Original Article

Pattern of Common Eye Diseases in Children in a Tertiary Eye Hospital, Karachi

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Purpose: To assess the pattern of common eye diseases in the children visiting tertiary eye hospital Karachi.

Material and Methods: A random cross sectional survey was conducted during two weeks and data was recorded through a performa containing details of bio data, personal history, presenting complains, aided and un aided visual acuity, refractive error and signs of eye and adnexa and ocular alignment. Data was analyzed using SPSS 16.0.

Results: A total of 250 patients were examined out of which male patients were 52.8% and females constitutes 47.2%. Majority of patients 40.8% belonged to the age group 1 – 6 years. VKC 24.8% was the most common ocular morbidity found followed by squint 15.2%, refractive error 14.8%, NLD blockage 14.0%, congenital cataract 6.0%, amblyopia 4.4%, infective conjunctivitis 4.4%, blephritis 4.0%, convergence insufficiency 4.0% ptosis 2.4%, traumatic cataract 2.0%, chalazion 1.6%, corneal opacity 1.6%, keratitis and stye each 0.4%.

Conclusion: Vernal catarrh was the most common ocular morbidity encountered in the study with male preponderance. Further studies are required to find out the etiology and risk factors associated with it.

Key Words: Common Eyes, Congenital Cataract, Keratitis

Presentation of eye diseases vary worldwide[1,4]. studies had shown that certain eye diseases are common in certain age, gender, and occupation.[4-6] Some eye morbidities and visual abnormalities of children could affect their learning abilities, personality and adjustment in school, to avoid such problems prompt and proper eye care is needed.[2,3] While some eye diseases are just the cause of ocular morbidities and are easily treatable, others if cannot treated or prevented timely can invariably leads to blindness[7] therefore it is important to find out the pattern of eye diseases. Early diagnosis is required in some eye diseases to prevent vision loss and optimized visual outcome.[8]

The years of early development make the child particularly vulnerable to visual disorders, especially if the normal development of the eye is affected by the occurrence of disease. This has been documented by various authors as it may have a devastating impact on the child's psychological and physical development and his ability to learn.[9] Children with poor vision may be considered by their teachers to be poor students and both teachers and parents may subsequently lower their expectations of the child's performance.[9]

The aim of this study was to find out the pattern of eye diseases of anterior chamber and adnexa oculi in children of pediatric ophthalmology department of Layton Rehmatullah Benevolent Trust (LRBT), Korangi – Karachi. It is the Pakistan`s largest non-governmental organization which provide free eye care services and works to fight against blindness.[10]

MATERIAL AND METHODS

This was a hospital-based cross sectional survey with descriptive methodological design. All children aged 0 – 15 years attending outpatient department in LRBT

hospital Karachi, having diseases of anterior segment of eye and adnexa oculi were included in the study while those presented with the diseases of posterior segment of eye were excluded.

Children were selected randomly in duration of 2 weeks in the month of May 2013. Data of 250 children aged 0 – 15 years were recorded who have diseases related to anterior segment of eye and adnexa oculi after examining by consultant ophthalmologist. Children were placed into three age groups i.e, less than 1 year, 1 to 6 years and 7 to 15 years of age A pre designed Performa was filled for every patient consisting the examination details which includes bio data, personal history, presenting complains, aided and unaided visual acuity, refractive error and signs of eye and adnexa, ocular alignment was also been recorded. This information was retrieved by methods of examination such as visual acuity testing by using Snellen test (for school going children),and by preferential looking system (for younger children), refraction (subjective, objective and cycloplegic), slit lamp examination, and fundoscopy. After examination patients were provided treatment accordingly and those who need further evaluation were called for follow up.

The recorded data was analyzed on SPSS 16.0 and are presented as simple frequencies or cross-tabulations. A chi-squared test was used to compare variables.

