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Research Article

Clinical Profile of Anterior Segment Eye Diseases in Children, Attending a Tertiary Care Hospital

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Abstract

Eye problems in children require prompt attention because of their impact on a child's development, education, future work and quality of life.

Purpose: To describe prevalence of ocular problems seen and treatments provided to the children attending a tertiary level eye care.

Material and Methods: It is a hospital based cross sectional, retrospective study. Children attending ophthalmology OPD, during October 2014 and September 2015 were reviewed. Out of 1428 children, 692 (48.46%) children with ocular complaints and age between 0 - 15 years were recruited. Remaining 736 (51.54%) with no specific ocular problems were excluded from the study. Data collected were age at presentation, gender and diagnosis. Further data was analyzed using ratio and percentages. Patients were categorized based on age into three groups (0 - 5 years, 5 - 10 years and 10 - 15 years).

Results: Of the 692 (46.46%) children examined, male: female ratio is 1.34:1. The most common group was, children aged 11 - 15 years (56%). Itching was the common manifesting feature and conjunctival diseases were the most common disorder 317 (45.8%) followed by refractive errors (26.1%) and disorders of eyelids (16.9%). Majority of children needed medical treatment, 26.1% required glasses, 5 cases (0.72%) required surgery and 1 (0.14%)required patch therapy (orthoptic treatment).

Conclusion: Conjunctival disorder and refractive errors were the most common occurring disorder. Most children needed medical treatment followed by optical correction.

Keywords: *Paediatric Eye Diseases; Refractive Errors; Allergic Conjunctivitis*

Introduction

Vision is an important requirement for learning and communication [1]. Children should receive prompt and proper eye care in order to avoid vision problems and eye morbidities, which could affect their learning ability, personality and adjustment in school [2,3]. Eye diseases in children are important cause of medical consultation [4]. The prevalence of childhood blindness varies according to the socio-economic development of the country and the mortality rate of those under five years of age [5-9]. Four to five per cent of all blindness in the world is due to childhood blindness [10].

Very few studies have been done in India to estimate the prevalence of childhood blindness but available evidence suggests that one out of every 1000 children is blind [11-13]. Pediatric ophthalmology is not yet well established as a separate subspecialty in India, though there are 200,000 blind children in India [14].

The present study was undertaken to document the clinical profile of pediatric anterior segment eye diseases in one of the largest district in South India, so as to address the eye problems of childhood more effectively. Thus, help identifying the types and common causes of ocular morbidities in children attending the Eye Department of a tertiary hospital which gives comprehensive healthcare services.

Materials and Methods

In this observational cross-sectional study, all new patients aged 15 years and younger who presented to department of ophthalmology between October 2014 and September 2015 were recruited. Self-reporting children with eye problem or referred for eye check-up, requiring primary and secondary eye care services were included in our study. Ethical clearance was taken from the hospital review board.

This study aimed to identify the different anterior segment eye diseases in children visiting a tertiary eye centre. At the first visit, all patients underwent ophthalmic evaluation by the consultant ophthalmologist and tests were conducted (wherever reliable) to elicit a clinical diagnosis, and management commenced as required. Subsequently, patients were seen by resident ophthalmologists under the supervision of the consultant. Consultations to pediatricians and other specialists were made when necessary.

The age at presentation, sex and clinical diagnosis were collected and analyzed using ratios and percentages accordingly. Patients were grouped by age into a preschool (0 - 5 years), school-age (5 - 10 years) or older children (10 - 15 years) group. Data was collected and recorded on pre-prepared data collecting formats for each child separately. Data of all children who were on follow-ups and seen repeatedly in the study year were recorded only once unless there were new diagnoses documented on follow-ups. All data were checked for completeness using checklists and analysed using ratios and percentages and tabulated.

Results

During the study period, 1428 patients presented to ophthalmology outpatient department from October 2014 to September 2015. Out of which 692 patients with eye problem were recruited in the study. Remaining 736 (51.54%) with no specific ocular problems were excluded from the study.

Three hundred ninty seven (57.37%) children were male while two hundred ninty five (42.63%) were females (1.34: 1). Of the total, 388 children (56%) were between 11 to 15 years old and constituted the largest age group (Table 1).

Age in years	Gender		Total (%)
	Male	Female	
0 - 5 years	32	26	58 (8.5%)
6 - 10 years	148	98	246 (35.5%)
11 - 15 years	217	171	388 (56%)
Total	397	295	692 (100%)

Table 1: *Age and gender wise distribution of children.*

The main presenting complaint among the children was itching (25.8%) followed by blurred distant vision (18.6%). Other symptoms were watering (15.2%) and redness (14.4%) most commonly (Figure 1). The commonest eye diseases were of the conjunctiva followed by refractive error (19.8%) and diseases of eyelid (Table 2).

