 DOI: 10.18231/2395-1451.2017.0070

Pattern of paediatric ocular morbidity in tertiary care eye hospital of central India

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Abstract

Introduction: India is home to 310 million children between the age of 5-16 years accounting for 25.6% of country's population. Eye diseases in children are important cause of medical consultation. Children should receive prompt & proper eye care in order to avoid vision problems & eye morbidities, which could affect their learning ability, personality & adjustment in school. Data on the pattern of presentation of childhood eye diseases are needed for planning & evaluating preventive & curative services.

Materials and Methods: The present prospective study was conducted in department of ophthalmology Government Medical college, Rajnandgaon (C.G.), India during the period 30 January 2016 to 29 January 2017. All the patients less than 15 years of age coming for consultation in OPD during the study period were included in our study. A complete history was taken from patients and their parents. Full ophthalmological evaluation was done by consultant ophthalmologist at first visit, refraction was done by optometrist. Data were collected from the past records taken at the time of patient's visit & collected data were analyzed.

Results: A total of 530 children were enrolled for the study including 52.45% males & 47.55% females. In the present study overall refractive error was the most common (29.25%) ocular morbidity followed by allergic conjunctivitis (17.92%) & infection of eye and adnexa (14.72%). Allergic conjunctivitis was the second most common cause of ocular morbidity in children. Infections of eye & adnexa, which was the third most common cause of ocular morbidity in present study.

Conclusion: In conclusion the most common causes of ocular morbidity in children were refractive error, allergic conjunctivitis, infection of eye & adnexa, congenital eye diseases & ocular trauma which can be either prevented or treated.

Keywords: Ocular morbidity, Paediatric, Refractive error

Introduction

India is home to 310 million children between the age of 5-16 years accounting for 25.6% of country's population.[(1)] Eye diseases in children are important cause of medical consultation.[(2)] Children should receive prompt & proper eye care in order to avoid vision problems & eye morbidities, which could affect their learning ability, personality & adjustment in school.[(3)]

About 30% blind population of India lose their eyesight before the age of 20 years & many of them are under 5 when they become blind.[(4)]

Data on the pattern of presentation of childhood eye diseases are needed for planning & evaluating preventive & curative services. Some eye diseases are just the cause of ocular morbidities & are easily treatable, others if cannot be treated or prevented timely can invariably lead to blindness.[(5,6)]

There exists a paucity of hospital based studies on childhood ocular morbidity in our region. Therefore this study was planned to determine the pattern of ocular morbidity among children attending in OPD of an ophthalmology department of tertiary eye care hospital of central India.

Materials and Methods

The present prospective study was conducted in department of ophthalmology Government Medical College, Rajnandgaon (C.G.), India during the period of one year i.e. from 30 January 2016 to 29 January 2017.

All the patients less than 15 years of age coming for consultation in OPD during the study period were included in our study. Informed verbal consent was taken from the parents/guardians of all children for examination & for inclusion in this study, 530 patients attending to the department between 0 to 15 year age group were selected. Children were grouped by their age group into preschool (0-5years), school age[(6-10)] years or older children (11-15) years.

Patient's particulars i.e. name, age(completed years) gender, religion, educational status, occupation of parents were recorded by using predefined proforma. A complete history was taken from patients and their parent's Full ophthalmological evaluation was done by consultant ophthalmologist at first visit, refraction was done by optometrist.

Following examinations were done:

- Visual acuity was measured with the help of snellen's chart in older children. Any children with visual acuity 6/9 or < 6/9 were examined for refractive error. Cycloplegic & subjective refraction was done in children with refractive error.
- Detailed eye examination of the anterior segment was done with the help of slit lamp.
- Children were examined to detect squint by extraocular movement testing, hirschberg test & cover uncover test.
- Examination of fundus was done by the direct & indirect ophthalmoscope.

Different ocular diseases were diagnosed by considering specific diagnostic criteria for that individual disease. After making diagnosis patient's data & frequency of different ocular morbidity in children were studied. Frequency of each ocular morbidity in different age groups & gender were studied. Data were collected from the past records taken at the time of patient's visit & collected data were analyzed. Distribution of association was analyzed by chi square test & p value <0.05 was considered as statistical significant.

Results

Table 1: Distribution of children on gender basis

Gender	Frequency (%)
Male	278 (52.45%)
Female	252 (47.55%)
Total	530 (100%)

A total of 530 children were enrolled for the study including 278(52.45%) males & 252 (47.55%) females. Children were divided into age group i.e. 0-5 years, 6-10 years, & 11-15 years. Most of the children were in 11-15 years of age group. In the present study overall refractive error was the most common (29.25%) ocular morbidity followed by allergic conjunctivitis (17.92%), infection of eye and adnexa (14.72%), congenital eye diseases(12.64%), ocular trauma (10.94%), corneal opacity (2.64%), amblyopia (1.70%), phthisis bulbi(1.32%). [Table 1, 2]

