



ISSN: 0975-833X

Available online at <http://www.journalcra.com>

International Journal of Current Research
Vol. 10, Issue, 02, pp.65665-65668, February, 2018

INTERNATIONAL JOURNAL
OF CURRENT RESEARCH

RESEARCH ARTICLE

AWARENESS OF DIABETIC RETINOPATHY AMONG DIABETICS IN A TERTIARY CARE CENTER

^{1,*}Sumana J Kamath, ²Sanchitha, G. and ³Nikhilgovind Shenoy

^{1,2}Department of Ophthalmology, Kasturba Medical College, Mangalore, Karnataka, India

³Kasturba Medical College, Mangalore, Karnataka, India

ARTICLE INFO

Article History:

Received 20th November, 2017
Received in revised form
23rd December, 2017
Accepted 16th January, 2018
Published online 28th February, 2018

Key words:

Diabetes Mellitus,
Diabetic Retinopathy,
Awareness, Screening.

ABSTRACT

Background: Diabetes mellitus (DM) and its complications are one of the major health problems in developing world. Diabetic retinopathy(DR) is one of the leading cause of ocular morbidity. Awareness of DR among patients can reduce its complications.

Methods: A cross sectional observational study was conducted at the department of ophthalmology, Kasturba medical college, Mangalore. A total of 101 patients with pre-existing diabetes were included in the study. The study duration was from June 15th, 2016 to 31st December of 2016. An 11-point questionnaire was used to collect data including demographics, duration of disease, awareness of ocular complications and presence of ocular symptoms.

Results: 60 patients (59.4%) out of 101 had awareness that screening was necessary for DR, whereas 41 (40.6%) were unaware of necessity of screening for DR.

The source of awareness were exclusively doctors in majority of patients (n=46). Statistically significant association was seen between literacy and awareness regarding screening for DR ('p' value=0.009). Significant association was seen between control of diabetes and eye problems ('p' = 0.005). There was no statistically significant relationship between duration of disease and presence of eye symptoms.

Conclusions: There is a need for awareness of DR among patients to minimize ocular complications. Health care personnel along with including internet and television have a major role in spreading awareness but role of mass media. Also, improvement in health care system is necessary for prevention/treatment of diabetes related complications.

Copyright © 2018, Sumana J Kamath et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Sumana J Kamath, Sanchitha, G., Nikhilgovind Shenoy. 2018. "Awareness of diabetic retinopathy among diabetics in a tertiary care center", *International Journal of Current Research*, 10, (02) 65665-65668.

INTRODUCTION

Diabetes is one of the leading cause of blindness in developed and in developing world. Rapid urbanization and lifestyle changes have brought about an increase in diabetes. According to WHO, the number of diabetics in India is expected to be around 80 million by 2030, which is the highest in the world (Wild Sarah et al., 2000). Diabetes leads to number of systemic complications which cause significant morbidity and mortality. Diabetic retinopathy is a common and significant complication with some studies reporting prevalence rates of around 20 % among diabetic patients (Dandona, 1999). Diabetic retinopathy is also one of the leading cause of ocular morbidity in India according to several studies (Srinivasan et al., 2017; Murthy et al., 2005). Timely intervention by laser photocoagulation can reduce severe visual loss by 90% according to early treatment diabetic retinopathy study. Awareness of the ocular complications among patients is essential for early and regular screening and treatment of complications.

*Corresponding author: Sumana J Kamath,
Department of Ophthalmology, Kasturba Medical College,
Mangalore, Karnataka, India.

