



A Study of Refractive Errors on School Going Children in Govt. Medical College Jagdalpur

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ABSTRACT

Purpose: To study refractive error in school going children and its relation to age, sex, schools, area and type of refractive error.

Materials and Methods: This study was conducted in a government Medical college and associated Hospital jagdalpur. Total 150 students (300eyes) of age group 5-18years were selected. Visual acuity of 6/9 or less was considered as defective vision.

Visual acuity was taken with snellens visual acuity chart. Unaided visual acuity, with pinhole and best corrected visual acuity was recorded. Refraction was assessed with the help of autorefractometer. Direct ophthalmoscopy was done in all the cases. Retinoscopy and postmydriatic test was done only in some cases. Spectacles were prescribed to children.

Results: Out of 150 students 86(57.33%) girls and 64(42.67%) boys, 78%(n= 117) from urban area and 22%(n=33) from rural areas, 34% were studying in Government schools and 66% in private schools, 38% wore spectacles and 62% were not wearing spectacles. Astigmatism was the commonest refractive error seen in 68.67% of eyes followed by myopia in 22.66%, hypermetropia in 6% and 10.66% eyes had amblyopia.

Conclusion: Astigmatism was the commonest refractive error, barriers to refractive error correction services should be identified and school screening programme and health education for eye health care is recommended.

Key words: Refractive error, myopia, hypermetropia, astigmatism, amblyopia

INTRODUCTION

Refractive error is an important cause of avoidable blindness in children. To achieve the goal of vision 2020 The right to sight. It is a recent global initiative launched by WHO in a broad coalition with international, non-governmental and private

organization in Geneva on feb.18, 1999. The objective of this new initiative is to eliminate avoidable blindness by the year 2020. Avoidable blindness produced by uncorrected refractive error can be prevented by timely correction of refractive error^[1].

It is estimated that 1.5 million children suffer from severe visual impairment and blindness and of these, 1 million live in Asia. Eyes that are unable to focus parallel rays of light on the retina are termed ametropic and the condition is known as ametropia or a refractive error. Unlike ametropia in emmetropia there is absence of refractive error.

Hypermetropia: is also known as far sight in this dioptric condition of the eye with the accommodation at rest, incident parallel rays come to a focus posterior to the light sensitive layer of retina.

Myopia: also known as short sight is that dioptric condition of the eye in which, with the accommodation at rest incident parallel rays come to a focus anterior to the light sensitive layer of retina.

Astigmatism: In this condition of refraction a point of light cannot be made to produce a punctuate image upon retina^[2].

Amblyopia: It is a decrease in visual acuity in one or both eyes that results from an inability to use the eye or eyes for central fixation during the critical period of visual development. the incidence of amblyopia ranges from 0.5 to 3.5% in preschool and school age children^[3].

The present study was carried out to find out refractive error in school going children .School children who forms a sizable segments of the community can be screened and treated early for refractive errors, squint, amblyopia and eye infections.

MATERIALS AND METHODS

This study was conducted during the period of September 2014 to February 2015 in the outpatient department of ophthalmology in late BRKM govt. medical college jagdalpur. School going children of 5-18 years of age were selected for this study. Students having corneal opacities and posterior segments pathology were excluded from this study. All cases were examined by two ophthalmic surgeons. Students name, age, sex, address was recorded. Detailed ocular history was taken about present complaints and past ocular problems including history of using spectacles and duration of use of glasses. The visual acuity of those children who were already having spectacles was also recorded for further improvement.

Visual acuity equal to or less than 6/9 was considered as defective vision. Consent was taken. Visual acuity was recorded with the help of snellens vision chart for distance and jaegers chart for near. Uncorrected visual acuity, with pinhole and best corrected visual acuity was also recorded. Slit lamp examination refraction with auto-refractometer, direct ophthalmoscopy and cycloplegic retinoscopy in some cases was done. Students were called for post mydriatic refraction. After complete examination spectacles was prescribed.

Percentage analysis of data was made.

RESULTS

Total number of students were 150, age ranged from 5- 18 years of age .Out of this 57.33% [n=86] were females and 42.67% [n=64] were males. Number of students between 5-9 years of

age 14.67% [n=22,M=12 ,F=10] , 10-14 years of age 35.34% [n=53,M=21,F=32],15-18 years of age 50% [n=75,M=31,F=44], 78% [n=117] were belong to urban area and 22% [n=33] were belong to rural areas. Students studying in government school were 34% [n=51], private schools 66% [n=99], students wearing spectacles were 38% [n=57] and remaining 62% [n=93] were not wearing spectacles . In this study astigmatism was the commonest refractive error found in 60.66% [182 eyes] followed by myopia 22.66% [68eyes], hypermetropia 6% [18eyes],and 10.66% [32 eyes] were diagnosed as amblyopia .Refractive error more than 6D seen in only 2 students.

DISCUSSION

In our study we have seen that out of 150 student's girls were 57.33% and boys 42.67%.

similar findings were reported by Pankaj kumar et al^[4] in his study refractive error was more prevalent in female children 58.33% as compared to male children in 41.67%.Dulani and Dulani ^[5] also found 53.91% girls with decreased visual acuity as compared to boys in 46.09%.

The more number of female affected than male was found in many other studies though prevalence varies from the present study. Although, association between gender and refractive error was not found, but this high prevalence in females might be due to higher rate of growth in girls and also because girls attain puberty earlier than boys.