Anatomical site of disease	Number (percentage) of children
Conjunctiva	317 (45.8%)
Cornea	22 (3.2%)
Eyelids	117 (16.9%)
Refractive error	180 (26.1%)
Lens	37 (5.3%)
Uvea	3 (0.4%)
Lacrimal apparatus	12 (1.8%)
Ocular and adenexal structure	4 (0.5%)

Table 2: *Frequency distribution of the anatomic sites of eye disease.*

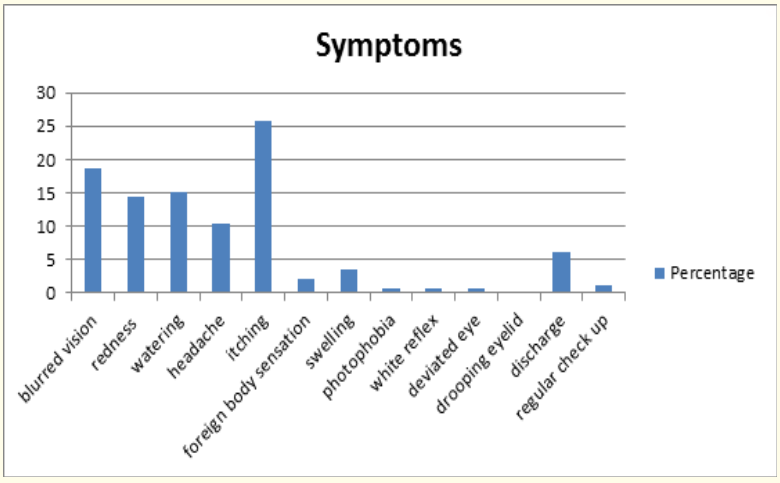

Figure 1: *Patients presenting complaints.*

Among the children (Figure 2) with conjunctival diseases, allergic conjunctivitis was commonest (33.1%) manifestation of the disease (of which 22.5 % cases were diagnosed with spring catarah). Second most common were refractive error (26.1%). Ocular trauma accounted for about 13.9% of the cases (lid tear, subconjunctical haemorrage, hyphema, lid edema/abrasions, preseptal cellulitis), infections of eye and adenexa (infective conjunctivitis, blepharitis, style, internal hordeolum etc) accounted for 20.8% and cataract 3.2%. Other eye diseases diagnosed in the studied year included strabismus (1.5%), congenital glaucoma (1 cases), chalazion (12 cases), congenital and developmental cataract (6 cases), ptosis (1 cases), microcornea (1 cases), congenital nasolacrimal duct obstruction (4 cases), coloboma iris with coloboma lens (1 case) and hemangioma upper eyelid (1 case).

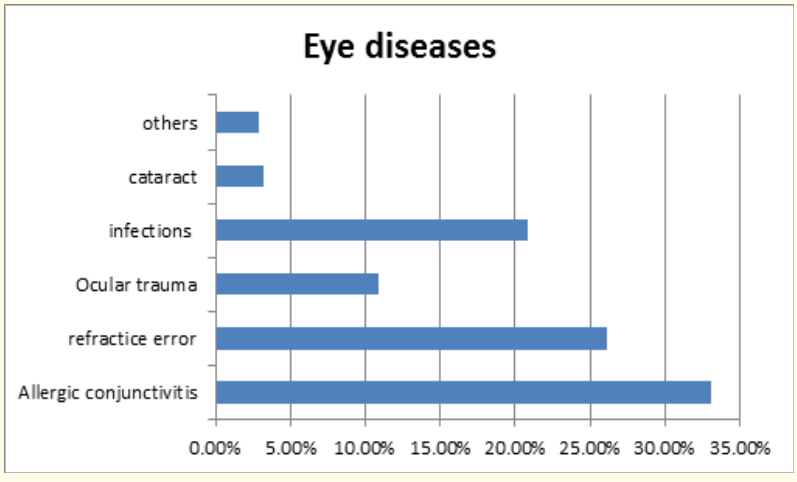

Figure 2: *Incidence of eye diseases.*

Most children had normal vision in the diseased eye on their first presentation. Simple myopia was the commonest refractive error documented. Corrective eye glasses were prescribed for 26.1% children with refractive errors.

