

ORIGINAL ARTICLE

Assessment of amblyopia in children

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ABSTRACT:

Background: Amblyopia is the most common cause of un-correctable visual impairment in children and in adults up to 60 years of age. The present study was conducted to assess amblyopia in children. **Materials & Methods:** 200 children of amblyopia of both genders were included. All cases underwent ophthalmic examination using visual acuity by Snellen vision chart, cycloplegic refraction by streak retinoscope, auto-refractometer, thorough anterior and posterior segment and examination by slit lamp biomicroscopy, ophthalmoscopy and assessment of the ocular alignment by cover-uncover test and ocular motility. **Results:** Out of 200 children, boys were 110 and girls were 90. Common types were Myopia seen in 62, Hypermetropia in 50, Myopic Astigmatism in 48 and Hypermetropic Astigmatism in 40 cases. The difference was non-significant ($P > 0.05$). **Conclusion:** Refractive error is the major cause of amblyopia and common types were Myopia, Hypermetropia, Myopic Astigmatism and Hypermetropic Astigmatism.

Key words: Amblyopia, Hypermetropia, Refractive error

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INTRODUCTION

Amblyopia is the most common cause of un-correctable visual impairment in children and in adults up to 60 years of age.¹ Amblyopia generally develops in the childhood years up to the age of 7 -8 years and can be effectively remediated if detected and treated before the age of 9 to 10 years.² Estimation of the prevalence of amblyopia is important for both clinicians and health policy decision-makers for an understanding of the need for screening, detection, and intervention in the community.³

Amblyopia is avoidable and to a degree treatable and deserves the best attention of the ophthalmologist. Amblyopia remains as one of the most confused areas of ophthalmology.⁴ Amblyopia screening and treatment are efficacious, but cost effectiveness remains a concern.⁵ Refractive correction alone may successfully treat anisometropic amblyopia in 25-75% of patients.⁶ If not treated, amblyopia can produce lifelong un-correctable visual impairment. Strabismus and amblyopia are mainly diseases of children and thus require early detection and treatment to have better visual acuity and binocular function. In order to

formulate a policy for the early detection of strabismus and amblyopia, it is necessary to understand the prevalence of both diseases in children.^{7,8} The present study was conducted to assess amblyopia in children.

MATERIALS & METHODS

The present study consisted of 200 children of amblyopia of both genders. The consent was obtained from parents.

Data such as name, age, gender etc. was recorded. All patients underwent ophthalmic examination using visual acuity by Snellen vision chart, cycloplegic refraction by streak retinoscope, auto-refractometer, thorough anterior and posterior segment and examination by slit lamp biomicroscopy, ophthalmoscopy and assessment of the ocular alignment by cover-uncover test and ocular motility. Evaluation of the binocular status of the eye was performed with the help of Worth's four-dot test and synaptophore. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 200		
Gender	Boys	Girls
Number	110	90

Table I shows that out of 200 children, boys were 110 and girls were 90.

