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Awareness and Knowledge about Glaucoma among Patients Attending Ophthalmology OPD in A Tertiary Care Hospital

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Abstract
Glaucoma is a global public health problem and it is the leading cause of irreversible blindness worldwide. Diagnosis is often made at the late stage of the condition when much damage to the eye has already occurred. The management of glaucoma involves controlling the disease process to minimize the damage to the optic nerve, an essential part of which is early diagnosis and early treatment. The symptoms develop so slowly that unless the patient is aware and has knowledge about the disease, its early diagnosis is very difficult. Heightened public awareness about glaucoma may increase the chance of identifying undetected cases early. To evaluate the level of awareness and knowledge about glaucoma among patients attending ophthalmology OPD in a tertiary care hospital. This was a cross-sectional study conducted for 3 months among patients aged 18 years and above. A total of 150 patients were randomly selected from the ophthalmology OPD of Sree Mookambika Institute of Medical Sciences. A questionnaire was given to each patient and the responses were noted. Based on the responses given by the patients for each question, scores were given a conclusion was drawn. Statistical analysis was done by applying the chi-square test and Fisher exact probability test using SPSS Statistics version 20. The mean age of the subjects was 52.78±9.98years with the age ranged from 35 to 72 years. The most common age group was 41 to 50 years in 54(36%). Among the subjects, 83 (55.33%) were males and 67 (44.67%) were females. Out of 150 subjects, only 37 (24.67%) subjects had heard of glaucoma (awareness = 24.67%). Among the subjects, 12(8%) had poor knowledge, 8(5.33%) had fair knowledge remaining 17(11.33%) had good knowledge. On asking about the source of information to the patient who were aware about glaucoma, majority 25(67.57%) gained knowledge from doctors and health personnel. The awareness was significantly related to the educational status, diabetics subjects with family history of glaucoma. ($p<0.05$). Awareness and knowledge of glaucoma were low. Health education programs should be activated at all levels of health and eye care services to increase knowledge about glaucoma and prevent the irreversible loss of vision.

INTRODUCTION

Glaucoma is a broad term for a set of diseases characterized by a gradual loss of retinal ganglion cells and the consequent loss of vision field[1]. It is the most prevalent cause of permanent blindness worldwide, affecting approximately 60 million individuals. According to the World Health Organization(WHO), glaucoma is the second leading cause of blindness, after cataracts. Its incidence is increasing as the world's population ages[2]. Glaucoma is frequently categorized into three major groups based on the genesis of the disease: open-angle, angle closure or closed-angle and developmental. Open-angle glaucoma (OAG) and closed-angle glaucoma (CAG) are the two most common types of glaucoma[3].

Glaucoma is estimated to affect 12 million Indians, it causes 12.8% of the total blindness in the country and is considered to be the third most common cause of blindness in India. Glaucoma causes irreversible blindness and many (50%) of the affected people are unaware of their condition[4].

Glaucoma has a multi-factorial aetiology. Common risk factors include intra ocular pressure above 21 mm Hg, age over 40 years, history of glaucoma within the family, use of steroid-containing medications (eye drops/ pills/inhalers/ skin creams), those with higher refractive error (power) of the eyes, patients with a history of blunt eye injury, hypertension and diabetes. One of the most important and the only modifiable risk factor among them is the raised pressure of the eye[5]. A glaucoma suspect is a person with an increased risk of developing glaucoma and glaucomatous optic nerve damage or degeneration, with one or more clinical features. However, not all patients who are glaucoma suspect develop glaucomatous optic nerve damage and/or visual field loss[6]. Overall, about 1% of individuals with ocular hypertension develop glaucoma per year. The changes seen during the disease happen over a period of time, glaucoma causes silent damage, thus warranting follow-up care, to exclude any progressive change over time[7].