Table 2: Age Distribution of Study Subjects by Ocular Morbidities

Morbidity	Age groups in yr [No. (%)]			
	0-5	6-10	11-15	Total
Refractive error	4 (2.58%)	23 (14.84%)	128 (82.58%)	155 (29.25%)
Allergic conjunctivitis	7 (7.37%)	21 (22.01%)	67 (70.53%)	95 (17.92%)
Infection of eye & adnexa	5 (6.41%)	9 (11.54%)	64 (82.05%)	78 (14.72%)
Ocular trauma	11 (19%)	13 (22.41%)	34 (58.62%)	58 (10.94%)
Corneal opacity	1 (7.14%)	1 (7.14%)	12 (85.71%)	14 (2.64%)
Amblyopia	0 (0%)	2 (2.22%)	7 (77.77%)	9 (1.70%)
Pthisis bulbi	0 (0%)	0 (0%)	7 (100%)	7 (1.32%)
Congenital eye disease	27 (40.30%)	7 (10.45%)	33 (49.25%)	67 (12.64%)
Others	6 (12.76%)	3 (6.38%)	38 (80.85%)	47 (8.87%)
Total	61 (11.50%)	79 (14.90%)	390 (73.58%)	530 (100%)

X^2 test- 78.255, d.f.- 16, p value- 0.0001 [Highly significant]

Table 3: Proportion of children (0-15) yr with diseases on gender basis

Diseases	Male No. (%)	Female No. (%)	Total No. (%)
Refractive error	74 (47.74%)	81 (55.26%)	155 (29.25%)
Allergic conjunctivitis	63 (66.31%)	32 (33.68%)	95 (17.92%)
Infection of eye & adnexa	40 (51.28%)	38 (48.72%)	78 (14.72%)
Ocular trauma	32 (55.17%)	26 (44.83%)	58 (10.94%)
Corneal opacity	3 (21.43%)	11 (78.57%)	14 (2.64%)

Amblyopia	6 (66.67%)	3 (33.33%)	9 (1.70%)
Pthisis bulbi	4 (57.14%)	3 (42.86%)	7 (1.32%)
Congenital eye diseases	41 (61.19%)	26 (38.81%)	67 (12.64%)
Others	27 (57.44%)	20 (42.56%)	47 (8.87%)

X^2 test- 16.65, d.f.- 8, p value- <0.05 [Significant]

Table 2, 3, 4 shows the distribution according to type of morbidity. A total of 155 children with refractive errors 81 (52.26%) were male and 74 (47.74%) were female. Refractive errors was most common that is 128 (82.58%) in the age group 11-15 years. Among patients of refractive errors, myopia was most common in 64 patients (41.29%), followed by astigmatism in 60 patients (38.71%) & hypermetropia in 31 patients (20%). Allergic conjunctivitis was the second most common cause of ocular morbidity in children. The incidence of allergic conjunctivitis was higher in older children ie in 6-10 year & 11-15 years. Among the children who presented with allergic conjunctivitis 63 (63.31%) were males & 32 (33.68%) were females. Figure-I depicts distribution of the study subjects by infections of eye & adnexa which was the third most common cause of ocular morbidity in present study.

Table 4: Proportion of refractive error

Refractive error	No. (%)
Myopia	64(41.29%)
Hypermetropia	31(20%)
Astigmatism	60(38.71%)
Total	155

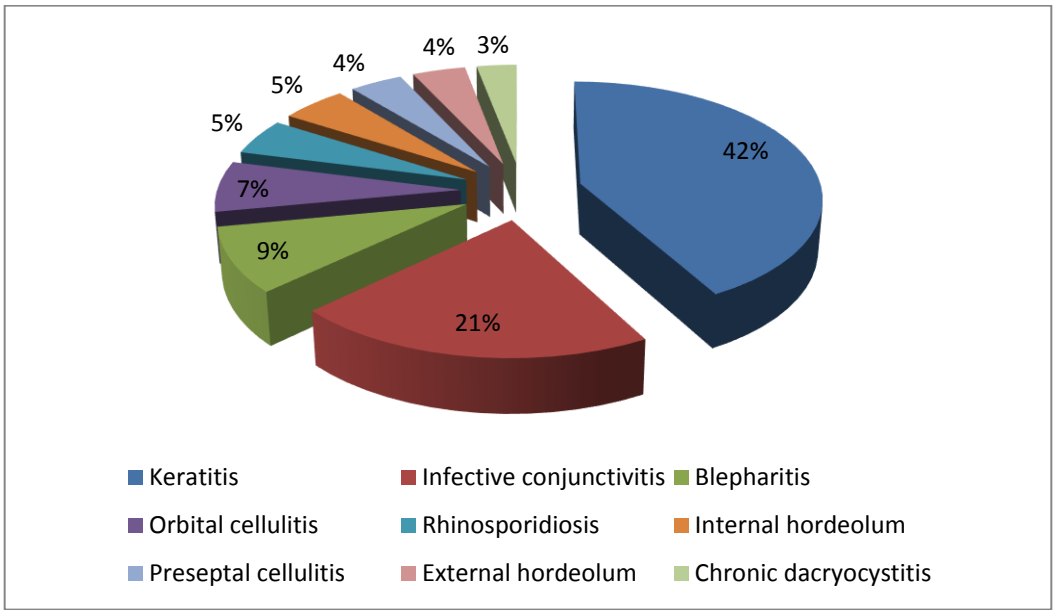

Fig. 1: Distribution of the study subjects by infections of eye & adnexa

Table 5: Distribution of congenital ocular disorders among age group [No. (%)]

