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Original Research Article

Profile of Ocular Disorders in Paediatric Patients Attending a Tertiary Care Hospital in Kashmir

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Abstract:

Background: Paediatric ocular disorders are a cause of visual impairment if not treated appropriately and can result in public health problems because of associated socioeconomic consequences.

Aims and Objective: The study was aimed to determine the pattern of ocular disorders in paediatric patients

Setting and Design: retrospective study involving review of records of 1200 patients between three to 16 years of age over a period of two years.

Materials and Methods: Information was obtained with regard to age, gender, presenting complaints, duration of presenting symptoms, diagnosis, previous treatment received by patient, best corrected visual acuity.

Statistical Analysis: Data was analyzed using STATA version 15.

Results: In our study, there were 720 (60%) male patients and 480 (40%) female patients. Mean age of study patients was 9±2 years. About 60% of patients had good visual acuity better than or equal to 6/9 while 6% patients had visual acuity of < 6/60. Refractive error was the main ocular disorder seen in 37.5% patients in our study followed by conjunctivitis and strabismus. Congenital ocular anomalies were seen in 5% patients of which congenital cataract was seen in 30% of cases.

Conclusion: Visual impairment in children can have negative impact on their quality of life. Main causes of ocular morbidity in this study are both preventable and treatable. Hence, proper screening of children and timely management is important to prevent risk of developing visual impairment in these patients.

Key-words: Paediatric ocular disorders, Refractive error, Visual impairment

Introduction

Paediatric ocular disorders constitute a broad spectrum of ocular problems that interfere with the quality of life, mental health and education of children. [1] It has been estimated that every minute one child goes blind which equals to 500,000 children annually. [2] The prevalence of blindness in 0-15 years age group has been estimated to be around 0.8/1000 though no population based nation-wide survey has been undertaken. [3] Although visual impairment in paediatric patients is a worldwide public health issue, there are variations in prevalence across different regions due to various factors which include level of income, socioeconomic status, accessibility to eye care services and demographic factors. [4] In high income countries, most common cause of paediatric visual disability is cerebral visual impairment. [5,6] In middle income countries and in urban areas of low income countries, retinopathy of prematurity is emerging as most common cause of visual impairment in children. Low income countries have shown a changing tendency as the rate of corneal scarring has decreased over the past year due to improvement in measles immunization coverage and vitamin A supplementation, [5,7] however, in these countries childhood cataracts have emerged as the most common cause of paediatric visual impairment as a result of which the total number of children with visual impairment has not reduced in these countries. [5] Among the various ocular disorders contributing to ocular morbidity uncorrected refractive error is the most common cause of visual disability. Out of all the admissions due to ocular disorders, ocular injuries account for upto one-third of all the cases. [8]

Materials and Methods

A retrospective study was conducted involving a review of clinical records of all paediatric patients (between 3 years to 16 years of age) over a period of

2 years. Paediatric patients admitted to In Patient Department for other underlying disorders who were referred for ophthalmological evaluation were also included in the study. Children whose records contained complete information were included in the study. Information obtained included demographic characteristics, presenting complaints, duration of presenting symptoms, previous treatment received by patients. Ophthalmological evaluation included uncorrected visual acuity, best corrected visual acuity, dilated refraction, anterior segment, posterior segment findings and measurement of intraocular pressure (IOP). Visual acuity was recorded using Snellen's test chart in school going children. In preschool children Leas chart was used to record visual acuity. Dilated refraction was done in all the patients. Children less than 3 yrs of age (noncooperative for visual acuity) were excluded from the study. Ethical clearance was obtained from Institutional Ethical Committee. Data was entered in a Microsoft Excel spreadsheet. Continuous variables were summarized as mean and standard deviation. Continuous variables with a non-normal distribution were summarized as five number summary (minimum, 1st quartile, median, 3rd quartile and maximum). The relationship between two categorical variables was analyzed using Fisher's exact test. Difference between >2 means was analyzed using oneway ANOVA. Difference between two paired sample means was analyzed using Paired t- test. Data was analysed using STATA version 15.

Results

This study analysed records of 1200 cases of paediatric patients, of which 720 (60%) were male and 480 (40%) were females. Mean age of study patients was 9±2 years. Majority (70%) of subjects were in the age group of 9-16 years. About 60% of patients had visual acuity better than or equal to 6/9 while only 6% patients had visual acuity <6/60 (Table 1).

TABLE 1: Visual acuity (BCVA) of study patients

Visual acuity	Frequency (%)
≥6/9	720 (60%)
6/12-6/60	408 (34%)
<6/60	72 (6%)

About 450 (37.5%) patients had refractive error with myopia being more common. They presented with chief complaints of diminution of vision and headache. Conjunctivitis was seen in 264 (22%) cases with patients presenting with discharge, itching, foreign body sensation. 216 (18%) patients had strabismus, presenting with deviation of eyeball, with esotropia being more common than exotropia. 85 (7%) patients had retinal disorders which included cherry red spots, chorioretinal scarsecondary to toxoplasmosis, retinitis pigmentosa, Lebers congenital amarousis, Familial exudative vitreoretinopathy (FEVR), pathological myopia, macular dystrophy, coats diasease, retinal dettachment. Other fundus anomalies included papillitis, papilloedema, neuroretinitis, ocular TB/choroiditis/ tuberculoma. 2 cases of ethambutol toxicity were also seen presenting with decreased visual acuity and pale disc on fundus examination. Ocular trauma was seen in 95 (8%) patients, majority of whom had blunt ocular trauma. Amblyopia was seen in 2.5% cases. Congenital ocular anomalies were seen in 5% patients (which included congenital cataract in 30% patients, congenital nasolacrimal duct obstruction in 23 percent patients, lid coloboma in 20% cases, congenital glaucoma in 3 percent cases and congenital fundus anomalies in 23% cases which included optic nerve hypoplasia, Acardi syndrome, morning glory syndrome) (Table 2).

