



Pattern of Childhood Eye Diseases in a Tertiary Teaching Hospital

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ABSTRACT

Much existing data on prevalence of childhood refractive error in India were gathered in local studies, many now dated. The aim of this study was to determine the pattern and characteristics of paediatric eye diseases in a teaching hospital. This descriptive study analyzed for different eye problems in children aged 15 years and younger attending Ophthalmology OPD, Chinakakani. A.P, India, are evaluated prospectively. A total of 500 children attended the Ophthalmology department, out of which the prevalence of eye diseases identified was 56.8% in 284 children. Among 284 children there are 54.92% of boys and 47.08% of girls. The highest frequency is recorded among school going children. i.e., between 10-15 years, constituting 43.42% of the children. In our study, the commonest eye disorder is Refractive error (41.2%), out of which Myopia constitutes 32.74%, followed by astigmatism (5.28%) and hypermetropia (3.169%). Amblyopia is seen in 4.92% of cases. The prevalence of conjunctival diseases was 17.95%, among which 10.22% of children have infective conjunctivitis and 7.74% of children have allergic conjunctivitis. Allergic Conjunctivitis with refractive error is seen in 1.056%. Retinopathy of Prematurity was identified in 9.1549% of children. Squint was found in 6.69% of children. In our study, 3.52% cases have Congenital Naso Lacrimal Duct Obstruction (CNLDO). The results show that refractive error prevalence among school children is more in India highlighting the need for strategies to address this potential issue. Health education, school health programs to screen refractive errors are essential and hence prevent poor performance at school. Ocular infections need prompt and appropriate treatment to bring symptoms under control and also to prevent potentially blinding complications. Retinopathy of prematurity should be diagnosed at the earliest and managed to prevent childhood blindness.

INTRODUCTION

Childhood blindness is important due to its impact on child's future. Global estimates on childhood blindness is 1.42 million^[1]. Current prevalence of blindness in India is 0.8/1000^[1]. Impaired vision at birth or in early childhood have a profound impact on a child's development, restricting their participation in social, physical and educational activities and later, employment opportunities. The spectrum of ocular problems varies from country to country and even from region to region in the same country. It may be due to environmental, climatic, racial, socio-economic and literacy factors. Most of the causes of ocular morbidity in children were preventable and treatable. The most common ocular disorders in children are Refractive Errors, conjunctival diseases, squint and congenital cataract. This study was aimed to determine prevalence of different causes of ocular morbidity in children. Data on the pattern of presentation of childhood eye diseases serve as a useful template for planning eye care for children in a given region.

MATERIALS AND METHODS

Study Duration: August 2023-September 2024.

Sample Size: 500 children.

Study Population: Children <15years of age attending ophthalmology OPD and children referred from pediatric department.

Inclusion Criteria:

- All children < 15 years attending Ophthalmology OPD.
- Children <15years of age referred from pediatric department.

Exclusion criterion:

- Children of age >15years.
- Children not willing to participate in the study.

Method of Collection of Data: Chief complaint, detailed history regarding the onset and duration of chief complaint was taken. Visual acuity is recorded by blink reflex, menace reflex, CSM(Central Steady Maintenance) method for infants, for pre-school and school going children visual acuity is recorded by snellens chart. Cycloplegic refraction was done for children with decreased visual acuity. Extraocular movements and cover test was performed for all children. Complete squint evaluation including prism neutralization test, sensory tests were done for children suspecting squint. Detailed slit lamp examination and Fundo scopy was performed. Children with refractive errors were prescribed glasses and reviewed every 6 months. Amblyopic patients were advised partial occlusion therapy and computer vision therapy and followed every month. Medical management was done for necessary cases and followed accordingly. Children having strabismus

(Intermittent Exotropia) were advised orthoptic exercises and surgical management was done for indicated cases. Squint surgery was done for 8 patients. Cataract surgery (Lens Aspiration with Primary Posterior Capsulotomy with Anterior Vitrectomy with Intra Ocular Lens Implantation) was done in 2 cases with good visual outcome.

Statistical Analysis: Data obtained was entered in M.S. Excel and presented in tables and graphs. Important findings were subjected to tests of significance Z, T, Chi-square tests at 5% level of significance (P value: 0.5).

RESULTS AND DISCUSSIONS

Table 1: Age Group Distribution of Children Seen at the Pediatric Ophthalmic OPD.

Age group (years)	Frequency (n)	Percentage (%)
0-5	66	23.24
5-10	89	33.39
10-15	129	43.42

Table 2: Sex Distribution in Children Attended to Ophthalmic OPD

Sex distribution	Frequency (n)	Percentage (%)
Boys	156	54.92
Girls	128	47.08

During the present study period, a total of 500 children attended the Ophthalmic O.P, out of which 284 children were diagnosed with various eye diseases. Among 284 children, there are 54.92% boys and 47.08% girls with slight male preponderance. The prevalence of eye diseases in children was 56.8%. The highest age frequency is recorded among children between 10-15 years, constituting 43.42%, followed by 33.39% in 5-10 years and 23.24% in 0-5 years respectively.

Table 3. Frequency of Refractive Errors

Refractive Errors	Number (n)	Percentage (%)
Myopia	93	32.74648
Astigmatism	15	5.28169
Hypermetropia	9	3.169014

(Table 3) demonstrates the frequency of eye disorders. The most common disorder was refractive error. The total prevalence of refractive errors was 41.2%. Out of which, myopia (32.74%) accounts for majority of cases followed by Astigmatism (5.28%) and Hypermetropia (3.169%).