Age wise distribution of refractive error in students 14.67% between 5-8 years of age, 35.33% between 10-14 years and 50% between 15-18 years of age.

Table-1 Distribution of students with refractive error according to gender

S.No		No. of Students	Percentage
1	Male	64	
2	Female	86	
3	Total	150	100

Table-2 Area wise distribution of students with refractive error

S.No.	Area	No.of students	Percentage
1	Urban	117	78
2	Rural	33	22
3	Total	150	100

Table-3 Distribution of students with refractive error according to type of school

S.No.	Type of school	No.of students	Percentage
1	Govt.school	51	34
2	Private school	99	66
3	Total	150	100

Table-4 Distribution of students with refractive error according to type of refractive error

S.No	Type of ref.error	No.of eyes	Percentage
1	Myopia	68	22.66
2	Hypermetropia	18	06.00
3	Astigmatism	182	60.67
4	Amblyopia	32	10.67
	Total	300	100

Table-5 Distribution of students with refractive error according to wearing spectacles and not wearing spectacles

S.No.		No.of students	Percentage
1	With spectacle	57	38
2	Without spectacle	93	62
	Total	150	100

Table-6 Age wise distribution of students with refractive error

S.No	5-9 years		10-14 years		15-18 years		Total
	M	F	M	F	M	F	
	12	10	21	32	31	44	
Total	22		53		75		150

Similar findings reported by Sethi S,et al^[6]. In their study the prevalence of refractive error among school children of Ahmedabad city they found the prevalence of refractive error was highest 40% in 17 years old students compared to only 6.7% .

In eleven years old children. the trend of refractive error was increasing with age that is at age of 11 years prevalence was 6.7%, 12 years 24.5%,13 years 22.5% ,14 years 25.9%,15 years 36%,and at 16 years 31.9%.

In contrast to our study Pankaj kumar et al^[4] found in their study 34.72% children were in age group between 9-12 years ,26.39% were in age group 12-14 years and 20.83% were in age group of 15-16 years.

In our study 78% students were from urban area and 22% students from rural area. This difference may be due to study carried out in jagdalpur city.

Similar findings reported by N.Prema ^[7] in her study and found refractive error in 27.08% of rural population and 34.37% in urban and 38.55% in semiurban area.

Nitin Batra et al^[8] also found more number of children from urban schools with decreased visual acuity as compared to their counterparts in rural schools.

In present study 34% [n=51] children studying in Government schools and 66% [n=99] were in private schools. This difference may be due to more burden of home work over children studying in private schools.

In this study students wearing spectacles were 38% [n=57] and not wearing spectacles were 62% [n=93].

Kumar et al.^[4] observed in their study out of 72 students with refractive error 12 were [16.67%] already diagnosed whereas 60 [83.33%] remained undiagnosed. In this study commonest refractive error was astigmatism seen in 60.67% [182eyes] followed by myopia 22.67% [68eyes], hypermetropia 6% [18eyes] ,10.67% [32eyes] were diagnosed as amblyopia .refractive error more than 6D seen in only two students.

A study done by Kawuma and Mayeku ^[9] in kampala district they found that the commonest refractive error was astigmatism in 38 [52%] children followed by hypermetropia with 27 [37%] children and myopia with 8[11%] children.

Dulani et al.^[5] found in their study 63.47% were myopic, 25.18% had astigmatism and 11.35% had hypermetopia.

Pankaj Kumar et al ^[4] observed myopia in 94.44%, hypermetropia in 2.78%, astigmatism in 2.78%. Anmol gupta et al ^[10] observed myopia in 57% followed by hypermetropia in 26.2%, astigmatism 11.9% , myopic astigmatism in 4.8% of children.

Conclusions: school screening should be made mandatory by the government health authorities .Health education about eye health to teachers ,parents and to general public is required so they should aware about refractive error.

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References

1. Khurana A K .Text book of ophthalmology. 2nded. New Delhi: New age International publisher; 2003: 423-428.
2. Parsons Diseases of the Eye . Text book of ophthalmology.20th ed. New Delhi:Elsvier publisher;2007:71-77.
3. Saxena Sandeep.Clinical Practice in ophthalmology.1st ed.2003.
4. Kumar P,Pore P, Dixit AK ,Singh N. Prevalence and demographic distribution of refractive error in school children of Pune ,India. Int J Res Health Sci 14; 2:58-67.
5. Dulani N Dulani H. Prevalence of refractive error among school children in Jaipur, Rajasthan. Int J sci stud 2014 ;2 [5]:52-55.
6. Sethi S,Kathra GP. Prevalence of refractive error in school children of Ahmadabad city. Indian J Community Med 2000;25:181-3.
7. Prema N. Prevalence of refractive error in school child.Indian J Sc Technol11;4:1160-1.
8. Batra N,K Dhawal,Singh A.Refractive error in school children : A reviw from Punjab. Quaterly News letter of National Programme for Control of Blindness in India.
9. Kawuma M, Mayeku R.Asurvey of the prevalence of refractive errors among children in lower primary schools in Kampala district .Afr Health Sci 02;2:69-72.
10. Gupta A, Lal R ,Mazta SR, Sharma D. Prevalence of refractive errors,color vision and other ocular disorders, in school –going children: Primary screening by school teachers .JIMSA October-december 2012, vol 25,no.4.