



PREVALENCE OF DIABETIC RETINOPATHY : A HOSPITAL BASED STUDY.

Ophthalmology

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ABSTRACT

Purpose:-To estimate the prevalence of Diabetic Retinopathy and to find its association with age, gender, and disease severity among type 2 diabetes mellitus. **Material and Methods:-** This was a hospital-based cross-sectional study conducted in the Department of Ophthalmology at Government medical college, Kadapa, Andhra Pradesh. A total of 500 type two diabetes mellitus patients underwent detailed ocular examinations for diabetic retinopathy. The study was followed by the ETDRS classification to categorize the severity. **Results:-**Prevalence of D.R. was 35.6%. 78.8% NPDR, whereas 21.1% had PDR. **The conclusion:-**The study observed that the presence of D.R. strengthens a case for regular ocular examinations in diabetic patients.

KEYWORDS

Diabetic retinopathy (D.R.), Nonproliferative diabetic retinopathy (NPDR), Proliferative diabetic retinopathy (PDR), Clinically significant macular edema (CSME), Early treatment of diabetic retinopathy study (ETDRS).

INTRODUCTION:

Type 2 Diabetes mellitus is a global epidemic linked to chronic hyperglycemia due to insulin resistance.¹ India has 31.7million diabetes patients, and the number is expected to increase upto 79.4million by 2030.³The incidence rate of type 2 diabetes mellitus has increasing accordingly, with the World health organization predicting the occurrence of more than 200million Diabetes mellitus cases in the next decade.² Indians highly vulnerable to diabetes mellitus, with 7.1% of the adult population suffering from type 2 diabetes mellitus.⁴Diabetic retinopathy is one of the most serious complications of type 2 diabetic retinopathy; it is the leading cause of vision loss resulting in irreversible blindness among adults.^{5,6} Chances of developing diabetic retinopathy increase along with age and are more to develop. This condition is in vascular origin and characterized by signs of retinal ischemia as well as signs of increased vascular permeability.⁷ The development of diabetic retinopathy depends upon a variety of factors such as the duration of diabetes Mellitus, blood sugar level control, blood pressure, and lipid levels.⁷ It is a well-known fact that retinopathy often goes unnoticed until vision loss occurs.⁸

Material and Methods:

This was a cross-sectional based study conducted in the department of ophthalmology from December 2018-March 2020. A total of 500 patients of 1000 eyes were studied with type 2 diabetes mellitus patients attending the ophthalmology OPD at Government medical college Kadapa. They were selected with the approval of the Institutional ethical committee. Detail history, along with blood pressure, was measured and written, and informed consent was obtained from each patient prior to our study.

INCLUSION CRITERIA:

Patients with 20 years age group and above, diagnosis with type 2 diabetes mellitus.

EXCLUSION CRITERIA:

Patients with hazy ocular media and not willing to participate in this study.

METHODS FOR ASSESSING DIABETIC RETINOPATHY:

1. Visual acuity was assessed by the Snellen chart.
2. To diagnose diabetic retinopathy, patients were examined by direct ophthalmoscopy, indirect ophthalmoscopy, and slit-lamp biomicroscopy with 90Dlens after dilating the pupils with 1% tropicamide eye drops.
3. Retinopathy were classified according to the Early treatment of diabetic retinopathy study (ETDRS).

RESULTS:

A total 500 patients were taken into this study in which 41-50 years (yrs) (38%), 51-60years (45.4%), 61-70years (14%), 71-80years (2.6%) majority were 41-60years (83.4%) age group.

Table 1: Age group

S.No	Age	No.of pts	Percentage
1	41-50years	190	38
2	51-60years	227	45.4
3	61-70years	70	14
4	71-80years	13	2.6
	Total	500	100

Among the study of diabetic retinopathy patients, 320 (64%) were males, and 180(36) females with an incidence of diabetic retinopathy in males were 61.1%, in females 38.89.

Table 2:Prevalence and frequency of distribution of patient with D.M. and D.R

S.No	Sex	No.of pts	Percentage	With D.R	Percentage
1	Male	320	64	110	61.11
2	Female	180	36	70	38.89
	Total	500	100	180	100.00

Among the study out of 180 patients with diabetic retinopathy 78.8%(n=142) patients have non proliferative diabetic retinopathy (NPDR), among that 8.8%(n=44) with mild NPDR, 15(n=75) with moderate NPDR, 4.6%(n=23), with severe NPDR, 1.6%(n=8) with early proliferative diabetic retinopathy(PDR), 6%(n=30) with high risk PDR.

