Original Research Article

Awareness of Glaucoma in Olorunda Local Government Area, Osogbo, Osun state, Nigeria.

Abstract

Purpose:

The commonest type of glaucoma called chronic open angle glaucoma is a silent disease and patients are usually seen late in the disease. Public awareness programs must be actively done to enable reduction in late detection of the disease and level of awareness must be assessed regularly to appraise the program.

Methodology:

A descriptive cross-sectional study was done in Osogbo local government area over a six-month period to assess the awareness of glaucoma following a 5-year screening and public health education on glaucoma during the yearly world glaucoma week in the state. Interviewer assisted questionnaire was administered to 279 participants. Data obtained included demography such as age, sex, level of education, occupation, religion, state of origin, knowledge of glaucoma and its treatment, family history of glaucoma and so on.

The data were entered and analyzed using SPSS version 21(SPSS Inc., Chicago, IL). Descriptive statistics was used to analyze demographic data, cross-tabulations with chi square were used in comparing variables and statistical significance was set at $P<0.05$.

Results:

Two hundred and seventy-nine people were involved in the study. Many, 192(68.8%) were aware of glaucoma. Thirty-nine participants had family history of glaucoma and 63(22.6%) felt the cause of glaucoma is an act of God. Two hundred and one (72.0%) had tertiary education. Tertiary education was found to be a statistically significant factor associated with glaucoma. Majority, 33(84.6%) of the 39 participants that had positive family history of glaucoma were aware of glaucoma blindness. Of the participants that claimed to know how to treat glaucoma, eight (5.3%) felt it should be conservatively managed and nothing should be used

Conclusion:

The world glaucoma week has yielded results but more efforts must be put in place to increase knowledge of the populace on the nature of glaucoma. Tertiary education is an important factor in glaucoma awareness. Government must ensure everyone is educated up to tertiary level. Glaucoma patients and their acquaintances may be used in increasing awareness.

Keywords: chronic open angle glaucoma, awareness, causes, treatment.

Introduction

Nigeria is the most populous country in Africa and it is located in West Africa. It has a population of about 205,710,189 which is 2.64% of total world population. The population density of Nigeria is about 226 per Km^2 and the total land area is 910, 770 km^2. The median age of Nigerians is about 17.9 years and about 52% of the population is urban.[1,2]

Osun State is one of the 36 states in Nigeria and it is located in its South-western part. The population of Osun state is 4,705,589 according to the 2006 population census . The State has 30

local government areas (LGA), 3 of which are in the capital of the State, namely, Osogbo, Olorunda and Egbedore.[3]

Olorunda LGA is one of the local government areas in Osogbo, the capital of Osun state. It has a population of 131,761 and its land area is 97 km^2

It is bordered on the North-East by Orolu local government (LG), North- West by Ifelodun LG, South by Osogbo LG, West by Irepodun LG and East by Boripe LG.[3] Olorunda LGA has eight electoral wards.[4]

Glaucoma is a group of diseases characterized by optic nerve disease. It is one of the commonest causes of ocular morbidity and is second to cataract as common causes of blindness worldwide. It is in fact the commonest cause of untreatable blindness worldwide. The commonest type of glaucoma in blacks is the chronic open angle type which is commonly called the 'silent thief of sight' because many patients are unaware of the problem until blindness sets in. It has been estimated that up to 1-2% of the population of those older than 40 years are affected and half of them do not know until they are detected at routine eye examinations. Some studies have reported that up to 50% of cases in developed countries go unreported.[5] and up to 90% of the retina nerve fibres are damaged beyond repairs by the time the patients become symptomatic.[6]

The prevalence of chronic open angle glaucoma has been estimated at about 2.1% and it increases with age from 0.9% in people 43 to 54 years of age to 4.7% in people 75 years of age or older.[7] it is reported to be four times higher in Africans than Caucasians.[8]

Blindness from glaucoma is presently not curable but it is preventable if glaucoma is diagnosed early and treated promptly. Some published evidence has indicated late diagnosis of glaucoma as

an important risk factor for subsequent blindness [9, 10]and usually associated with poor knowledge about the condition.

About 10-33% of those who become blind due to glaucoma had become visually impaired even before they had sought medical attention for their eyes.[11, 12]

Awareness is defined as the knowledge or perception of a situation or facts about it. It can also be defined as a concern about or a well-informed interest in a particular situation.

Blindness from glaucoma can be prevented to a certain extent by influencing appropriate health behaviour through increasing awareness and educating the masses about the condition, and thereby encouraging at risk individuals to participate in regular ophthalmic care.

