Hospital Based Study among Glaucoma Patients to Assess Their Knowledge Regarding Various Aspects of Glaucoma

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Abstract:

Introduction: Glaucoma is a chronic condition and if not properly controlled will lead to blindness. So it is very important that patients on treatment for glaucoma should know about the course and outcome of the disease. Many patients stop the treatment because of treatment cost and also due to the prolonged treatment duration. **Objectives:** To find out the current level of knowledge of their disease among glaucoma patients attending a tertiary care hospital in south India. **Method:** It was a cross sectional hospital-based study. Study participants included already diagnosed patients attending glaucoma clinic. A structured validated pretested questionnaire was given to collect data. The questionnaire was given to 320 patients attending glaucoma clinic during their routine visit. Grading was done based on the percentage of questions answered. Data were analyzed with SPSS version 18; (SPSS Inc; Chicago, IL) **Results:** The mean age was 59.34 ± 8.86 years. Females were more aware compared to males. Only 40% (108) of patients knew that glaucoma can cause blindness. Socioeconomic factors had significant association only with awareness of the disease. Educational status had significant association with awareness about the disease as well as the treatment received. Disease duration did not have any significant association with awareness about glaucoma. **Conclusion:** Determinants of knowledge about glaucoma in this study were female gender, higher socioeconomic status and higher educational levels. Even glaucoma patients who are on treatment for glaucoma did not have sufficient knowledge about their disease.

Keywords: Glaucoma, Knowledge, South India

Introduction:

Glaucoma is a chronic progressive optic neuropathy that requires long term treatment and follow up. It is the second leading cause of blindness globally. The number of patients with open angle glaucoma is highest in Europe (23.9% of open angle glaucoma patients in the world) followed by china (18.9%) and then India (18.6%) in 2010.^[1] By the year 2020 as per the model calculations the number of glaucoma patients will increase by about 20 million over the decade.^[1] India will become the second largest country with glaucoma surpassing Europe by the year 2020.^[1] Among those with glaucoma worldwide 74% are having open angle glaucoma and 26% angle closure glaucoma.^[2] The asymptomatic nature of the disease along with irreversible blindness

it causes makes it a major public health challenge. Early detection, prompt treatment and regular follow-up may prevent or arrest disease progression to some extent. Many patients present late due to lack of awareness about the disease and risk factors. In a study by Vijaya et al 90% of glaucoma patients were unaware of the disease.^[3] Failure of awareness leads to late detection and affects the management in preventing blindness from the disease.

Method:

The study was conducted after getting ethical clearance from the Institutional Research and Ethics Committee. Our aim was to find out the current level of knowledge of the disease among glaucoma patients attending glaucoma clinic in a tertiary care hospital. It was a cross sectional hospital-based study. Study

Access this article online:

Quick Response Code

Website:

www.healthlinejournal.org

DOI:

10.51957/Healthline_147_2020

How to cite this article: Somasundaran S, Susheela B, Jyothi P T. Hospital Based Study among Glaucoma Patients to Assess Their Knowledge Regarding Various Aspects of Glaucoma. Healthline. 2020;11(2):60-66.

participants included patients attending glaucoma clinic who were willing to participate in the study. The study period was three months from July-September 2019.

A structured validated pretested questionnaire was given to collect data and was filled by the interviewer as the patients gave their response. The questionnaire was given to 320 already diagnosed glaucoma patients on follow up. The questions were translated to the regional language Malayalam and then translated back to English. Demographics of the study subjects like age, gender, socioeconomic status and educational status were noted. Socioeconomic status was categorized as Above Poverty Line (APL) and Below Poverty Line (BPL) based on their status in their ration card. Mode of diagnosis of glaucoma and duration of the disease was also noted.

The questionnaire was divided into three parts. The first part evaluated the patient's knowledge about the disease, the second part evaluated the knowledge about the treatment and the third part evaluated the knowledge about the various risk factors of the disease. Knowledge was defined as the basic understanding of the disease and was graded based on the number of questions answered by the patient when more than one question was answered. If at

least one question was answered then he or she is considered to have knowledge about it. Grading was done based on the percentage of questions answered. On answering 100% of questions excellent grade was given, 75% good, 50% fair, 25% average and 0% poor grade. Data were analysed with SPSS version 18; (SPSS Inc; Chicago, IL) expressed as simple percentage and proportions. Chi square test was used to evaluate association between awareness / knowledge of glaucoma and demographics of study subjects. The odds ratio (OR) and 95% confidence interval (CI) were calculated to measure the association between variables. P value <0.005 was considered as statistically significant.

Results:

All the selected patients participated and the response rate was 100%. The response obtained from 270 patients with glaucoma were analysed (response rate -100%). Rest 50 were discarded as the information were not complete.

