

## Awareness of diabetic retinopathy among diabetic patients attending a tertiary care hospital in rural South India

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### Abstract

The present study is undertaken to assess the awareness of diabetic patients regarding the effects of diabetes on the eye, particularly diabetic retinopathy, among diabetic patients. The study was conducted among diabetic patients attending the Medical Outpatient Department. 100 patients were given a questionnaire which contained a sequence of questions related to their hospital visits, financial status, educational status, profession and current knowledge on diabetic retinopathy. 85 patients responded that they underwent ocular examination only if they had specific ocular complaints. 66 patients were aware that diabetes can affect eyes. 60 patients were aware that diabetes can be a cause for blindness. Only 56 patients knew that the risk of retinopathy increased with the duration of diabetes. 53 patients were unaware that retinopathy in its advanced stages was irreversible and that the resulting blindness is permanent. There is lack of awareness regarding diabetic retinopathy among diabetic patients. The health education programs organized to spread awareness regarding the complications of diabetes in the eye and need for periodic eye examination have not been optimal and more effective awareness programs are required.

**Keywords:** Awareness, Diabetes mellitus, Diabetic retinopathy, Rural, South India.

### Introduction

The incidence of Diabetes Mellitus is increasing dramatically and India is expected to have more than 60 million diabetics by the year 2025.<sup>(1,2)</sup> Diabetic retinopathy is currently a major cause for visual loss in the industrialized world. Duration of diabetes appears to be the most important risk factor in the development and progression of diabetic retinopathy.<sup>(3)</sup> Diabetic retinopathy cases are expected to increase drastically in coming years. Successful management of diabetic retinopathy requires a combination of glucose and BP

control, and, in some patients, laser therapy, pharmacotherapy and vitrectomy.

Because of delays in seeking treatment diabetic retinopathy remains a major cause for blindness. The vast majority of diabetic patients who lose vision do so, not because of an inability to treat their disease, but rather due to lack of awareness. If fundus examinations were initiated prior to the development of retinopathy and recommended treatment protocols followed periodically, the risk of severe visual loss in diabetic patients could have been as reduced as 5%.<sup>(3)</sup>

### Recommended Protocol for diabetic retinopathy screening

|   |   |
|---|---|
| First eye examination                       | Type 1: Within 5 years from diagnosis<br>Type 2: At the time of diagnosis |
| Mild Non proliferative retinopathy (NPDR)   | Follow up every 9 months  |
| Moderate Non proliferative retinopathy      | Follow up every 6 months  |
| Severe Non proliferative retinopathy        | Follow up every 3 months  |
| Clinically Significant Macular Edema (CSME) | Recommend treatment   |
| Proliferative Diabetic Retinopathy (PDR)    | Recommend treatment   |

Joslin center reported on self-awareness of diabetic retinopathy, showed that 83% of diabetic retinopathy patients and 78% of patients with vision threatening retinopathy were unaware that they had diabetic retinopathy during their first visit.<sup>(3)</sup> Diabetic retinopathy is asymptomatic in its early stages. Hence, regular screening of diabetic patients and periodic follow up remains the only option to detect and treat the condition before it causes visual loss. However, many studies have suggested that this has not been effective in the vast majority of diabetic patients due to a lack of awareness about diabetic retinopathy and its effects on vision, resulting in a delay in diagnosis and management.<sup>(4,5,6)</sup>

A pilot study conducted in South India in 2004 has suggested that there is lack of awareness about diabetes and its effects on the eye among non-medical persons.<sup>(6)</sup> Even para- medical personnel who participated in this study were not well informed regarding diabetic retinopathy.<sup>(6)</sup>

The present study is undertaken to assess the awareness of diabetic patients regarding the effects of diabetes on the eye, particularly diabetic retinopathy, among diabetic patients.

## Objectives

To determine the awareness of diabetic retinopathy among diabetic patients attending the out-patient department.

## Methods

**Inclusion Criteria:** All diabetic patients over 40 years of age.

**Exclusion Criteria:** Patients with gestational diabetes and drug induced transient elevation of blood sugar were excluded from the study. Patients who could not answer the questionnaire like those with dementia or psychiatric disorders and very sick patients were excluded from the study.

This was a Cross sectional study conducted at Dr. Somervell Memorial CSI Medical College and Hospital, a tertiary care centre located at Karakonam, Thiruvananthapuram, India. Diabetic patients over 40 years of age attending the Medical OPD were included in the study. One hundred consecutive willing patients were enrolled after obtaining written informed consent. Each patient was requested to complete a questionnaire, which contains a sequence of questions related to their hospital visits, financial status, educational status, profession and current knowledge on diabetic retinopathy. The questionnaire that was provided is shown below:

## Proforma

1. Hospital No.
2. Age
3. Sex
4. Family Monthly Income a) <5000 b) 5000 – 10,000 c) 10,000 – 20,000 d) 20,000- 40000 e) Above 40000
5. Educational Status a) Illiterate b) Primary c) High school or Secondary d) Graduate e) other
6. Profession
7. Duration of diabetes
8. Current treatment a) Oral hypoglycemics b) Insulin c) Other (specify)
9. Do you go for eye checkups? a) Yes b) No
10. Have you been advised by your treating physician to undergo eye examination? a) Yes b) No
11. When was your last eye examination?
12. Was it done by an ophthalmologist? a) Yes b) No
13. Have you undergone any mode of treatment for diabetic retinopathy? a) Yes b) No
14. If yes, what treatment? a) Laser b) Injections into the eye c) Retinal Surgery
15. When do you get your eyes checked?
  - a) Only when I have an eye problem
  - b) Only when my physician asks me to do so
  - c) I am on regular follow up with my eye specialist
16. Do you suffer from any visual problems now? a) Yes b) No