RESULTS

Data of 250 patients was recorded where male proportion was found to be higher i.e, 52.8 % (n=132) and female constitute 47.2% (n=118) (Table 1). The ratio of bilateral disease was found to be more than unilateral as 68.4% cases show bilateral involvement and 31.6% were presented with unilateral presentation. Among three age groups 19.6% (n=49) patients were of age less than 1 year, 40.8% (n=102) were of age 1–6 years and 39.6% (n=99) children were belong to 7 – 15 years of age group (Table 2).

Around 15 diseases were diagnosed such as refractive error, amblyopia, NLD blockage, blephritis, ptosis, chalazion, stye, VKC / allergic conjunctivitis, infective conjunctivitis (viral and bacterial), corneal opacity, keratitis, congenital cataract, traumatic cataract, convergence insufficiency, and squint in the patients of LRBT hospital.

The proportion of disease as shown in (Table 3) was VKC – vernal keratoconjunctivitis i.e. 24.8% was the most common ocular morbidity found in children of LRBT hospital with male pre-dominance i.e., 16.0% and in female it was found to be 8.8% followed by squint both convergent and divergent 15.2%, refractive error 14.8% where astigmatism was common, mostly associated with diseases like squint, NLD Blockage 14.0% which was common among the children of age less than 1 year, congenital cataract 6%, amblyopia 4.4%, infective conjunctivitis including viral and bacterial conjunctivitis was 4.4%, blepharitis 4.0%, ptosis 2.4%, traumatic cataract 2.0%, causes involve injury by needle, chisel and edges of paper, followed by chalazion 1.6%, corneal opacity 1.6% and convergence insufficiency, keratitis and stye each constitute 0.4%.

A total of 37 children (out of 250) were presented with refractive error, in which 15 (40.54%) patients were astigmatic, 7 (18.91%) were hypermetropic while 15 patients (40.54%) were presented with myopia (Table 4).

As 250 patients from age 0-15 are divided into three groups, the second age group i.e. 1 – 6 years was presented with highest proportion of diseases (40.8%), while 7 – 15 years group accounts for 39.6% patients followed by less than 1 year group which constitutes 19.6% (Table 5). The most common disease found in 1 – 6 years was VKC (11.2%) followed by squint (9.6%) out of total 40.8% cases from this age group while children from 7 – 16 years were presented with refractive errors mostly (11.6%) out of 39.6% and 8.8% out of 19.6% in age group less than 1 year were presented with NLD blockage.

DISCUSSION

The major ocular disorder encountered in our study was VKC – vernal keratoconjunctivitis which was similar to the study of A.I Ajaiyeoba done in South – Western Nigeria[4] VKC is a chronic, bilateral inflammation of the superior and limbal palpebral conjunctiva. The warmer the climate, the greater its prevalence. Onset typically occurs between ages 3 and 25 years. Males typically are affected more than females,[11] although vernal or allergic conjunctivitis is not usually a cause of blindness except with complications, it has been found to be a leading cause of absenteeism from school and could compromise the quality of life, impairing daily activities and work.[8,13] males were found to be more effected in our study and similar result was found in study conducted by Zareen Mahdi at Sindh government hospital new

Table 1: Distribution of children on gender basis

Gender	Frequency n (%)
Male	132 (52.8)
Female	118 (47.2)
Total	250 (100.0)

Table 2: Distribution of children 0 - 15 years by age

Age	Frequency n (%)
< 1	49 (19.6)
1 - 6	102 (40.8)
7 - 15	99 (39.6)

