

Effect of Ocular Deviation on Contrast Sensitivity

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Authors' contributions

This work was carried out in collaboration between both authors. Author PHC wrote the full thesis. Author BHS managed the data collection along with the formatting of the article. Both authors read and approved the final manuscript.

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ABSTRACT

Purpose: The present study aims 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 an 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. All the patients were included with informed consent. 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.

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1. INTRODUCTION

Contrast Sensitivity plays an important role in BSV circoustically [1]. For Contrast Sensitivity cone cell is precisely responsible for it. In case of normal ocular deviation images of an object is falling on the foveal region and everyone we know that cone density is highest in the foveal region [2,3]. But due to anatomical deformity number of cone cell is varied from region to region in the macular region. That's why in the Contrast Sensitivity there may be chances of to deteriorate the Contrast Sensitivity as respect to ocular deviation [4,5]. It mainly occurs due to in presence of ocular deviation images of an object is falling on the parafoveal region and there may be chances to deteriorate the Contrast Sensitivity [6,7].

2. 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

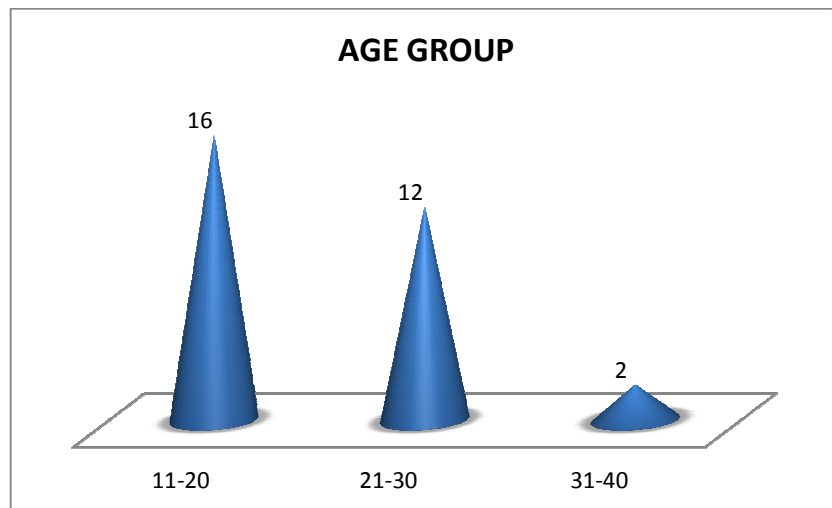
evaluation was performed in each and every patient. Contrast sensitivity was assessed with Pelli Robson Contrast Sensitivity Chart. Data was analysed using SPSS software version 20.

3. RESULTS

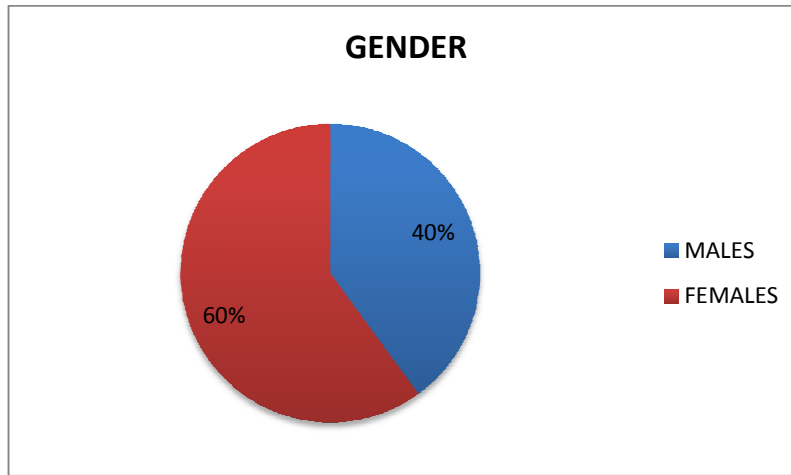
30 subjects were included in the study. Graph 1 shows distribution of subjects in various age groups.16 subjects were in the age group of 11-20 years, 12 subjects were in the age group of 21-30 years and 2 subjects were in the age group of 31-40 years. Graph 2 shows gender-wise distribution of the subjects. 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.

4. DISCUSSION

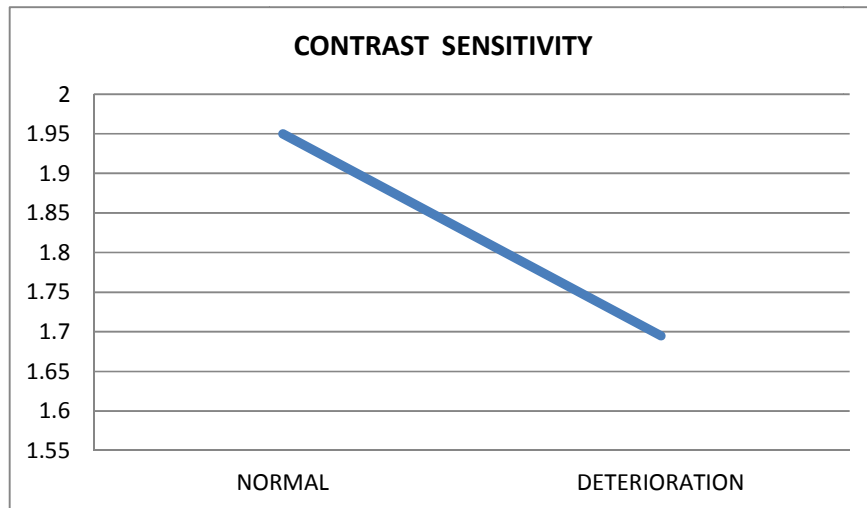
Contrast Sensitivity of a healthy individual is 1.95. In cases of ocular deviation, contrast sensitivity decreases significantly. According to statistical analysis, contrast sensitivity is deteriorated to 1.695. With an increase in ocular deviation, contrast sensitivity is deteriorated significantly. 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.



Graph 1. Shows age wise distribution of the subject



Graph 2. Shows a gender-wise distribution of the subjects



Graph 3. Shows comparison of mean contrast sensitivity to the normal subjects

5. CONCLUSION

Contrast sensitivity decreases significantly in cases of ocular deviation.

CONSENT

Written consent was obtained from patient as well as from tertiary eye care centres.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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