Congenital eye disease	0-5 yrs	6-10 yrs	11-15 yrs	Total
Congenital cataract	10 (76.92%)	3 (23.08%)	--	13 (19.40%)
Strabismus	4 (66.67%)	--	2 (33.33%)	6 (8.95%)
Glaucoma	2 (100)	--	--	2 (2.98%)
Ptosis	2 (66.67%)	1 (33.33%)	--	3 (4.48%)
Microophthalmia	3 (50%)	1 (16.67%)	2 (33.33%)	6 (8.95%)

Congenital dacryocystitis	13 (76.47%)	3 (17.65%)	1 (5.88%)	17 (25.37%)
Presumed leber's amaurosis	2 (100%)	--	--	2 (2.98%)
Dermoid cyst	1 (50%)	--	1 (50%)	2 (2.98%)
Coloboma of iris	5 (45.45%)	3 (27.27%)	3 (27.27%)	11 (16.42%)
Others	4 (80%)	--	1 (20%)	5 (7.46%)
Total	46 (68.65%)	11 (16.41%)	10 (14.92%)	67 (100%)

X^2 test - 5.39, d.f.- 18, p value > 0.05

Table 5 depicts distribution of congenital ocular diseases. Most common congenital disorder was congenital dacryocystitis followed by congenital cataract. Others include – Macroophthalmia, corneal opacity, persistent hyperplastic primary vitreous. Table VI shows the pattern of ocular trauma seen in 58 children, with the majority 32 (55.17%), being closed globe injury.

Table 6: Pattern of ocular trauma in 58 patients

Type of injury		**No. (%)**
Closed globe injury	Contusion	27(46.55%)
	Superficial corneal foreign body	4(6.90%)
	Superficial tarsal foreign body	1(1.72%)
Open globe injury	Penetrating	4(6.90%)
Others	Peri-orbital soft tissue injury	12(20.68%)
	Chemical injury	2(3.45%)
	Thermal injury	8(13.80%)

Discussion

Result of our study matched with those of other prior studies with refractive error being the most common cause & most common age group affected is 11-15 years age. These results are similar with reports from China, Bengal, Nigeria & Kathmandu.[8-11]

In present study prevalence of refractive errors were similar to school going children in Shimla, Kolkata & also in Ahmedabad.[7] However fewer studies shows lower prevalence of refractive error in their studies.[11,12,13] Increased incidence reported in older children may be due to better complaints of their visual deficit & lack of awareness among parents & teachers in younger age groups.

Allergic Conjunctivitis was the second most common cause of ocular morbidity in children in present study 95 (17.92%), which matches with various other studies.[13,14] Higher prevalence of allergic conjunctivitis in our study may be due to hot & dry climate & dusty environment. Allergic conjunctivitis is a leading cause of absenteeism from school due to its discomfort, chronicity & recurrence, it rarely causes blindness.[16] Hence we require it's proper management to prevent potentially blinding complications.

Eye infections are major cause of preventable blindness & third most common cause of ocular morbidity in present study which is comparable to other study.[13]

Congenital eye diseases were fourth most common ocular morbidity encountered in our study. Among 67 patients (12.64%) of congenital eye diseases, most common congenital anomaly was congenital dacryocystitis 17(25.37%), followed by congenital cataract 13 (19.40%) & coloboma of iris 11 (16.42%). Rogers et al found Congenital cataract as the leading cause of surgically correctable blindness in most developing countries.[15] Anshika Kashyap et al also reported in his study, CNLDO (Congenital Nasolacrimal Duct Obstruction) was the second most frequent congenital disorder occurring in 21.43% cases. Results of these study are almost comparable to the present study.

Major proportions of childhood blindness in India is avoidable. So there is a need to screen the baby at maternity centre before baby are discharged so that congenital eye diseases are early detected & treated to prevent the blindness.

In present study ocular trauma was 58 in number, & was also a major cause of childhood morbidity (10.94%). Among the ocular trauma, closed globe injury was most common injury noted, which is similar to other studies.[13] Most childhood ocular trauma occurred during unsupervised play & domestic activities & males were more commonly affected.

Conclusion

In conclusion the most common causes of ocular morbidity in children were refractive error, allergic conjunctivitis, infection of eye & adnexa, congenital eye diseases & ocular trauma which is either prevented or treated. Refractive error is a leading cause of visual impairment & important public health problem. Screening for visual impairment & identification of children suffering from refractive errors & encouraging them to take corrective measures in the form of spectacles can play an important role in preventing long term visual disability. It is very essential to educate teachers, students & parents regarding eye health care & ocular hygiene to minimise eye injuries & infections in children. Early diagnosis and management of paediatric eye disorders are mandatory to prevent morbidity.

Acknowledgments

Authors would like to thank study participants for their cooperation in providing the necessary information. Great thanks go also to all those who were involved in this study directly or indirectly for their support.

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