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

	Male n (%)	Female n (%)	Total n (%)
CKV / Allergic conjunctivitis	40 (16.0)	22 (8.8)	62 (24.8)
Squint	18 (7.2)	20 (8.0)	38 (15.2)
Refractive errors	17 (6.8)	20 (8.0)	37 (14.8)
NLD Blockage	18 (7.2)	17 (6.8)	35 (14.0)
Congenital cataract	9 (3.6)	6 (2.4)	15 (6.0)
Amblyopia	7 (2.8)	4 (1.6)	11 (4.4)
Infective conjunctivitis (viral / bacterial)	5 (2.0)	6 (2.4)	11 (4.4)
Blepharitis	5 (2.0)	5 (2.0)	10 (4.0)
Convergence insuficiency	3 (1.2)	7 (2.8)	10 (4.0)
Ptosis	5 (2.0)	1 (0.4)	6 (2.4)
Traumatic cataract	2 (0.8)	3 (1.2)	5 (2.0)
Chalazion	2 (0.8)	2 (0.8)	4 (1.6)
Corneal opacity	1 (0.4)	3 (1.2)	4 (1.6)
Keratitis	0 (0.0)	1 (0.4)	1 (0.4)
Stye	0 (0.0)	1 (0.4)	1 (0.4)
Total	132 (52.8)	118 (47.2)	250 (100)

Table 4: Proportion of Refractive Error

Refractive Error	Frequency n (%)
Astigmatism	15 (40.54)
Hypermetropia	7 (18.91)
Myopia	15 (40.54)
Total	37 (100.0)

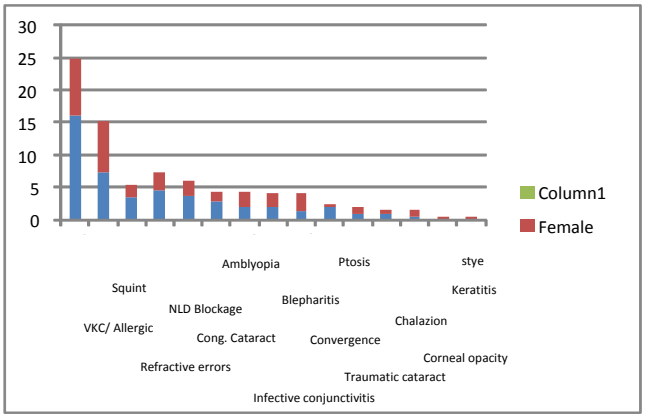

Fig. 1: Proportion of diseases on gender basis

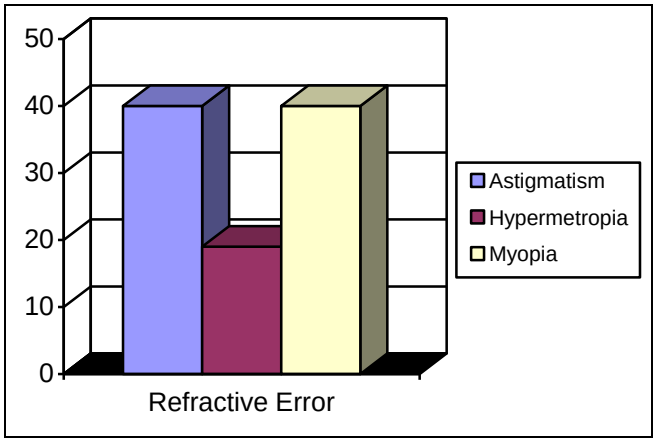

Fig. 2: Proportion of refractive errors

Karachi[12]and study done at Khyber Teaching Hospital Peshawar by Sadia Sethi.[15]

Total cases of squint registered were 15.2% which was somehow similar with the study done in Sindh government hospital new Karachi[12]. The ability of the eyes and the brain to work together develops throughout childhood up to the age of about 8 years but particularly within the first two years of life. If a child

