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Study of socio-demographic parameters for diabetic retinopathy awareness: A prospective study

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Abstract
Background: Prevalence of Diabetic retinopathy (DR) in diabetic patients is estimated to be 12.2% to 18.03%. Diabetic retinopathy is one of the leading causes of preventable blindness inIndia.
Aims and Objectives: To study socio-demographic parameters of patients having diabetic retinopathy awareness.
Materials and Methods: 247 diabetic patients were studied who were referred to Bharti Hospital or Saraswati Nethralaya by physicians in the peripheral clinics in Karnal from Jan 2017 to December 2017. After noting socio-demographic details, all patients were asked to answer a pre-approved questionnaire.
Results: Out of 247 patients, 137 (55.46%) had diabetic retinopathy awareness. Mean age of patients with diabetes awareness was 53.95±10.42 years. Most of the patients had diabetes duration of ≤5 years (46.55%). Among the patients who were aware of DR, most of them were female (71.53%), belonging to 41-60 age group (59.85%).Awareness was more in those who were graduate (33.57%), were selfemployed (39.41%),were married (75.18%) and had monthly-income between Rs.10001- Rs.25000 (52.55%). DR awareness was more in patients with longer duration of diabetes.
Conclusion: DR awareness was more in female patients belonging to 4th to 6th decade of life, were married and had longer duration of diabetes.

Keywords: awareness, diabetic retinopathy, ophthalmological evaluation, diabetic retinopathy awareness

Introduction

Diabetes has been termed one of the largest health problems of the 21stcentury [1]. In 2015, there were 415 million people with diabetes living in the world. This number is expected to increase to 642 million in 2040. Global prevalence of DR is 34.6%, out of that 4.8% of the cases become blind [2, 3]. DR is also one of the main reasons for new-onset blindness in working age population of developed and frequent reason for the blindness in middle income countries.

India is a home for the 69.2 million diabetic people and it will rise to 123.5 million by 2040 [1]. Because of increasing the diabetes cases, India is becoming home for patients with visual impairment. It is because of the reason of developing retinopathy within 20 years of onset of diabetes [4]. The prevalence of DR as reported by several studies in India is 7.3% [5, 6].

Though it is true that occurrence of diabetic retinopathy is not preventable but the complications causing severe visual impairment can be reduced by early detection and timely treatment. Reports of Early Treatment Diabetic Retinopathy Study (ETDRS) [7] and Diabetic Retinopathy Study (DRS) [8] has shown that timely intervention using LASER photocoagulation can reduce the visual loss by 90%.

There is a need for high level of awareness about DR in the community to provide education to the diabetic patients about the risk factors for DR and also regarding its sight threatening complications. Thus a main challenge to the health care providers in India is to spread awareness and knowledge about diabetic retinopathy and thus reduce the social burden of the disease [9].

Materials and Methods

A descriptive cross sectional study was performed on subjects who visited Bharti Hospital or who were referred for ophthalmological evaluation (Saraswati Nethralaya) by physicians in the peripheral clinics in Karnal from Jan 2017 to December 2017 on 250 diabetes patients.

Patients who are below 18 and above 80 years of age and those with ill-literacy in both Hindi and English were excluded from the study.

All the patients were asked to answer a pre-approved questionnaire. The content validation of the questionnaire was done by team of experts physician who had the expertise in the field of DR. The questionnaire included the demographic profile of the patients along with other details regarding diabetes such as duration of diabetes.

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. 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.