The mean age was 59.34 ± 8.86 years. The minimum age was 20 years and maximum 78 years. Forty-three percentage of subjects were in the 61-70 years age group (n=116). Among the participants, 57.8 % (n=156) were females and 42.2% (n=114) were males. Females were more aware (57.3%, n=118)

Figure 1: Distribution of cases based on the type of glaucoma

Table 1: Knowledge among study participants (n=270)*

SN	Knowledge about the disease	YES	
		n	%
1	Do you know that Glaucoma is asymptomatic	149	55.2%
2	Do you know that Glaucoma is slowly progressive	69.6%	188
3	Do you know that Glaucoma can cause blindness	108	40%
	Knowledge about the treatment		
1	Do you know that anti-glaucoma drugs decrease eye pressure	220	81.5%
2	Do you know that anti-glaucoma drugs don't increase vision	175	64.8%
3	Do you know that timing of drugs is important	164	60.7%
4	Do you know that Glaucoma requires lifelong treatment	168	62.2%
5	Do you know that Glaucoma requires frequent follow up	152	56.3%
	Knowledge about the risk factors		
1	Do you know that Glaucoma has familial predisposition	111	41.1%
2	Do you know that Diabetes is a risk factor	75	27.8%
3	Do you know that Hypertension is a risk factor	44	16.3%
4	Do you know that Smoking is a risk factor	25	9.3%
5	Do you know that Ischemic heart disease is a risk factor	44	16.3%
6	Do you know that Steroid intake can predispose to glaucoma	23	8.5%

*Multiple responses

Table 2: Summary of knowledge about various aspects of Glaucoma among study participants

Knowledge	Knowledge(n=270)			
	Yes		No	
	n	%	n	%
Knowledge about the disease	206	72.69%	64	23.7 %
Knowledge about treatment	254	94.1%	16	5.9%
Knowledge about risk factors	137	50.7%	133	49.3%

compared to males (42.7% n=88). Two hundred and thirty-one participants (93.7%) were undergraduates and rest 17(6.3%) were postgraduates. 76% of participants were in the above poverty line group (n=205) and 24% were in the below poverty line group (n=65).

One hundred and eighty-four patients (68%) were diagnosed during routine eye check-up. Only Sixteen

(5.9%) came to the outpatient department requesting for screening of glaucoma. Fifty-one (19%) patients were diagnosed after having severe visual loss. Nineteen patients (7%) were diagnosed during an eye camp.

Primary open angle glaucoma was seen in 193 patients (71.5%) primary narrow angle glaucoma in 54 patients (20%), secondary glaucoma in 13(4.8%) and

Table: 3 Frequency distribution of Knowledge of glaucoma based on socioeconomic factors

Knowledge		Socioeconomic status		OR	CI
		BPL*	APL#		
Knowledge about the disease	Knowledge	56 (86.2%)	150 (73.2%)	2.281	1.058-4.921
	No Knowledge	9 (13.8%)	55 (26.8%)		
Knowledge about the treatment	Knowledge	61 (93.8%)	193 (94.1%)	0.948	0.295-3.048
	No Knowledge	4 (6.2%)	12 (5.9%)		
Knowledge about risk factors	Knowledge	29 (44.6%)	108 (52.7%)	0.724	0.413-1.267
	No Knowledge	36 (55.4)	97 (47.3%)		

Table 4: Frequency distribution of Knowledge of glaucoma based on Educational factors

Knowledge		Educational statuses		OR	CI
		Undergraduate	Postgraduate		
Knowledge about the disease	Knowledge	189 (74.7%)	17 (100)	0.917	0.881-0.956
	No Knowledge	64 (25.3%)	0 (0%)		
Knowledge about the treatment	Knowledge	237 (93.7%)	17 (100.0%)	0.933	0.903-0.964
	No Knowledge	16 (6.3%)	0 (0%)		
Knowledge about risk factors	Knowledge	125 (49.4%)	12 (70.6%)	0.407	0.139-1.189
	No Knowledge	128 (50.6%)	5 (29.4%)		

Figure 2: Knowledge of glaucoma based on Disease duration

normal tension glaucoma in 10 patients (3.7%). (Figure 1)

Only 40% (108) of patients knew that glaucoma can cause blindness. The asymptomatic nature of primary open glaucoma was known only to 149(55.2%) of patients and 188 patients (69.6%) knew that glaucoma has a slowly progressive course. The importance of timing of anti-glaucoma medications was aware only in 164 (60.7%) patients. Only 56.3% (152) of patients knew that glaucoma requires frequent follow up and 168 (62.2%) patients were aware that the treatment of glaucoma is life-long. Familial predisposition of glaucoma was known only to 41.1% of patients. Majority were unaware about the various risk factors of glaucoma. (Table 1)

Two hundred and fifty-four patients (94.1%) had some knowledge about various treatment aspects of glaucoma. But they were not much aware about the disease such as its course and progression and also less aware about the various risk factors.(Table 2)

Socioeconomic factors had significant association only with Knowledge of the disease. Patients in the higher socioeconomic status were more knowledgeable about the disease when compared to those with lower socioeconomic status. No association was noted with Knowledge about the treatment or risk factors.(Table 3)