Table 4: Spectrum of Various Types of Pediatric Eye Disorders Except Refractive Error

	Frequency	Percentage
Conjunctivitis	29	10.21127
Retinopathy of Prematurity	26	9.15493
Allergic conjunctivitis	22	7.746479
Squint	19	6.690141
Amblyopia	14	4.929577
Congenital Naso Lacrimal Duct Obstruction	10	3.521127
Injury	9	3.169014
Headache with disc edema	6	2.112676
Optic Nerve Hypoplasia	4	1.408451
Cataract	4	1.408451
Nystagmus	4	1.408451
Allergic Conjunctivitis and refractive error	3	1.056338
Hypertension Retinopathy with CKD	3	1.056338
Lid conditions	3	1.056338
Arteriovenous malformation	2	0.704225
Ptosis	2	0.704225
Proptosis	1	0.352113

The prevalence of conjunctival diseases was 17.95%, among which 10.22% of children have infective conjunctivitis and 7.74% of children have allergic conjunctivitis. Squint was found in 6.69% of cases, Congenital cataract in 1.408% of children. Other category of diseases are Amblyopia (4.92%), Congenital Naso Lacrimal Duct Obstruction (3.52%), Injury (3.169%), Hypertension Retinopathy with CKD (1.056%), Optic Nerve hypoplasia (1.408%), Headache with disc edema (2.1126%), Lid conditions 1.056%), Nystagmus (1.408%), Arteriovenous malformation (0.704%), Ptosis (0.7042%) and Proptosis (0.352%).

Eye disorders are important cause of medical problems in children, with the spectrum varying in different localities. Children have unique problems in terms of ocular morbidities, mainly due to their inability to articulate their problems. The major ocular disorder encountered in our study was refractive error. In our study, the total prevalence of refractive errors was 41.2%. Out of which, myopia (32.74%) accounts for majority of cases followed by Astigmatism (5.28%) and Hypermetropia (3.169%). Refractive error, especially myopia, is common in India. Differences in prevalence between states appear to be driven by literacy rates, suggesting that the burden of myopia may rise as literacy increases. The impact of Uncorrected refractive error in children depends on various factors, including the type (myopia or hyperopia), severity and working distance for different tasks. Refractive error is the most common ocular disorder followed by allergic conjunctivitis and squint in various studies conducted by Harijot Singh^[1] RajKumar^[2] Xia Zang^[3] and G.Nageswar Rao^[4]. Uncorrected refractive error is the leading cause of visual impairment in school going children^[6]. A study conducted on 2240804 children in India observed that myopia is the most common refractive error in school going children of age 5-9 years. Myopia was significantly higher among children in urban and rural location at all age groups^[7]. In studies conducted among school children myopia contributed to majority of refractive errors^[8,9]. This frequency differs from similar study reporting a higher incidence of consultation in children younger than 5 years of age. A difference in the spectrum and incidence of eye disorders may account for this^[10]. At birth, the eye is normally mildly hyperopic and this error reduces over the next several years. The risk of myopia in childhood is associated with a range of socio environmental factors, with indoor lifestyle and with more time on schooling and other near-work tasks. Myopia is associated with urban locations, but near tasks related to mobile phones, tablets and other technologies are common and influences the refractive error in both rural and urban locations. Squint was found in 6.69% of cases. Congenital cataract was identified in 1.408% of children. A study conducted by pediatric ophthalmology clinic in a tertiary teaching

hospital stated that squint and childhood cataract are common ocular disorders^[5]. In our study, Retinopathy of Prematurity was identified in 9.1549% of children. In a study conducted on 602 preterm infants, the incidence of Retinopathy of Prematurity is 33.9% and it highlighted pulmonary diseases as a significant risk factor for Retinopathy of Prematurity^[11]. In the present the study, defective vision due to refractive errors, among the children is recorded as the most common cause of eye morbidity, which correlates with a study reported in Ibadan^[12] and with the school health services that regularly screen for refractive errors and refer affected children for refractive services. Refractive errors affects childhood development, given that 80% of learning in children is sight dependant. In the absence of regular preschool or school eye screening for refractive errors, many children with refractive errors go unnoticed. The prevalence of conjunctiva was 17.95%, among which 10.22% of children with conjunctivitis and 7.74% of children with allergic conjunctivitis. In a study, allergic conjunctivitis is the most frequently reported childhood eye disease, which in the present study is the second most common cause of eye diseases^[13]. In our study, among conjunctiva diseases, the incidence of allergic conjunctivitis is higher, where no gender differences was observed. Ocular infections are preventable but challenging causes of blindness, particularly in children given the number of blind years involved. Other category of diseases are Astigmatism (5.28%), Squint (6.69%), Amblyopia (4.92%), CNLDO (3.52%), Hypertension Retinopathy with CKD (1.056%), Optic Nerve Hypoplasia (1.408%), Headache with disc edema (2.1126%), Lid conditions 1.056%), Cataract (1.408%), Nystagmus (1.408%), Arteriovenous malformation (0.704%), Ptosis (0.7042%) and proptosis (0.352%). Prevention and proper treatment of corneal infections was essential, as these may lead to blinding corneal scars. In our study, pediatric eye injuries was reported in 3.169% of children. In another study, a high frequency of pediatric eye injuries reported, may be due to agriculture nature in the community, which may predispose the children to injuries from twigs and farming activities^[14]. Among the category of congenital diseases, congenital cataract is recorded as the commonest cause of vision morbidity constituted 1.4% of children. This study provides the first state-specific data on prevalence of refractive error in children 15 years and younger in Guntur district of Andhra Pradesh state. New data are also provided on prevalence in Kerala, Tamil Nadu and Maharashtra, where very little data were previously available.

CONCLUSION

Appropriate health education and school health programs to detect refractive errors are very essential and therefore prevent poor performance at school.

Ocular infections need prompt and adequate management to bring symptoms under control and prevent potentially blinding complications.

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