MATERIALS AND METHODS

The present study was a cross sectional observational study which was conducted at the department of ophthalmology, Kasturba medical college and hospital, Attavar, Mangalore and Government Wenlock hospital, Mangalore which are tertiary care hospitals. A total of 101 patients with pre-existing diabetes were included in the study. These included both in- and out-patients who presented for ophthalmological evaluation. The study duration was from June 15th, 2016 to 31st December of 2016. A written informed consent was taken from all patients before including them into the study. Basic demographic data including age, education status and occupation was recorded for all patients. An 11-point questionnaire was put forward to the study subjects. It included specific questions including duration of disease, awareness of ocular complications and presence of ocular symptoms. Some of the questions were in 'yes' or 'no' format while others required appropriate answers. The questionnaire was administered by the doctor well versed in English, Kannada and the local languages.

Statistical Analysis

Statistical analysis was performed with SPSS v 12 (SPSS Inc; Chicago, IL, USA). $P < 0.05$ was considered statistically significant.

RESULTS

A total of 101 patients were included in the study. These included 66 males (65.3%) and 35 females (34.7%) (Figure 1). The age of patients ranged from 30 to 83 years with a mean of 61.3 years. Further analysis of age distribution revealed highest number of patients in the 61-70 years age group (35.6%) followed by more than 70 years age group (23.8%) and 51-60 years age group (21.8%). Least number of patients were found in 30- 40 years age group (3%) (Figure 2). Patients included had varied occupation from farming to teaching to businessmen to housewife and others. A total of 13 patients (12.9%) were illiterate whereas 36 patients (35.6%) had primary education, 30 patients (29.7%) had secondary education and 22 patients (21.8%) had finished graduation or higher (Figure 3)

Patients had diabetes for an average period of 10.59 years with a range of 2 months to 28 years. Fifty patients (49.5%) had a family history of diabetes among these 30 patients' mothers were diabetic whereas 51 patients (50.5%) did not have a positive family history. Fifty-five patients (54.5%) had good control of diabetes (FBS 80-139mg/dl & PPBS <180mg/dl) and 46 patients (45.5%) had poor control of diabetes (FBS >130mg/dl &/or PPBS >180mg/dl). Forty-two patients (41.6%) had eye problems like blurring of vision, dark spots and floaters, foreign body sensation etc with diabetes and 59 patients (58.4%) did not have any eye problems. Fifty-four patients (53.5%) had one or more systemic disease other than diabetes whereas 47 patients did not have any systemic diseases (46.5). Hypertension was the most common systemic disease in association with diabetes and was found in 32 patients. 60 patients (59.4%) out of 101 had awareness that screening was necessary for diabetic retinopathy, whereas 41 patients (40.6%) were unaware of necessity of screening for diabetic retinopathy (Figure 4). The source of awareness were only doctors in 46 patients and doctors along with some other source of awareness was found 17 patients.