Table 3:Grading of diabetic retinopathy

S.No	Grading	No.of pts	Percentage
1	No retinopathy	320	64
2	Mild NPDR	44	8.8
3	Moderate NPDR	75	15
4	Severe NPDR	23	4.6
5	Early PDR	8	1.6
6	High-risk PDR	30	6
	Total	500	100

In our study, diabetic retinopathy associated with clinically significant macular edema was 11.11% (n=20). The majority were not associated with clinically significant macular edema 88.89%(n=160).

Table 4:Diabetic retinopathy associated with Clinically significant macular edema(CSME).

S.NO	Macular edema	No.of pts	Percentage
1	With CSME	20	11.11
2	Without CSME	160	88.89
	Total	180	100

This table representing the development of diabetic retinopathy among diabetic patients based on its duration. In the present study prevalence of diabetic retinopathy was directly proportional to the duration of diabetes, but the severity is not related to the duration of diabetes. the prevalence of diabetes in 0-10years duration is 4.05% (n=17), 11-20years duration 6.85%(n=5), 21-30years duration was 28.57%(n=2).

Table 5:Prevalence of Diabetic retinopathy in relation to the duration of diabetes :

S.No.	Grading of D.R.	0-10yrs	11-20yrs	21-30yrs
		No,%	No	No
1	No retinopathy	294(7)	29(39.7)	1(14.2)
2	Mild NPDR	348.1	10(13.7)	2(28.5)
3	Moderate NPDR	55(13.1)	17(23.2)	2(28.5)
4	Severe NPDR	143.3)	6(8.2)	0
5	Early PDR	6(1.4)	6(8.2)	0
6	High-risk PDR	17(4)	5(6.8)	2(28.5)
	Total	420	73	7

DISCUSSION:

Diabetic retinopathy is one of the most severe microvascular complications in patients with diabetes and is a leading cause of irreversible blindness vision loss in working-age adults (20-74 years). The high prevalence of diabetic retinopathy in type 2 diabetes Mellitus patients imposes a large economic burden. The severity of hyperglycemia, presence of hypertension, duration of diabetes are widely recognized as a major risk factor for the development of diabetic retinopathy.^(13,16) In our study, the most common age group was the 41-60years group (83.4%). Similar results were seen in Tariq Qureshi et al.2013 and Dr. Rajkumar Patra et al.⁽¹¹⁾. According to sex wise 64%(n=324), males were predominantly affected compared to females. This study results were similar to Koushiki M et al.⁽¹²⁾, and Salil S Gadkari et al.⁽¹³⁾ studies which show predominant affects gender is males. Early NPDR was more prevalent as compared to proliferative diabetic retinopathy, just like other studies done in south India. This may further suggest that possibility of differences in the prevalence of diabetic retinopathy may be non-existent among the type 2 diabetes patients of different geographical origins and ethnic groups. We observed the duration of diabetes mellitus to be related to the development of old diabetic retinopathy, and the percentage of patients affected with diabetic retinopathy were increased with the duration of type two diabetes mellitus patients. In our study majority of patients, 420(84%) has a duration of diabetes mellitus between 0-10years, wherein in other studies also a majority of patients were in the same duration range of 0-10 years. This study was comparable to other studies like Tariq Qureshi et al.⁽¹⁰⁾, Surya Chandra M et al.⁽¹⁴⁾. In our study prevalence of diabetic retinopathy 35.6%, and it is similar to other study results observed by Rameshchandran et al.⁽⁹⁾ 33.9%, Koushik Mani et al.⁽¹²⁾ 31.5%, Dr. Rajkumari Patra et al.⁽¹¹⁾ 27.6%.

CONCLUSION:

Screening of all diabetic patients helped in identifying retinopathy at an early stage. 2. As this is a hospital-based study, referrals from other departments helped in creating awareness among patients about the importance of regular ophthalmic screening. 3. Thorough screening of all diabetic patients for the severity of retinopathy in identifying comorbid conditions and properly guiding the patient for further management.

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