Original Research Article

EFFECT OF CONTRAST SENSITIVITY ON OCULAR DEVIATION

Abstract

Purpose: The aim of the present study is to correlate contrast sensitivity in the presence of ocular deviation

Methods: A pilot, cross sectional, observational study was performed at tertiary eye care centers. Subjects with Ocular deviation between 10 to 40 prism diopters, Corrected distance Visual Acuity should be greater than 6/18 and Age should be between 10 to 40 years of age were included in the study. Contrast sensitivity was recorded with Pelli Robson Contrast Sensitivity chart

Results: 30 subjects were included in the study. Out of that,16 subjects were in the age group of 11-20 years, 12 subjects were in the age group of 21-30 years and 2 subjects were in the age group of 31-40 years. 60% subjects were Female and 40% subjects were Male. Mean scores of visual parameters were taken. Contrast sensitivity was deteriorated to 1.695 in the presence of ocular deviation.

Conclusions: In cases of ocular deviation, contrast sensitivity deteriorates significantly.

Keywords: Ocular Deviation, Contrast Sensitivity

INTRODUCTION:

Human eye is an organ that is capable of receiving visual images, which are then carried to the brain. It shows the major efficiency as the most potent sense organ, i.e. to generate image. Ocular deviation is the sense of eye movements where the key eyeball moves towards the upward as well as, to the opposite direction. As a result some skew deviation occurs due to pre-nuclear vestibular input to the ocular motor nuclei. This occurs due to brainstem or cerebeller stroke. Variability of this particular issue depends upon the quantification of eye

position in strabismus [8]. Visual acuity judge the acuteness of vision, which is determined to quantify the strength of a person to detect an object or maximum place that covers up in a single set of vision. It can be said from various cross sectional study that, large horizontal rectus recession can improve visual acuity and decrease nystagmus in sensory and motor types. By revision in surgical planning, strabismus and abnormal head posture can also be corrected.[9] This particular study is aimed to correlate contrast sensitivity in the presence of ocular deviation

Contrast sensitivity is a very important measure of visual function, especially in situations of low light, fog or glare, when the *contrast* between objects and their background often is reduced. Driving at night is an example of an activity that requires good *contrast sensitivity* for safety. Ocular deviation can be also determined with the help of the pattern of contrast sensitivity.

METHODOLOGY:

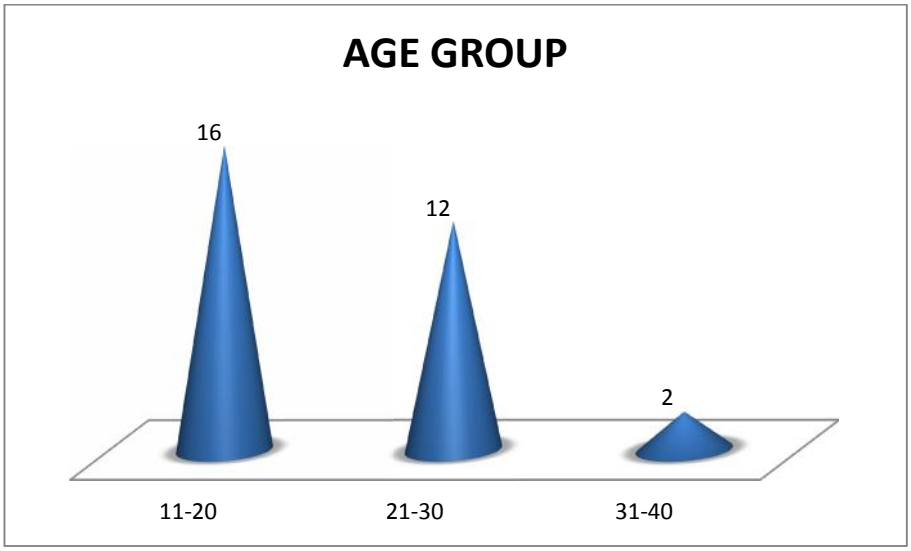
- A pilot, cross sectional, observational study was performed at tertiary eye care centers. Subjects with Ocular deviation between 10 to 40 prism diopters, Corrected distance Visual Acuity should be greater than 6/18 and Age should be between 10 to 40 years of age were included in the study. Individuals with any other systemic disease(specially which can affect study),Individuals with any other Ocular Pathology,with any active ocular infection,any ocular anomalies like Corneal Scar etc ,ocular deviation if less than 10 degree and Significant amount of amblyopic patient were excluded from the study. Full refractive correction along with detailed fundus evaluation was performed in each and every patient. Contrast sensitivity was assessed with Pelli Robson Contrast Sensntivity Chart. Data was analysed using SPSS software version 20.