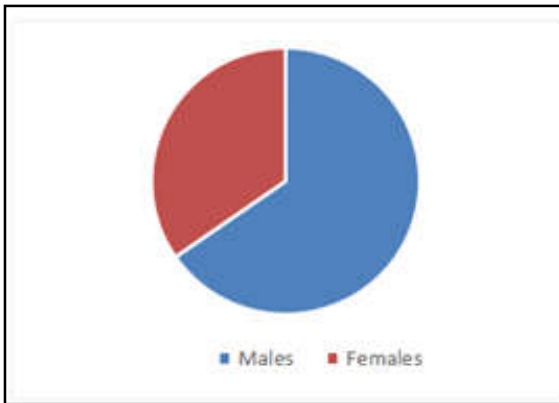


Fig 1. Sex distribution of study subjects

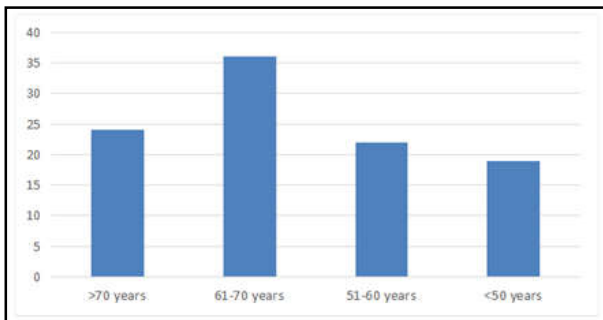


Fig 2. Age distribution of study subjects

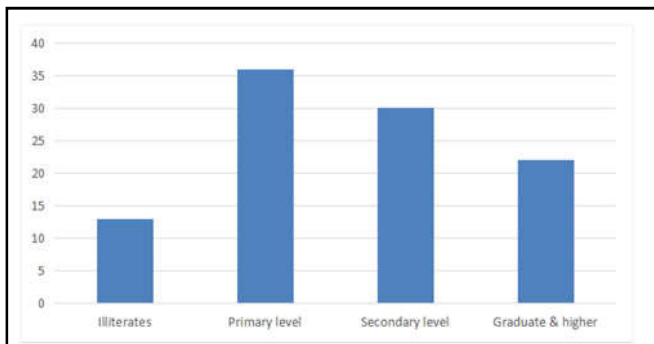


Fig 3. Literacy status of study subjects

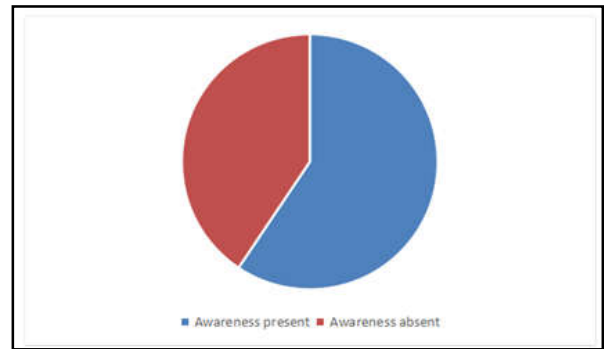


Fig 4. Awareness of Diabetic retinopathy among study subjects

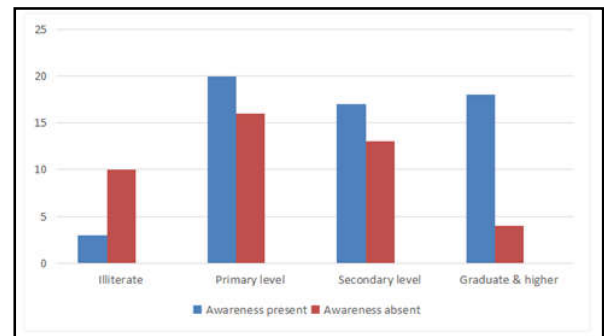


Fig 5. Association of literacy status with awareness regarding screening for diabetic retinopathy

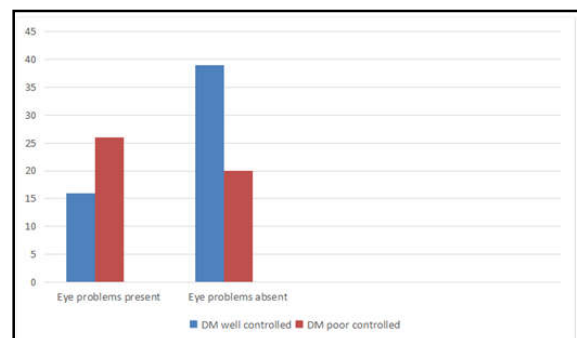


Fig 6. Association of presence of eye problems with control of diabetes

Table 1. Association of literacy status with awareness regarding screening for diabetic retinopathy

Awareness of diabetic retinopathy		Literacy Status				Total
		Illiterate	Primary	Secondary	Graduate	
Present	Count	3	20	17	18	58
	%	23.1%	55.6%	56.7%	81.8%	57.4%
Absent	Count	10	16	13	4	43
	%	76.9%	44.4%	43.3%	18.2%	42.6%
Total	Count	13	36	30	22	101
	%	100.0%	100.0%	100.0%	100.0%	100.0%

