

Glaucoma awareness among ophthalmic patients at Menelik II Hospital, Addis Ababa, Ethiopia

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Abstract

Background: Glaucoma is one of the main causes of blindness worldwide that has been considered as a major public health issue. Raising awareness about glaucoma among the general public, ophthalmic patients and health professionals would be key instrument for early case identification and prevention of blindness.

Objective: To determine the level of awareness and knowledge about glaucoma among patients coming for eye care service at Menelik II Hospital.

Methods: A hospital based cross-sectional study was conducted among a total of 422 new ophthalmic patients attending eye department at Menelik II Hospital during April 20 to August 20, 2010. Data on demographics, awareness and knowledge of glaucoma were collected through face to face interview using a pretested structured questionnaire.

Results: Among the interviewed 28.4% were found to be aware of glaucoma and 75.8% of them had some knowledge of glaucoma as well. The association between awareness of glaucoma and better educational level was statistically significant ($P < 0.05$). The main sources of information for glaucoma were television, posters, radio and relatives and other people living with glaucoma.

Conclusion: The study has indicated the level of glaucoma awareness and knowledge among ophthalmic patients at tertiary center. It has also identified higher level of education to be associated with better level of awareness and mass media to be the main source of information about glaucoma.

Recommendation: The present level of glaucoma awareness and knowledge should be enhanced through provision of health education and by incorporating glaucoma education into the curriculum of high school and health care providers. [*Ethiop. J. Health Dev.* 2013;27(3):230-134]

Introduction

Glaucoma is the leading cause of irreversible blindness worldwide and it is next to cataract as common cause of blindness (1-3). In Sub-Saharan Africa glaucoma is more prevalent and thus has been considered as a major public health issue for the region (4).

Worldwide, glaucoma is estimated to affect 60.5 million people with 8.4 million being bilaterally blind. The magnitude of glaucoma will keep increasing with the world population growth and increasing number of ageing people (5). Africans are at 4-5 fold higher risk for glaucoma (6). A prevalence study for East, Central and Southern Africa has estimated glaucoma to affect 10,000 people with annual incidence of 400 new cases per million population (7). Glaucoma was found to be one of the blinding eye diseases, causing 62,000 blind people in Ethiopia according to a national survey in 2006 (8).

Due to the symptomless nature of the majority types of glaucoma, 90% of affected people in the developing countries and 50% in developed world do not know that they have the disease (9). By the time glaucoma patients come to attention the stage of the disease could be advanced with visual loss. This can be seen from clinical features of glaucoma patients coming to the glaucoma clinic at Menelik II Hospital where 62% were either unilaterally or bilaterally blind and 61% had advanced stage of the disease at the time of presentation (10).

For such “silent thief of sight”, raising awareness about glaucoma among the general public, ophthalmic patients and health professionals would be key instrument for early case identification and prevention of blindness. To raise glaucoma awareness among the public in general and glaucoma patients and their families in particular, a number of activities have been carried out over the previous three years in the country mainly in the capital city, Addis Ababa. These included: educational message transmission through mass Medias, providing brochures to glaucoma patients and their families, and posting posters at ophthalmic centers.

The level of awareness about glaucoma among ophthalmic patients at the center where this study was conducted was 4.5% in 2006, (unpublished data). The level was lower (2.4%) among rural communities (Jimma) coming for cataract screening in 2009 (11). Therefore, this study was designed to determine the level of awareness and knowledge about glaucoma among patients coming to tertiary center for eye care service.

Methods

A hospital based cross-sectional study was conducted among new ophthalmic patients, age greater than or equal to 16 years at Menelik II Hospital, from April to August, 2010. The Department of Ophthalmology of the Hospital is a tertiary referral center providing general and sub-specialty services and training.

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Sample size calculation: Since there was no published data on the level awareness about glaucoma in Ethiopia, sample size was made assuming awareness level of 50%. Accordingly, by using confidence interval of 95% and margin error of 5% with non-response rate of 10%, a sample size of 422 patients was calculated for the study.

Routinely, referred ophthalmic patients enter the hospital's triage, where the first patient-ophthalmic nurse interaction occurs. The ophthalmic nurse registers the patients' name, age, sex and address and let them get their new charts and give appointments to be seen at their respective general or specialty clinic according to their eye problem. While the patients were waiting at a waiting area on their appointment day, every morning the first author (interviewer) selected every 5th patient from the triage registration book and used a lottery method to pick the first of the five listed patients. After identifying the name of patients for interview, each patient was briefed about the purpose of the study first and then requested for willingness to be interviewed at a nearby out-patient examination room. Any patient who was unwilling or absent for the interview was replaced by a patient next to him/her on the list.

