

Original Article

Amblyopia of Refractive Origin: a Clinical Evaluation

KA Hossain¹, MA Rashid², AKMR Islam³

Abstract :

Amblyopia is defined as unilateral or bilateral decrease in visual acuity without any organic ocular lesion. It generally develops during the first decade of life when the visual system is vulnerable to deprivation. Unilateral amblyopia is more common than bilateral and the amblyopic eye is called lazy eye. This study was carried out in Faridpur Medical College & Hospital (FMCH) and Diabetic Association Medical College & Hospital (DAMCH) Faridpur, in the department of Ophthalmology from January - 2010 to December 2012 with a view to establish that anisometropic (Refractive) amblyopia is more in patients with astigmatism with the rule of both hypermetropic & myopic types also astigmatism against the rule in hypermetropic patients but simple myopia is not associated with amblyopia. Clinically diagnosed 110 patients of amblyopia of refractive origin were selected. Age of the patients was 6 to 15 years with male & female ratio 1.2:1. There was no pathology in the eyes except refractive error. Refraction done all the cases and found the following results: 26 cases (23.63%) of simple myopic astigmatism with the rule, 19 cases (17.27%) of compound myopic astigmatism with the rule, 10 cases (9.09%) of simple hypermetropia, 38 cases (34.54%) of simple hypermetropic astigmatism with the rule and 17 cases (15.45%) of compound hypermetropic astigmatism against the rule. No case of simple myopia was associated with amblyopia. Amblyopia was more in patients with astigmatism with the rule of both hypermetropic and myopic types and also astigmatism against the rule in hypermetropic patients but simple myopia was not associated with amblyopia.

Key words : Amblyopia, Hypermetropia, Myopia, Astigmatism.

Introduction :

Amblyopia is a condition in which unilateral or bilateral decrease in visual acuity without any organic ocular lesion¹. The incidence and prevalence of amblyopia vary from 1 to 2.5 percent in children. Reduced visual acuity is one of the most common complaints of outdoor patients of which refractive error is the main cause and correction is the treatment. But sometimes we can't correct the visual acuity by refraction then the question of amblyopia arises when all others are within normal limit.

Amblyopia has five types: 1. Anisometropic 2. Strabismic 3. Stimulus deprivation 4. Meridional 5. Ametropic².

1. Dr. Khandaker Anwar Hossain, MBBS, DO, Associate Professor, Department of Ophthalmology, Diabetic Association Medical College & Hospital, Faridpur.

2. Dr. Md. Abdur Rashid, MBBS, MCPS(Ophthalmology), DO, FCPS(Ophthalmology), Associate Professor and Head, Department of Ophthalmology, Tairunnessa Memorial Medical College & Hospital, Board bazar, Gazipur.

3. Dr. A.K.M. Rafiqul Islam, MBBS, DO, Medical Officer, Faridpur General Hospital, Faridpur.

Address of correspondence :

Dr. Khandaker Anwar Hossain, MBBS, DO, Associate Professor, Diabetic Association Medical College & Hospital, Faridpur.
Mobile No: 01711282720, E mail: kahossainm16@gmail.com

Amblyopia is primarily a defect of central vision, the peripheral visual field nearly always remains normal, colour vision are also normal. The sensitive period during which amblyopia can be reversed is upto 7 to 8 years in strabismic amblyopia and longer (upto 11-12 years) for anisometropic amblyopia².

Following are characteristic features of amblyopic eye:³

- * Vision is reduced, usually 6/12, not corrected by refraction or vision is not improved with pin hole.
- * No organic lesion is detected in the visual pathway.
- * Single letter vision is better than a row of letters, this is called crowding phenomenon.
- * Less drop of visual acuity than normal eye when seen through gray neutral density filter.
- * Decreased contrast sensitivity.
- * Colour vision unaffected.
- * Eccentric fixation is common.

Anisometropic (Refractive) amblyopia is found in patients in whose refractive errors in two eyes differs by 1D or more & remain uncorrected for a long time. It is more seen in unilateral hypermetropia or astigmatism than myopia¹. Actual mechanism is unknown. Routine eye examination & correction of refractive error in early childhood can prevent its development.

Amblyopia is a major problem in adolescent period. In this period it is very difficult to treat, spectacle correction is the best treatment still known. Forcing use of the amblyopic eye is an option but it is not worthwhile to patch for more than 6 months if there is no improvement. Stimulation of the amblyopic eye may improve vision.

