

A Study to Assess the Effectiveness of Planned Teaching Programme Regarding Prevention of Diabetic Retinopathy in Diabetic Patients at Selected Hospitals of South Maharashtra

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ABSTRACT

Introduction: Diabetic retinopathy is an important cause of visual impairment in India. Diabetic patients who visit hospitals have undetected, advanced diabetic retinopathy. Early detection of diabetic retinopathy in such patients could help to prevent irreversible visual impairment.

Aim: To detect pre-existing knowledge regarding diabetic retinopathy among diabetic patients, to determine post-test knowledge status after planned teaching program.

Materials and Methods: This was a hospital-based, cross-sectional study, conducted at the selective hospitals in South Maharashtra. Seventy diabetic patients, who fulfilled the eligibility criteria, were included in the study. Pre-existing knowledge of patients was assessed using a 18-point knowledge questionnaire. Patients were placed in different categories, such as poor, average or good knowledge. Predesigned planned teaching program was described to these patients. The post-test knowledge score was then recorded. Data were analysed using Chi-square test as appropriate. The proportions of patients with change in the pre-test score were studied.

Results: Out of the 70 patients in the study, 88.57% had average knowledge about retinopathy. Post-test knowledge score was 72.86% in good category. The knowledge score significantly improved after planned teaching program.

Conclusion: Knowledge about diabetic retinopathy was average among the patients in our study. Lack of awareness of such a serious complication can act a barrier for early detection and treatment. There is a need to improve awareness among diabetic patients about this potentially blinding complication of diabetes

Key words- Diabetic retinopathy (DR), Diabetes Mellitus (DM).

INTRODUCTION

Due to high global incidence of diabetes mellitus (DM) in both developed and developing countries, prevalence of diabetic retinopathy (DR) has also increased. Recent studies suggest that approximately 486 million people worldwide have DM and that about one-third demonstrate evidence of DR. Diabetic retinopathy accounts for 4.8% of the cases of blindness throughout the world with an overall global prevalence of 34.6%^{1,2}. The chances of developing diabetic retinopathy are related to duration of the disease. Due to

the increase in the diabetic population in India, diabetic retinopathy is becoming an increasingly important cause of visual impairment, as all diabetics will develop some form of retinopathy within 20 years of onset of the disease⁴. The reported prevalence of diabetic retinopathy from various studies done in India ranges from 7.3% to 25%⁵⁻¹⁰. Awareness of these microvascular complications in patients with DM will help in early identification of DR, facilitating timely management. With this aim we developed a planned teaching program about DR, for the patients with

DM. Objectives of the study were to assess the existing knowledge of patients about prevention of DR and to evaluate the effectiveness of planned teaching program to improve their knowledge.

MATERIAL AND METHODS

Ethical permission was taken from institutional research and referral committee. Total 70 patients with DM from selected hospitals of South Maharashtra were selected for the study by random sampling method. The research design chosen was one group pre and post-test group design. Critically ill DM patients were excluded from the study. After review of previous publications and detailed discussion among research group experts a structured knowledge questionnaire was prepared for collection of data regarding existing knowledge about prevention of DR. Data collection tool had following sections - Section I- demographic variables.

Section II- structured knowledge questionnaire.

The data was collected in a systematic manner. Objectives of the study were discussed with samples. Their consent was obtained for involvement in the study. The investigator themselves administered the structured questionnaire. All the responses were collected and stored in an electronic data format. The samples were subjected for planned teaching program about prevention of DR. This program was prepared by the investigator with the help of experts in the field. Post teaching program the structured knowledge questionnaire was readministered to the samples and new responses were recorded.

RESULTS

Seventy patients who fulfilled the eligibility criteria were recruited into the study. The demographic characteristics of the study population are given in Table.1.

Table 1. Frequency and percentage distribution of selected demographic variables.

SN	Demographic variable	Percentage	
1	Age	<40 years	7
		40-60 years	84
		>60 years	9
2	Gender	Male	81
		Female	19
3	Education	Uneducated	0
		Primary	54
		Secondary	30
		Higher	16

n=70

Majority of samples were male in the age group of 40-60 years with primary education level.