This necessitated the setting up of the World glaucoma week which is a joint initiative between the World glaucoma Association (WGA) and the World Glaucoma Patient Committee (WGPC), in order to raise awareness on glaucoma. During this week, the populace worldwide is educated and examined on glaucoma through activities that involve patients, health officials, eye-care providers and the general public. It is a community program mainly to increase awareness and educate general populace and in particular at risk people to go for regular checks for early diagnosis. It takes place in the month of March every year. Its main objective therefore, is to create awareness among the people about the nature and dangers of glaucoma, and thus enable early diagnosis, timely treatment and adequate prevention of glaucoma blindness.

The world glaucoma week started in Osun state, Nigeria in 2013. The world glaucoma group in Osun state had carried out this exercise through community lectures, screening exercises, radio and television talks on glaucoma every year. Osun State broadcasting corporation is otherwise called the voice of the West because its coverage includes every part of the State as well as

neighboring States. We had organized screening and lectures in Osun State broadcasting corporation, Ladoke Akintola University of Technology, Ogbomoso, the High Court, Osogbo, Ede town, Olorunda Local Government secretariat, Egbedore Local Government area, College of Health Sciences, Ladoke Akintola University of technology, Osogbo and Ladoke Akintola Unuversuty of Technology Teaching Hospital, Osogbo.

It is therefore necessary to assess the level of awareness of glaucoma through this program in order to determine the way forward in subsequent annual glaucoma weeks.

Methodology

The study was a descriptive cross-sectional study, carried out in Osogbo local Government Area of Osun state. It involved 279 participants interviewed over a 6 months period (January to December 2018).

The Chairman of the Local Government and community heads representing each of the chosen wards were met and their permission obtained.

The study was approved by the ethical committee of the hospital and informed consent for participation was gotten from participants. Also, tenets of Helsinki declaration were adhered to.[13]

A multistage sampling method was used to select participants into the study. Two out of the 8 electoral wards were selected by simple random technique. Five streets were then selected by simple random technique from a list of streets from the two selected wards. In each street, the first house was selected at random from the existing PHC numbering system and all adults,18 years and above in every third house were included in the study. A prepared questionnaire was administered to them by the authors. Data obtained included demography such as age, sex, level of education, occupation, religion, state of origin, knowledge of glaucoma and its treatment, family history of glaucoma and so on.

The data were entered and analyzed using SPSS version 21(SPSS Inc., Chicago, IL). Descriptive statistics was used to analyze demographic data, cross-tabulations with chi square were used in comparing variables and statistical significance was set at $P<0.05$.

Results

Two hundred and seventy-nine participants were included in the study. The age range was 18 to 88 years with a mean of 40.92 years (SD ±13.33).

Table 1 shows the characteristics of participants. About half,139(49.8%) of participants were 40 years and above. The male to female ratio was 1:1.6. Two hundred and forty-eight (88.9%) participants were Yoruba and 230 (82.4%) were Christians. Two hundred and one (72.0%) had tertiary education. Thirty-nine (14.0%) had positive family history of glaucoma.

Of the 279 participants, 192(68.8%) were aware of glaucoma and 36 (12.9%) had family members who were blind. Table 2 shows factors associated with awareness of glaucoma. One hundred and two (72.9%) of those that were aware of glaucoma were below 40 years of age, one hundred and fifty (74.6%) had tertiary education and this was statistically significant (P=0.001). One hundred and sixty-seven (67.3%) were Yoruba and 161 (70.0%) were Christians. Majority, 132 (47.3%), 63(22.6%), 28(10.0%) and 23(8.2%) felt family disease, act of God, food and drugs respectively were the causes of glaucoma.

There were 152 (79.2%) participants who claimed to be aware of glaucoma treatment, 33 (21.7%) and 49 (32.2%) were aware of only medical and surgical treatment respectively while 62 (40.8%) were aware of both treatment modalities for glaucoma. However, it is important to note that, of the participants that claimed to know how to treat glaucoma, eight (5.3%) felt nothing should be used.

Discussion

Glaucoma, being a silent disease in the majority of situations needs a high of index of suspicion by the populace and all medical personnel in order to pick them early and prevent blindness. Many studies have revealed that many cases remain undiagnosed[14, 15, 16,17] due to its silent nature.

Many published articles have indicated late diagnosis of glaucoma as an important risk factor for subsequent blindness[18,19] and it is usually associated with poor knowledge about the condition.

This necessitated the world glaucoma week done annually to increase awareness so the people can seek help early. This program has been held for many years. It is therefore necessary to review the knowledge of the people and therefore suggest what is the way forward.

