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Research Article

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Awareness of Glaucoma in the Central Region of Saudi Arabia

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ABSTRACT

The aim of the study is to estimate the awareness about glaucoma among the attendees of King Abdul-Aziz University Hospital (which is one of the big hospitals in Riyadh) as well as to assess the relationship between the awareness and knowledge about glaucoma across the socio-demographic characteristics, which will help to develop educational and screening programs of glaucoma. In turn, a patient might come in early stage of the disease therefore minimizing its complication. We hypothesized that people in the central region of Saudi Arabia are fully aware about glaucoma and its related health issues. Our study is cross sectional study. A sample of 469 patients attending ophthalmology outpatient clinic took part in filling in the glaucoma awareness questionnaire. Among these participants, 250 (53.3%) and 219 (46.8%) were males and females respectively. In the age, mean ±SD [Range]; 38.6 ±14.5 [14-80] years old. Results: The majority of the interviewed people had secondary or higher school education (86.3%) and were employed (44.3%); two of them refused to give any background about their educational level. Out of the 455 who agreed to respond to the monthly income question, most of them had a monthly income of more than 5000 SR. It is worth nothing that most of the interviewed were not suffering from either diabetes or hypertension. The question measuring the awareness of glaucoma revealed that approximately 67% had heard of glaucoma through doctors, families, media and friends. Those who managed to answer the questions correctly, and who had already heard of glaucoma, were 312 (66.5%). Conclusions: Assessing the glaucoma knowledge, the scores showed that majority had good knowledge of glaucoma with only a few having excellent knowledge. However, only two (0.6%) of the respondents had very poor knowledge of glaucoma.

Keywords: *Glaucoma, Knowledge, Awareness, Central Region of Saudi Arabia, Riyadh*

INTRODUCTION

Several studies reported that glaucoma is the second leading cause of blindness after the cataract and usually the patient comes in advance stage of the disease. This can be due to lack of awareness about glaucoma and its symptoms and the natural process of the disease in which the symptoms appear later. Furthermore, lack of knowledge about the disease and recognition of its symptoms will have a negative impact on patients' quality of life and the productivity. Additionally, it will increase the rate of complications and economical cost.

The estimation of the awareness and determination of the level of knowledge about glaucoma will help to develop educational and screening programs of glaucoma. In turn, patient might come in early stage of the disease therefore minimizing its complication.

Glaucoma is defined as "long-term ocular neuropathy defined by optic disc or retinal nerve fiber structural abnormalities and visual field abnormality" [1]. According to WHO, glaucoma is considered as the second principal

cause of sightlessness after the cataract [2-3]. A study has estimated that around 80 million by 2020 will suffer from glaucoma worldwide, both types open angle glaucoma (OAG) and angle closure glaucoma (ACG). Furthermore, of those who will suffer, around three-quarter will have OAG [4]. Another study has estimated that 3.54% of age group 40-80 year-old worldwide suffered from glaucoma [5]. In Saudi Arabia, two studies on the prevalence of glaucoma types have been conducted in central and western regions of Saudi Arabia and both of the studies had ascertained that OAG and ACG as primary and secondary, were the predominate two form of glaucoma. However, ACG was the predominant type in the central region while OAG was the most prevalent in the western region [6-7]. Aging, family history of glaucoma, increasing in intraocular pressure, refractive errors hypertension and diabetes have been postulated to increase the risk to develop glaucoma [8-13]. Some factors that can lead to glaucoma are not completely understood although they increase the risk of glaucoma development such as hypothyroidism and pseudo-exfoliation syndrome [14-15]. In Saudi Arabia, 11% of glaucomatous patients will end with bilateral legal blindness [7].

Many studies have emphasized that glaucomatous patients usually were not aware about the disease before the diagnosis and even after it. The Baltimore Eye Survey reported that half of the glaucoma patients did not know they have the disease. In India, majority of glaucomatous patients were not fully aware about their disease [16-18]. In turn, late presentations of the disease were highly contributed to the lack of awareness about Glaucoma [19-20].

From a financial point of view, diagnosis of Glaucoma and its treatment has a high economical cost. In the United States, it was estimated that medical cost was around $3 billion for two million American glaucomatous citizens [21]. Another estimation in Australia reported a cost of $144.2 million only for 300 000 Glaucomatous patients [22]. Furthermore, as the severity of glaucoma increases, the disease was found to have higher financial cost because it involved non-medical issues cost like transportation, nurse home care and government programs, which had an impact on individual productivity [23].

World Glaucoma Association has emphasized a close collaboration with different international agencies and ophthalmology centers to encourage screening of glaucoma at its early stage. These collaborations hoped to increase life expectancy to vision globally [24]. These steps need to have baseline of knowledge and awareness of population about the disease in the communities. To best of our knowledge, there is no study in Saudi Arabia that addresses the awareness and knowledge about glaucoma.

The purpose of the present study was to know the extent to which the society in the central region of Saudi Arabia is aware about Glaucoma. It was hypothesized that people in the central region of Saudi Arabia are fully aware about glaucoma and its related health issues.

METHOD

Participants

Around four hundred consecutive participants conducted from waiting areas of outpatient building at King Abdul-Aziz University Hospital. Inclusion Criteria: any adult patients or visitors over the age of 40, both male and female, who attend the waiting areas of the outpatient building.