Raising the public level of awareness through public education for periodic eye check-up is one of the effective measures for its early detection and management. The magnitude of disability associated with the disease warrants to have an awareness programme in place as the disease can be controlled if diagnosed in its early stages[8].

Eye health education that influences people to participate in regular ophthalmologic care may be an important step to detecting glaucoma early, thereby preventing irreversible blindness. Alongside, education and preventive eye care will also help in reducing the economic burden of the disease in society. There's no cure for glaucoma, but early diagnosis followed by early treatment can often stop or minimize the damage and protect the vision. The success of such programs requires the participation of the general population in large numbers, which is not possible without some degree of awareness about the disease and its blinding consequences[9].

According to several studies, glaucoma is the second leading cause of blindness after cataracts and patients usually seek medical help at an advanced stage of the disease. This could be due to a lack of knowledge regarding glaucoma and its symptoms, as well as the natural progression of the disease marked by late appearance of symptoms. It is known that awareness leads to knowledge and knowledge to behaviour. The data available on the awareness status about glaucoma in India is limited.

Aims and Objectives: To assess the awareness and knowledge about glaucoma in patients coming to ophthalmology OPD of a tertiary care hospital.

MATERIALS AND METHODS

This was a cross-sectional study conducted for 3 months from January 2024-March 2024. A total of 150 patients were randomly selected from the ophthalmology OPD of Sree Mookambika Institute of Medical Sciences.

Adult patients in the age group of 18 and above of both genders who were not already diagnosed cases of glaucoma or ocular hypertension were included. The exclusion criteria included patients who were already clinically diagnosed with glaucoma as they could have gained knowledge of the disease after diagnosis or on any topical anti glaucoma drugs, patients who were blind, or had predisposing conditions like trauma to eyeball or uveitis and those having developmental glaucoma or optic nerve damage.

Informed consent was obtained from all participants. A questionnaire was given to each patient and reading assistance was provided to illiterate participants clarifications, if necessary, to any of them without affecting their response. The first section contained questions to procure the demographic information of the patient. The second section pertained to the patient's awareness and knowledge about glaucoma through 8 questions. The initial 2 questions evaluated their awareness and the next six questions were used to assess their knowledge of glaucoma. The third section had two questions dealing with their source of information and if the patient underwent any ocular screening or eye check-up in the past one year. The respondent had to tick the response of their choice.

Based on the responses given by the patients for each question, scores were given and a conclusion was drawn. Knowledge was graded as good, fair and poor based on the subject's collective responses to questions regarding the description, treatment and risk factors for glaucoma.

A subject was considered to have good knowledge if he could describe the disease as 'rise in pressure' or 'damage to the nerve and could name any two risk factors and treatment options as drugs, surgery or laser. Fair knowledge was considered if they could describe the condition and name at least one treatment option. Subjects were graded as having poor knowledge if they could either just describe the disease or name one risk factor or anyone treatment option. Subjects who could not answer any questions were considered to have no knowledge of glaucoma.
The data were entered into a Microsoft Excel sheet. Statistical analysis was performed using SPSS version 26. The categorical data were represented as count (percentage) and continuous variables were represented as Mean+/-SD. To find the association between categorical values, the chi-square test was used and a P<0.05 was considered significant.

RESULTS AND DISCUSSIONS

The mean age of the subjects was 52.78±9.98years. The minimum age was 35 years and the maximum age was 72 years. The most common age group was 41-50 years in 54(36%). Among the subjects, 83 (55.33%) were males and 67 (44.67%) were females. Among the subjects, 19(12.67%) were illiterates, 40(26.67%) had primary education, 64(42.66%) had secondary education and 27(18%) were college educated. 51(34%) subjects were diabetic and 12 (0.8%) subjects had family history of glaucoma. Table 1 shows frequency distribution of awareness and knowledge of glaucoma among subjects. Out of 150 subjects, only 37 (24.67%) subjects had heard of glaucoma (awareness = 24.67%). Among the subjects, 12(8%) had poor knowledge, 8(5.33%) had fair knowledge remaining 17(11.33%) had good knowledge. Only 27(18%) subjects knew that glaucoma was treatable.

