ISSN 2515-8260 Volume 09, Issue 03, 2022

Assessment of pattern of amblyopia in children in the age group 5 to 15 years

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ABSTRACT

Background: Amblyopia is an important public health problem leading to visual impairment which is lifelong. Refractive error is one of the common causes of amblyopia. The present study was conducted to assess pattern of amblyopia in children in the age group between 5 to15 years.

Materials & Methods:180 children in the age group between 5 to15 years with amblyopia of both genders were included. All cases underwent ophthalmic examination using visual acuity by Snellen vision chart, cycloplegic refraction by streak retinoscope, auto-refrectometer, 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: Age group 5-10 years comprised of 100 and age group 10-15 years had 80 children. common types were Myopia seen in 30, Hypermetropia in 65, Myopic Astigmatism in 60 and Hypermetropic Astigmatism in 25 cases. The difference was significant ($P< 0.05$). Types of Amblyopia was Monocular in 70 and binocular in 110 cases. The difference was significant ($P< 0.05$).

Conclusion: Refractive error is the major cause of amblyopia and if it is not corrected timelycan cause the permanent visual morbidity.

Key words: Amblyopia, Hypermetropia, Refractive error

Introduction

Amblyopia is an important public health problem leading to visual impairment which is lifelong. Refractive error is one of the common causes of amblyopia.[1] The prevalence of amblyopia is often underestimated due to lack of awareness and knowledge in parents about refractive errors in children and late ophthalmological referrals for visual screenings.[2] The causes of amblyopia include anisometropia, high refractive errors and opacities of the ocular media, strabismus or a combination of two or more aetiologies in the same case.[3]

Amblyopia is the most common cause of uncorrectable visual impairment in children and in adults up to 60 years of age.[4] Amblyopia generally develops in the childhood years up to the age of 7 to 8 years and can be effectively remediated if detected and treated before the age of 9 to 10 years.[5] If not treated, amblyopia can produce lifelong uncorrectable visual impairment.6 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.[6]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.[7] Amblyopia screening and treatment are efficacious, but cost effectiveness remains a concern. Refractive correction alone may successfully treat anisometropic amblyopia in 25-75% of patients.[8]The present study was conducted to assess pattern of amblyopia in children in the age group between 5 to15 years.

Materials & Methods

The present study comprised of 180children in the age group between 5 to15 years with amblyopiaof both genders. The consent was obtained from all patients.An inclusion criterion was best corrected visual acuity in one or both eye 6/12 or less than 6/12 in absence of any organic lesion according to ATS. Patients of strabismus, previous history of ocular surgery, trauma and diseases affecting the vision were excluded from the study.

Data such as name, age, gender etc. was recorded. All cases underwent ophthalmic examination using visual acuity by Snellen vision chart, cycloplegic refraction by streak retinoscope, auto-refrectometer, 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. Assessment of the binocular status of the eye was performed

ISSN 2515-8260 Volume 09, Issue 03, 2022

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

Age group (years)	Number	P value
5-10	100	0.81
10-15	80	

Table I shows that age group 5-10 years comprised of 100 and age group 10-15 years had 80 children. The difference was non- significant (P> 0.05).

Table II Distribution of type of ametropia

Types	Number	P value
Myopia	30	0.05
Hypermetropia	65	
Myopic Astigmatism	60	
Hypermetropic Astigmatism	25	

Table II, graph I shows that common types were Myopia seen in 30, Hypermetropia in 65, Myopic Astigmatism in 60 and Hypermetropic Astigmatism in 25 cases. The difference was significant (P< 0.05).

