

ORIGINAL ARTICLE

Evaluation of risk factors of open angle glaucoma

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ABSTRACT:

Background: A group of eye conditions known as glaucoma cause progressive degeneration of the optic nerve. The present study assessed various risk factors of open angle glaucoma. **Materials & Methods:** 76 adult patients of open angle glaucoma of both genders were selected. Parameters such as history of smoking, family status of open angle glaucoma, presence of AMD, previous pseudo-exfoliation, previous cataract surgery and intraocular pressure (IOP) was recorded. **Results:** Out of 76 patients, 30 were males and 46 were females. Age group 30-40 years had 14, 40- 50 years had 23 and 50-60 years had 39 patients. Smoking history was never in 40, current in 20 and past in 16 patients. Previous cataract surgery was seen among 34, AMD was present in 28, pseudo-exfoliation was present in 31 and family history was seen among 25 patients. The difference was significant ($P < 0.05$). **Conclusion:** Smoking history, family history, AMD, pseudo-exfoliation, and prior cataract surgery were among the risk factors.

Keywords: cataract, open angle glaucoma, pseudo-exfoliation

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INTRODUCTION

A group of eye conditions known as glaucoma cause progressive degeneration of the optic nerve. This is the primary cause of vision loss. The majority of instances need to be treated very away, but if they are not, permanent blindness could result.¹ It is also thought to be the primary cause of blindness, which is an irreversible condition. The most prevalent type of glaucoma is open-angle glaucoma (OAG). The need of the hour is early detection and timely treatment.² According to published research, 55% of open-angle glaucoma cases go untreated, particularly in wealthy nations; in non-developed nations, the number is even higher. Treatment can delay the progression of the disease, and it is crucial to screen a large number of people.³

In the human eye, the choroid is thought to have a thick layer of blood vessels. It transports the most blood.⁴ Because the small posterior ciliary arteries supply nutrition to the head of the second cranial nerve (optic) and choroid, the fine blood vessels in the peripapillary choroid are considered to be of vital importance in patients with glaucoma. Therefore, choroid examination is required to determine the precise pathological and physiological phenomenon.^{5,6}

It is clear that in order to slow the disease's course, a number of risk factors must be taken into account before choosing a treatment plan.⁷ It has been discovered that eliminating possible risk factors could help manage this illness. Intraocular pressure (IOP) has the greatest potential for harm among the several risk factors. Compared to normal-tension glaucoma (NTG), it is far more harmful in situations of primary open-angle glaucoma (POAG).⁸ The present study assessed various risk factors of open angle glaucoma.

MATERIALS & METHODS

The present study was carried out on 76 adult patients of open angle glaucoma of both genders. All were enrolled in the study with the written consent.

Data such as name, age, gender etc. was recorded. A careful eye examination was carried by an expert ophthalmologist. Parameters such as history of smoking, family status of open angle glaucoma, presence of AMD, previous pseudo-exfoliation, previous cataract surgery and intraocular pressure (IOP) was recorded. Results were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 76		
Gender	Male	Female
Number	30	46

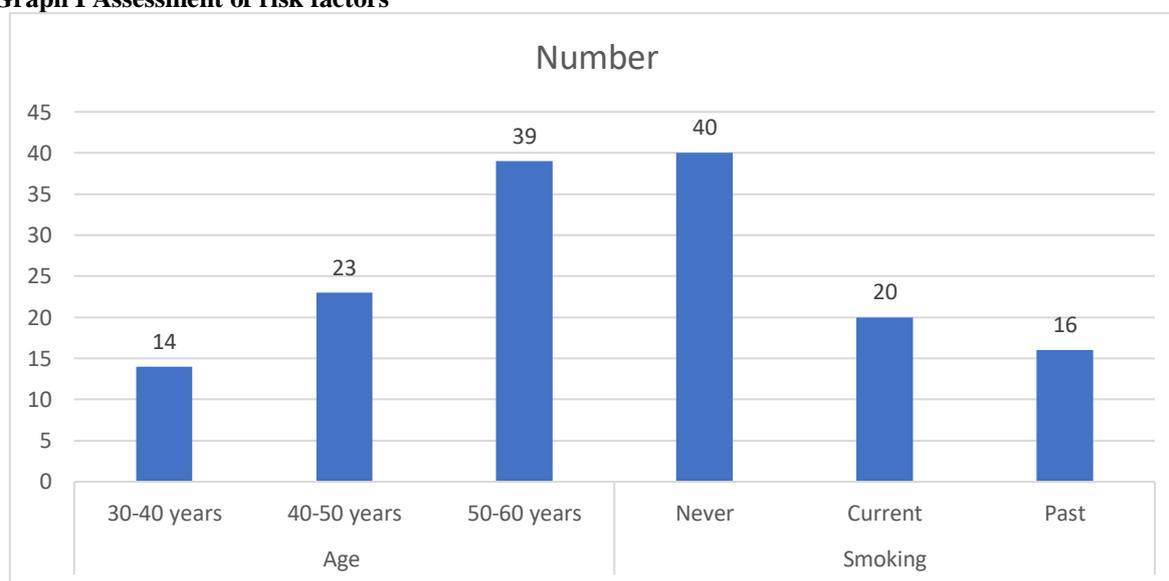
Table I shows that out of 76 patients, 30 were males and 46 were females.