In this study, there were more females than males possibly because the males had gone out to work or farm during the period of the study leaving the women at home. This is similar to what was found in India.[20]

Majority, 192(68.8%) were aware of glaucoma. This is good though not all of them will have adequate knowledge of glaucoma. This is in contrast to the situation in some studies where awareness of glaucoma has been generally poor.[21, 22, 23, 24. 25] This difference may however be due to the different definitions used and the many glaucoma awareness programs done in this environment.

Our study was to assess how many people have had some idea of glaucoma in our area especially following the glaucoma week programs we have held in the state. It was not done to assess adequate knowledge of glaucoma.

Majority, 33(84.6%) of the 39 participants that had positive family history of glaucoma were aware of glaucoma blindness. Although, this was not statistically significant, it may be an indication that glaucoma patients and their family members can be used to increase awareness in their neighborhood. This has been noted by many other authors.[21,26,27, 28]

Two hundred and one (72.0%) of participants had tertiary education. This may account for the high level of awareness in this study and it is scientifically significant. (P=0.001) In fact, it was the only factor examined that was scientifically significant. Similar observations have been noticed by other others.[21, 25, 26, 28]

Of importance in this study is the finding that some of the people, 63(22.6%) felt the cause of glaucoma is an act of God. Also worthy of note is the finding that some people, eight (5.3%) felt there is no need to treat glaucoma. These are serious risk factors for glaucoma blindness as these people will not seek treatment early or give bad advises to others. Future programs will have to give health educate the populace about these notions.

This study has limitations as it has no preceding publication in this area before the onset of glaucoma awareness programs. This could have served as comparison to the results of this study. Nevertheless, this study will serve as comparison to future studies.

References:

1. Worldometer. Nigeria Population. Available at https://www.worldometers.info/world-population/nigeria-population/ Accessed 4th June,2020.
2. Risikat Ramoni. A new Global Burden of Diseases, Injuries, and Risk Factors. Daily Trust. 2020. Available at https://allafrica.com/stories/201610250789.html. Accessed 14/05/2020.
3. State Population. Nigeria data portal. 2006. https://nigeria.opendataforafrica.org/ifpbxbd/state-population-2006. Accessed 16/05/2020
4. Wikipedia. List of villages in Osun state. Available at https://en.wikipedia.org/wiki/List_of_villages_in_Osun_State. Accessed on 16/05/2020
5. Kristin Schmid Biggerstaff. Primary Open Angle glaucoma, eMedicine. 2008. Available at https://emedicine.medscape.com/article/1206147-overview. Accessed on 04/05/2020
6. Kanski J. Clinical Ophthalmology, A Systematic Approach, 2003; 5th ed. Butterworth Heinemann.
7. Klein BE[1], Klein R, Sponsel WE, Franke T, Cantor LB, Martone J, Menage MJ. Prevalence of glaucoma. The Beaver Dam Eye Study. *Ophthalmology.* 1992; Oct;99(10):1499-504.

8. James M. Tielsch, Joanne Katz, Kuldev Singh, et al. A Population-based Evaluation of Glaucoma Screening: The Baltimore Eye Survey. *American Journal of Epidemiology*. 1991; Volume 134, Issue 10: 1102-1110.
9. Jay JL, Murdoch JR. The rate of visual field loss in untreated primary open angle glaucoma. *Br J Ophthalmol.* 1993; 77:176–8.
10. Wilson R, Walker AM, Dueker DK, et al. Risk factors for rate of progression of glaucomatous visual field loss: A computer-based analysis. *Arch Ophthalmol.* 1982; 100:737–41.
11. Fraser S, Bunce C, Wormald R. Risk factors for late presentation in chronic glaucoma. *Invest. Ophthalmol. Vis Sci.* 1999; 40:2251–7.
12. Grant WM, Burke JF., Jr Why do some people go blind from glaucoma? *Ophthalmology*. 1982; 89:991–8.)
13. *World Medical Association Declaration* of *Helsinki*. Ethical principles for medical research involving human subjects. *Bulletin of the World Health Organization*, 2001; *79* (*4*), *373 - 374*.
14. Tielsch JM, Sommer A, Katz J, et al. Racial variations in the prevalence of primary open-angle glaucoma. The baltimore eye survey. *JAMA*. 1991; 266:369-74.
15. Vijaya L, George R, Baskaran M, Arvind H, Raju P, Ramesh SV, *et al*. Prevalence of primary open-angle glaucoma in an urban South Indian population and comparison with a rural population. The Chennai glaucoma study. *Ophthalmology*. 2008; 115:648-54.
16. Kwon YH, Kim CS, Zimmerman MB, et al. Rate of visual field loss and long-term visual outcome in primary open-angle glaucoma. *Am J Ophthalmol* 2001; 132:47-56.

