



ORIGINAL RESEARCH PAPER

Ophthalmology

Hospital based study for assessment of Diabetic Retinopathy in patients with Type- 2 Diabetes Mellitus in Govt. Medical College Kota.

KEY WORDS: Diabetic Retinopathy, Prevalence.

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ABSTRACT
Introduction: Among the causes of blindness Diabetic retinopathy is emerging as one of the important cause for it in developed as well as in developing countries. The emerging scenario in the world suggests that diabetes and blindness secondary to diabetic retinopathy (DR) may soon be a major problem. Annual retinal examination and early detection of DR can considerably reduce the risk of visual loss in diabetic individuals. The aim of our study is to find out the prevalence of Diabetic Retinopathy in patients with type-2 Diabetes mellitus.
Materials and Methods: A total of 323 patients with Diabetes mellitus type- 2 were examined. Patients with other significant systemic diseases/conditions were excluded from the study. Patient's fundus was examined and classified as no retinopathy or diabetic retinopathy further classified on basis of severity of retinopathy and duration of diabetes.
Results: In our study out of 323 diabetics, 44.27% (143 patients) had no retinopathy compared to 55.73% (180 patients) had retinopathy. Diabetic Retinopathy and maculopathy appeared to be more prevalent in males (sex ratio 3:2). Severity of diabetic retinopathy was seen on rising side as the duration of diabetes increases. There is no statistically significant difference was observed in various age groups .So age of patient is not a determinant of occurrence of diabetic retinopathy but duration of diabetes is a significant risk factor for retinopathy.
Conclusion: It is recommended that to prevent Diabetic Retinopathy which is a microvascular complication of diabetes early diagnosis, early treatment initiation, good control of diabetes and regular follow-up is utmost important.

INTRODUCTION

Among the causes of blindness Diabetic retinopathy is emerging as one of the important cause for it in developed as well as in developing countries too. WHO has estimated that number of total diabetics in the world will increase to 300 million in 2025 and to be greatest in India nearly 195% increase to 54 million in 2025. Recent reports have shown the prevalence to be in the range of 12 to 14% in urban population, of these 20% are expected to be suffering from diabetic retinopathy.¹

CURES² study revealed that duration of diabetes , degree of glycaemic control and hyperlipidimia are major systemic risk factors for onset and progression of Diabetic retinopathy. There is evidence that DR begins to develop years before the clinical diagnosis of type 2 diabetes. DR is present in 7% of newly diagnosed subjects, hence routine retinal screening for DR even at the time of diagnosis of type-2 diabetes may help in optimized laser therapy. Annual retinal examination and early detection of DR can considerably reduce the risk of visual loss in diabetic individuals.³ The aim of our study is to find out the prevalence of Diabetic Retinopathy in the patients with type-2 diabetes mellitus.

MATERIAL AND METHOD

A total of 323 patients with type-2 Diabetes mellitus were examined. Patients with other significant systemic diseases/conditions eg. hypertension, tuberculosis, pregnancy and other retinal inflammatory conditions were excluded from the study. Patient's fundus was examined and classified as no retinopathy or diabetic retinopathy, further classified on basis of severity of retinopathy as mild, moderate, severe nonproliferative diabetic retinopathy and proliferative diabetic retinopathy and advanced diabetic eye disease with or without clinically significant macular edema. Patients were divided into 5 groups on basis of duration of disease as 0-5 years, 5-10 years, 10-15 years, 15-20 years and 20 years or more.

RESULTS AND DISCUSSION

As the number of patients having Diabetes mellitus is increasing day by day in our country so it seems to be emerging as a major public health problem for our country. Studies have showed that diabetes have 20-25 times greater risk of blindness as compared to normal population. In our study out of 323 diabetics, 44.27 % (143 patients) had no retinopathy compared to 55.73% (180 patients)

had retinopathy (Table 1) . In relation to gender out of 175 males, 109 had diabetic retinopathy and 47 had maculopathy but out of 148 females only 71 had retinopathy and 31 had maculopathy (Table 2). It shows that Diabetic Retinopathy and maculopathy is more prevalent in males as compare to females (sex ratio 3:2). It is similar to CURES² study, Dandone L et al LVPI, Hyderabad study⁵ and UKPDS study⁶. Pradeepa et al⁷ study also revealed that male gender, duration of diabetes, glycated hemoglobin, macroalbuminuria and insulin therapy were significantly associated with severity of DR. Severity of diabetic retinopathy was seen on rising side as the duration of diabetes increases, only 32.39 % of patients having diabetes for 0-5 years developed retinopathy compared with 100% of patients had retinopathy who have diabetes for 15years or more (Table 3). It is supported by study of McKay et al⁸ who reported retinopathy was positively associated with a longer duration of diabetes diagnosis and with higher fractions of glycosylated hemoglobin. Statistical analysis methods showed that patients not taking treatment for diabetes were more likely to develop more severe forms of diabetic retinopathy (17.64% and 29.41% had proliferative DR and advanced diabetic eye disease respectively) than those taking treatment (5.61% and 5.10% had proliferative DR and advanced diabetic eye disease respectively). Similar correlation was found in Diabetes Control and Complications Trial (DCCT)⁹ in which intensive control therapy slowed the progression of retinopathy by 54% and reduced the development of severe non proliferative retinopathy by 47%. No statistically significant difference was observed in various age groups (Table 4). So age of patient is not a determinant of occurrence of diabetic retinopathy but duration of diabetes is a significant risk factor for DR.

Table 1: Severity of Diabetic Retinopathy

Type of DR	No DR	Mild NPDR	Moderate NPDR	Severe NPDR	PDR	ADED	Total
No. of patients	143	71	36	42	18	13	323
Percentage	44.27 %	21.98 %	11.15%	13.00%	5.57%	4.02%	100%
DR- Diabetic Retinopathy; NPDR- Non-Proliferative Diabetic Retinopathy; PDR- Proliferative Diabetic Retinopathy; ADED- Advanced Diabetic Eye Disease							

Table 2: Effect of gender over occurrence of Diabetic Retinopathy

Gender	Retinopathy Absent(a)	Retinopathy Present(b)	Maculopathy	Total (a+b)
Male	66	109	47	175
Female	77	71	31	148
Total	143	180	78	323

Table 3: Diabetic Retinopathy in relation with duration

Duration of Diabetes	Retinopathy Absent	Retinopathy Present (a)	Total (b)	% of patients developing DR ¹ (a/b×100)
0-5 years	96	46	142	32.39%
5-10 years	42	44	86	51.16%
10-15 years	5	42	47	89.36%
15-20 years	0	22	22	100%
20 years or more	0	26	26	100%
Total	143	180	323	

Table 4: Diabetic Retinopathy with age of patients

Age (years)	Total	DR ¹	Percentage (%)
<40	38	13	34.21%
41-50	82	43	52.44%
51-60	98	61	62.24%
61-70	78	48	61.54%
>70	27	15	55.56%

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CONCLUSION

The magnitude of diabetic retinopathy in patients having type -2 diabetes mellitus was 55.73% In our study therefore the need of hour is to control diabetes with appropriate treatment as early as possible to prevent the occurrence of DR which is a microvascular complication of it and it is also recommended that early diagnosis of DR with early treatment initiation and regular follow up is utmost important.

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