$\chi^2=11.686$, $p=0.009$

Table 2. Association of presence of eye problems with control of diabetes

Presence of eye problems		Control of diabetes		Total
		Well control	Poor control	
Yes	Count	16	26	42
	%	29.1%	56.5%	41.6%
No	Count	39	20	59
	%	70.9%	43.5%	58.4%
Total	Count	55	46	101
	%	100.0%	100.0%	100.0%

$\chi^2=7.759$, $p=0.005$

Thirty-five patients (34.7%) knew of somebody who had lost vision due to diabetes whereas 66 patients (65.3%) did not know of anybody who had lost sight due to diabetes. On performing chi-square analysis, statistically significant association was seen between literacy and awareness regarding screening for diabetic retinopathy, with a 'p' value of 0.009 (Table 1 & Figure 5) Also, statistically significant association was seen between control of diabetes and eye problems, with a 'p' value of 0.005 (Table 2 & Figure 6). There was no statistically significant relationship between duration of disease and presence of eye symptoms in our study ('p' = 0.084).

DISCUSSION

Diabetes is a major health problem in the current world and the incidence of diabetes is expected to rise steadily. India is among the countries with highest number of diabetics. The complications associated with diabetes is also expected to rise. Consequently, an increase in morbidity and mortality will increase the burden on the healthcare system. Diabetic retinopathy is a well-established complication which contributes to the morbidity. Therefore, there is an urgent need to increase the awareness of diabetes and its complications. In the present study, 75 patients (74.3%) had awareness that diabetes causes loss of vision. This is significantly higher than other studies done in India wherein about 37.1% of the patients had awareness of diabetic eye complications (Rani *et al.*, 2008).

In that study, the respondents were chosen across rural population. This is also higher than awareness rates noted in studies done in developed countries like Australia (37%). A similar study done in Malaysia showed awareness prevalence of about 86.1% (Addoor, 2011). The authors attributed the high awareness to the fact that the screening was done in patients who had been referred for eye screening by other physicians who had informed about eye complications. A similar phenomenon may explain the high awareness rates in our study. Also, the participants were interviewed not necessarily on their first visit and hence they may have high awareness due to repeated visits. On further analysis of factors which influence the level of awareness, it was found that level of education had significant impact with a 'p' value of 0.009.

On subgroup analysis, it was found that the percentage of patients with awareness was least in illiterate group (23.1%) and gradually increased with highest percentage among graduates (81.8%). Similarly high level of awareness was found to be associated with level of education in studies done by Rani *et al* in India (Rani *et al.*, 2008) and in Malaysia by Tajunisah *et al.* (2011). Similarly education was shown to increase the level of awareness in a study done by Cetin *et al.* (2013). Sixty patients (59.4%) in our study knew that screening was necessary for prevention of diabetic retinopathy. This is lower than the 75.3% of patients who knew regular screening was necessary as reported by Rameez Hussain *et al* in their study (2016). That study was done in town in Kerala with a high literacy rate which may contribute to the better awareness. Cetin EN *et al* reported that even though 86.7% thought that early diagnosis was possible in diabetic retinopathy but only 41.9% stated that annual eye examinations were necessary for diabetics (Çetin, 2013).

The source of awareness was doctor alone in 46 patients and in other 7 patients press, internet, friends and family etc were sources. Similarly in a study done by Tajunisah *et al* 78.3% of patients underwent ophthalmological examination on physician's referral (Tajunisah, 2011). Dervan *et al* showed in their study that physician's recommendation was the most important factor which made patients undergo eye screening for diabetic retinopathy (Dervan, 2008). This underscores the role of physicians in spreading awareness among newly detected and existing patients. All the patients were readily willing to spread awareness of DR among family and friends which underscores the importance of patient education which can act as an efficient and inexpensive method of public health education. In our study there was a significant association between control of diabetes and incidence of eye problems. About 29.1 % of patients with well controlled sugar levels experienced eye problems whereas 56.5% of patients with poorly controlled sugar levels had eye problems ('p' = 0.005). Similar results were demonstrated by Raman R *et al* who showed higher incidence of DR among patients with sub-optimal control of blood sugars (Raman, 2017). Cardoso *et al* demonstrated significant relationship between glycaemic control and development/progression of DR (Cardoso, 2017).

