

Original research article

Cross sectional, questionnaire based study to assess the Awareness and knowledge of Diabetic retinopathy among Diabetic patients**Dr. Naveen Kumar¹, Dr. Nageshwar Sharma²****¹Assistant Professor, Department of Ophthalmology, Patna Medical College and Hospital, Patna, Bihar, India****²Associate Professor & HOD, Department of Ophthalmology, Patna Medical College and Hospital, Patna, Bihar, India****Corresponding Author: Dr. Nageshwar Sharma****Abstract**

Aim: The aim of the present study was to assess the awareness and knowledge of Diabetic retinopathy among Diabetic patients in a tertiary care hospital of Bihar region.

Material and Methods: This was a descriptive, cross sectional, non-randomized, questionnaire based study conducted in the department of Department of ophthalmology, Patna Medical College and Hospital, Patna, Bihar, India, for 15 months. A knowledge attitude practice questionnaire was prepared and pretested in a sample group of representative population. The response was analyzed as to whether the questions were understood or not. Social workers were trained in administering questionnaire. Diabetic patients were given questionnaires at primary health centre and filled in the presence of social workers.

Results: Out of the 200 patients, 110 (55%) had no knowledge of diabetic retinopathy compared to 90 (45%) who had knowledge. This was statistically significant with p value <0.001. Knowledge was more in age group less than 30 years (76.19%) and least in 40 to 50 age group (47.62%) which was statistically significant with p value <0.001. Knowledge was more among females than males which was not significant statistically. Knowledge was found to be high among participants with higher educational status than in those who had college level education (72.73%) which was statistically significant with p value <0.001. Patients in the upper socioeconomic group had more knowledge about diabetic retinopathy (85.71%) which was statistically significant with a p value of 0.001.

Conclusion: The attitude and practice of diabetic retinopathy was statistically significant in knowledge group compared to those who had no knowledge of diabetic retinopathy.

Keywords: Attitude, Diabetic retinopathy, Knowledge, Practice, Primary health centre

Introduction

Diabetes mellitus has been termed as a significant global public health problem. It was estimated that there were 415 million people with diabetes worldwide in 2015 and this is expected to increase to 642 million in 2040.¹ In India there are 69.2 million people with diabetes at present and it is estimated to increase to 122.5 million by 2040.¹ Diabetic retinopathy is one among the leading causes of preventable blindness worldwide. The overall global prevalence of diabetic retinopathy is 34.6% and it accounts for 4.8% of blindness in the world.^{2,3} The prevalence of diabetic retinopathy in India from various studies range from 7.3% to 20%.⁴⁻⁷ Wisconsin Epidemiological study has proved that micro vascular complications such as diabetic retinopathy are linked to duration of diabetes.⁸ Routine dilated fundus examination is recommended at the time of diagnosis of diabetes and then yearly review is required in all patients having type 2 diabetes mellitus. Awareness of importance of routine check-up for the screening of diabetic retinopathy is poor even in developed countries and the situation is much worse in a developing country like India. Previous studies have

shown that 63% of the rural diabetic population has not had an eye examination.⁹ Magnitude of blindness caused by diabetic retinopathy is increasing. Lack of awareness about diabetic retinopathy and the preventable complications associated with it worsens the situation. Early detection of diabetic retinopathy and its appropriate management is very important to prevent irreversible visual loss. This can only be achieved with better knowledge and awareness among patients. There have been many studies done in other states in India to assess the knowledge and awareness on diabetes and diabetic retinopathy among patients with diabetic retinopathy, however very few studies assessed knowledge, awareness and practices amongst patients with diabetic retinopathy.¹⁰⁻¹³ Besides, no such study was undertaken amongst patients diagnosed with diabetic retinopathy who presented to Medical College. The objective of the study was to assess the knowledge, attitudes and practices about diabetes and diabetic retinopathy among patients diagnosed with diabetic retinopathy at a tertiary care hospital.

Material and Methods

This was a descriptive, cross sectional, non-randomized, questionnaire based study conducted in the department of Department of Ophthalmology, Patna Medical College and Hospital, Patna, Bihar, India, for 15 months, after taking the approval of the protocol review committee and institutional ethics committee. A detailed search in literature was done to create the knowledge attitude and practice questionnaire which was prepared in English and the local language. Questionnaire was tested in a sample group of representative population. The response was analysed as to whether the questions were understood or not. Social workers were trained in administering the questionnaire. They were given the questionnaire and filled in presence of the social workers after obtaining informed consent. Diabetic patients of age less than 18 years, mentally challenged patients who were not able to give informed consent and patients who were not able to understand and respond to the questions administered were excluded from the study.