Table 1: Showing Socio demographic information of subjects having diabetic retinopathy awareness

Variable		N (n=137)	%
Sex	**Male**	**39**	**28.47**
	Female	**98**	**71.53**
Age (years)	21-40	5	3.65
	41-60	82	59.85
	61-80	50	36.50
Level of education	Illiterate	11	8.02
	5th class	20	14.60
	10th class	34	24.81
	Graduates and more	72	52.55
Employment	Employed	44	32.12
	Unemployed	13	9.48
	Self employed	54	39.41
	Retired	26	18.98
Marital status	Married	103	75.18
	Single	30	21.90
	Widowed	4	2.92
Monthly Income	<5000	18	13.14
	5000-10000	12	8.76
	10001-25000	72	52.55
	25001-50000	24	17.52
	>50000	11	8.03

Table 2: Comparing diabetic retinopathy awareness with diabetes duration

Diabetes duration	DR awareness		Total	Chi square	P value
	No	Yes			
0-5	66	49	115	18.874	0.001
6-10	28	48	76		
>10	16	28	37		
Total	110	137	247		

DR; diabetes retinopathy, P value of <0.05 is considered as significant

Out of 137 patients who were aware of effect of diabetes on eyes, 34 (24.81%) patients did not get their eyes screened for DR. A total 8 out of 103 patients who were screened were found to have DR.

Discussion

The lack of awareness about DR is considered a major health problem that could interfere with proper management and prevention of possible visual impairment. There seems tobe a worldwide trend of a lack of awareness of DM in the population.

In present study, Out of 247 patients interviewed, 137 (55.46%) had awareness regarding diabetic retinopathy. Seneviratne *et al*. studied 200 respondents and reported that lower DR awareness (31%) [10]. Contrary to present study Srinivasan *et al* studied 288 patients and reported that only 4.5% patients had the good knowledge about DR. Shetgar *et al*. [11] studied 150 diabetes patients and reported that 45.3% of the respondents were aware that diabetes can affect eyes [9]. Compared to present study, DR awareness was lower in two Indian study; one study done among the urban population of Hyderabad [12] to know the awareness of DR showed 27% individuals were aware of DR and another Indian study showed the awareness among 37.1% patients [13]. But DR awareness was very much low compared to 84% as assessed in a population in Kerala [14].

Seneviratne *et al*. reported that patients with diabetes duration <5 years (23.7%) were less aware about the DR in comparison to the patients with longer duration (>5 years) of diabetes (41.5%) (p=0.008). [10] In agreement to Seneviratne *et al* in present study also patients with diabetes duration 6-10 years were more aware about the DR in comparison to patients having diabetes duration of <5 years (p=0.001). The reason for comparatively better knowledge among those who had been suffering from diabetes for a longer duration, than those who had been recently diagnosed, is probably because the former has had more time to learn about diabetes and its ocular manifestations from various sources, including medical officers and other diabetic patients.

In present study, those patients who were graduate (33.57%) and post graduates (18.97%) were more aware about the DR compared to patients who had lower education or were illiterate. Similar reports were generated by Seneviratne *et al*. where 49.5% of diabetes patients who were more educated were aware about the DR in comparison to patients who were illiterate (p<0.001) [10]. It was also identified in the study conducted among Turkish diabetics, that those with an educational level up to middle school or above had a better knowledge regarding DR compared to those with a poor level of education. Bakkar *et al*. reported that higher level of patients' awareness of diabetic retinopathy was related to higher level of formal education (p<0.05) [16].

In present study married patients were more aware about the DR compared to patients who were single. Contrary to present study Seneviratne *et al*. found no significant association between the marital status and the level of knowledge [10]. Addoor *et al*. studied 351 patients for DR awareness and reported that 83.5% were aware about the DR which is very high compared to present study reports [17]. According to a study done in U.S., older age, higher socioeconomic status and higher educational level among the diabetics were associated with having an annual eye examination [18].

Conclusion

Awareness regarding DR was more among the female who were married and having age between 41-60 years with longer duration of diabetes. Education pays a very important role in awareness of DR. An increased awareness in the community about diabetic retinopathy will lead to an increase in the understanding of the disease process and the importance of regular eye examination for the early detection and treatment of diabetic retinopathy. This will thereby increase the case detection and thus lower the burden of sight threatening complications of diabetic retinopathy.

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