- RESULTS:

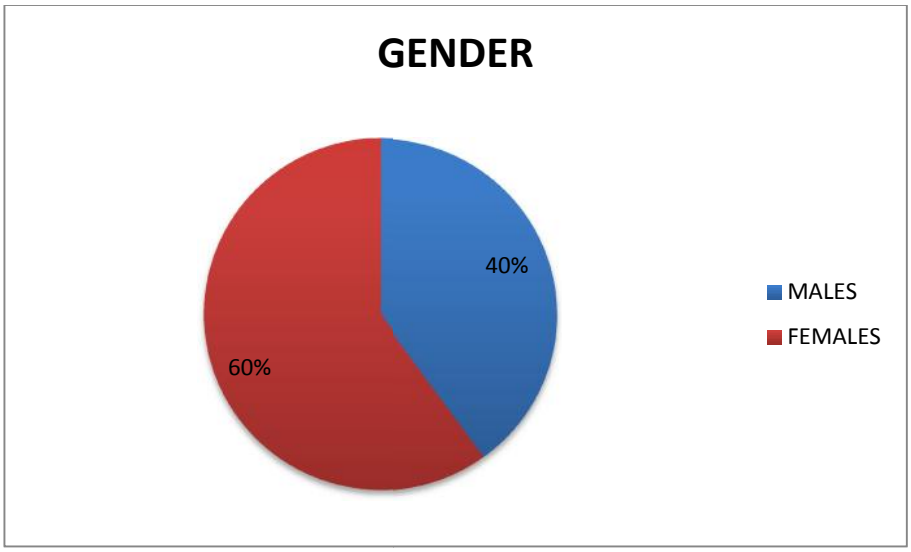
30 subjects were included in the study. Graph 1 shows distribution of subjects in various age groups.16 subjects were in the age group of 11-20 years, 12 subjects were in the age group of

21-30 years and 2 subjects were in the age group of 31-40 years. Graph 2 shows gender wise distribution of the subjects. 60% subjects were Female and 40% subjects were Male. Mean scores of visual parameters were taken using SPSS Software version 20. Graph 3 shows mean contrast sensitivity was deteriorated to 1.695

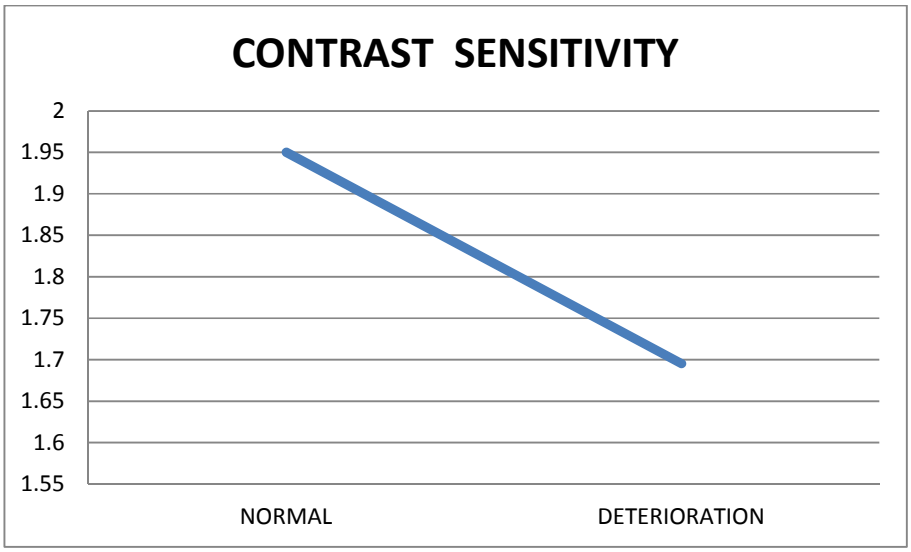
GRAPH 1: SHOWS AGE WISE DISTRIBUTION OF THE SUBJECT



GRAPH 2 shows gender wise distribution of the subjects



Graph 3 : shows comparison of mean contrast sensitivity to the normal subjects



Discussion:

Contrast Sensitivity of a normal individual is 1.95. In cases of ocular deviation, contrast sensitivity decreases significantly. According to statistical analysis, contrast sensitivity is deteriorated to 1.695. With increase in ocular deviation, contrast sensitivity is deteriorated significantly. It mainly occurs due to cone cell variation in the macular region. The number of cone cells is highest in the foveal region compare to parafoveal region. Cone cells are completely responsible for Contrast Sensitivity, so if any anomaly is present in cone cells, then problem with contrast sensitivity will be enhanced.

Conclusion :

Contrast sensitivity decreases significantly in cases of ocular deviation.

CONSENT :

Oral/ written consent was obtained from patient as well as from tertiary eye care centres.

ETHICAL APPROVAL:

It is not applicable.

References:

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