Research Article

A study of visual field changes for diagnosis of glaucoma on humphreys perimetry

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Abstract

Aim: To study visual field changes in patients with raised intraocular pressure and optic disc changes suspicious of glaucoma. **Methodology:** This was a cross sectional studies of 100 patients with disc changes suspicious of glaucoma or IOP≥21 mm Hg were included. Patients of both sexes and all age groups were included. Anterior chamber angle was examined with Goldmann 3 mirror gonioscopic lens. IOP was measured with applanation tonometer. Fundus examination was performed to document the degree of optic disc cupping. **Results:** The prevalence of visual field defects in the present study was 36%. 36 patients showed glaucomatous field defects. Mean age of patients with field defect was 48 years ± 10.6. Majority of patients with field defects were above 50 years of age, only 20% of patients had a positive family history of POAG .The mean IOP of 51 eyes with visual field defects was found to be 28.02 ± 7.65 mm Hg.50% of patients with asymmetrical C:D ratio ≥ 0.2 had visual field defects. **Conclusions**: Glaucoma suspects patients with F/H/O glaucoma, IOP ≥ 21 mm Hg, C:D> 0.5 & a symmetrical cupping are more prone for glaucoma& also constitute an important group that would benefit from energetic screening for glaucoma by Visual field analysis.
Keywords: Glaucoma, visualfields, perimetry

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INTRODUCTION

The main function of eye is "Vision" & the majority of the inputs to the brain comes from the vision. Glaucoma is defined as progressive optic neuropathy resulting in a characteristic appearance of optic disc & specific pattern of irreversible visual field defects with or without raised intra-ocular pressure. Glaucoma causes irreversible blindness & many of them almost 50 % are unaware of their condition. Worldwide it has become the second most common cause of bilateral blindness next to cataract. Visual field is nothing but the area seen by steady fixating eye. Evaluation of visual field is called as field analysis or perimetry. We can screen the population by visual field changes to detect the disease & by starting the treatment can save the vision. So this topic highlights on the importance of study of visual field changes in those patients suspicious of glaucoma.

MATERIAL & METHODS

This was a cross sectional study. Up to 100 patients attending Ophthalmology outpatient department of Government Medical College and hospital, Mirajwith optic disc changes suspicious of glaucoma or intraocular pressure > 21 mm Hg were included in the study. Patients of both sexes and all age groups were included in the study. Gonioscopic evaluation of the anterior chamber angle was done with help of Goldmann 3 mirror gonioscopic lens. IOP was measured with Goldmann type of applanation tonometer. Fundus examination was performed with 90 D, direct & indirect ophthalmoscope, to document the degree of optic disc cupping & to rule out any other lesions of the optic disc & of the retina.

RESULTS

The prevalence of visual field defects in the present study was 36%. We have studied 100 patients of glaucoma

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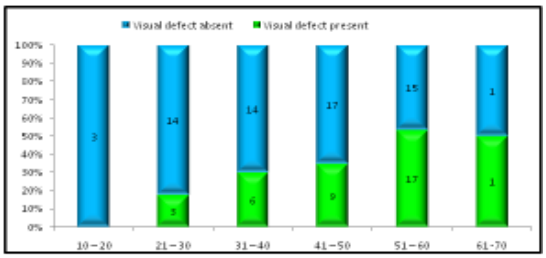
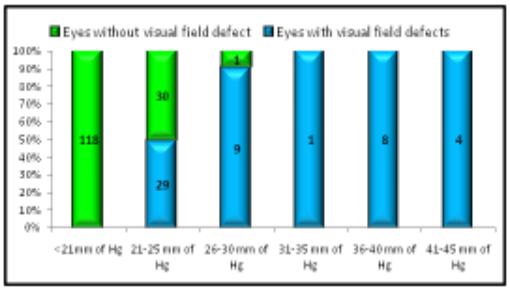
suspects, out of this 36 patients showed glaucomatous field defects, whom we have started anti-glaucoma therapy. Mean age of patients with field defect was 48 years ± 10.6. Majority of patients with field defects were above 50 years of age



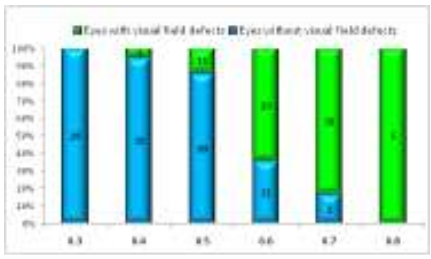
Graph 1

As per table, when the age distribution was studied in our 36 patients with field defects, the youngest patient was of 26 years and the oldest was of 67 years. Majority of diagnosed patients (53%) were above 50 years of age. It was observed that as age advances, % of patients with field defects also increases. The mean age of the studied population was 48 years and a standard deviation of 10.6. Only 20% of patients had a positive family history of POAG in first degree relative (sibling, parent or child). The mean IOP of 51 eyes with visual field defects was found to be 28.02 ± 7.65 mm Hg.



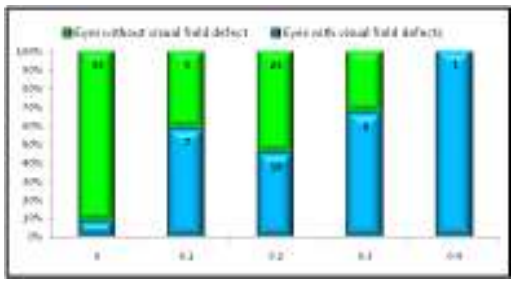
Graph 2

Whereas it was observed that as IOP increased from 21-25 mmHg to 41-45 mmHg, % of visual field defect increased from 49.2% to 100%. Mean IOP of 51 eyes with visual field defect was 28.02±7.65. To test the statistical significance Pearson's Chi square test was applied, it was found that as the IOP increases, prevalence of visual field defect increases, the difference was very highly statistically significant with p value < 0.001. Mean C: D ratio of 51 eyes with field defects was 0.6. To test the statistical significance Pearson's Chi square test was applied, it was found that as the C:D ratio increases prevalence of visual field defect increases, the difference is very highly statistically significant with p value < 0.0001.



Graph 3: Distribution of field defects with C: D ratio

50% of patients with asymmetrical C: D ratio ≥ 0.2 had visual field defects. Out of 36 patients with field defect majority of patient (19) had asymmetry of C: D ratio in fellow eyes of 0.2. From the table it is clear that as asymmetry of C: D ratio in fellow eyes increases, % of visual field defect increases. To test the statistical significance Pearson's Chi square test was applied, it was found that as the asymmetry of C: D ratio increases prevalence of visual field defect increases, the difference is very highly statistically significant with p value < 0.0001.



Graph 4: Distribution of field defects in patients with asymmetrical C:D ratio.

CONCLUSION

IOP ≥ 21 mm Hg is an important risk factor for development of glaucoma. As the C:D ratio increases, the chances of development of visual field defects also increases. Asymmetrical C:D ratio between fellow eyes with a difference of ≥ 0.2 is an almost inevitable accompaniment in patients who develop glaucoma. F/H/O glaucoma is an important risk factor for development for glaucoma. Advancing age proved to be an important risk factor for development of glaucoma in glaucoma suspects. So to conclude, glaucoma suspects (patients with F/H/O glaucoma, IOP ≥ 21 mm Hg and asymmetrical cupping ≥ 0.2 constitute an important group that would benefit from energetic screening for glaucoma by Visual field analysis.

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