

Study of awareness of diabetic retinopathy among the patients of type 2 diabetes mellitus: A prospective study

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Abstract

Aims and Objective: To evaluate awareness of DR among a sample of T2DM in Karnal.

Materials and Methods: Two hundred and forty seven diabetic patients were studied at Bharti Hospital and from Jan 2017 to July 2017. Details on awareness about DR, screening for DR, last ophthalmological evaluation, report of screening by fundus photography, quality of fundus photo and reason for poor quality were recorded.

Results: Mean age of study cohort was 53.95±10.42 years. Most common age group was 51-60 (33.20%). Most of the diabetes patients knew that diabetes causes eye problem (80.16%), of them only 55.56% knew specifically diabetes causes retinopathy, diabetes causes Glaucoma (57.07%) and diabetes predisposes to cataract (68.69%). Further evaluation regarding awareness of symptoms revealed that most of them were aware regarding the blurred vision (72.22%) and blindness (68.18%), whereas most of the patients were not aware about the floating black dots/lines (78.79%), fluctuation of vision (85.86%), dark or empty spaces in the visual field (86.87%), difficulty in perception of image (86.36%), double vision (84.85%) and eye pain (79.89%). Duration of DM is related to eye disease (69.70%), dietary control and life style modifications are important for control of diabetes (76.77%), whereas 67.68% were unaware that the eye problem can be controlled/avoided with regular medication and diabetic control.

Conclusion: Awareness of DR and associated factors especially symptoms of DR are less among the T2DM patients of study place. It is very important to spread the awareness regarding DR through various means of communication in order to decrease the prevalence of DR.

Keywords: Disease awareness, Diabetes mellitus, Eye problem, Retinopathy.

Introduction

Diabetes mellitus (DM) can result in many complications such as nephropathy, cardiovascular, neurologic and ocular complications,¹ with diabetic retinopathy (DR) being the most common microvascular ocular complication of DM.² DR is defined as a disorder of the retinal circulation that compromises the delivery of oxygen and nutrients to the retina, thus being unable to meet its high metabolic demands.³ Therefore, defects in retinal circulation may affect normal vision, which is considered a leading cause of vision impairment and blindness worldwide.⁴

Many risk factors for DR have been reported among patients with diabetes; these include uncontrolled DM, longer periods of DM and the presence of other systemic diseases such as hypertension.⁵

Increasing the level of awareness of DR as an ocular complication of DM among patients with diabetes is considered an important factor for early diagnosis and management of DR, in addition to the prevention of possible visual impairment due to the disease.⁶ Variable levels of awareness of DR among patients with diabetes have been reported from different countries around the world. For example, in Australia, it was found that only 37% of the patients with diabetes were aware of the ocular complications of DM,⁷ and 65% of patients with diabetes in the USA were aware of DR.³

There is a lack of studies that assess the awareness levels regarding DR among urban DM sufferers in Indian population. In view of the alarming increase in the incidence of DM in India, present study was conducted to assess the awareness levels of DR in T2DM patients.

Materials and Methods

A descriptive cross sectional study was performed on 247 diabetes patients who visited Bharti Hospital from Jan 2017 to July 2018

Patients who are below 18 and above 80 years of age and those not giving the written consent were excluded from the study.

All the patients were interviewed and asked to answer a set of questionnaire. The content validation of the questionnaire was done by team of experts. The questionnaire included the demographic profile of the patients, and other details regarding diabetes such as duration of diabetes.

Details on awareness about DR, screening for DR, last ophthalmological evaluation, report of screening by fundus photography done by team, quality of fundus photo and reason for poor quality were recorded. However, due to the limitations of resources and time, data was collected only from a total of 250 respondents.

All the data analysis was performed using IBM SPSS ver. 20 software. Cross tabulation and frequency distribution was used to prepare table. Quantitative data

was expressed as mean±SD whereas qualitative data was expressed as percentage. Chi square test was performed to analyze p value. P value of <0.05 is considered as significant.