MATERIAL

The data collected on three pages of self-developed and self-administered structured questionnaire. The questionnaire involved three parts. The first part contained 10 questions about the sample characteristics of the respondents. The second part contained two questions related to the awareness about glaucoma. The third part contained 15 questions, adopted and translated from a previous study to measure the level of knowledge among patients and non-patients, about the respondents' knowledge about glaucoma.

Procedure

Study design: Cross sectional, quantitative, and observational

This Study has been conducted in the waiting areas of outpatient building at King Abdul-Aziz University Hospital. A sample of 384 was determined based on requirement of 95 % confidence limit with 5% precision rate and a proportion of 50% based on previously published studies. n = (Z 1-a/2) ^2 P (1-P)/d^2 ((1.96^2) x 0.5(1-0.5))/0.05^2 = 384.

Sampling technique: We used convenience-sampling method, which is a type of non-probability sampling method. Inclusion Criteria: any adult patients or visitors over the age of 40, both male and female, who attend the waiting areas of the outpatient building.

RESULTS, DISCUSSION AND CONCLUSION

A sample of 469 patients attending ophthalmology outpatient clinic took part in filling in the glaucoma awareness questionnaire. Among these participants, 250 (53.3%) and 219 (46.8%) were males and females respectively, in the age, mean ±SD [Range]; 38.6 ±14.5 [14-80] years old. The majority of the interviewed people had secondary or higher school education (86.3%) and were employed (44.3%); two of them refused to give any background about their educational level. Out of the 455 who agreed to respond to the monthly income question, most of them had a monthly income of more than 5000 SR. It is worth noting that most of the interviewed were not suffering from either diabetes or hypertension (Table 1).

Upon asking them about refractive vision defects (hyperopia and myopia); 47% answered yes, with only 7% having had a glaucoma diagnosis. However, 27% of the respondents had a family history of glaucoma. The question measuring the awareness of glaucoma revealed that approximately 67% had heard of glaucoma through doctors, families, media and friends. All the un-answered questions were treated as false (Table 2).

Those who managed to answer the questions correctly, and who had already heard of glaucoma, were 312 (66.5%). The correctly answered questions were; chances of glaucoma cure when treated early, investigation of intraocular pressure as a standard when one visits an ophthalmologist, risk of glaucoma triggering convulsive seizures and risk of glaucoma being potential blindness. However, the majority came up with wrong answers concerning the symptoms of glaucoma including red eye, very painful eye with nausea and even vomiting. Besides, they believed that glaucoma should always be treated with surgery, glaucoma is hereditary and normally glaucoma is asymptomatic (Table 3).

Assessing the glaucoma knowledge, the scores showed that majority had good knowledge of glaucoma with only a few having excellent knowledge. However, only two (0.6%) of the respondents had very poor knowledge of glaucoma (Table 4).

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TABLES

Table 1. Demographic, socioeconomic and systemic indices (n=469)

Variable	Category	No.	%
Gender	Male	250	53.3
	Female	219	46.8
Education	Illiterate	10	2.1
	Primary	20	4.3
	Middle	34	7.3
	Secondary	119	25.5
	University	284	60.8
Occupation	Employee	208	44.3
	Own Business	25	5.3
	Student	67	14.3
	Retired	58	12.4
	Unemployed	111	23.7
Income	<5000	72	15.8
	5000 - 9999	148	32.5
	10000 - 14999	115	25.3
	15000 - 20000	72	15.8
	>20000	48	10.5
Diabetes	Yes	122	26.0
	No	347	74.0
Hypertension	Yes	117	24.9
	No	352	75.1

Table 2. Ocular diseases and glaucoma knowledge (n=469)

Variable	Category	No.	%
Eye disease	Yes	219	46.7
	No	250	53.3
Glaucoma diagnosis	Yes	31	6.6
	No	438	93.4
Family history of glaucoma	Yes	126	26.9
	No	343	73.1
Ever Heard of Glaucoma	Yes	312	66.5
	No	157	33.5
Heard glaucoma from			
Doctor	Yes	60	21.1
Family	Yes	128	45.2
Friend	Yes	75	26.5
Media	Yes	137	48.6

Table 3. Percentage of correct answer out of Questionnaire (n=312)

Question	Category	No.	Correct Answer	% of Correct Answer
Q 1	False	75		
	True	237	True	76.0%
Q 2	False	85		
	True	227	True	72.8%
Q 3	False	153		
	True	159	True	51.0%
Q 4	False	96		
	True	216	True	69.2%
Q 5	False	79		
	True	233	True	74.7%
Q 6	False	223		
	True	89	True	28.5%
Q 7	False	44		
	True	268	True	85.9%
Q 8	False	268	False	85.9%
	True	44		
Q 9	Little	20		
	Good	292	Good	93.6%
Q 10	False	92	False	29.5%
	True	220		
Q 11	False	211		
	True	101	True	32.4%
Q 12	False	36		
	True	276	True	88.5%
Q 13	False	53		
	True	259	True	83.0%
Q 14	False	151	False	48.4%
	True	161		
Q 15	False	188		
	True	124	True	39.7%

Table 4. Knowledge distribution

Knowledge level	Number (%)
Very poor knowledge (0-3)	2 (0.6)
Poor knowledge (4-6)	19 (6.1)
Moderate knowledge (7-9)	120 (38.5)
Good knowledge (10-12)	145 (46.5)
Excellent knowledge (13-15)	26 (8.3)