Table 5: Distribution of diseases across different age groups

	Age < 1 Year n (%)	1 - 6 Year n (%)	7 - 15 Year n (%)	Total n (%)
VKC / Allergic conjunctivitis	9 (3.6)	28 (11.2)	25 (10.0)	62 (24.8)
Squint	5 (2.0)	24 (9.6)	9 (3.6)	38 (15.2)
Refractive errors	1 (0.4)	7 (2.8)	29 (11.6)	37 (14.8)
NLD Blockage	22 (8.8)	12 (4.8)	1 (0.4)	35 (14.0)
Congenital cataract	5 (2.0)	6 (2.4)	4 (1.6)	15 (6.0)
Amblyopia	0 (0.0)	2 (0.8)	9 (3.6)	11 (4.4)
Infective conjunctivitis (viral / bacterial)	2 (0.8)	6 (2.4)	3 (1.2)	11 (4.4)
Blephritis	0 (0.0)	6 (2.4)	4 (1.6)	10 (4.0)
Ptosis	3 (1.2)	2 (0.8)	1 (0.4)	6 (2.4)
Traumatic cataract	1 (0.4)	2 (0.8)	2 (0.8)	5 (2.0)
Chalazion	0 (0.0)	3 (1.2)	1 (0.4)	4 (1.6)
Corneal opacity	1 (0.4)	3 (1.2)	0 (0.0)	4 (1.6)
Convergence insufficiency	0 (0.0)	0 (0.0)	1 (0.4)	10 (4.0)
Keratitis	0 (0.0)	0 (0.0)	1 (0.4)	1 (0.4)
Stye	0 (0.0)	1 (0.4)	0 (0.0)	1 (0.4)
Total	49 (19.6)	102 (40.8)	99 (39.6)	250 (100)

develops a squint, the eyes stop working together and they stop developing the ability to work together correctly which may lead to amblyopia a lazy eye.[14]

Refractive error accounts for 14.8% majority of those belongs third age group (7 – 15 years) with same result as the study of Nigeria where refractive error account for 14.3%,[17] while in the study in Peshawar the frequency of refractive error was 12.8%.[15]

In this study 8.0% children were having cataract in which the ratio of congenital cataract was higher i.e. 6.0% whereas traumatic cataract accounts for only 2%. The similar result were found in the study of Nigeria where 6.6% children came with cataract[17] cataract is the most common cause of visual impairment in Pakistan followed by refractive error, retinal diseases, glaucoma and conjunctivitis, if timely and appropriate treatment is not initiated at the first sign of emerging eye problem these diseases can cause blindness[16].

The ratio of NLD blockage in this study was found quite high i.e. 14.0% as compared to the study at Khyber teaching hospital where NLD was found 5.4%[15] and at Sindh Government Hospital it was found 3.5%.[12] The major affected group (8.8%) was less than one year of age.

Eye injuries remain a major cause of unilateral visual impairment worldwide[18]and a common cause of non-congenital unilateral blindness.[19]Children are particularly at risk of ocular injury due to their decreased ability to detect and avoid potential hazards.[18,21] Most childhood eye injuries are sustained during unsupervised play and domestic activities.[22-25] In the study at South– Western Nigeria ocular trauma was the most common ocular morbidity in children where 21.7% patients were presented with trauma[17] and in another study at Sindh Govt. trauma accounts for 9.6% cases[12]while in this study very few cases i.e: 2.0% were reported, usually presented with traumatic cataract and corneal opacity (1.6%).

Amblyopia – lazy eye is the reason for permanent vision loss if not treated timely[26] in this study amblyopia cases were found around 4.4% where as in the study at South Karachi only 0.5% cases were reported[27]and in another study at south western Nigeria 0.08% cases were found.[28]

Convergence insufficiency is the leading cause of eye starin, blurred vision, double vision and headache[29] in this study 10 (4.0%) children were presented with convergence insufficiency. They had complained of headache with normal visual acuity 6/6.

Around 6 patients were presented with ptosis, 4 with chalazion and 1 with stye, these external eye conditions are not threat to vision. Ranking of these diseases were lowest in other studies[30,31]which is similar to this study.

Eye infections are preventable but challenging cause of blindness, in this study 11 patients were presented with infective conjunctivitis including bacterial and viral conjunctivitis and only 1 patient had keratitis.

CONCLUSION

Male preponderance was more than females. The most common eye disease found out in this study was vernal catarrh requires long term medical treatment. Further Studies are required to find out the risk factors which aggravate the symptoms and to find the etiology so that the incidence can be minimized.

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