The patients were interviewed using brief open-ended questionnaires. The questionnaire was in Amharic, official language of the country, with necessary modification based on pre-test. The questionnaire included socio-demographic characteristics, sources of glaucoma information and queries enabling to assess knowledge of the disease. "What is glaucoma? Is blindness from glaucoma reversible? What are the risk factors for glaucoma? And what are the treatment options for glaucoma" were some of the questions asked to assess knowledge of glaucoma among patients who were already aware of glaucoma.

Data was cleaned, edited, coded and analyzed using SPSS version 15.0 for calculating proportion, means, cross tabulation and χ^2 tests. The relationship between awareness of glaucoma and demographic factors such as age, gender and education was assessed using bivariate analysis and Chi-square test. A two-tailed 'P' value of less

than 0.05 was considered statistically significant.

The study was ethically approved by the research and publication committee of the Department of Ophthalmology, College of Health Sciences, Addis Ababa University. Informed verbal consent was also obtained from each interviewed patient. Brief information on glaucoma and importance of screening was given to participants who had not been aware of the disease.

Operational definition: awareness and knowledge were defined as having heard and understanding of glaucoma respectively. Knowledge was further classified as good, fair and poor using Indian classification with modification (12). A patient was considered to have good knowledge when she/he was able to describe glaucoma as a blinding eye disease, increased eye pressure, causing eye nerve damage or visual field loss. In addition, she/he should able to mention at least one risk factor for glaucoma (increased eye pressure, old age or family history) and one treatment option. Fair knowledge was considered when a patient described glaucoma as an eye disease causing blindness without further description and could not mention at least one risk factor or therapy. A patient was considered to have poor knowledge when he/she described glaucoma as an eye disease only.

Results

A total of 422 patients above age 16 were interviewed during the study period. The sex proportion of the participants was found to be almost equal with male to female ratio 1.1:1. The mean age was 41.1 (SD \pm 16.6), median 40.5 and ranging 16- 81 years. A large number of the participants, 186 (44.1%), had educational level of Grade 1 to 12, while 116 (27.5%) and 120 (28.4%) were educated above grade 12 and non-literate respectively. Among the study participants 120 (28.4%) were found to be aware of glaucoma. The level of glaucoma awareness in relation to age, gender, was not statistically significant (p-value, 0.09 and 0.87 respectively), whereas, the awareness was positively associated with educational level above 12 grade (P < 0.05) (Table -1).

Table 1: Awareness of glaucoma in relation to socio-demographic characteristics of study participants, Menelik II Hospital, Addis Ababa, Ethiopia, 2010.(n=422)

Characteristics	Aware	Not aware	Total	P –value
Age				
<40 years	53	156	209	0.09
\geq 40 years	67	146	213	
Sex				
Male	61	156	217	0.87
Female	59	146	205	
Education				
Not literate	10	110	120	0.00
1-12	50	136	186	
>12	60	56	116	

The main sources of information about glaucoma were television, posters posted at ophthalmic centers, radio and relatives and other people living with glaucoma

accounting for 35 (29.2%), 26 (21.7%), 16 (13.3%) and 14 (11.7%) respectively; while the rest 29 had different sources (Table2). Among patients who could remember

the time since they have become aware of glaucoma, 112 (93.4%) said it was within the past 3 years, whereas 4 (3.3%) were aware before 3 years preceding the study.

Table 2: **Source of information of glaucoma verses duration of glaucoma awareness among aware participants, Menelik II Hospital, Addis Ababa, Ethiopia, 2010 (n=120)**

Source of Information	<3 years	Duration of glaucoma awareness		Total
		≥3 years	Do not remember	
Television	35	0	0	35
Posters	26	0	0	26
Radio	14	1	1	16
Relatives & other people with glaucoma	10	2	2	14
Health education	11	0	0	11
Health professional	8	1	0	9
Others	8	0	1	9
Total	112	4	4	120

Table 3 shows the four types of questions asked to assess glaucoma knowledge among the 120 patients who were aware of glaucoma and their responses. Ninety (75%) of those who were aware were found to have knowledge of glaucoma. Glaucoma as an eye disease causing blindness was mentioned by 64 (53.3%), association of glaucoma with both elevated eye pressure and causing blindness by 13 (10.3%) and elevated eye pressure only by 10 (8.3%). However, 29 (24.2%) were not sure what glaucoma is, even if they were aware of it. Irreversibility of glaucoma blindness was known by 59 (49.2%); while 54 (45%) did not know what can happen. Any risk factor could not be

mentioned for the question "What are the risk factors for glaucoma?" by 108 (90%). Only 6 (5%) and 5 (4.2%) were able to mention elevated eye pressure and aging as risk factors respectively. Regarding the question on options of glaucoma treatment, majority, 89 (74.4%), did not know about options at all; whereas 14 (11.6%), 6 (5%) and 11 (9.2%) mentioned medical, surgical and both medical and surgical, respectively. Based on the definition utilized to grade knowledge, 11 (12.1%), 16 (17.6%) and 64 (70.3%) had good, fair and poor knowledge respectively.