Table II Assessment of risk factors

Parameters	Variables	Number	P value
Age	30-40 years	14	0.05
	40-50 years	23	
	50-60 years	39	
Smoking	Never	40	0.05
	Current	20	
	Past	16	
Previous cataract surgery		34	-
AMD		28	-
Pseudo-exfoliation		31	-
Family history		25	-

Table II, Graph I show that age group 30-40 years had 14, 40- 50 years had 23 and 50-60 years had 39 patients. Smoking history was never in 40, current in 20 and past in 16 patients. Previous cataract surgery was seen among 34, AMD was present in 28, pseudo-exfoliation was present in 31 and family history was seen among 25 patients. The difference was significant (P< 0.05).

Graph I Assessment of risk factors



DISCUSSION

One of the degenerative neuropathys that affects adults is glaucoma. It involves the optic nerve, which is the second cranial nerve. Because of the relative thinning of the neuro-retinal margin of the nerve in open angle glaucoma, the optic-nerve cup enlarges. It's known as optic nerve cupping.^{9,10} Damage to the retinal ganglion cells' axons, as well as to the soma and the nodes of Ranvier, is the cause of optic-nerve cupping.¹¹ In contrast to open angle glaucoma, various types of optic neuropathies are known to cause the loss of the pink color of the optic nerve. Arteritic anterior ischemic optic neuropathy is the only optic neuropathy that exhibits this cupping of the optic nerve.¹² Patients with open angle glaucoma may lose their peripheral vision, and if treatment is delayed, it may become apparent that they have permanently lost their whole eyesight. It is not classified according to anterior-segment differences, even though it advances without influencing intraocular pressure.¹³ The anterior segment of the eye supplies blood to the cornea and lens. The eye's ciliary body produces

aqueous fluid, which travels through the anterior chamber and exits through the iridocorneal angle's trabecular meshwork.^{14,15} The present study assessed various risk factors of open angle glaucoma.

We found that out of 76 patients, 30 were males and 46 were females. In 40 investigations, Mowatt et al¹⁶ recruited 48,000 participants. This study examined the accuracy of open angle glaucoma screening tests. The current investigation demonstrated that frequency-doubling technology was substantially more sensitive than Goldmann applanation tonometry and ophthalmoscopy, whereas Heidelberg Retinal Tomograph and threshold standard automated perimetry (SAP) were both more sensitive than GAT. Compared to threshold SAP and FDT C-20-5, GAT was more specific.

We found that age group 30-40 years had 14, 40- 50 years had 23 and 50-60 years had 39 patients. Smoking history was never in 40, current in 20 and past in 16 patients. Previous cataract surgery was seen among 34, AMD was present in 28, pseudo-exfoliation was present in 31 and family history was

seen among 25 patients. Actis et al¹⁷ included 190 caucasian patients (377 eyes), evaluating relationship between individual risk factors (explicative variables) and MD (Mean Deviation) of standard automated perimetry. Factors reaching statistical significance, determining a worsening of the MD variable, are: age ($P < 0.0001$), intraocular pressure (IOP) at follow up ($P < 0.0001$), female gender ($P < 0.0001$), hypertension ($P < 0.0001$) and familiarity ($P = 0.0006$). Factors reaching statistical significance, determining a worsening of the NFI variable, are only IOP at follow up ($P = 0.0159$) and depression ($P = 0.0104$).

Leske et al¹⁸ evaluated 3222 persons at risk, 40 to 84 years old, who did not have definite OAG at baseline. Over 9 years, 125 persons developed definite OAG (incidence, 4.4%; 95% CI, 3.7–5.2). Baseline factors influencing risk were age (RR, 1.04; 95% CI, 1.02–1.05 per year); family history of glaucoma (RR, 2.4; 95% CI, 1.3–4.6); higher intraocular pressure (IOP) (RR, 1.12; 95% CI, 1.08–1.16 per mmHg); lower systolic BP (RR, 0.91; 95% CI, 0.84–1.00 per 10 mmHg); and lower ocular systolic, diastolic, and mean perfusion pressures (RR, 0.66; 95% CI, 0.54–0.80 per 10 mmHg higher mean perfusion pressure) (RR, 2.6; 95% CI, 1.4–4.6 for low mean perfusion pressure [< 40 mmHg]). Thinner CCT was also associated with OAG incidence (odds ratio, 1.41; 95% CI, 1.01–1.96 per 40 μ m lower).

The limitation of the study was small sample size.

CONCLUSION

Authors found that smoking history, family history, AMD, pseudo-exfoliation, and prior cataract surgery were among the risk factors.

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