	Percentage
Male	14	58.33
Female	10	41.66
Total	24	100

Table 6: Age-wise distribution of spring catarrh in study group (n=39)

Age of child	Number	Percentage
0-5 years	03	7.69
6-12 years	22	56.41
13-16 years	14	35.89
Total	39	100

Table 7: Distribution of vitamin A deficiency in study group (n=48)

Condition	Number of children	Percentage
Night blindness	08	16.66
Conjunctival xerosis	22	45.83
Bitot's spots	13	27.08
Keratomalacia	05	10.41

Strabismus was found in 3.18% children in our study group which was similar to the study of Adeoya *et al.*¹² who found the incidence of strabismus to be 2.4%.

Conjunctivitis, both infective and allergic, was seen in 17.63% children of our study group. Chakraborty *et al.*¹³ had found the incidence of conjunctivitis to be 29.57% in their study. The difference is attributable to the larger sample size of their study group.

Trachoma was found in 4.36% children in our study group, a result which is comparable to the study of Mehari¹⁴ where the incidence of trachoma was found to be 7.6%.

We found the incidence of eye injuries to be 8.45% in our study. Demissie *et al.*¹ found an incidence of 15.5%. This difference could be due to the ignorance and apathy of the rural populace, preventing them from seeking prompt medical attention in the event of injury.

Malnutrition is largely responsible for the delayed and improper development of a child, and also leads to

vitamin A deficiency in the affected children. Consequences of vitamin A deficiency were seen in 48 children of our study group.

CONCLUSION

Ocular diseases in children vary from place to place. Climatic conditions, malnutrition, and lack of treatment facilities also play an important role in the pattern of occurrence of ocular diseases. Spring catarrh and vitamin A deficiency were prevalent in our study group. Diseases such as uncorrected refractive errors and congenital cataract were found to be the treatable causes of blindness in our study. Our study highlights the epidemiology of pediatric ocular morbidities in the rural populace, thereby emphasizing the fact that most of the ocular diseases in children are either treatable or avoidable.

REFERENCES

- Demissie BS, Demissie ES. Patterns of eye diseases in children visiting a tertiary teaching hospital: South-western Ethiopia. *Ethiop J Health Sci* 2014;24:69-74.
- World Health Organization. Vision 2020 Action Plan. 2006-2010. p. 14-2, pp. 28-32.
- Sihota R, Tandon R. Parsons' Diseases of the Eye. 22nd ed. New Delhi: Elsevier; 2014. p. 570.
- Gilbert C, Jugnoo SR, Graham EQ. Visual impairment and blindness in children. *The Epidemiology of Eye Diseases*. 2nd ed. London: Arnold; 2003. p 260-83.
- Nwosu SN. Childhood eye diseases in Anambra state, Nigeria. *Niger J Ophthalmol* 1999;7:34-8.
- Sitorus RS, Abidin MS, Prihartono J. Causes and temporal trends of childhood blindness in Indonesia: Study at schools for the blind in Java. *Br J Ophthalmol* 2007;91:1109-13.
- Sommer A, Davidson FR; Anecy accords. Assessment and control of vitamin A deficiency: The Anecy accords. *J Nutr* 2002;132:2845S-50.
- Castanes MS. Major review: The underutilization of vision screening (for amblyopia, optical anomalies and strabismus) among preschool age children. *Binocul Vis Strabismus Q* 2003;18:217-32.
- Niiranen M, Raivio I. Eye injuries in children. *Br J Ophthalmol* 1981;65:436-8.
- Bodunde OT, Onabolu OO. Childhood eye disease in Sagamu. *Niger J Ophthalmol* 2004;12:6-9.
- Adegbehin BO, Adeoye AO. Refractive error in childhood. *Niger J Surg Sci* 2005;15:19-25.
- Onakpoya OH, Adeoye AO. Childhood eye diseases in southwestern Nigeria: A tertiary hospital study. *Clinics (Sao Paulo)* 2009;64:947-52.
- Chakraborty C, Mallik S, Chaudhury KP, Das J. Childhood ocular morbidity in Eastern India: A tertiary hospital study. *Sudan J Public Health* 2012;7:126-30.
- Mehari ZA. Pattern of childhood ocular morbidity in rural eye hospital, Central Ethiopia. *BMC Ophthalmol* 2014;14:50.

How to cite this article: Mehta S, Singh M, Chawla A, Agarwal A. Pattern of Ocular Diseases in Children Attending Outpatient Department of a Rural Medical College in Central India. *Int J Sci Stud* 2015;3(6):57-60.

Source of Support: Nil, **Conflict of Interest:** None declared.