17. Are you aware that diabetes can affect eyes? a) Yes b) No
18. Are you aware that diabetes can cause blindness? a) Yes b) No
19. Do you know that the risk of retinopathy increases with the duration of diabetes? a) Yes b) No
20. Do you know that tight control of blood sugar levels can delay onset / prevent worsening of retinopathy? a) Yes b) No
21. Do you know that visual loss due to diabetes is irreversible in late stages even after treatment? a) Yes b) No
22. What is the major factor that prevents you from undergoing regular eye examinations?
  - a) Regular eye checkups are unnecessary
  - b) No eye problems at present
  - c) Cost factor
  - d) Lack of time for dilated fundoscopy
  - e) Distance to the eye clinic

The enrollment and administration of questionnaire was handled by trained staff. Illiterate patients were helped by the recruiter to complete the questionnaire. The patient was also educated about diabetic retinopathy and the importance of regular follow up after completion of the questionnaire. The duration of the study was six months. The study was approved by the Ethical committee of the institution.

## Results

A total of 100 patients were included in the study. 43 patients were males and 57 were females.

The age of the patients ranged from 43 years to 88 years with a mean age of 62.8 years.

Majority of the patients belonged to the lower socio economic class. 86 patients reported a monthly income of less than Rs 5000 and 10 patients had a monthly income of Rs 5000 to Rs 10,000. 4 patients had a monthly income of >Rs 10,000. 16 patients were illiterate and never had formal education. 38 patients had studied up to primary school and 42 patients had completed High School. 3 patients were graduates and one patient held a post graduate degree.

When asked about when they had eye checkup, 85 patients responded that they did so only when they had a complaint in their eyes. 5 patients underwent eye examination when their physician asked them to do so. 10 patients were on regular follow up with an ophthalmologist for their eye problem.

66 patients were aware that diabetes can affect eyes. 60 patients were aware that diabetes can be a cause for blindness. However, only 56 patients knew that the risk of retinopathy increased with the duration of diabetes. 53 patients were unaware that retinopathy in its advanced stages was irreversible and that the resulting blindness is permanent. 55 patients were aware that tight control of blood sugar would reduce the risk of progression of retinopathy.

The major reason behind why the patients never attended regular eye checkup was that they never had any symptoms at that time and felt that eye check up with no symptoms was unnecessary (71 patients). 17 patients mentioned financial difficulties to attend regular eye checkup. 6 patients were living far away and had poor access to eye care facilities. 2 patients mentioned lack of time. 2 patients had physical disability which made it difficult for them to attend regular eye checkup.

### Discussion

Diabetic retinopathy is currently a major cause for blindness worldwide. India is expected to have more than 60 million diabetics by the year 2025.<sup>(1,2)</sup> Diabetic retinopathy cases will therefore drastically increase in coming years. Successful management of diabetic retinopathy requires a combination of blood glucose and blood pressure control along with specific ocular treatment modalities like laser, intravitreal pharmacotherapy and vitrectomy in some patients. Early detection and management of retinopathy is very important as visual prognosis in late cases is poor even after treatment. However, most patients seek treatment only after they develop significant visual loss. Because of this delay, diabetic retinopathy remains a major cause for blindness. It has been reported that the risk of severe visual loss would be as low as 5% if periodic fundus evaluation and recommended treatment protocols are followed in diabetic patients.<sup>(3)</sup>

In our study, 85 patients out of 100 reported that they undergo ocular evaluation only if they have any complaint in the eye like visual loss. This is not a recommended practice as the disease has no symptoms in its early stages and results of treatment after developing visual loss is poor.

66 patients were aware that diabetes can affect eyes. 60 patients knew that it can be a cause for blindness. However, 53 patients out of 100 were unaware that diabetic retinopathy is irreversible in its advanced stages and the resulting visual loss permanent.

The present study thus points towards a lack of awareness among diabetic patients regarding the risk of developing retinopathy. This highlights the need for organizing more effective health education programs to spread awareness of diabetic retinopathy in hospitals as well as in the community. The treating physicians of diabetic patients can also play a major role in educating patients about the need for periodic eye examination. The need for creating this awareness has been recommended by other authors who have conducted similar studies.<sup>(4,5,6)</sup>

### Conclusion

There is lack of awareness regarding diabetic retinopathy among diabetic patients. The health education programs organized to spread awareness

regarding the complications of diabetes in the eye and need for periodic eye examination have not been optimal and more effective awareness programs are required. This step goes a long way in reducing the incidence of visual loss due to diabetic retinopathy

### Limitations of this study

The patients included in the study were randomly selected from the outpatient department and do not represent the community. Community based studies may give a better idea of awareness about diabetic retinopathy among the general public. Majority of the patients who participated in the study belonged to the lower socio economic and educational stratum. Awareness about diabetic retinopathy may be better among educated patients. In any case, the study shows that more effective awareness programs are needed to educate people who are economically and socially backward.

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