DOI: https://doi.org/10.53350/pjmhs211592266

ORIGINAL ARTICLE

Visual Field Changes in Normal Tension Glaucoma (NTG)

OSSAMA ALI KHAN[1], SAJJAD MOHAMMAD[2], IMRAN KHAN[3], MUHAMMAD FAIQ NISAR[4], AMIR KHAN[5], YASIR AMIR KHAN[6]

[1]*Medical Officer, Civil Dispensary Dabgari, Peshawar*
[2]*Associate Prof. Physiology Department, Jinnah Medical College, Peshawar*
[3]*Assistant Prof. Physiology Deptt. Saidu Medical College, Swat*
[4]*Medical Officer, Medical ICU, Northwest General Hospital and research centre, Peshawar*
[5]*Principal Jinnah Medical College, Peshawar*
[6]*Trainee Medical Officer, Surgical Department, HMC, Peshawar*
Correspondence to Dr. Sajjad Mohammad, Associate Prof.

ABSTRACT

Aim: To observe the visual field changes in normal tension glaucoma
Study design: Cross sectional study
Study site: Department of Physiology, Khyber Medical College, Peshawar
Study period: six months
Sample size: 100 cases were included who fulfil the criteria.
Results: There were 33(33%) males and 67(67%) females in the study. Visual fields of eyes were investigated. It was revealed that in cases with the right eye problem, 67(67%) had paracentral scotoma, 27(27%) had superior & inferior nasal steps, 1(1%) had scotoma closer to fixation and 5(5%) had arcuate scotoma, while in the left eye cases, 67(67%) had paracentral scotoma, 30 (30%) had superior & inferior nasal steps, 1(1%) had scotoma closer to fixation and 2(2%) had arcuate scotoma.
Conclusion: Visual fields of eyes revealed that in cases with the right eye problem, 67(67%) had paracentral scotoma, 27(27%) had superior & inferior nasal steps, 1(1%) had scotoma closer to fixation and 5(5%) had arcuate scotoma, while in the left eye cases, 67(67%) had paracentral scotoma, 30(30%) had superior & inferior nasal steps, 1 (1%) had scotoma closer to fixation and 2(2%) had arcuate scotoma.
Keywords: Visual field, open angle glaucoma, normal tension glaucoma

INTRODUCTION

Glaucoma is a chronic disease. It is progressive in nature, and may cause, deficit in the visual ability of the eye. It may result in permanent blindness, if not treated properly. Ocular Hypertension (OHT) is used for patients with consistently raised intraocular pressure (IOP), but with no subsequent damage of the optic nerve. Normal tension or low tension glaucoma is a condition that involves damage to the optic nerve, and associated visual field (VF) loss with a normal or low IOP[1].

About 0.5-1% of the people with high pressure might develop glaucoma each year, if they are followed up for a period of about 5-10 years. Though studies have put glaucoma at the second place for causing permanent blindness in the world, its incidence is declining now-a-days. It accounts for less than 1%.This is probably, due to sophisticated techniques of perimetry and ophthalmoscopy, to find and eradicate the disease[2,3].

The objective of the study was to observe the visual field changes in normal tension glaucoma

METHODOLOGY

This cross sectional study was conducted in Physiology Department of the Khyber Medical College Peshawar for a period of six months. Study was done on 100 cases who attended the department of Ophthalmology of Khyber Teaching Hospital Peshawar approved by IRB. Sample technique used was neuropathy were included. Optic neuropathy caused by other diseases, like diabetes or tumours, developmental or non probability sampling. Age within 35-65 years with both traumatic diseases of the eye, eyes treated medically, surgically or through laser in the past and cataract bearing eyes were excluded.

Data Collection Procedure: 100 patients fulfilling the inclusion criteria were included. Demographic information (name, age, gender, contact) of every patient was obtained after obtaining informed consent. Clinical examination was done on every patient to observe the presence of glaucoma, type of glaucoma and to measure the intraocular pressure. All this information was recorded on Performa. Data was entered and analyzed by using SPSS version 10.

Received on 09-04-2021
Accepted on 19-08-2021

RESULTS

The detail of results is given in tables 1,2,3,4

Table 1: Involved eye and IOP

IOP (mmHg)		Right eye	Left eye
	N	100	100
	Mean	17.15	17.30
	SD	1.78	1.94
	Minimum	12	12
	Maximum	20	20
	Range	8	8

Table 2: Visual fields of eyes

Investigation VF		Right Eye	Left Eye
	Para central scotoma	67 (67%)	67 (67%)
	Superior & inferior nasal steps	27 (27%)	30 (30%)
	Scotoma closer to fixation	01 (1%)	01 (1%)
	Arcuate Scotoma	05 (5%)	02 (2%)
	Total	100 (100%)	100 (100%)