Conclusion

Diabetes and DR are major health problems of present world. There is a need for awareness among patients to minimize complications. Healthcare personnel have a major role in spreading awareness but role of mass media including internet and television cannot be underestimated. Also, improvement in healthcare system is necessary for prevention/ treatment of diabetes related complications.

Acknowledgement

Declaration

Funding: None

Conflict of interest: None

Ethical approval: Institutional ethics committee approval taken

REFERENCES

- Addoor KR. 2011. Assessment of awareness of diabetic retinopathy among the diabetics attending the peripheral diabetic clinics in Melaka, Malaysia. *Med J Malaysia*, 66(1):48–52.
- Cardoso CRL, Leite NC, Dib E, Salles GF. 2017. Predictors of Development and Progression of Retinopathy in Patients with Type 2 Diabetes: Importance of Blood Pressure Parameters. *Sci Rep (Internet)*., Dec 7 (cited 2017 Sep 10);7(1):4867.
- Çetin EN, Zencir M, Fenkçi S, Akin F, Yildirim C. 2013. Assessment of awareness of diabetic retinopathy and utilization of eye care services among Turkish diabetic patients. *Prim Care Diabetes*.
- Dandona L, Dandona R, Naduvilath TJ, McCarty CA, Rao GN. 1999. Population based assessment of diabetic retinopathy in an urban population in southern India. *Br J Ophthalmol.*, Aug 1;83(8):937–40.
- Dervan E, Lillis D, Flynn L, Staines A, O’Shea D. 2017. Factors that influence the patient uptake of diabetic retinopathy screening. *Ir J Med Sci (Internet)*., 2008 Dec 19 (cited 2017 Sep 10);177(4):303–8.
- Hussain R, Rajesh B, Giridhar A, Gopalakrishnan M, Sadasivan S, James J, et al. 2016. Knowledge and awareness about diabetes mellitus and diabetic retinopathy in suburban population of a South Indian state and its practice among the patients with diabetes mellitus: A population-based study. *Indian J Ophthalmol (Internet)*.
- Murthy GVS, Gupta SK, Bachani D, Jose R, John N. 2005. Current estimates of blindness in India. *Br J Ophthalmol.* 89(3):257–60.
- Raman R, Ganesan S, Pal SS, Kulothungan V, Sharma T. 2014. Prevalence and risk factors for diabetic retinopathy in rural India. Sankara Nethralaya Diabetic Retinopathy Epidemiology and Molecular Genetic Study III (SN-DREAMS III), report no 2. *BMJ Open Diabetes Res Care (Internet)*. Jun (cited 2017 Sep 10);2(1):e000005.
- Rani PK, Raman R, Subramani S, Perumal G, Kumaramanickavel G, Sharma T. 2008. Knowledge of diabetes and diabetic retinopathy among rural populations in India, and the influence of knowledge of diabetic retinopathy on attitude and practice. *Rural Remote Health*.
- Srinivasan NK, John D, Rebekah G, Kujur ES, Paul P, John SS. 2017. Diabetes and diabetic retinopathy: Knowledge, Attitude, Practice (KAP) among diabetic patients in a tertiary eye care centre. *J Clin Diagnostic Res.*, 11(7): NC01-NC07.
- Tajunisah I, Wong P, Tan L, Rokiah P. and Reddy S. 2011. Awareness of eye complications and prevalence of retinopathy in the first visit to eye clinic among type 2 diabetic patients. *Int J Ophthalmol.*, 4(5): 519–524.
- Wild Sarah, Roglic Gojka, Green Anders, Sicree Richard, Hilary K. 2004. Global Prevalence of Diabetes: Estimates for the year 2000 and projection for 2030. *Diabetes Care*, 27(5):1047–53.
