JAMC, Vol. 7, No. 2, 1995

REFRACTIVE ERROR AND SQUINT IN PRIMARY SCHOOL CHILDREN

Abdul Aziz A wan, Mohammad Aftab and Salim Arif

1306 school children were screened for refractive errors and squint between September 1991 and September 1994. 2.60% of the children had abnormal cover test. 7.04% of the children were found to have refractive error. Only 36.95% of the children were aware of their refractive error and using glasses. Myopia was the commonest refractive error amounting to 6.127c. Many of the children examined were not aware of their ocular disease.

INTRODUCTION

Squint and refractive errors are amongst the leading causes of amblyopia in children \ Amblyopia is defined as a unilateral or bilateral decrease in visual acuity, without any organic ocular lesion. It is caused by any form of visual deprivation and abnormal binocular interaction [2, 3]. Amblyopia reduces visual acuity, contrast sensitivity and stereoscopic vision [4].

The reversibility of amblyopia is age and duration dependent, therefore ocular assessment of children prior to school admission would help in early diagnosis and better prognosis of this visual problem.

MATERIALS AND METHODS

We examined 1306 primary school children from September 1991 to September 1994, in and around Abbottabad. Ophthalmic examination included assessment of visual acuity, pinhole test, anterior segment examination with magnification, fundoscopy, retinoscopy, cover test and extraocular movements. Where needed further investigations like cycloplegic refraction and prism cover test were performed.

653 children were from English Boarding Schools belonging to all four provinces, while an equal number of children from other schools were included in the study.

From: Ayub Medical College, Abbottabad-Pakistan. **Dr ABDUL AZIZ A WAN,** Assistant Professor, Department of Ophthalmology.
Dr MUHAMMAD AFTAB, Professor & Head, Department of Ophthalmology.
Corresponding Author: Dr ABDUL AZIZ AWAN.

This epidemiological data may be taken as representative of the whole country, as over 80% of students were boarders and came from various parts of the country. Children already wearing glasses and undergoing treatment for squint were included in the study. Asymptomatic children with small degrees of heterophobia which did not require ophthalmic treatment were considered amongst normal.

RESULTS & CONCLUSIONS

1306 school children of Class Prep to Class 4 were screened. The students selected were studying in the Government as well as Private Schools, thereby covering all the economic strata to which they belonged.

However, equal number of students were selected from private or government schools. The distribution of students by class is given in Table-1.

TABLE-1: DISTRIBUTION OF CHILDREN BY CLASS ND SCHOOL.

CLASS	ENGLISH BOARDING SCHOOLS	GOVERNMENT SCHOOLS
PREP	130	101
I	124	142
II	141	146
In	128	135
IV	130	129
TOTAL	653	653

Out of 1306 children 34 children (2.6%) had abnormal cover test. The distribution is given in Table- 2.

TABLE-2: DISTRIBUTION OF CHILDREN WITH ABNORMAL COVER TEST.

Nos.	PERCENTAGE	ABNORMALITY
2	0.15	VERTICAL SQUINT
8	0.61	ESOTROPIA
24	1.83	EXOTROPIA

80 children had simple myopia or myopic astigmatism and it was the main refractive error. 12 children (0.9%) had hypermetropia, while only four (0.30%) had aphakia, either due to trauma or other causes.

DISCUSSION

The present study provides a source of representative epidemiological data on the incidence of squint and refractive errors in Pakistan. Both these conditions are among the common causes of amblyopia, which if untreated, causes irreversible damage to vision [6]. Myopic astigmatism was seen to be the more prevalent refractive error (3.6%) whereas simple myopia was seen in 32 cases (2.4%). Our data differ in terms of higher percentage from earlier studies [7, 8]. Previous studies showed a decrease of astigmatism with child growth [9]. Risk of developing amblyopia is much higher with hypermetropia and an isometropia.

Bilateral refractive errors may lead to bilateral amblyopia and meridional amblyopia may ensue when astigmatism is uncorrected in children [,0]. In most cases children as well as parents were unaware of the refractive error and squint. Dong et al had similar findings in their hospital based study, about children's referral to hospital [11]. Kohler reported an overall prevalence of ocular visual defects of 8.9% which is higher than in our series [12]. We recommend the need for an organized ophthalmic care for school children.

ACKNOWLEDGEMENTS

This work was sponsored by Pakistan Medical Research Council Research Centre, Ayub Medical College, Abbottabad. We extend our gratitude to Dr. Jahangir A Khan for his valuable advice and help.

The authors are also thankful to Mr. Mohammad Iqbal, Stenographer, PMRC, for typing the manuscript.

REFERENCES

1. Eames TH. The influence of hypermetropia and myopia on reading. AM J Ophthalmas, 1955; 39: 375-7.
2. Von Noorden GK. Update on amblyopia. Am J Ophthalmas 1976; 82: 147.
3. Newell FW. Ophthalmology: Principles and Concepts. Saint Louis, Mosby, 1978.
4. Von Noorden GK & Maumenee AE. Clinical observation on stimulus deprivation or amblyopia. Am J Ophthalmas 1968; 65: 220-34.
5. Von Noorden GK. Atlas of strabismus. St Louis, Mosby, 1983.
6. Graham PA. Epidemiology of strabismus. Br J of Ophthalmology, 1974; 58: 224-31.
7. Kendall JA & Stayte MA. Ocular defects in children from birth to 6 years of age. Br Orthoptic Journal 1989; 46: 2-6.
8. Maureen S, Reeves B & Wortham C. Ocular and visual defects in pre-school children. Br J Ophthalmas, 1993; 77: 228-32.
9. Abrahamson M & Fabian G. Change in Astigmatism. Br J Ophthalmology, 1988; 72: 145- 49.
10. Ingran RM. Refraction for screening of children for squint and amblyopia. Br J Ophthalmology 1977; 61: 8-15.
11. Dong WY, Thomson JR & Goulstein DB. Br J Ophthalmology, 1990; 74: 650-53.
12. Kohler L. Early detection and screening. Volf, Churchill Livingston 1984.