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Research Article

EFFECT OF CONTRAST SENSITIVITY IN DIFFERENT AMOUNT OF DEVIATION OF EXOTROPIA

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ABSTRACT

Purpose: The aim of the present study is to compare the effect of contrast sensitivity in different amount of deviations in Exotropia.

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 assessed 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. The mean contrast sensitivity was considered in each amount of deviation. It shows that contrast sensitivity will be deteriorated more as ocular deviation increases in cases of Exotropia.

Conclusions: In ocular deviation of Exotropia, as amount of deviation increases, Contrast Sensitivity decreases gradually.

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INTRODUCTION

In case of ocular deviation images of an object are falling on parafoveal region and due to inequality of the number of the cone cells in the macular region there may be chances of deterioration of Contrast Sensitivity with increasing ocular deviation. In case of Exodeviation the images of an object is placed at the temporal retinal sides. CS is completely depends on the cone cells also. Due to variation of the cone cells in the macular region that's why there may be strong correlation with the ocular deviation with CS due to anatomical anomalies of the photo receptor cells. But in case CV there may not be much more difference in deterioration between Eso and Exo deviation.

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 Sensitivity Chart in different amounts of deviation in Exotropia. Data was analyzed using SPSS software version 20.

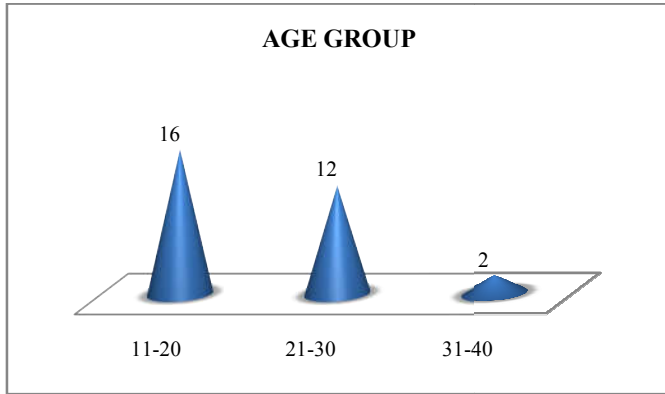
RESULTS

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. Graph 3 shows comparison of Contrast Sensitivity for different amount of deviation for Exotropia. The mean contrast

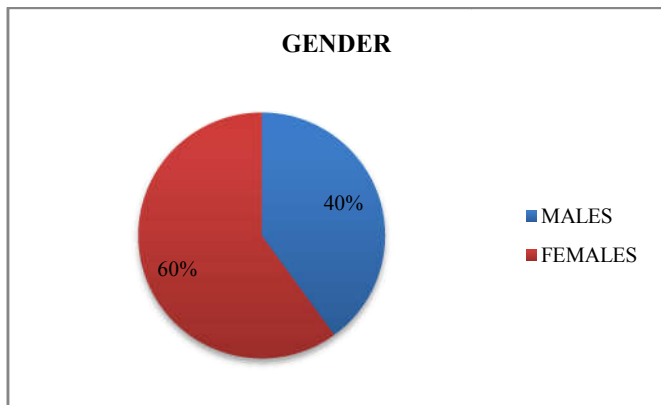
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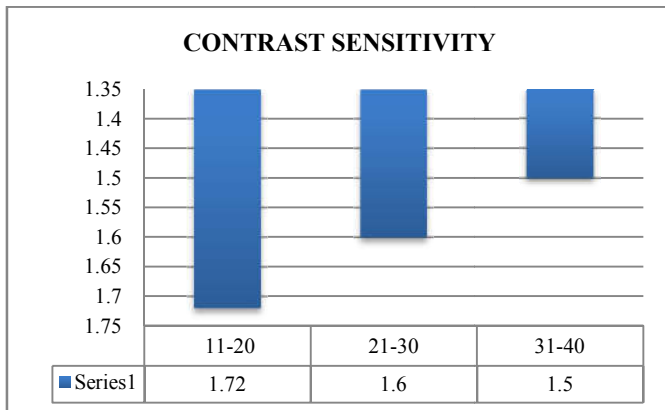
sensitivity was considered in each amount of deviation. It shows that Contrast Sensitivity will be deteriorated more as ocular deviation increases in cases of Exotropia.



Graph 1 Shows Age Wise Distribution of the Subject



Graph 2 shows gender wise distribution of the subjects



Graph 3 Shows comparison of Contrast Sensitivity for different amount of deviation for Exotropia

DISCUSSION

Contrast Sensitivity of a normal person is 1.95. In the present study, according to the statistical analysis, contrast sensitivity was 1.72 in the ocular deviation of 11-20 prism diopters, 1.6 and 1.5 in 21-30 and 31-40 prism diopters respectively.

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This shows that increase in the amount of deviation is associated with decrease in contrast sensitivity gradually. According to the present study, it has been showed that in cases of ocular deviation, images of an object fall on the Parafoveal region and deteriorates the Contrast Sensitivity. In case of Exodeviation there have less chances to become Amblyopia due to most of cases intermittent timing is high compare to Eso deviation. In case of Exodeviation images of an object is fall on the temporal parafoveal region and according to the deformity of the anatomical arrangement of the photoreceptor cells in the macula that's why in the parafoveal region number of cone cells is less compare to foveal region. Just for this reason in case of Exodeviation images is shifted towards parafoveal region and due to less number of cone cells and according to the statistics it has been proved that with increasing Exodeviation Contrast Sensitivity is been deteriorated

CONCLUSION

In ocular deviation of Exotropia, as amount of deviation increases, contrast sensitivity decreases gradually.

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