(Table 2) shows determinants of awareness of glaucoma. There was no association between awareness and gender, age group. The awareness was significantly related to the educational status, diabetics and subjects with family history of glaucoma.

On asking about the source of information to the patient who were aware about glaucoma, 11(29.73%) knew about glaucoma from family/friends/relatives, 25(67.57%) from doctors and health personnel and the rest 1(2.7%) knew about it from TV/Radio/Newspapers. (Table 4) shows the relation between diabetic status and the number of patients who underwent ocular examination/screening. However, significant relationship between history of diabetes and the number of patients who underwent ocular screening was seen.

Glaucoma is now increasingly being recognized as a major cause of ocular morbidity that requires urgent attention. It is an irreversible and asymptomatic condition until the advanced stage. Early detection and treatment play a pivotal role in preventing blindness due to glaucoma[10].

Studies conducted in different parts of India among general population have reported the awareness level between 0.27% and 13.3%. In the present study out of 150 subjects, only 37 patients had heard of glaucoma (awareness = 24.67%). Of them, 12(8%) had poor knowledge, 8(5.33%) had fair knowledge and remaining 17(11.33%) had good knowledge. Comparison with other studies was given in table 4.

In the current study, awareness with respect to gender and age was not significant, this was consistent with studies done elsewhere. In contrast to the present study, Mendoza[14]. there were statistically significant differences between different age groups and their awareness of glaucoma (P<0.001).

The awareness was significantly related to the diabetics and subjects with family history of glaucoma. Adults with positive family history of glaucoma were more likely to had good knowledge of glaucoma. This was supported by different studies. This might be due to the fact that this portion of adults would have personal experience with the challenges of the disease and its treatment options and would help them to acquire knowledge of the condition.

When compared the awareness with respect to literacy rate, the educated patients had increased awareness. It was more significant in people educated above college level. This shows that higher the education level, they are more likely to be aware of glaucoma which was similarly noted in other studies. This was comparable to the study done by Heisel[17] where Education level was independently associated with glaucoma awareness (p\0.001) and glaucoma quiz performance (p = 0.03).

Verama[18] observed that Higher educational status (p = 0.0001), employed participants (p = 0.0001), presence of eye problem (p = 0.0001) and once a year regular eye checkup (p = 0.001) had significant positive association with the awareness of glaucoma, whereas those with a family history of glaucoma (p = 0.0002) and those who were ever screened for glaucoma (p = 0.0001) had significantly better knowledge about glaucoma.

In the study by Abuallut[19] there was a statistically significant difference between the participants' levels of knowledge based on their diagnosis of glaucoma (p= 0.04). With regard to participants' knowledge about the risk factors for glaucoma, 49.6% of the participants were aware that the risk of developing glaucoma increases with age and 43.7% knew that people who suffer from high intra ocular pressure are more likely to develop glaucoma.

Diabetic patients were more aware of glaucoma. This is probably because there are an estimated 50.8

Table 1: Distribution of awareness and knowledge of glaucoma

Awareness	Frequency (%) N=150	
Are you aware of an eye condition glaucoma	37(24.67%)	
Not aware	113(75.33%)	
Knowledge		
Risk factors	One	13(8.67%)
	Two	5(3.33%)
	Three	13(8.67%)
	Don't Know	119(79.33%)
Raised intra ocular pressure is a sign of glaucoma	Yes	20(13.33%)
	No	5(3.33%)
	Don't Know	125(83.34%)
Chronic smoking and alcohol using is associated with glaucoma	Yes	23(15.33%)
	No	10(6.67%)
	Don't Know	117(78%)
Is there any association with family history?	Yes	35(23.33%)
	No	56(37.33%)
	Don't Know	59(39.34%)
Treatment available	Yes	37(24.67%)
	No	20(13.33%)
	Don't Know	93(62%)
Lifelong treatment is required for glaucoma	Yes	25(16.67%)
	No	12(8%)
	Don't Know	113(75.33%)