Table 3: VF of right eye WRT gender

Investigation VF right eye	Gender		Total
	Male	Female	
Para central scotoma	20 (60.6%)	47 (70.1%)	67 (67%)
Superior & inferior nasal steps	10 (30.3%)	17 (25.4%)	27 (27%)
Scotoma closer to fixation	00	1(1.5%)	01 (1%)
Arcuate Scotoma	03 (9.1%)	2 (3%)	05 (5%)
Total	33 (100%)	67(100%)	100(100%)

Chi-square = 2.662 p-value = 0.616 (Insignificant)

Table 4: VF of left eye WRT gender

Investigation VF left eye	Gender		Total
	Male	Female	
Para central scotoma	21(63.6%)	46(68.7%)	67(67%)
Superior & inferior nasal steps	11 (33.3%)	19(28.4%)	30(30%)
Scotoma closer to fixation	00	1(1.5%)	01(1%)
Arcuate Scotoma	1(3%)	1(1.5%)	2(2%)
Total	33(100%)	67(100%)	100(100%)

Chi-square = 1.050p-value = 0.902 (Insignificant)

DISCUSSION

For Caucasians this prevalence was estimated to be 0.8-3.0%.The prevalence of POAG in people over the age of 40 was 1.7% for Caucasians and 5.6% for African Americans in the Baltimore Eye Survey studies[4].

For people aged 60 or above, the prevalence of OAG in Latinos becomes similar to the prevalence in African Americans. The prevalence of POAG in people aged 52-85 years was found to be 1.65% in the Framingham Eye Study. This rose further to 2.1% when VF testing was added to the screening of a subset of the Framingham subjects. Though a number of studies give a consistent range of the prevalence of cases with high IOP and VF defects to be between 0.3% and 0.4%, it is presented to be in the range of 0.05% to 0.79% for NTG[5].

The detailed investigations of VF of eyes were also done in our study. It was revealed that in cases involving right eye, 67(67%) had paracentral scotoma, 27(27%) had superior & inferior nasal steps, 1(1%) had scotoma closer to fixation and 5(5%) had arcuate scotoma. While in cases of left eye, 67(67%) had paracentral scotoma, 30(30%) had superior & inferior nasal steps, 1(1%) had scotoma closer to fixation and 2(2%) had arcuate scotoma.

The prevalence of glaucoma in people aged 52-85 years was found to be 1.65% in the Framingham Eye Study. This rose further to 2.1% when Visual field testing was added to the screening of a subset of the Framingham subjects. Though a number of studies give a consistent range of the prevalence of cases with high IOP and Visual field defects to be between 0.3% and 0.4%, it is presented to be in the range of 0.05% to 0.79% for NTG[5]. There were 29(29%) cases having positive family history of glaucoma. Among them there were 15(45.5%) males and 14(20.9%) females. A significant difference between both genders (p-value = 0.011) was also found. Females were at greater risk of developing glaucoma. Studies have suggested that 13-25% of patients with glaucoma have a positive family history for the disease. Specifically speaking, in close relatives of persons with POAG, the prevalence is 3-6 times that of the general public. Also the incidence of POAG is 3-5 times higher in the first-degree relatives[6].

CONCLUSION

In this study, regarding visual field, it was revealed that in right eye cases, 67(67%) had paracentral scotoma, 27(27%) had superior & inferior nasal steps, 1(1%) had scotoma closer to fixation and 5(5%) had arcuate scotoma. In left eye cases, 67(67%) had paracentral scotoma, 30(30%) had superior & inferior nasal steps, 1(1%) had scotoma closer to fixation and 2(2%) had accurate scotoma.

Conflict of interest: Nil

REFERENCES

1. Rhee DJ. Glaucoma. [Online]. 2008. [Cited on 2012]. Available from: http://www.merckmanuals.com/home/eye_disorders/glaucoma/glaucoma.
2. Czudowska MA, Ramdas WD, Wolfs RC et al. Incidence of Glaucomatous Visual Field Loss: A Ten-Year Follow-up from the Rotterdam Study. Ophthalmology 2010; 117(9):1705-12.
3. Friedman DS, Wolfs RC, O'Colmain BJ, et al. Prevalence of open-angle glaucoma among adults in the United States. Arch Ophthalmol 2004; 122:532-8.
4. Hollows FC, Graham PA. Intraocular pressure, glaucoma, and glaucoma suspects in a defined population. Br J Ophthalmol 1966; 50:570-86.
5. Varma R, Ying-Lai M, Francis BA, et al. Prevalence of open-angle glaucoma and ocular hypertension in Latinos. Ophthalmology 2004; 111:1439-48.
6. Netland PA, Wiggs JL, Dreyer EB. Inheritance of glaucoma and genetic counseling of glaucoma patients. Int Ophthalmol Clin 1993; 33:101-20
.