17. Oliver JE, Hattenhauer MG, Herman D, et al. Blindness and glaucoma: A comparison of patients progressing to blindness from glaucoma with patients maintaining vision. *Am. J Ophthalmol*. 2002; 133:764-72.

18. Jay JL, Murdoch JR. The rate of visual field loss in untreated primary open angle glaucoma. *Br. J. Ophthalmol.* 1993; 77:176–8.

19. Wilson R, Walker AM, Dueker DK, Crick RP. Risk factors for rate of progression of glaucomatous visual field loss: A computer-based analysis. *Arch Ophthalmol*. 1982; 100:737–41.

20. Ramesh Ve Sathyamangalam, Pradeep G Paul, Ronnie George, Mani Baskaran, Arvind Hemamalini, Raj V Madan, et. Al. Determinants of glaucoma awareness and knowledge in urban Chennai. *Indian J. Ophthalmol*. 2009 Sep-Oct; 57(5): 355–360.

21. Dandona R, Dandona L, John RK, McCarty CA, Rao GN. Awareness of eye diseases in an urban population in Southern India. *Bull World Health Organ*. 2001;79:96-102.

22. Krishnaiah S, Kovai V, Srinivas M, et al. Awareness of glaucoma in the rural population of Southern India. *Indian J. Ophthalmol.* 2005; 53:205-8.

23. Sathyamangalam RV, Paul PG, George R, et al. Determinants of glaucoma awareness and knowledge in urban Chennai. *Indian J. Ophthalmol.* 2009; 57:355-60.

24. Gogate P, Deshpande R, Chelerkar V, Deshpande S, Deshpande M. Is glaucoma blindness a disease of deprivation and ignorance? A case-control study for late presentation of glaucoma in India. *Indian J. Ophthalmol.* 2011; 59:29-35.

25. Prafulla K Maharana , Vaishali G Rai, Rajesh Pattebahadur , Shipra Singhi, Ashish K

Chauhan. Awareness and Knowledge of Glaucoma in Central India: A Hospital-Based Study. Asia Pac. J. Ophthalmol (Phila) 2017; 6(3):243-249.

26. Parveen Rewri, Mukesh Kakkar . Awareness, knowledge, and practice: A survey of glaucoma in north Indian rural residents. Indian J Ophthalmol. 2014; 62(4): 482–486.

27. Tenkir A, Solomon B, Deribew A. Glaucoma awareness among people attending ophthalmic outreach services in Southwestern Ethiopia. BMC Ophthalmol 2010;10:17.

28. Pfeiffer N, Krieglstein GK, Wellek S. Knowledge about glaucoma in the unselected population: A German survey. J. *Glaucoma.* 2002; 11:458-63.

Table 1. Characteristics of the Participants

Parameter		Frequency	
		n	%
Age (Years)	< 40	140	50.2
	≥ 40	139	49.8
Educational Level	Below Tertiary	78	28.0
	Tertiary	201	72.0
Ethnicity	Yoruba	248	88.9
	Others	31	11.1
Religion	Christianity	230	82.4
	Others	49	17.6
Family History of Glaucoma	Present	39	14.0
	Absent	240	86.0

[#] df =1

[*]Statistically significant

Table 2: Factors associated with participants' awareness of Glaucoma

Parameter		Awareness of Glaucoma		Comment[#]	
		Yes (%)	No (%)	X^2	p
Age (Years)	< 40	102 (72.9)	38 (27.1)	2.137	0.144
	≥ 40	90 (64.7)	49 (35.3)		
Educational Level	Below Tertiary	42 (53.8)	36 (46.2)	11.305	0.001*
	Tertiary	150 (74.6)	51 (25.4)		
Ethnicity	Yoruba	167 (67.3)	81 (32.1)	2.274	0.132
	Others	25 (80.6)	6 (19.4)		
Religion	Christianity	161 (70.0)	69 (30.0)	0.854	0.355
	Others	31 (63.3)	18 (36.7)		
Family History of Glaucoma	Present	33 (84.6)	6 (84.6)	3. 428	0. 064
	Absent	141 (70.1)	60 (29.9)		

[#] df =1

*Statistically significant

NB

Thirty-nine (20.3%) participants do not know if any family member has glaucoma.