Table 2: Determinants of awareness of glaucoma

		Aware (n=37)	Not aware(n=113)	p value
Age	<40	5(13.51%)	29(25.66%)	0.078
	41 to 50	17(45.95%)	37(32.74%)	
	51 to 60	10(27.03%)	25(22.12%)	
	61 to 70	4(10.81%)	13(11.52%)	
	>70	1(2.7%)	9(7.96%)	
Gender	Male	23(62.16%)	60(53.09%)	0.271
	Female	14(37.84%)	59(52.21%)	
Literacy	Uneducated	0(0%)	19(16.81%)	0.003
	Primary	2(5.41%)	38(33.63%)	
	Secondary	9(24.32%)	55(48.66%)	
	College	26(70.27%)	1(08%)	
Family History	Yes	11(29.73%)	11(9.73%)	0.039
	No	26(70.27%)	69(61.06%)	
	Don't know	0(0%)	33(29.21%)	
Diabetic Status	Diabetic	35(94.59%)	16(14.16%)	0.046
	Non-diabetic	2(5.41%)	97(85.84%)	

Table 3: Comparison of source of information and screening in diabetic patients

		Diabetic (n=51)	Non-diabetic (n=99)	p value
Source of information	Family/ friends	11(21.57%)	2(2.02%)	<0.001
	Media/ new papers	1(1.96%)	0(0%)	
	Doctors/Health professionals	25(49.02%)	0(0%)	
	Not aware	14(27.45%)	97(97.98%)	
Routine Screening	Yes	33(64.71%)	10(10.1%)	0.039
	No	18(35.29%)	89(89.9%)	

Table 4: Comparison of frequency of awareness with other studies.

Studies	Year	% of awareness
Yenegeta Z *et al*.11	2020	100(16.8%)
Chakrabarty L *et al*.12	2021	154 (92.77%)
Alqahtani SM *et al*.13	2021	268(69.97%)
Mendoza D *et al*.14	2022	144 (70.2 %)
Jain AK *et al*.15	2023	119 (7.74%)
Srivastava N *et al*.16	2024	25 (4.8%)
Present study	2024	37(24.67%)

million diabetics in India. At some point of time, these people visit doctor where the treating doctor might have given education regarding ocular problems in diabetes[20]. This also supports the present study that doctors and health professionals were the main source of information in 25(67.57%) patients from patients regarding awareness of glaucoma, which was followed by family history 11(29.73%) media 1(2.7%).

Awareness about any disease does not necessarily mean that the individual possesses adequate knowledge about the disease, it might be just that he/she has heard about the disease. This differs from other studies that the media in rural area and the family/friend in urban area were the main sources of awareness in previous studies. Those with family history of glaucoma and glaucoma patients themselves were more aware similar to other studies.

Soqia[21] in their study found that hospital, Ophthalmologists' Clinics and health staff (M = 5.45) were the better Resource for information than family, relatives friends (M = 3.16). Finally, social media and the Internet group had the lowest mean test results (M = 1.23). These test results were significant, with a p<0.001. This was comparable to the present study. In

contrast to the present study Hassan[22] observed that the main source of information about glaucoma among the study participants was from family members, relatives and friends (66.6%); however, this source inversely influenced the level of knowledge.

CONCLUSION

Awareness and knowledge of glaucoma is low. Awareness and knowledge of glaucoma were both associated with higher levels of education. This suggests that educational interventions at the public health and provider-patient levels may potentially improve awareness and understanding of glaucoma in a population that is amenable to treatment. In the context of glaucoma, better knowledge obviously will result in early detection of the disease, thus reducing both the disability and visual handicap.

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