Educational status had significant association with Knowledge about the disease as well as the treatment received but no association with Knowledge about the risk factors. Those who are more educated were more knowledgeable about glaucoma.(Table 4)

Disease duration did not have any significant association with Knowledge about glaucoma. Odds ratio for Knowledge was 0.736 (95% CI 0.317-1.4595), p value (0.24) Odds ratio for knowledge about risk factors was 0.817 (95% CI 0.468-1.426) p value (0.28) and that for treatment 0.424 (95% CI 0.094-1.917) with a p value (0.20).(Figure 2)

32.6% had good knowledge about the disease, 33% had excellent knowledge about treatment but majority that is 76% had poor knowledge about the risk factors. (Table 5)

Discussion:

In our study the awareness about the disease is 72.69% which is similar to a study by celebi AR et al in which awareness about glaucoma was 76% and

another study by Nkum et al in which the awareness was 74%.^[4,5]

Females were more aware compared to males in our study. Similar observation was noted by Tenkir A et.al, Sathyamangalam RV et al, Nkiru et al and Saw et al.^[2,3,6,7] This may be either due to the fact that glaucoma is more common in females or they may be more careful about their health related issues as per Isawumi et al^[8] Thapa et al noticed that males were more aware than females.^[9]

In our study majority of glaucoma patients were diagnosed on routine eye check-up. None came requesting for screening of glaucoma. This shows that the awareness of glaucoma among public is very low. Routine screening for glaucoma should be ensured for all patients after the age of forty. Song et.al^[10] in his study investigated to know whether mass glaucoma screening using non mydriatic fundus camera was more useful in early detection of glaucoma compared to opportunistic case finding in a primary eye clinic. They found that mass screening definitely helped to diagnose early glaucoma.

Majority of participants knew that glaucoma is asymptomatic and slowly progressive. But only less than half of patients knew that their disease would cause blindness. De Gaulle et al^[11] found that the knowledge that glaucoma can cause blindness was there in 99.1% of patients where as in our study it is only 40%. About 60% knew about the importance of timing of their medications and their effect on the disease but knowledge about the requirement of regular follow up was there only in 56%. This indicates the need for educating these patients as irregular or poor follow up may lead to progression of the disease. Only 40% or less had knowledge about the risk factors of glaucoma. Majority of the participants (58.9%) didn't know that glaucoma runs in families. This reduces the detection of glaucoma among family members. Risk of glaucoma after steroid intake was known only to 8.5% of participants. So, it is important for the treating physicians to inform the patients that those on long-term topical and systemic steroids are at a risk for developing glaucoma and that they should have proper eye check-up at regular intervals.

When overall grading of knowledge about glaucoma was done among study subjects, we found that even though majority of patients had knowledge

about the treatment received, they had less knowledge about the course and prognosis of their disease. Knowledge about risk factors was very poor. This indicates the need for educating all patients with glaucoma about their illness in detail which may be helpful in better disease control as well as screening and early detection of the disease

Socioeconomic factors had significant association only with awareness about the disease. Patients with higher socioeconomic status were more aware about the disease when compared to those with poor socioeconomic status, and this was statistically significant with a p value of 0.001. This could be due to the better access to health care as well as sources of information like newspaper, television and internet for these individuals.

Educational status had an important role in the awareness and knowledge about glaucoma in our study. All those with tertiary level of education were aware about glaucoma when compared to those with primary level of education (p value 0.002) and all of them had knowledge about the treatment they received (p value 0.005). But the interesting finding noted was that even among educated patients there were people who did not know about the various risk factors of the disease. This may affect screening of relatives and early detection of glaucoma. A positive association between educational status and awareness was noted in other studies conducted by Sathyamangalam R et al, Celebi et al, Nkumet al and Rewri et al.^[3,4,5,12] This indicates the lack of education about glaucoma among those who are at risk.

There were lesser odds of patients with glaucoma more than 5 years to be aware about the disease when compared to those less than 5 years. Disease duration did not have any significant association with knowledge about glaucoma treatment or risk factors. This finding is significant because it shows that even patients with long duration of glaucoma did not have sufficient knowledge about their illness which in turn may adversely affect their treatment and follow up.

Mbadugha CA et al in his study noticed that duration of disease was positively related to the awareness of glaucoma.^[13] Positive family history, higher educational status and longer duration of disease was found to have positive association with awareness in a study conducted by Kizor-Akaraiwe et

al^[6] Rajendrababu et al^[14] found that family screening for first degree relatives of glaucoma patients with glaucoma can really help in diagnosing those patients who are presently under diagnosed in the population.

Uma et al^[15] noticed that the awareness about various aspects of glaucoma among medical and paramedical professionals were very low. Almost all medical persons were aware about glaucoma but majority didn't know that it causes damage to optic nerve.

Conclusion:

Factors affecting knowledge about glaucoma in this study were female gender, higher socioeconomic status and higher educational levels. Even glaucoma patients who are on treatment for glaucoma did not have sufficient knowledge about their disease especially the risk factors.

Declaration:

Funding: Nil

Conflict of Interest: Nil

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