Aim of our study was to established that anisometropic amblyopia is more in patients with astigmatism with the rule of both hypermetropic & myopic types and also astigmatism against the rule in hypermetropic patients but simple myopia is not associated with amblyopia.

Materials & Methods :

The study was conducted at Faridpur Medical College & Hospital (FMCH) and Diabetic Association Medical College & Hospital (DAMCH) Faridpur, in the department of Ophthalmology from January 2010 to December 2012. Clinically diagnosed 110 patients of amblyopia of refractive origin were selected. Ages of the patients were 6 to 15 years with visual acuity and funduscopy were done in all the cases. There was no pathology in the eyes except refractive error. Fundus was within normal limit. Refraction was done in all the cases and findings were noted and presented by keeping aim of the study in mind.

Results :

Twenty six bilateral cases of refraction was between - 2.00 to -0.50 d.s. and - 1.50 to - 0.75 d.c. 180°, Visual Acuity (VA)= 6/60 to 6/24 without glass (S) & with glass (C) 6/18 to 6/12. That is 23.63% of simple myopic astigmatism with the rule.

Nineteen bilateral cases refraction was between - 1.50 to - 0.50 d.c. 180° and -1.25 to - 0.75 d.c.180°. VA = 6/24 to 6/18 without glass (S) & with glass (C) 6/12 to 6/9. That is 17.27% of compound myopic astigmatism with the rule.

Nineteen bilateral cases refraction was between - 1.50 to - 0.50 d.c. 180° and -1.25 to - 0.75 d.c.180°. VA = 6/24 to 6/18 without glass (S) & with glass (C) 6/12 to 6/9. That is 17.27% of compound myopic astigmatism with the rule.

Ten unilateral cases of refraction was between + 1.00 to + 0.75 d.s. VA=6/18 to 6/12 without glass (S) & with glass (C) 6/12 to 6/9. That is 9.09% of simple hypermetropia.

Thirty eight unilateral cases of refraction was between + 2.50 to +0.50 d.s. and + 1.50 to + 0.50 d.c. 180°. VA = 6/36 to 6/18 without glass (S) & with glass (C). That is 34.54 % of simple hypermetropic astigmatism with the rule.

Seventeen unilateral cases refraction was between + 1.50 to 0.75 d.c. 90° and + 2.00 to + 0.50 d.c. 90°. VA = 6/18 to 6/12 without glass (S) & with glass 6/12 to 6/9. That is 15.45% of compound hypermetropic astigmatism against the rule.

No case of simple myopia was associated with amblyopia.

Discussion :

In our study amblyopia was associated with 23.63% cases of simple myopic astigmatism with the rule, 17.27% cases of compound myopic astigmatism with the rule, 9.09% cases of simple hypermetropia, 34.54% cases of simple hypermetropic astigmatism with rule and 15.45% cases of compound hypermetropic astigmatism against the rule but no case of simple myopia associated with amblyopia .

In a previous study⁴ of 60 cases conducted in National Institute of Ophthalmology Hospital (NIOH) and Dhaka Medical College Hospital (DMCH) from January 2002 to December 2002 showed that amblyopia was associated with 25% cases of simple myopic astigmatism with the rule, 20% cases of compound myopic astigmatism with the rule, 5% cases of simple hypermetropia, 31.66% cases of simple hypermetropic astigmatism with the rule and 18.33% cases of compound hypermetropic astigmatism against the rule but no case of simple myopia associated with amblyopia which are comparable with our study.

Conclusion :

In majority of the cases amblyopia was associated with astigmatism with the rule of both hypermetropic and myopic types and also astigmatism against the rule in hypermetropia. But simple myopia was not associated with amblyopia.

References :

1. Hadi FMA, Hannan MSK , Nurallah AASM. A hand book on Basic eye care and refraction. 1st ed. Dhaka: Win printing & packaging; 2006.p.123-25.
2. Basak SK. Essentials of Ophthalmology. 4th ed. Kolkata:Current Books International;2007.p. 389.
3. Nema HV, Nema N. Textbook of Ophthalmology. 6th ed. New Delhi:Jaypee Brothers Medical Publishers (p) Ltd; 2012.p.390-91.
4. Bilkis B, Shahjahan AM, Sayed AK, Quadir S, Muktedir AKMA, Hadi FMA. Amblyopia of refractive origin. Bangladesh Medical Journal 2003;32(3):50.