Table 3: **Response to glaucoma knowledge assessing questions by aware participants, Menelik II Hospital, Addis Ababa, Ethiopia, 2010 (n=120)**

Response	Frequency	Percentage
What is glaucoma?		
Eye disease causing blindness	64	53.3
Note sure	29	24.2
Increased eye pressure and causing blindness	13	10.3
Increased eye pressure	10	8.3
Causing visual field loss	2	1.7
Causing eye nerve damage	1	0.85
Others	1	0.85
Is blindness from glaucoma reversible		
Yes	7	5.8
No	59	49.2
Not sure	54	45
What are the risk factors for glaucoma?		
Increased eye pressure	6	5.0
Old age	5	4.2
Family history	1	0.8
I don't know	108	90
What are the treatment options for glaucoma?		
Medical	14	11.6
Surgical	6	5
Both	11	9.2
I don't know	89	74.2

Discussion

Glaucoma is one of the leading causes of irreversible blindness in Sub-Saharan Africa, which is further compounded by poor awareness and knowledge in the region (4). Increasing awareness in the public in general and the people at risk in particular is instrumental for case detection and to prevent the needless irreversible blindness of the disease.

The current level of glaucoma awareness (28.4%) is better as compared to the data (4.5%) from the same center in 2006 (unpublished) and from the report of rural communities of Jimma (2.4%), who came for outreach eye care service in 2009 (11). In the current study, 93% of the participants were aware of glaucoma during the previous three years could be due to the awareness activities that have been delivered through different means. However, there is no doubt about the need for further raising the level not only among the ophthalmic patients but also in the general public.

Awareness level may not be expected to be similar in urban and rural communities for various reasons as demonstrated in this and that of Jimma studies. Similarly the reports from Indian studies that have shown 2.3% and 0.33% to be the awareness level among urban and rural communities respectively (13, 14). On the other hand, reports from developed countries, USA and Australia have shown glaucoma awareness to be 75% and 95% respectively in their population based epidemiological surveys (15, 16).

The studies from Jimma and India have showed that the awareness of glaucoma increases with higher educational level (11, 13) which was consistent with our study. Educated people may get information from Medias, literature and they may pay more attention to health related issues.

Regarding the source of information about glaucoma, mass media (TV and radio), poster at ophthalmic centers, and relatives and other people living with glaucoma, were reported as the main sources of information in this study. This can be seen in relation to that of rural Indian study in which mass media (TV) was reported as a main source of information (13) and German study where friends were reported as main source of information (17). Raising public awareness using public media could be the best means as they can access millions of ears and eyes at a time and cover large areas. Health education was the other source of information. If glaucoma is incorporated with regular eye health education, large number of ophthalmic patients and their attendees can be aware and pay attention to their eye pressure and optic nerve status during their eye examination.

Glaucoma knowledge that was identified in the 75% of the participants who were aware of the disease (23.1% of the total) is a good indicator that the participants were not only aware of the disease, but also had knowledge about

it. Comparing to this study, a report from Nepal (18) that involved 211 patients who came to eye clinics, reported higher (60.6%) level of awareness, but low knowledge level (5.5% of the total). Knowing glaucoma is not only a blinding disease, but also causes irreversible blindness by 77 (64.2%) and 59 (49.2%) of the glaucoma aware participants of this study are additional good indicators that the disease was recognized as a serious problem. Knowing who are at risk for glaucoma may alarm and make them seek attention and enable early case detection. However, 90% of the aware did not know any of the risk factors for glaucoma, an indication of area for the emphasis during education.

Using the definition for grading the level of knowledge, the majority (60%) of patients had poor level. In the future, glaucoma knowledge among ophthalmic patients and the public in general may be increased if public oriented glaucoma education, availability of reading materials and public literacy level increases.

Limitations of the study were considered to be the possibility of recall bias on the duration of glaucoma awareness. And the studied population who had better chance or might pay more attention to hear and get information about eye diseases could not represent the actual awareness in the public.

Conclusions

The study has indicated the level of glaucoma awareness and knowledge among ophthalmic patients at tertiary center. It has also identified higher level of education to be associated with better level of awareness and mass media to be the main source of information about glaucoma.

Recommendations

The present level of glaucoma awareness should be enhanced through provision of health education at eye care campaign programs and health institutions, using mass media and by incorporating glaucoma education into the curriculum of high school and health care providers. Further study is required to assess the level of awareness at the general public and to identify the better source of information to increase the level of awareness.

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