Most of the children were managed and treated medically with different antibiotic eye medications, anti-allergies, anti-glaucomas and anti-inflammatory drugs based on their diagnoses.

Discussion

Children have unique problems in terms of ocular morbidities, not only due to their inability to articulate their problems, but also because of the potential to develop amblyopia in the event of visual impairment [1]. The causes of childhood eye diseases resulting in visual impairments in developing countries differ from those in developed countries.

Population-based data concerning prevalence of ocular morbidity among children are not readily available for India. For the available studies results are not comparable because of different methodologies/criteria used in those studies. The prevalence of ocular morbidity of 48.46% in this study is similar to a study conducted from Hyderabad in South India (43.5% in 3 - 16 years). However, higher prevalence of ocular morbidity has been reported from neighboring states like Haryana (58.8% in 4 - 18 years) and Rajasthan (71.7% in 4- 16 years) [15-17]. It was because of the higher prevalence of trachoma and conjunctivitis found in these two northern states and of refractive errors found in South India.

In the present study, the occurrence of paediatric ocular problems was in 57.37% male and 42.63% female population. Sethi S., *et al*. and Onakpoya., *et al*. had similar observation [18,19]. The main presenting complaint among the children was itching (25.8%) followed by blurred distant vision (18.6%).

Diseases of conjunctiva were the most common disorder (45.8%) with conjunctivitis being the most common disease. Among them allergic conjunctivitis accounted for 33.1%. Various studies reported allergic conjunctivitis as the most common surface disorder [18]. Prevalence of allergic conjunctivitis and related allergic diseases have been increasing worldwide. Allergic conjunctivitis is a condition seldom associated with visual loss; however, it is important from the perspective of quality life. Treatment of allergic conjunctivitis depends on its underlying causes (both acute and chronic). However, attention needs to be directed to identifying its risk factors as the treatment is prolonged and expensive and is associated with complications such as steroid induced glaucoma. This may be due to economic and poor literacy rate of the catchment area of the tertiary care.

In the absence of regular preschool or school eye-screening for refractive errors, many children with refractive errors go unnoticed. Refractive error was present in 26.1% of our study population (mostly in 11 - 15 years age group in our study), it was seen as 14.3% and 12.7% by Onakpoya., *et al*. and Sethi., *et al*. respectively [18,19]. The overall incidence has been reported to vary between 21% and 25% of patients attending eye outpatient departments in India [21]. Similar prevalence of refractive errors has been observed among children of 12 - 17 years in Ahmedabad city [22]. From South India, higher (32%) prevalence rate of refractive errors among school children of age 3-18 years as compared to the present study was observed, because of higher case detection rate in that study by an optometrist [17]. However, low prevalence of refractive errors of 2% has been reported from Eastern India by Datta., *et al*. among primary school children of 5 - 13 years, which could not be explained [20].

Ocular trauma accounted for about 13.9% of the cases. Prevention of ocular trauma in children remains a priority in order to reduce ocular morbidity.23 Eye injuries remain a major cause of unilateral visual impairment worldwide [24] and a common cause of non-congenital unilateral blindness [25]. Children are particularly at risk of ocular injury due to their decreased ability to detect and avoid potential hazards [23,26].

Most childhood eye injuries are sustained during unsupervised play and domestic activities [27-30]. Other eye diseases diagnosed in the studied year included strabismus, congenital glaucoma, congenital and developmental cataract, ptosis, microcornea, congenital nasolacrimal duct obstruction, coloboma iris with coloboma lens and hemangioma upper eyelid. These disorders require specialist eye care services for proper management given that they lead to absenteeism from school and are potentially blinding.

Conclusion

In conclusion, the present study suggests that allergic conjunctivitis, refractive errors, infections of eye and adnexa and ocular trauma are important causes of childhood ocular morbidity, most of them are either treatable or preventable. Visual impairment due to refrac-

tive errors is an important public health problem as it affects performance at school and impairs social and behavioral development of children.

Bibliography

1. Narayana KM., *et al*. "Pattern of uveitis in children presenting at a tertiary eye care centre in south India". *Indian Journal of Ophthalmology* 51.2 (2003): 129-132.

2. Pratab VB and Lai HB. "Pattern of pediatric ocular problem in North India". *Indian Journal of Ophthalmology* 37.4 (1989): 171-172.

3. Adegbehingbe BO., *et al*. "Refractive errors in childhood". *Nigerian Journal of Surgical Sciences* 15 (2005): 19-25.