Table 2: Distribution of cases according to ocular disorder

Ocular morbidity	Frequency (%)
Refractive error	450 (37.5%)
Conjunctivitis	264 (22%)
Strabismus	216 (18%)
Congenital ocular anomalies	60 (5%)
Retinal disorders	85 (7%)
Ocular trauma	95 (8%)
Amblyopia	30 (2.5%)
TOTAL	1200 (100%)

Discussion

Ocular disorders in childhood can lead to varying degree of visual impairment if not treated in a timely manner. Early treatment of ocular disorders can help in reducing socioeconomic burden due to these disorders in paediatric patients. [9,10,11]

Our study showed male preponderance which is consistent with the studies conducted by Mehta et al., [12] Sinha et al., [10] and Sheshrao MU et al. [8] However, studies conducted by Mehari ZA,[11] and Annamalai et al; [13] have shown female preponderance. One of the possible reasons for this can be due to differences in sex ratio or geographical variation between different regions.

Majority of patients in our study fell in the age range of 9-16 years which is similar to the findings reported by Sushil et al; [14] and Annamalai et al. [13] This could be due to the fact that this age group is more active and more expressive about their complaints than children in other age groups.

Most common ocular disorder in our study was refractive error, with myopia being more common than hypermetropia. This was followed by conjunctivitis (allergic and bacterial) and squint. Sheshrao MU et al., [8] Sinha et al., [10] Qamruddin M., [15] and Sahoo et al. [16] have also made similar observations in their studies.

Presenting complaints of most of the patients in our study were headache and diminution of vision which is in correlation with refractive errors being the most common ocular disorder in our study. These findings are supported by the study conducted by Sahoo et al. [16] Second most common presenting complaint in our study population was foreign body sensation, itching, discharge and watering suggestive of conjunctivitis. Allergic and infective conjunctivitis in some of the patients was associated with stye, chalazion, blepharitis. One of the possible reason for this could be due to the fact that uncorrected refractive errors coupled with increased screen use and Poor hygiene in children due to outdoor exposure to dust and sun. Agarwal Shikha et al., [3] also reported similar findings in their study. Among congenital causes of ocular disorders, congenital cataract was most common cause found in majority of the patients followed by congenital nasolacrimal duct obstruction. The reason for cataract being more common in our study as compared to cnldo is due to the fact that children less than or equal to 3 yrs of age (which is the common age group for patients presenting with cnldo) were excluded from our study and only some of the patients who had not taken treatment fo cnldo previously or who did not improve with treatment presented to our opd and were treated for the same. This is supported by the study conducted by Rogers et al., [17] and Sheshrao MU et al. [8]

Patients who were on steroids for renal disorder were evaluated for steroid induced glaucoma and cataract. No patient in steroid group had glaucoma or cataract in our study. Few patients who presented as diagnosed cases of sturge weber syndrome were also evaluated for glaucoma and 3 of them had findings suggestive of same. 2 cases referred from paediatrics department had Kayser Fleisher ring on presentation which helped in confirming the diagnosis of Wilsons disease. 3 cases of uveitis were also seen in patients who presented with juvenile idiopathic arthritis.

In our study, ocular trauma was the fourth most common cause of visual impairment with blunt ocular trauma due to cricket ball being more common. Gupta et al; [18] also reported similar findings in their study.

Our study did not show any specific geographical variation in distribution of ocular disorders in comparison to other similar studies.

Majority of patients in our study had good visual acuity while only a minority of patients had visual acuity of <6/60. This is because majority of patients in our study had uncorrected refractive errors the correction of which resulted in improvement of visual acuity.

Conclusion

Our study concluded that refractive errors are most common and unattended cause of ocular morbidity. Silent refractive errors were also diagnosed in patients who were asymptomatic and appropriate correction was prescribed. We also concluded that if patients with amblyopia present early, they can be managed well with occlusion therapy. Diagnosis of ocular disorders in paediatric patients can help in strengthening diagnosis of paediatricians, besides it can also help in improving quality of vision and hence the quality of life. Paediatricians should liaise with ophthalmologists in rigorous referral of patients both on IPD and OPD basis. Ocular findings can help in clinching the diagnosis thereby avoiding unnecessary investigations on the part of patient and can also help in reducing morbidity and help in prognosticating the case. Further majority of patients in our study had good visual outcome of ≥ 6/9 thus emphasizing that appropriate management of these patients can prevent further progression of disease process. Most of the causes of visual impairment seen in this study are avoidable by provision of adequate treatment in a timely manner. To conclude our study provides useful insights into the most common ocular disorders among paediatric patients in our setting and can help create awareness among doctors and patients and help us to strategize our health care for effective patient care. To the best of our knowledge, no such study has been conducted so far in our setting. Since our centre is the only centre in our territory which caters specifically to paediatric ocular disorders, our study gives a generalized overview of ocular disorders as far as paediatric population is concerned.

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