Graph IDistribution of type of amblyopia

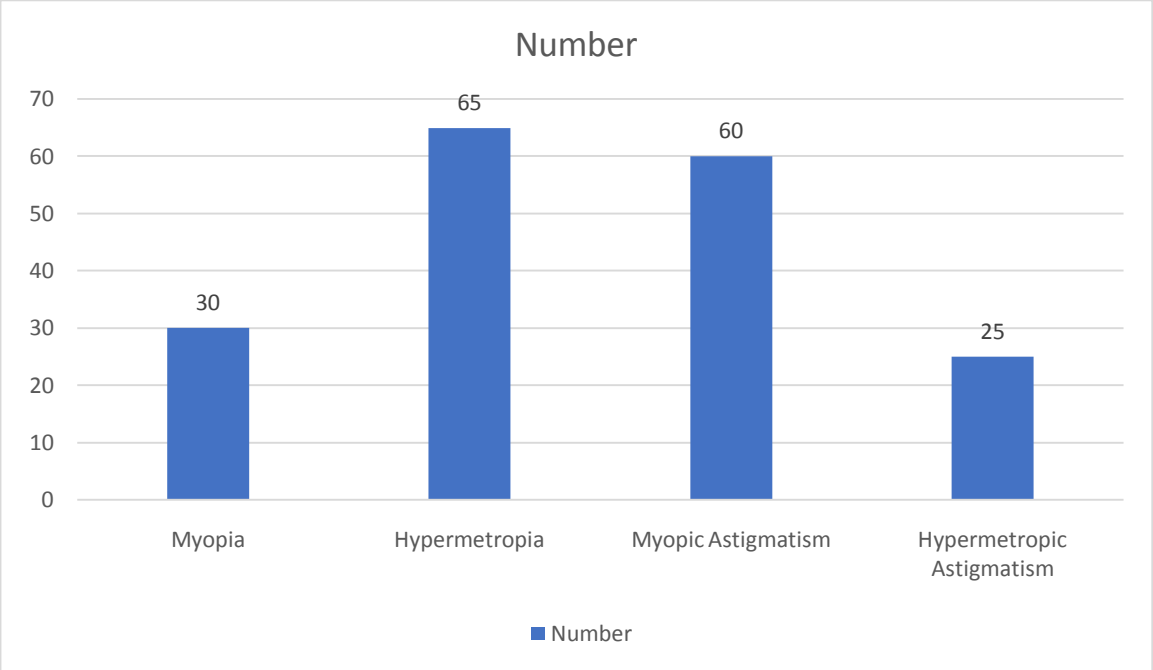

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Table III Types of Amblyopia

Types	Number	P value
Monocular	70	0.05
binocular	110	

Table III shows that types of Amblyopia was Monocular in 70 and binocular in 110 cases. The difference was significant (P< 0.05).

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. When significant interruption of normal visual development occurs, then amblyopia is the term used to describe this diminution of vision.[12] Amblyopia poses an important socioeconomic problem, especially since the risk of the amblyopic patient becoming blind is significantly higher than in the general population.[13]Amblyopia is one of the common causes of childhood visual impairment. 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.[14] 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]

Although, amblyopia is the most common cause of monocular vision loss in population under 40 years, accounting for more cases than trauma and all other causes combined, there is only one study, WHO – NPCB Survey of 1986-89, which reflects the ocular morbidity in our country. According to this, the prevalence of ocular morbidity in our country is 27.9% of the general population. Refractive errors account for 14.12% and cataract for 7.68%. The present study was conducted to assess pattern of amblyopia in children in the age group between 5 to15 years.[16]

We found that age group 5-10 years comprised of 100 and age group 10-15 years had 80 children. Gupta et al[17]assessed the profile and pattern of amblyopia in children aged 5-15 years with refractive error in 360 children from 5-15 years of age. The percentage of

amblyopia was 8.6% (n=31) with insignificant gender variation (p-value>0.05). Amblyopia due to astigmatism (combined) was in 41.93% (n=13) followed by Hypermetropia [32.25% (n=10)] and least in myopia [25.8% (n=8)]. In 51.61% cases age of presentation was 5-10 years while rest belonged to > 10 years of age. Binocular amblyopia was more (58.06%) then unilateral amblyopia (41.93%).

We found that common types were Myopia seen in 30, Hypermetropia in 65, Myopic Astigmatism in 60 and Hypermetropic Astigmatism in 25 cases. Xiao et al[18] in their study found that the proportion of children aged 5 to 15 years with amblyopia were included. Amblyopia was defined as best-corrected visual acuity (BCVA) of ≤20/40 in either eye, with tropia, anisometropia (≥2 spherical equivalent diopters =D]), or hyperopia (≥+6 spherical equivalent D), after excluding children with fundus or anterior segment abnormalities. The overall prevalence of amblyopia was 0.74% (95% confidence interval, 0.64–0.83) with significant (P < 0.001) variation across ethnic groups: 1.43% in Hispanic, 0.93% in Chinese, 0.62% in Indian, 0.52% in Malay, 0.35% in Nepali, and 0.28% in African children. Amblyopia was not associated with age or gender. The most common cause of amblyopia was anisometropia.

We observed that types of Amblyopia was Monocular in 70 and binocular in 110 cases. In the Birch et al[19] study done on adult population, prevalence of anisometropic 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 anisometropic amblyopia in younger age groups (< 7 years).

Conclusion

Authors found that refractive error is the major cause of amblyopia and if it is not corrected timelycan cause the permanent visual morbidity.

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