Questionnaire consisted of three parts, first part contained the patient profile which included name, gender, occupation, socioeconomic status, educational status and their consent for the study. Second part included details of diabetes mellitus like duration, family history of diabetes and any eye complaints if present. Third part of the questionnaire contained the Knowledge based questions.

Determinants of knowledge on diabetes and diabetic retinopathy such as age, gender, language, literacy and socioeconomic status were analysed between the groups using univariate analysis. The association of knowledge of diabetic retinopathy with attitude and practices was evaluated between the groups using univariate analysis (chi square test). A two tailed P value <0.05 was considered statistically significant.

Results

The demographic characteristics of the 200 patients recruited into the study are given in Table 1. Out of the 200 patients, 110 (55%) had no knowledge of diabetic retinopathy compared to 90 (45%) who had knowledge. This was statistically significant with p value <0.001.

Table 1: Demographic characteristics of the study population

Age	Number	Percentage
Below 30	21	10.5
30-40	53	26.5
40-50	63	31.5
50-60	38	19
Above 60	25	12.5

Gender		
Male	50	25
Female	150	75
Educational status		
Uneducated	57	28.5
class 1-12	110	55
college level	33	16.5
Socio economic status		
Lower	117	58.5
Middle	55	27.5
Upper	28	14

Table 2: Association of age and knowledge of diabetic retinopathy (DR)

	Knowledge of DR		Total
	Knowledge group	Non knowledge group	
Below 30	16	5	21
30-40	18	35	53
40-50	30	33	63
50-60	16	22	38
Above 60	10	15	25
Total	90	110	200

Knowledge was more in age group less than 30 years (76.19%) and least in 40 to 50 age group (47.62%) which was statistically significant with p value <0.001 (Table 2). Knowledge was more among females than males which was not significant statistically. Knowledge was found to be high among participants with higher educational status than in those who had college level education (72.73%) which was statistically significant with p value <0.001 (Table 3).

Table 3: Association of educational status and knowledge of DR

Educational status	Knowledge of DR			P-value
	Knowledge group	Non knowledge group	Total	
No education	21	36	57	
Class 1-12	45	65	110	0.00
College	24	9	33	01
Total	90	110	200	

Patients in the upper socioeconomic group had more knowledge about diabetic retinopathy (85.71%) which was statistically significant with a p value of 0.001 (Table 4).

Table 4: Association of socio economic status and knowledge of DR

Income Level (monthly income in rupees)	Knowledge of DR		Total	P-Value
	Knowledge group	Non knowledge group		
Lower (200-500)	46	71	117	
Middle (501-2000)	20	35	55	0.0001
Upper (>2000)	24	4	28	
Total	90	110	200	

There was no significant association between duration of diabetes and knowledge of diabetic retinopathy. About 80 % of individuals in knowledge group had right attitude which was significantly higher than non knowledge group (52.73%) with a p value <0.001 . (Table 5).

Table 5: Association of knowledge of DR with attitude towards DR.

Attitude	Knowledge of DR			P - Value
	Knowledge group	Non knowledge group	Total	
Yes	72	58	130	
No	18	52	70	0.0001
Total	90	110	200	

Regarding source of information, 49% of patients in knowledge group got information about diabetic retinopathy from physicians, 13% from eye specialists, 9% from reading books, 8% from various media and 20% from other sources like family and friends (table 6)

Table 6. Source of information about diabetic retinopathy

Physicians	49%
Eye Specialists	13%
Reading Books	9%
Various Media	8%
Family and Friends	20%

Table 7: Association of knowledge of DR with practice regarding DR.

Practice	Knowledge of DR		Total	P value
	Knowledgeable	Non knowledgeable		
Yes	11	13	24	
No	79	97	176	0.0001
Total	90	110	200	

About 45.83% in knowledge group had practice of visiting ophthalmologist for eye checkup which was significantly higher than non knowledge group with a p value <0.001 (Table 7).