Results

Mean age of study cohort was 53.95±10.42 years. Most of the patients belong to age group of 51-60 [82 (33.20%)] followed by 41-50 [75 (30.36%)] and 61-70 years [58 (23.48%)].

Most of the patients had diabetes duration of ≤5 years [115 (46.55%)] followed by 6-10 [76 (30.76%)] and 11-15 [37 (14.97%)] years. Out of 247 patients, 137 (55.46%) had the awareness about DR. Out of 247 patients, 27 (10.93%) had DR.

Most of the diabetes patients know that diabetes causes eye problem (80.16%), of them only 55.56% knew specifically diabetes causes retinopathy, diabetes causes Glaucoma (57.07%) and diabetes predisposes to cataract (68.69%). Further evaluation of these patients regarding awareness of symptoms revealed that most of the diabetes patients were aware regarding the blurred vision (72.22%) and blindness (68.18%). Whereas most of the patients were not aware about the floating black dots/lines (78.79%), fluctuation of vision (85.86%), dark or empty spaces in the visual field (86.87%), difficulty in perception of image (86.36%), double vision (84.85%) and eye pain (79.89%).

Duration of DM is related to eye disease (69.70%), dietary control and life style modifications are important for control of diabetes (76.77%), whereas 67.68% were unaware that the eye problem can be controlled/avoided with regular medication and diabetic control. 51.52% patients replied that eye check-up should be done once in a year.

Table 1: Awareness of different parameters among patients who were aware that diabetes causes eye problem

Variable	N (n=198)	%	
Can be controlled with regular medication	Yes	46	23.23
	No	134	67.68
	Don't know	18	9.09
Duration of DM is related to eye disease	Yes	138	69.70
	No	33	16.67
	Don't know	26	13.13
Dietary control & life style modifications are important	Yes	152	76.77
	No	24	12.12
	Don't know	22	11.11
Diabetes causes retinopathy	Yes	110	55.56
	No	53	26.77
	Don't know	35	17.68
Diabetes causes Glaucoma	Yes	113	57.07
	No	39	19.70
	Don't know	46	23.23
Diabetes	Yes	136	68.69

predisposes to cataract	No	32	16.16
	Don't know	30	15.15

DM; diabetes mellitus, n; no of patients, %; percentage

Table 2: Awareness regarding the symptoms of diabetic eye disease among patients who were aware that diabetes causes eye problem (n = 198)

Variable	n	%	
Blurred vision	Yes	143	72.22
	No	55	27.78
Floating black dots/lines	Yes	42	21.21
	No	156	78.79
Fluctuation of vision	Yes	28	14.14
	No	170	85.86
Dark or empty spaces in the visual field	Yes	26	13.13
	No	172	86.87
Difficulty in perception of image	Yes	27	13.64
	No	171	86.36
Double vision	Yes	30	15.15
	No	168	84.85
Eye pain	Yes	40	20.20
	No	158	79.80
Blindness	Yes	135	68.18
	No	54	27.27

Table 3: Awareness about frequency of eye check up

Variable	N=198	%
Once a month	14	7.07
Once in 6months	38	19.19
Once a year	102	51.52
Once in 2 years	12	6.06
Once in 5 years	10	5.05
Not necessary	22	11.11

N=no of patients

Discussion

Diabetes mellitus is the most common endocrine disorder affecting 73 million Indians. The average age on onset is 42.5 years. Nearly 1 million Indians die due to diabetes every year.⁸ Of the many complications arising in direct relation to diabetes, retinopathy was identified as a major cause of significant visual handicap.

In a study done by Bakkar et al⁹ involving 237 T2DM patients regarding DR awareness reported that mean age for the study population was 54.51±10.28 years which is in agreement with the present study which showed mean age of 53.95±10.42 years.