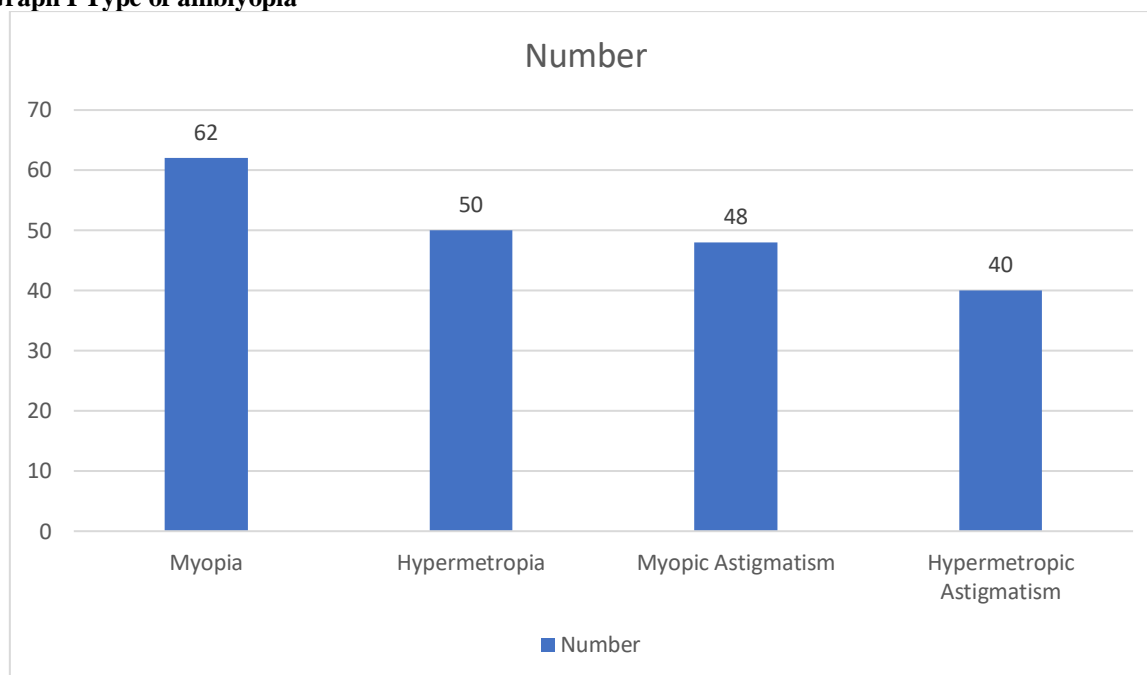
Table II Type of amblyopia

Types	Number	P value
Myopia	62	0.17
Hypermetropia	50	

Myopic Astigmatism	48
Hypermetropic Astigmatism	40

Table II, graph I shows that common types were Myopia seen in 62, Hypermetropia in 50, Myopic Astigmatism in 48 and Hypermetropic Astigmatism in 40 cases. The difference was non-significant ($P > 0.05$).

Graph I Type of amblyopia



DISCUSSION

Amblyopia was defined as a difference in the best corrected visual acuity (BCVA) between the two eyes of two or more Snellen lines.^{9,10} A best corrected visual acuity of less than or equal to 6/12 bilaterally on the Snellen's chart.¹¹ Normal visual acuity lays the foundation for binocular single vision. Children constitute 35-40% of the general population. Considering the fact that 30% of Indian blind lose their sight before the age of 20 years, the importance of early detection and treatment of visual impairment in children is obvious.¹² When significant interruption of normal visual development occurs, then amblyopia is the term used to describe this diminution of vision.¹³ Amblyopia poses an important socioeconomic problem, especially since the risk of the amblyopic patient becoming blind is significantly higher than in the general population.¹⁴ Amblyopia is one of the common causes of childhood visual impairment. School going children therefore, form an important large target group and school vision screening plays an important part in early detection of amblyopia and institution of appropriate therapy, which is of immense value towards preventing the development of lifelong visual morbidity.¹⁵ The present study assessed pattern of amblyopia in children.

We found that out of 200 children, boys were 110 and girls were 90. Birch et al¹⁶ in their study done on adult population, prevalence of anisometric amblyopia (50%) was found to be higher when compared to

strabismic amblyopia (19%) However, there are reports of the prevalence of strabismic amblyopia to be higher than anisometric amblyopia in younger age groups (< 7 years).

We found that common types were Myopia seen in 62, Hypermetropia in 50, Myopic Astigmatism in 48 and Hypermetropic Astigmatism in 40 cases. Matsuo et al¹⁷ found that the number of children covered by the return of questionnaires was 86,531 (76.4%) of 113,254 total pupils in Grade 1 to Grade 6 in Okayama Prefecture in the year 2003. The total numbers of children with strabismus and amblyopia were 1,112 (1.28%) and 125 (0.14%), respectively. The numbers of children with any type of exotropia and any type of esotropia were 602 (0.69%) and 245 (0.28%), respectively. The major types of strabismus and amblyopia were intermittent exotropia in 109 children (0.12%), accommodative esotropia in 19 children (0.02%), anisometric amblyopia in 23 children (0.03%), and ametropic amblyopia in 12 children (0.01%). The number of children with strabismus of unknown type was 245 (0.28%) while the number of children with amblyopia of unknown type was 81 (0.09%).

Noche et al¹⁸ found that twenty-eight of the 314 patients studied had amblyopia, for a frequency of 8.9 % in the study population and 10.3 % in the subjects with ametropia (n = 271). The average age of children with amblyopia was 9.9 + / - 3 years. The frequency of amblyopia was higher among boys, but the difference was not statistically significant ($p = 0.3679$).

In order of frequency, the causes were refractive errors, for 93 % (26/28) of the children, and strabismus for 7 % (2/28). Astigmatism was the most frequent cause of ametropic amblyopia. Amblyopia had an anisometropic origin in 43 % (12/28) of cases. It was unilateral in 39.2 % (11/28) and bilateral in 61 % (17/28) of cases, severe in 18 %, moderate in 18 %, and mild in 64 %.

CONCLUSION

Authors found that refractive error is the major cause of amblyopia and common types were Myopia, Hypermetropia, Myopic Astigmatism and Hypermetropic Astigmatism.

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