Discussion

Early detection and appropriate management of diabetes and its complications helps prevents irreversible damage. The same holds true for diabetic retinopathy. In its initial stages diabetic retinopathy is asymptomatic, and patients usually present to an ophthalmologist once irreversible visual damage has occurred. Hence awareness and knowledge about diabetes and diabetic retinopathy becomes very important in early detection and treatment.

Diabetic retinopathy is an upcoming cause of visual impairment and prevalence of diabetic retinopathy is more in developing countries. Even though health education statistics and literacy rate in WB is superior than national average and close to that of developed countries, diabetes related ocular complications are on the rise. The facilities in primary health centres which are provided free of cost are not utilized properly and this is reflected in the results of our study.

In this study more than half of the respondents (55%) had no knowledge of diabetic retinopathy. Knowledge was present in 45%. Results were similar to study by Rani et al in which knowledge about diabetic retinopathy was noted as 37.1% and Dandonna et al who reported it as 27%.^{14,15} In a population-based awareness study in a sub urban area by Hussain R et al, among diabetic patients only 40.7% had knowledge about diabetic retinopathy.¹⁶

In this study, knowledge was significantly more in those with higher education and among upper socioeconomic group. Literacy and its influence on knowledge about diabetes was studied in other studies also.^{17,18} All these studies support the fact that providing education can increase awareness and knowledge about diabetic retinopathy. Dandona et al, also reported increased awareness among subjects older than 30 years or more and those with any level of education and among those belonging to upper and middle socio-economic strata in their study in urban population in India.¹⁵ Al Zarea in Saudi Arabia reported that knowledge regarding ocular complications in diabetes was 75.62% which was an urban study.¹⁹

In this study, 80% in knowledge group had right attitude which was statistically significant. In the study by Rani et al attitude among knowledge group about diabetic retinopathy was 93.3% and this was 53.8% in the study by Hussain et al.^{14,16} Rani et al, noted that 36.5% with knowledge about diabetic retinopathy thought that there was no need to consult an ophthalmologist if their blood sugar was under control and this was 38.49% in Saudi Arabia study.^{14,19}

In this study, 45.83% in knowledge group had practice of going for eye check-up which was statistically significant. Oveneri-Ogbomo et al, also reported that knowledge of diabetic retinopathy was significantly related to practice of undertaking eye examinations.²⁰ Mwangi et al, reported that 50% of the participants in their study went for eye check-up.²¹ Hussain et al, reported that practice was present in 57.6%.¹⁶ In the study by Al Zarea practice was reported to be 95% which was an urban study.¹⁹ Mahesh G et al and Srinivasan N K et al, also found a statistically significant association between awareness of diabetic retinopathy and good practice patterns regarding retinopathy in their studies.^{22,23}

In primary health centres, physicians can play a major role in creating awareness and imparting knowledge about diabetic retinopathy. Data from our study also reflects this. About 49 % of patients in knowledge group in our study got information about diabetic retinopathy from physicians and 13 % from eye specialists. Srinivasan NK et al, also reported that doctors (both physicians and ophthalmologists) constituted the most important source of information in 71.4 % in knowledge group in their study.²³ About 66.4 % obtained their knowledge from general practitioners and nurses in the study by Oveneri-Ogbomo et al.²⁰

Knowledge about diabetes and diabetic retinopathy help patients in developing good practice patterns which can prevent sight threatening complications. Strategies to educate diabetic patients about this potentially blinding disease should be evolved. Health education measures should be implemented at primary, secondary and tertiary levels.

At the primary level, this can be done through regular awareness campaigns, posters, pamphlets, diabetic retinopathy screening camps and through community- based education strategies. Hospital based patient education can be done by involving general practitioners, physicians and endocrinologists in addition to ophthalmologists. Data about source of information in our study also correlates with this.

Majority of the participants were in low and middle socio-economic status and those from high socioeconomic status were less. A population- based study would have correctly reflected the level of knowledge, attitude and practice in the non urban area. Knowledge, attitude and practice patterns regarding association of good control of diabetes mellitus and retinopathy and regarding available treatment modalities for diabetic retinopathy were not included in our study.

Conclusion

The attitude and practice pattern of diabetic retinopathy was statistically significant in knowledge group compared to those who had no knowledge of diabetic retinopathy. Increasing knowledge about diabetic retinopathy through awareness campaigns can improve attitude and practice. Early detection and timely intervention can help in preventing sight threatening complications of diabetic retinopathy.

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Received: 09-08-2020 || Revised:13-09-2020 || Accepted: 12-10-2020