Knowledge questionnaire of total 18 questions with 1 point for each correct response was administered to these samples. Total knowledge score was collected in pre and post test period. The scores were categorised as poor (1-5), average (6-12) and good (13-18) score. Of 70 recruited patients 62 had average knowledge score and 8 had poor score. Post-test the 51 patients had good knowledge score and 19 had average score as shown in Table.2

Table no.2 Comparison of pre and post knowledge score.

Category	Pre test		Post test	
	Freq	%	Freq	%
Poor	8	11.43%	0	0
Average	62	88.57%	19	27.14%
Good	0	0%	51	72.86%

n=70

Mean knowledge score pre-test was 8.1 which improved significantly after planned teaching program to 13.24 with a p value of 0.00001 as shown in Table.3.

Table no.3 Pre and Post-test total knowledge score.

Test	MEAN	MEDIAN	SD	STANDARD ERROR	P VALUE	t value
Pre test	8.1	8	1.4197	0.1697	0.00001	-24.14262
Post test	13.24	13	1.06914	0.12779		

n=70

DISCUSSION

This was a hospital-based, cross-sectional study, which documented the knowledge patterns of diabetic patients

regarding diabetic retinopathy. The study included 70 patients from South Maharashtra in India. The study evaluation revealed poor pre-existing knowledge about

DR among population. Majority of pre-test knowledge score was in average category (88.57%). This is similar to the results of other similar studies conducted in South India by Nithin KS et al., and Deepa J et al., who reported good knowledge in only 26.5% of the subjects of their studies³. Babu N et al., and Dandona R et al., have also reported poor awareness of diabetic retinopathy (7% and 27% respectively) among the subjects in their studies done in South India⁴.

In this study the questions to assess knowledge of diabetic retinopathy were designed to assess both awareness and knowledge of diabetic retinopathy. Similar studies done on knowledge of diabetes and diabetic retinopathy in India, Mahesh G et al., have also documented both knowledge and awareness of diabetic retinopathy¹⁰. Another study by Koshy J et al., and Dandona R et al., have reported awareness of diabetic retinopathy^{5,11}. Hussain R et al., and Rani PK et al. have documented knowledge of diabetes and retinopathy^{12,13}. It is clear that the majority of the patients were completely unaware of the fact that diabetic retinopathy is the most serious, potentially blinding complication of diabetes in the eye. This indicates the inadequate patient education measures taken regarding diabetic retinopathy.

The study further revealed significant improvement in mean knowledge score after planned teaching program ($p=0.00001$). This underscores the importance of improvement in awareness of DR which will help for early diagnosis, timely treatment and to reduce the further complications like loss of vision.

The study emphasizes the importance of creating awareness about prevention of DR and validates the performance of planned teaching program within the limited hospital-based population of South Maharashtra. It may thus help set parameters to further development of comprehensive information program about diabetic retinopathy at hospital level. Thus, there is increasing need to develop proper

education programs about complications of DM. Such programs should be implemented in national level prevention programs at district and state health centres.

Better strategies to educate diabetic patients about this potentially blinding complication of diabetes should be redesigned. This should be done at all points of patient contact within the health care system. General medical practitioners, physicians, endocrinologists, ophthalmologists and optometrists should be made aware of the lack of knowledge about diabetic retinopathy among diabetic patients, they should all be involved in the planning and implementation of both hospital based and community-based patient education strategies. Such health education measures should be implemented at primary, secondary and tertiary levels of health care. Health education on special days like World Diabetes Day and World Sight Day would help in creating awareness of diabetic retinopathy.

CONCLUSION

Complications like visual impairment and blindness due to diabetic retinopathy are almost entirely preventable with early detection and timely treatment. Knowledge about diabetic retinopathy was poor among the patients in our study. There was significant improvement in knowledge after planned teaching program. Therefore, there is an urgent need to develop strategies to educate diabetic patients about this potentially blinding complication of diabetes.

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