In present study 55.46% were aware about the DR which is much higher compared to a Sri Lankan study which enrolled 200 diabetic patients reported that only 31% of the respondents were aware about the DR.¹⁰ Gahlot et al did a similar study on 200 diabetes patients and reported that the retinopathy awareness rate amongst the patients was average (48%).¹¹ Reports from Myanmar (86%)¹² and Nigeria (84.3%)¹³ showed higher rates of DR awareness amongst diabetic outpatients. Lower rates in present study can be

attributed to general lack of awareness among the residents of Karnal and lack of proper health educational services among general population. Awareness about DR was about 83.5% in the non-medical faculties of University of Malaya.¹⁴ Addoor et al studied 351 diabetes patients and reported that 83.6% of the patients were aware about the retinopathy.¹²

In the present study 80.16% of the respondents were aware that diabetes can affect eyes. This is higher compared to two other studies, one study done among the urban population of Hyderabad¹⁵ to measure the level of awareness regarding DR which showed 27% individuals were aware that diabetes affects the eye and the other study also conducted in India showed the awareness to be 37.1%,¹⁶ but lower compared to 84% as assessed in a population in Kerala.¹⁷ Bakkar et al reported that of the 237 respondents, 88.2% were aware that diabetes can affect the eyes.⁹

In present study out of 80.16% patients who were aware that diabetes can affect eyes, of them only half of the patients knew specifically that diabetes causes retinopathy, diabetes causes glaucoma and diabetes predisposes to cataract. That means awareness about the complication of diabetes related to eye is lacking among the study population. Further evaluation of these patients regarding awareness of symptoms revealed that most of the diabetes patients were aware regarding the blurred vision and blindness whereas most of the patients were not aware about the floating black dots/lines, fluctuation of vision, dark or empty spaces in the visual field, difficulty in perception of image, double vision and eye pain. This demand the proper education among the patients suffering from diabetes in order to early detection of DR based on symptoms.

In present study 68.02% were not aware about the fact that eye problems can be treated without regular medication. Shetgar et al studied 150 T2DM patients for DR awareness reported that more than half the interviewees were of the opinion that individuals with controlled diabetes will not develop DR and also 76.6% thought they should visit an ophthalmologist only when their blood sugar was poorly controlled while 23.3% were aware that they should get their eyes examined in spite of good blood sugar control.¹⁸

In present study awareness regarding the symptoms of diabetic eye disease was studied and found that 68.08% diabetic patients were aware that diabetes causes blindness. In a similar study from Malaysia reported that 77.9% of the respondents were aware that diabetes can cause blindness.¹² Bakkar et al reported that 81% reported that DR can lead to blindness.⁹

Another study conducted in south India which showed 50.8% of the patients knew the importance of regular eye examination¹⁷ is in agreement with the present study where 51.82% respondents were aware about the need for annual eye check-up (Table 3). Shetgar et al reported that 43.3% respondents had no knowledge regarding the frequency and importance of

regular eye check-ups for DR¹⁸ whereas in present study only 11.34% responded that routine eye check-up is not necessary in diabetes.

Among the 137 individuals who were aware of DR majority of them got their information from their treating physicians and nurses followed by mass media. Similar study conducted in the UK also concluded that information about DR received from the treating physicians and nurses was the main source of information for the diabetic patients.¹⁹ These studies suggest that information regarding DR can be propagated through health education by trained healthcare professionals and health campaigns promoted by mass media.

Conclusion

It is very important to spread the awareness regarding DR through various means including television, newspaper, posters in all hospitals and other health centers. It will motivate and encourage the diabetic patients to undergo a timely eye-examination and thus engage individuals in a health seeking behavior. The increased awareness and knowledge will lead to a better understanding of the disease process and also the importance of regular eye examination for the early detection and treatment and thereby reducing the sight threatening complications of DR. Finally we can reduce the prevalence of DR by developing an integrated health and social care pathway, further education and better communication between all the relevant parties.

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