4. Nwosu SNN. "Childhood eye diseases in Anambra State, Nigeria". *Nigeria Journal of Ophthalmology* 7 (1999): 34-38.

5. Gilbert CE and Foster A. "Childhood blindness in the context of vision 2020: The right to sight". *Bulletin of the World Health Organization* 79.3 (2001): 227-232.

6. Dandona L., *et al*. "Planning to reduce childhood blindness in India". *Indian Journal of Ophthalmology* 46.2 (1998): 117-122.

7. Gilbert CE., *et al*. "Causes of childhood blindness: Results from West Africa, South India and Chile". *Eye* 7.1 (1993): 184-188.

8. Hornby SJ., *et al*. "Evaluation of children in six blind schools of Andhra Pradesh". *Indian Journal of Ophthalmology* 48.3 (2000): 195-200.

9. Wilson ME., *et al*. "Pediatric cataract blindness in the developing world: Surgical techniques and intraocular lenses in the new millennium". *British Journal of Ophthalmology* 87.1 (2003): 14-19.

10. Resnikoff S., *et al*. "Global data on visual impairment in the year 2002". *Bulletin of the World Health Organization* 82.11 (2004): 844-851.

11. Dandona R and Dandona L. "Childhood blindness in India: A population based perspective". *British Journal of Ophthalmology* 87.3 (2003): 263-265.

12. Murthy GV., *et al*. "Refractive error in children in an urban population in New Delhi". *Investigative Ophthalmology and Visual Science* 43.3 (2002): 623-631.

13. Dandona R., *et al*. "Refractive error in children in a rural population in India". *Investigative Ophthalmology and Visual Science* 43.3 (2002): 615-622.

14. Nirmalan PK., *et al*. "Perceptions of eye diseases and eye care needs among parents in rural South India: The Kariapatti Pediatric Eye Evaluation Project (KPEEP)". *Indian Journal of Ophthalmology* 52.2 (2004): 163-167.

15. Khurana AK., *et al*. "Ocular morbidity among school children in Rohtak city". *Indian Journal of Public Health* 28.4 (1984): 217-220.

16. Desai S., *et al*. "School eye health appraisal". *Indian Journal of Ophthalmology* 37.4 (1989): 173-175.

17. Kalikivayi V., *et al*. "Visual impairment in school children in Southern India". *Indian Journal of Ophthalmology* 45.2 (1997): 129-134.

18. Onakpoya OH and Adeoye AO. "Childhood eye diseases in southwestern Nigeria: a tertiary hospital study". *Clinics* 64.10 (2009): 947-951.

19. Sethi S., *et al*. "Pattern of common eye diseases in children attending outpatient eye department, Khyber Teaching hospital, Peshawar". *Journal of Medical Sciences* 16.2 (2008): 99-101.

20. Datta A., *et al*. "An epidemiological study of ocular condition among school children of Calcutta Corporation". *Indian Journal of Ophthalmology* 31.5 (1983): 505-510.

21. Goswami A., *et al*. "An epidemiological pattern of cases of refractive errors". *Journal of the Indian Medical Association* 72.10 (1978): 227-228.

22. Sethi S and Kartha GP. "Prevalence of refractive errors in school children (12-17 years) of Ahmedabad City". *Indian Journal of Community Medicine* 25 (2000): 181-183.

23. Alhaski M and Almaaita J. "Retrospective analysis of pediatric ocular trauma at Prince Ali Hospital". *Middle East Journal of Family Medicine* 5.2 (2007): 42-45.

24. Niiranem M and Ratvio I. "Eye injuries in children". *British Journal of Ophthalmology* 65.6 (1981): 436-438.

25. World Health Organization. "Causes of Childhood blindness and current control measures". WHO Geneva: Prevention of Childhood Blindness (1992): 21-22.

26. Olurin O. "Eye injuries in Nigeria. A review of 433 cases". *American Journal of Ophthalmology* 72.1 (1971): 159-166.

27. Nwosu SNN. "Domestic ocular and adnexa injuries in Nigeria". *West African Journal of Medicine* 14.3 (1995): 137-140.

28. Kwari F., *et al*. "Pattern and outcome of peadiatric ocular trauma - A 3- year review National Eye Centre Kaduna". *Nigerian Journal of Ophthalmology* 8.1 (2000): 11-16.

29. Nkanga DG and Doln P. "School vision screening in Enugu, Nigeria: Assesment of referral criteria for refractive error". *Nigerian Journal of Ophthalmology* 5 (1997): 34-40.

30. Adeoye AO. "Eye injuries in the young in Ile Ife, Nigeria". *Nigerian Journal of Medicine* 11.1 (2002): 26-28.

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